CAR
COSTS

CREATIVE
SOFTWARE

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Car Costs is a package of two programs designed to run on the ATARI model 400 and 800 computers with a minimum of 16K of memory (32K for the disk version). Together, the two programs comprise a complete system for tracking your automobile expenses with a computer.

Two versions are available, one for disk and one for tape. This manual describes the operation of both the disk and tape versions.

PHILOSOPHY

For a majority of families, the cost of operating the car is an important consideration, especially in view of the ever-increasing price of fuel. By keeping track of the various costs involved, including fuel costs, payments, and insurance, you can see at a glance how much it is costing you to drive your car.

Of couse, you could do so without the aid of your ATARI. But the ATARI is an excellent tool for handling information: it not only relieves the tedium of manually calculating gas mileage and other figures, it also never makes an arithmetic mistake when it adds or subtracts columns of figures. Further, the ATARI's ability to display the data in easy-to-read tables provides a visual presentation which you couldn't duplicate with pencil and paper.

Car Costs is designed to provide all the basic functions you need to do a thorough analysis of your automotive expenses. Use the first of the two programs to enter, change, delete, and record expense items in five categories. Use the second program to analyze and evaluate the information entered in Part I, and to display tables of gas mileage and cost figures. Further, an estimate of the cost of a trip of known distance can be computed and displayed.

Although the programs are compact enough to run on an ATARI with only 16K (32K for the disk version), they are easy to use and provide thorough error checking. Entry of your data is a simple step-by-step process, and all data is checked for validity. If you make a mistake, the programs will allow you to reenter your data correctly. Of course, certain errors, such as entering false information, cannot be detected by the program and the accuracy of the Car Costs reports will suffer.

The programs will always let you go back and correct any improperly entered data, so don't worry if you make a mistake. But by being careful and doing things right the first time, you'll avoid running into that well-known law of computers: Garbage In, Garbage Out.

HOW TO ENTER DATA

There is a certain standard and simple procedure for entering data while using Car Costs. You can always tell when you are expected to type something by the fact that the cursor, a solid rectangular block, appears on the display. At all other times, there is no cursor.

In addition to the cursor, a "prompt," or brief message, will be displayed, so you will always be reminded just what sort of information the program expects from you at any particular time, such as a number or a name. Furthermore, a segment of underlining will be displayed where the cursor is, so you can see approximately how many letters or digits you may type in. Typing in your data is just like filling in the blanks on a form.

The characters you type will appear on the screen where the cursor is, and the cursor will move one space to the right. But when the cursor reaches the end of the underlined section, it will stop and you can't type any more. If you make a mistake, you can backspace the cursor with the BACKSPACE key and type over your mistake. No special cursor movement keys will work with Car Costs except the BACKSPACE key.

When you have typed in the desired information, press the RETURN key to tell the computer you are finished. All data entry is terminated by pressing RETURN.

Often, when entering numbers, you will be restricted to numbers within a certain range, such as a single-digit number between 1 and 8, for example. If you enter a number outside that range, you will see the message ILLEGAL ENTRY at the bottom of the display and you will be required to try again. In all cases when you are entering numbers, if you press RETURN without typing any number at all, it is the same as if you had entered a zero.

All dollar amounts must be in the range of zero to 9999999.99, inclusive. Do not type a dollar sign when entering dollar amounts. You do not need to type the decimal point and zeroes if the amount is in even dollars.

PROGRAM DESIGN

Car Costs has been broken down into two separate parts; each part handles a specific function and interacts with the other.

Part I is called Recording and Updating Auto Expenses. As the name implies, it allows you to type in specific information on each auto expense you incur. It permanently records this data on tape or disk, and allows you to view, change, and delete any data you entered.

Part II is called Analyzing and Displaying Auto Expenses. It takes the data you entered in Part I, analyzes it, sums it, charts it, and prints reports on it. You can use it to compute and display the totals of the costs incurred to date in

each expense category, along with the total miles driven and the average cost per mile. Part II will also display a table of the twelve most recent fuel fillups, with the miles per gallon and per litre obtained between each fillup. Finally, Part II can give you an estimate of the amount of fuel required for a given trip, and tell you how much the trip will cost; all you have to know is the distance.

GETTING STARTED

There are three basic things you'll need to do in order to get started with Car Costs:

1. Read this manual thoroughly and have it next to you as you run the programs.

2. Keep a record of the date, odometer reading, cost, and amount of each fuel fillup. Be sure to note whether the fuel quantity is in gallons or litres. Also keep a record of every other expense you incur with regard to your car. The easiest way to do this is keep a small notebook or calendar in your car in which to record this information.
NOTE: You must actually fill the tank each time you refuel. If you do not actually fill the tank, the computations of your fuel economy and fuel usage will be wrong.

3. Have a blank cassette tape available on which to record the data you will be entering. Generally, the very short C-10 tapes will not be long enough to store more than about the first year's worth of data, so use a regular C-60 tape. The disk version, however, stores the data on the same disk that contains the programs, so doesn't use tape.

LOADING INSTRUCTIONS FOR PART I, CASSETTE VERSION

To load Part I, place the tape called "Car Costs, Part I" in the cassette unit. Rewind the tape, type CLOAD and press the RETURN key. The ATARI will beep once. Now press the PLAY button on the cassette unit and then press the RETURN key again. The tape will move and the program will load.

If you get an error while loading, the ATARI will stop and display an error message. You should rewind the tape and repeat the above procedure. If Part I keeps failing to load properly, you may have your cassette unit too close to your TV set, in which case you should move it away from the TV and try again. If this still doesn't work, you may have an out-of-alignment cassette unit. Take the cassette unit and tape to your ATARI dealer and have him check the unit.

In the unlikely event that the tape is bad, return it to your local dealer and he will replace it free of charge.

LOADING INSTRUCTIONS FOR PART I, DISK VERSION

To load Part I from disk, insert the diskette into drive number 1, close the door, type LOAD "D:CC1" and press the RETURN key. The disk will spin and the program will load. (Of course, you must already have booted the DOS in order to use the disk.)

If you get an error while loading, remove the diskette from the drive, turn the computer off, start the power-up sequence again, then repeat the above procedure. If Part I keeps failing to load properly, you may have your disk unit too close to your TV set, in which case you should move it away from the TV and try again. If this still doesn't work, your disk unit may require some adjustment. Take it and the diskette to your ATARI dealer and have him check the unit.

In the unlikely event that the diskette is bad, return it to your local dealer and he will replace it free of charge.

OVERVIEW OF PART I

Part I allows you to enter data on any of your auto expenses, categorizing them into one of five expense categories. The category is specified by the first two letters of the category name. The categories and their abbreviations (codes) are as follows:

Category	Code
Fuel	FU
Insurance	IN
Payments	PA
Maintenance	MA
Repairs	RE

Each item you enter is called a RECORD; for each record you enter you must provide five pieces of information, called FIELDS. The fields in each record are:

Field	Allowable Range of Value
1. Category code	2 characters
2. Date	5 to 8 characters
3. Odometer reading	0 to 999999
4. Cost	0 to 9999999.99
5. Amount (if category if Fuel)	0 to 9999999.99
5. Months (if category is Insurance)	1 to 999
5. Remarks (if other category)	up to 15 characters

The number of records you can enter at any one time depends on the amount of memory you have (minimum 16K), but is never less than 100 records. Part I keeps track of the available memory and will force you to write the items to tape or disk when the memory is full. This prevents you from overflowing and losing the records you've entered.

Part I will allow you to add new items to your car data file, and to change, delete, view, and record those items on a cassette tape or on disk. You can enter and edit records until you're completely satisfied, and then record this information for use by Part II.

SUGGESTED PROCEDURE

The most convenient way to use Part I is to enter the data on a particular expense on the same day you incur it. Since this is not always possible, it is helpful to be prepared with all the information you'll need before running the program. It is particularly important that you keep a notebook in your car and record the date, odometer reading, cost, and amount of each fuel fillup. Other expenses and payments may be noted in the same notebook, or perhaps on your calendar. Every expense must be recorded in order to assure getting accurate analysis of your car costs.

It is recommended that you record regular, scheduled maintenance under the category of Maintenance, while unscheduled repairs should be categorized under Repairs.

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DETAILED INSTRUCTIONS FOR PART I

Load Part I as described previously and run it. Under the title and copyright notice will be displayed the maximum number of records that will fit in the amount of memory you have. There is no need to memorize or write down this number, though you may wish to keep it in mind.

READING IN THE CARDATA FILE

The first thing the program will do is to read in any data which may have been entered and stored from previous sessions, if any. If you are using disk, you need do nothing at this time, as the process is automatic. If you are using tape, you will see the message "READ CARDATA TAPE (C=Skip it)" appear on the display. If this is the very first time you have used this program, you won't have any data tape, so you can skip this step by typing the letter "C" (for "Continue") and pressing RETURN. In all other cases, however, simply press RETURN without typing C. The computer will beep once, which means you should insert the car data tape into the cassette unit, rewind it fully, and depress the PLAY button. When you have done this, press the RETURN key again and the data will be read into the computer's memory.

If there is too much data in the file to fit into the computer's memory, the message "CARDATA file too big for memory size" will be displayed and the program will stop. The could happen if you recorded many data items using expanded memory and then later tried to read back that file with a computer having less memory.

THE MENU

After reading in the data as described above, the program will present you with a list, called a "menu", of the things you may do. The menu looks like this:

Options are:

1. Review items
2. Add items
3. Change items
4. Delete items
5. Print items
6. Save data on tape (or disk)
7. End

Enter option:

You select the operation you wish to perform by typing its number (1 thru7) and then pressing the RETURN key. Each of these operations is described in detail below.

OPTION 1: REVIEWING ITEMS

At any time you can view all the records in memory by choosing option 1. If there are no items in memory, you will see the message "NO ITEMS" and nothing will happen. Otherwise, you will be asked which record you wish to start with. If you wish to look at all the items in memory, enter a 1. If you wish to look at only the records from say, the 20th item on up, enter a 20. If you don't wish to view any records at all, enter a zero.

The records will be displayed on the screen four at a time. To view the next group of four records, press "C" (for "Continue"). After all the records have been displayed, you will be returned to the menu.

You may stop at any time, however, by pressing "E" (for "End") and you will be returned to the menu immediately.

OPTION 2: ADDING ITEMS

This is the option you should select the first time you use this program. It puts items into the computer's memory, adding to those already in memory (if any).

To add an item, you'll have to enter the five pieces of information ("fields") listed previously, for each item. The program automatically keeps track of how many items you've added to the list so far, and will take you step-by-step through each field to be entered.

1. To enter the category code, type in the two-letter abbreviation for the category and press RETURN. The program checks for a valid entry, so it is impossible to enter a nonexistent code. If you do not enter a category code, but simply press RETURN, the ADD operation will terminate and you will go back to the menu.

2. The date should be entered in MM/DD/YY format. That is, November 5, 1982, for example, would be entered as 11/5/82. It is not necessary to use this format, but in any event, you must enter at least 5 characters. If you prefer, you may enter the date as 11-5-82.

3. Entering the odometer reading is straightforward; simply enter the digits, up to a maximum of 999999.

4. To enter the cost, do not type a dollar sign, but simply enter the numerical amount, which may be from 0 through 9999999.99.

5. If the category is Fuel, enter the amount of fuel in this field. The amount may be in either gallons or litres. If litres, enter the number of litres followed by the letter L. If gallons, enter the number of gallons followed by the letter G.

If the category is Insurance, enter the number of months of coverage which this insurance payment provides. Do not enter the word MONTH.

If the category is any of the other three, enter a descriptive remark in this

field. The remark may be up to 15 characters long, or you need not enter a remark at all.

After all fields have been entered, you'll get a chance to make corrections to the entry.

EXAMPLE: Say you bought 17.3 gallons of fuel for $26.95 on the eighth of May, 1982, and that the odometer reads 20174 at the time. Also let's say this will be the 74th auto expense that you will have entered so far into the computer. Here's how you would enter it, using the ADD function of Car Costs Part I.

(The ATARI displays this)   (You type in this)

Item #74

1.	Category Code:	FU
2.	Date	5/8/82
3.	Odometer:	20174
4.	Cost:	26.95
5.	Amount of Fuel:	17.3G

Enter field to change (0=Done)   0

What each of the above entries means is as follows:

1. You enter the code FU, which is the code to indicate the expense is for fuel.

2. Since you bought the fuel on the eighth of May, 1982, you enter the date as 5/8/82. You might also use 5-8-82 if you prefer, or any other sequence of more than 5 and up to 8 characters.

3. The odometer reading was 20174 at the time, so you enter that number.

4. The amount you spent was $26.95, so that's what you enter for the cost. Do not type a dollar sign.

5. Since you bought 17.3 gallons of fuel, you enter the number 17.3 followed immediately by the letter G. The program needs this letter in order to make the correct conversions between gallons and litres.

Finally, the ATARI will ask which field (if any) you want to change. If you make a mistake, enter the number of the field (from 1 through 5) where the mistake occurs and you may reenter that field. When you are finished, enter a zero and the record will be entered into the computer's memory.

To exit from the ADD option, just press RETURN when asked for the category code. The program will then display the menu.

WHAT HAPPENS WHEN MEMORY GETS FULL

As you continue to add expense items to the car data file over the years, making the file larger and larger, eventually the capacity of the computer's

memory will be reached and no more items can be added. When this happens, it is necessary to condense the accumulated information into a few essential summaries to make room to add more items. This is called the RESTART PROCEDURE.

Since the Restart Procedure summarizes only the essential data required to maintain the history of your car's expenses, the detailed information will be discarded. Therefore, the program gives you the opportunity at this point to get a printed record of all the items entered to date, which you should keep for your records. After the printout is finished, the details of the information contained on it will be erased from the computer's memory.

Here is exactly what happens. When the computer's memory gets full, the program will display the following message:

<div align="center">MEMORY FULL!</div>

<div align="center">Print the items now? (Y=Yes, N=No)</div>

If you want the items printed before they are erased from memory, type Y and press RETURN. Be sure the printer is connected, turned on, and has paper in it.

Next, the computer will initiate the Restart Procedure. What this means is that it will examine all the records in its memory, extracting essential information from them, and create a summary of all the total costs to date, as well as the total amount of fuel consumed to date and the total distance the car had been driven to date. This may take quite a few minutes, so please be patient and do not disturb the compter while it is working.

When the summaries have been computed, they will be recorded on disk or tape. Please refer to the section entitled "OPTION 6: SAVING DATA ON DISK OR TAPE" later in this booklet for instructions on how to save the data. If you are using disk, the file called CARDATA, which contained all the items so far, will be written over. If you wish, you may at this point, remove the diskette containing the current version of the CARDATA file and insert a new, formatted diskette into drive 1; the newly compacted CARDATA file will then be written onto the new disk and you can backup the old CARDATA file for your archive. If you are using tape, you may choose to use the same tape as before, thus writing over the old data, or use a new tape and keep the old one for your archive.

After saving the summarized data, all the records in memory will be erased and the menu will again be displayed. Now, if you add items, you will be starting over from item number 1, beginning the next chapter in your long saga of Car Costs.

OPTION 3: CHANGING ITEMS

You can change any item by choosing option 3. When you do so, the program will ask you for a starting record number as described in the section

on reviewing items. Each record, starting with the number you specified, will be displayed one at a time.

If this is NOT the item you wish to change, enter "N" for ("Next") to look at the next record. The program will display the next item.

If this IS the item you wish to change, enter "C" (for "Change"). The program will then ask you which field you wish to change. Note that when you change an item, you may change each field independently. This works as described in the section on adding items. When you are finished making changes to that record, enter a zero for the field number and the program will continue in the CHANGE option.

If you are finished changing items, enter "E" (for "End"); the CHANGE option will end immediately and you will be returned to the menu.

OPTION 4: DELETING ITEMS

To delete a record from memory, use this option. Each record will be displayed, one by one, starting with the record number you specify.

If it is NOT the record you wish to delete, enter "N" (for "Next") and the next record will be displayed.

If it IS the item you wish to delete, enter "D" (for "Delete") and the item will be deleted. Be very careful not to enter "D" unless you really mean it, for once the item has been deleted, it is gone for good!

If you are finished deleting items, enter "E" (for "End"); the DELETE option will end immediately and you will be returned to the menu.

OPTION 5: PRINTING THE ITEMS

If you have a printer, you can get a printout of all the items by using option 5. Before selecting this option, be sure your printer is turned on, has paper in it, and the paper is properly positioned to begin printing.

The Car Costs programs are designed to be used with any 80-column printer, provided the proper interface is used to connect the printer to the ATARI. Since the printouts will be 80 columns wide, a printer that prints fewer than 80 characters on each line will not work.

When you select this option, the program will check to make sure a printer is actually connected. If not, the error message "PRINTER NOT READY" will be displayed and the print option will abort, returning you to the menu.

If a printer is connected and on line, all the items currently in memory will be printed. Each page of the printout will have a title and page number, and pagination will occur, allowing you to use fanfold paper. After the last item has been printed, the final page will be ejected from the printer, leaving the paper in correct position for subsequent printouts.

You may abort the printing at any time by pressing any key. Printing will cease after the next printed line, and the paper will be ejected, leaving the paper in correct position for subsequent printouts.

OPTION 6: SAVING DATA ON DISK OR TAPE

After you have finished adding, changing, or deleting items, you should record the data on tape or disk with this option. You cannot use Part II if you have not yet recorded some data using Part I.

If you are using disk, a file will be created on disk having the name "CARDATA". If a file of that name already exists, it will be written over.

If you are using tape, the ATARI will beep twice. Place the tape onto which you want to record the data into the cassette recorder, rewind the tape to the beginning, press both the RECORD and PLAY buttons on the cassette unit, then press the RETURN key. The program will automatically record all the data onto the tape. Then the tape will stop and the program will display the menu again. Rewind the tape, label it appropriately, and store it in a safe place.

OPTION 7: ENDING THE PROGRAM

When you are finished using Car Costs Part I, select option 7 to end. The display will clear, the program will end, and your ATARI will be "ready" for Car Costs Part II or other uses.

If you have made any changes to your data while you have been using Part I, be sure to save the data using option 6 before you end the program!

If you have not used your computer for anything else after ending the program, you may continue the program from where you left off by typing CONT and pressing RETURN.

LOADING INSTRUCTIONS FOR PART II, CASSETTE VERSION

To load Part II, place the tape called "Car Costs, Part II" in the cassette unit. Rewind the tape, type CLOAD and press the RETURN key. The ATARI will beep once. Now press the PLAY button on the cassette unit and then press the RETURN key again. The tape will move and the program will load.

If you get an error while loading, the ATARI will stop and display an error message. You should rewind the tape and repeat the above procedure. If Part II keeps failing to load properly, you may have your cassette unit too close to your TV set, in which case, you should move it away from the TV and try again. If this still doesn't work, you may have an out-of-alignment cassette unit. Take the cassette unit and tape to your ATARI dealer and have him check the unit.

In the unlikely event that the tape is bad, return it to your local dealer and he will replace it free of charge.

LOADING INSTRUCTIONS FOR PART II, DISK VERSION

To load Part II from disk, insert the diskette into drive number 1, close the door, type LOAD "D:CC2" and press the RETURN key. The disk will spin and the program will load. (Of course, you must already have booted the DOS in order to use the disk.)

If you get an error while loading, remove the diskette from the drive, turn the computer off, start the power-up sequence again, then repeat the above procedure. If Part II keeps failing to load properly, you may have your disk unit too close to your TV set, in which case, you should move it away from the TV and try again. If this still doesn't work, your disk unit may require some adjustment. Take it and the diskette to your ATARI dealer and have him check the unit.

In the unlikely event that the diskette is bad, return it to your local dealer and he will replace it free of charge.

OVERVIEW OF PART II

Part II uses the data file you've created in Part I and presents the data in a logical, visual fashion. It relieves the drudgery of sitting down with a pencil and calculator and adding columns of figures for all your auto expenses. A tabular presentation of your car costs allows you to see at a glance the costs of driving your car.

Part II can also be used to compute and present a table of fuel consumption data, showing the dates, costs, and amounts of the twelve most recent fillups, along with the miles per gallon and miles per litre attained between each of those fillups.

Further, Part II can be used to compute the cost of a trip if you know the distance of the trip.

Of course, the accuracy of the results obtained in Part II depend upon the accuracy and completeness of the data you entered in Part I.

DETAILED INSTRUCTIONS FOR PART II

In order to work, Part II requires data to have been prepared in Part I. If you have not yet entered any data using Part I, you won't be able to use Part II.

READING IN THE DATA

The first thing the program must do is read in the data you prepared in Part I. If you are using disk, this is automatic and you need do nothing. If you are using tape, the computer will beep once, at which time you should insert the car data tape into the cassette unit, rewind it fully, depress the PLAY button, and then press the RETURN key.

As the data is being read into the computer's memory, it is being analyzed by the program and many computations are being made. Therefore, it may take quite a few minutes for all the data to be read in. Please be patient and do not disturb the comptuer while it is working.

THE MENU

After all the data has been read in, the program will display the menu of options, which looks like this:

> Options are:
> **1.** Display fuel consumption data
> **2.** Display total costs to date
> **3.** Compute the cost of a trip
> **4.** End

To select the operation you wish to perform, enter its number (from 1 through 4). Each of these options is described below.

OPTION 1: DISPLAYING FUEL CONSUMPTION DATA

This option is used to display a table of the twelve most recent fuel fillups. This table shows the dates, costs, and amounts of each fillup. In addition, the miles per gallon and miles per litre attained between each fillup is also shown.

NOTE: The MPG and MPL figures shown for each refueling are based on the assumption that you actually filled the tank with the amount of fuel shown. If you put fuel in the car but did not fill the tank, these figures will be wrong.

Below this table are shown the total amounts of fuel used to date and total cost of fuel to date. (These are totals to date, not just totals of the twelve most recent fillups.) Also shown is the average cost per gallon and per litre based on what you have been paying for fuel over the lifetime of your car.

You now have the option of having the displayed information printed out. If you elect to get a printout, be sure your printer is connected, turned on, and has paper in it. See the section in the instructions to Car Costs Part I on obtaining printouts.

OPTION 2: DISPLAYING TOTAL COSTS TO DATE

This option displays a table of your total costs to date in each of the five expense categories, as well as total overall amount spent on your car to date. In addition, the total distance you have driven your car will be displayed, as will your average cost per mile and average fuel consumption. If your cost per mile seems unusually high, it is probably because your car is rather new and the distance you have driven it so far is small in proportion to the amount of money you have spent on it to date.

You may choose to have this information printed out if you wish. If so, be sure your printer is connected, turned on, and has paper in it.

OPTION 3: COMPUTING THE COST OF A TRIP

Based on the total figures displayed in the Total Costs table described above, the program can calculate how much a trip will cost and how much fuel it will require. The computer will ask you to enter the distance of the trip. The fuel required, in gallons and litres, the cost of the fuel, and the overall cost will be displayed.

To quit this option and return to the menu, enter zero for the trip distance.

OPTION 4: ENDING THE PROGRAM

When you are finished using Car Costs Part II, select option 4 to end the program. Your ATARI will then be ready for other uses. If you have not used the computer for anything else after ending this program, you can continue where you left off by typing CONT and pressing RETURN.

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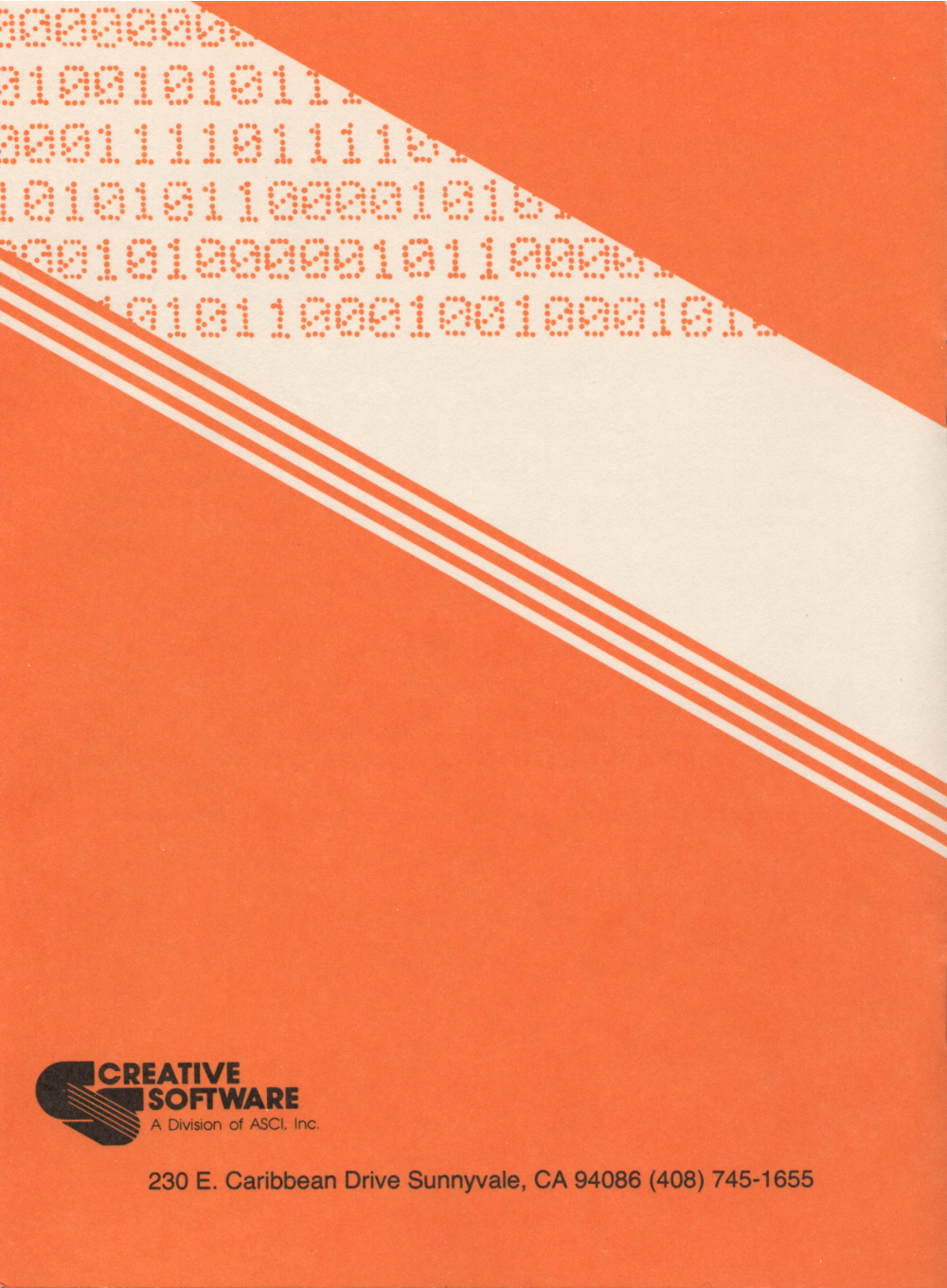
230 E. Caribbean Drive Sunnyvale, CA 94086 (408) 745-1655