Precision Software

Superbase 64

The complete information control system for the Commodore 64.

User's Manual

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INTRODUCTION

This 4th Edition of the Superbase manual is in three main parts. The
TUTORIAL SECTION aims to train you step by step in how to use the major
options of Superbase. The manual includes an audio cassette to speed up
your learning. The first two tutorials are an edited transcript of the
tape, for reference.

The REFERENCE SECTION is for use as an 'Encyclopedia' covering all of the
options available from the Menus.

The PROGRAMMING SECTION is for more advanced users who want to set up
Programs to carry out long sequences of Superbase operations automatically.

As well as being an easy to use Database System controlled by Menus from
which you select the options you want, Superbase is also a powerful
Applications Generator and Database Programming Language. This allows you
io automate the operations you will most frequently require and even to set
qp your own User Defined Menus to tailor the system totally to your own
needs.

These features go beyond the comprehensive self-contained menu system, which
is perfectly adequate for day to day operations.

We strongly recommended that to begin with you listen to the learning
oassette. If you don't have access to a cassette recorder, work through the
TUTORIAL SECTION straight from the manual. The tutorial assumes no previous
knowledge of either computers or database systems. Use the REFERENCE SECTION
as and when you need it for further detail.

Once you feel that you have mastered Superbase's various commands and'
options you may then decide to read through the section on programming
Superbase to extend your power over the system.

A number of APPENDICES are also provided with information on how to set
Superbase for printers, RS 232 interface, the meaning of the various ERROR
MESSAGES, a TECHNICAL APPENDIX containing Superbase parameters and a
SELECTED GLOSSARY of terms.

A range of Applications is available to run on Superbase. The first four
Homebase applications are useful applications for the home, but also show
how to set up a programmed application. Homebase users will benefit from
these examples of practical programming.

A Registration Certificate follows this introduction. It must be completed
and returned to Precision Software Limited to qualify you for future
modifications and updates to Superbase.

PRECISION SOFTWARE AND SUPERBASE

Superbase is just one of Precision Software's range of systems for Commodore computers. Superbase was conceived by Simon Tranmer, the designer who created the outstanding Superscript word processor and Superspell spelling checker for the Commodore 4000 and 8000 series (Easy Script and Easy Spell on the Commodore 64). Simon also enhanced Superscript II for the Commodore 700/B series and was joined by co-designer Tom Cranstoun for tne Superbase project.

Superbase is available on the Commodore 64, the Commodore 8096 and 8296, and the Commodore 700/B series computers. Superoffice, a system that integrates full word processing with advanced database management, is available on the Commodore 8096, 8296 and 700/B series computers.

THE SUPERBASE 64 PRODUCT

The Superbase 64 product consists of a manual, 1 program disks (with prorgram back-up on reverse) held in a pocket inside the front cover and, in English language versions, an audio learning cassette. If you require a separate back-up or a replacement disk apply to Precision Software returning your damaged disk where appropriate. There is a charge of £10.00 or the currency equivalent (plus overseas mail) per diskette.

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INSTRUCTIONS FOR RUNNING THE AUDIO TUTORIAL

YOU'LL NEED

* A COMMODORE 64 computer, comprising keyboard, disk drive unit and a monitor (either color or black and white). It will also be useful if you have a printer, but this is not essential, you can follow the audio tutorial with or without a printer.

* A SUPERBASE 64 system disk.

* A blank, unformatted disk which we will show you how to format as a data disk.

* The SUPERBASE 64 written Tutorial which contains information you'll need to complete the exercises in the Audio Tutorial.

* Paper and pen, in case you want to make notes.

* An ordinary cassette recorder, preferably with headphones to cut out distracting noise. Make sure you know how to PAUSE, STOP and REWIND the tape.

HOW TO RUN THE AUDIO TUTORIAL

* The procedure is quite straightforward. You start with your computer turned OFF and without a disk in the disk drive. You sit at the computer, listen to the tape and follow the instructions you're given.

* Set aside enough time for the audio training session so that you don't have to rush. Remember, you're in control of the training session, so take as much time as YOU need, you won't get a medal for finishing in record time.

* Listen to the tapes carefully and follow the instructions you're given. If you miss anything or get confused, just wind the tape back and replay the bits you want to hear again, OR, look at the printed versions of Tutorial 1 and 2, which contain an edited transcript of the tape.

* When you want a break, stop the tape until you're ready to go on.

* Don't worry about making mistakes - most people do at first.

* You'll see that the SUPERBASE 64 written Tutorials are split into three levels. Levels 1 and 2 are transcript of the tape. Don't start level 3 of the Tutorials until you've completed the first two levels.

SHIFT for f2 f4 f6 f8

SUPERBASE 64 AUDIO TUTORIAL - SETTING UP INSTRUCTIONS

LOADING SUPERBASE 64 AND CREATING A DATA DISK

Follow these instructions for loading the Superbase program and creating a data disk. Then switch the tape back on and continue with the audio tutorial.

You'll need your Superbase 64 PROGRAM disk and an unused BLANK disk.

If you have any problems during these instructions, take the disk out of the disk drive and switch your computer system off. Then switch tne system back on and start the instructions from the beginning.

1.   First insert your Superbase disk in the disk drive and close tne door. If you're not sure how to do this, refer to your Commodore User's Manual.

2.   Load Superbase from the program disk into the computer's memory by keying in:

                LOAD"SB",8,1

3.   Press RETURN.

4.   You'll get a brief message telling you that the computer is searching, tnen you'll see the PRECISION SOFTWARE logo displayed. The screen will flash as Superbase is being loaded into your computer. The loading process will take about two minutes and you'll hear some noises from the disk drive, but don't worry.

5.   When it's finished, you'll get a message:

                    Remove Program Disk
                    Insert Data Disk and Press Return
                    or
                    Press F1 to Create Data Disk

6.   The program disk is the Superbase 64 disk. Press the catch on tne disk drive door inwards, then take the disk out of the drive and put in back in its envelope.

7.   Normally you'd already have a data disk ready to put into the disk drive on which to store your information. But I'm assuming you haven't yet prepared one, so the next steps show you how to create a data disk ready to receive the information you're going to be entering.

        Press F1 (as the message says) and you'll get another message asking you to insert a blank disk. So put your blank disk in the drive and close the door.

9.   Press the RETURN key. You get another message asking for confirmation that you DO want to format this disk and delete any information held on it. The full message reads:

All Data on Drive 0 Will be destroyed, Are you sure?

10.   Superbase is telling you to stop and ask yourself if there's any information on this disk which you may want to keep. There isn't, so press the letter "Y" for Yes.

A prompt now appears:

Enter Disk name, id

Superbase is asking you to give the disk a name and a identification code so that the computer can tell which disk it's working on at any time. This name can be up to 16 characters long, and the identification code can be any two characters.

11.   We'll call this disk:

work disk, al

Key that in and press RETURN.

12.   The new prompt reads:

Insert Source Disk

Your computer needs various pieces of information loaded into its memory before you can start using Superbase. These pieces of information are stored on the Superbase program disk, so the Superbase program disk is the SOURCE disk you must now insert into your drive. Remove the data disk from the drive and replace it with the Superbase disk.

13.   Press RETURN. A message asking you to 'Please Wait' now appears in the top left hand corner of the screen, and a series of dots appears across the screen. Superbase is in the process of loading the necessary information from the disk into the computer's memory. So wait until you get the next message.

14.   The next message reads:

Insert Destination Disk

The destination disk the message is referring to is your data disk. What Superbase has done is to copy the information from the SOURCE disk (the Superbase disk) into the computer's memory. Now it wants to copy that information from the computer's memory onto the destination disk (your data disk).

15.   Take the Superbase disk out now and insert your data disk.

16.   Press RETURN, and as before, you'll get a series of dots appearing across the screen while the computer copies the information onto the disk. Again, wait until you get the next prompt.

17.   Depending on which version of Superbase you're using, you may need to repeat this copying procedure. If this is so in your case, you'll get the message asking you to insert your SOURCE disk again. So you'll have to go through the procedure again (starting at instruction 15). When you've got the Commodore 64 sign on message on your screen, you're ready to move on to the next instruction.

18.   That completes the data disk formatting procedure and your data disk is now ready to accept any data you want to store on it with Superbase.

You only have to go through this disk formatting procedure when you're using a new blank disk. In other words, you have to format a new blank disk before you can use it as a data disk with Superbase. (Take a look at the Reference Guide index for "Backup" and "Newdisk".)

LOADING SUPERBASE USING A PREPARED DATA DISK

19.   Now you need to load Superbase into your computer once again. So remove your newly formatted data disk from the drive.

20.   Insert the Superbase program disk into the drive.

21.   Key in:

                LOAD"SB",8,10

22.   Press RETURN.

23.   You'll get a brief message telling you that the computer is searching, then you'll see the PRECISION SOFTWARE logo displayed. The screen will flash as Superbase is being loaded into your computer. The loading process will take about two minutes.

24.   When it's finished, you'll get a message"

                Remove Program Disk
                Insert Data Disk and Press Return
                or
                Press F1 to create Data Disk"

25.   This time remove the program disk from the drive and insert your newly formatted data disk again.

26.   Press RETURN.

27.   Now switch the audio training tape back on where you left off and continue with the audio tutorial.

TUTORIAL ONE

1.1 INTRODUCTION

Welcome to Superbase 64. In the next hour or so, we'll be going through
the basics of Superbase. You'll see how to use Superbase to store
information, retrieve information, update it, print it and much more
besides.

The best way to learn anything is to try it out for yourself, preferably
with an expert to help you. That's the idea behind this audio training
tape. I'll be talking you through Superbase while you drive the
computer. Don't worry, you won't break anything and you won't cause a
disaster if you press the wrong button.

I'll be telling you exactly WHAT to do and WHEN to do it, so just follow
my instructions as I give them to you. You'll find I'll be prompting you
to do various things, for example, press a key, or turn to another page
in tne manual. So, try things out for yourself as we go along.

From time to time you'll hear a 'stop tone' which simply tells you to
stop the tape while you try something out on your own.

But always remember you're in control, so work at your own pace and take
as long as you need. And don't be afraid to stop the tape if you need
more time to type things in.

In the tape, we're going to concentrate on the things you'll need to use
Superbase 64 on a day to day basis. At the end of the tape, you'll be
able to explore all of Superbase's facilities for yourself.

1.1.1 GETTING YOUR COMPUTER SYSTEM UP AND RUNNING

The first thing to do is to check your computer's ready. Make
sure all the components of your system are connected up properly
and that they are switched on. If you're not sure how to do that,
check with your Commodore 64 User Manual.

If you have a printer, this should also be linked up and switched
on. Again, consult your User Manual.

1.1.2 SOME OF THE KEYS YOU'LL BE USING

Before we start Superbase 64, let's have a quick look at your
keyboard. I'm assuming you're reasonably familiar with the layout
of the keys.

During this session, you'll be using all the ordinary keys

SHIFT for f2 f4 f6 f8

together with:

the CURSOR MOVEMENT keys (marked CRSR)
The RETURN key
The SHIFT keys
And the INST/DEL key

If you can't locate any of these, or if you're not sure what they do, check with your Commodore 64 User Manual.

THE SHIFT LOCK KEY

Find the key marked 'SHIFT LOCK' (it's on the left hand end of the keyboard). It's best to leave this key alone when you're using Superbase, as it can affect the way Superbase works if you leave it locked on by mistake. In general, try to use the ordinary SHIFT keys rather than SHIFT LOCK when you want to type a capital letter.

THE FUNCTION KEYS

Take a look at the pad of four keys at the right hand end of your keyboard. These are the 'Function Keys', that's why they're marked with an 'f'.

Each one is assigned a job or in Superbase terms an 'OPTION', so that you can tell your computer to do a specific task by simply pressing the relevant function key, instead of having to press several keys to reach the same end. You'll be using these function keys a lot with Superbase.

Although there are only four separate function keys, each one doubles up giving a total of EIGHT. As you can see, each one has two 'f' numbers on it, f1 to f8. And you use the Shift key to get the other function on each key. For instance, if you were to press f1 on its own you'd operate function one, but if you 'shifted' the same key, you'd get f2. Again you'll see how to use these in a minute.

1.1.3 LOADING SUPERBASE 64 AND CREATING A DATA DISK

Before we go any further, we need to set up a disk for storing information or 'data'. Superbase is on one disk (the 'program disk'), but we want to store information on a separate disk (a data disk).

So I want you to find the instructions on page 2 of the tutorial and follow the instructions for loading Superbase and creating a data disk. Remember, if you make any typing errors, use the INST/DEL key to correct your errors.

1.1.4 WHAT IS A DATABASE?

We're ready to start using Superbase 64. First let me explain some of the terms we'll be using. To begin with, what is a 'Database'?

Well if you like, it's an electronic filing cabinet! And just as in an ordinary filing cabinet, the information is stored in batches called 'files', and you can think of Superbase as being an office containing a number of electronic filing cabinets.

So you have a number of FILES in a number of DATABASES within Superbase. And you can have as many DATABASES as you want.

Superbase will allow you to hold up to fifteen files in each database you create. And each of the files is made up of separate bits of information known as RECORDS. For example, you may have a file containing names of companies. In that case each company name would be one RECORD. (But don't worry about remembering all these terms right now, they'll make more sense when we come to use them.)

1.2 CREATING A DATABASE AND A FILE

Let's have a go at using Superbase to create a file for holding the names and addresses of your friends and business contacts.

You should see a message at the top of the screen which reads:

mode : processing

1.2.1 GIVING THE DATABASE A NAME

You get a message asking you to ENTER A DATABASE NAME. Superbase is already set up with a database called 'TRAINING', so key in the word 'TRAINING' now. Remember, if you make a typing error, use the INST/DEL key to put it right. And then press RETURN.

You're now in your first database. The next thing you must do (as the prompt says), is to enter a name for the file you're about to create.

1.2.2 GIVING THE FILE A NAME

This one's for names and addresses, so we'll call it:

addresses

SHIFT for f2 f4 f6 f8

Key that in and press RETURN.

The next prompt is telling you this file does NOT already exist and it's asking if you want to use this name, 'Addresses' to create a new file. Well you do, so press the letter 'Y' to answer 'Yes'.

After a few moments, you get a message which reads:

mode : Format

The rest of the screen goes blank.

1.2.3 THE FORMAT MODE

Remember, we want to create a file to hold names and addresses, and we want them in an organized format. That's exactly what you do in the FORMAT MODE. You start with a blank screen and draw an empty form with spaces for the information you want to store. If you like, it's a template for the records you'll be storing later.

Let's start designing the layout of our first file.

1.2.4 DESIGNING THE LAYOUT OF THE FILE

This file's going to hold names and addresses of friends and business contacts. For friends we'll keep a record of their birthdays and for business contacts, a record of their profession.

We're going to split each part of the name and address into separate entries of 'FIELDS', as they're known. We'll have a separate field for 'Lastname', a separate field for FIRSTNAME and so on. You'll see what I mean if we have a go setting up some fields.

SETTING UP THE FIRST FIELD

SETTING FIELD NAMES

Look at the screen and you'll see the cursor; that's the small flashing square which marks where you are on the screen. Use the cursor control keys to move the cursor down one line and then to the right one space,

And now key in the first field name, which is:

LASTNAME

To finish setting up this field, you have to tell Superbase how much space you're going to allocate for 'Last names', in other words, you have to set the 'field length'.

To set the field lengths you use function key number 1, that's f1. So first move the cursor one space to the right (that's where we want the field to begin), and the press the function key marked f1. The word 'mode' at the top of the screen now flashes to tell you that Superbase is ready to set the field.

SETTING FIELD TYPES

We can set up various types of fields; text fields, date fields, numeric fields and so on, all of which I'll explain as we go along.

Right now we're going to make this 'Lastname' field the 'Key' field. To do this, press the letter K once.

And you get a prompt asking you to 'Set Key'. Superbase is asking you to set the field length. You'll also see a small rectangular marker which tells you where the 'Lastname' field will start.

SETTING FIELD LENGTHS

On the right hand side of the message area you'll see the number 1. This indicates the length of the field at tne present moment. As you increase the length of the field so this number increases.

Not many people have lastnames more than 15 letters long, so move the cursor across to the right until the indicator reads 15. If you go too far across, simply move the cursor back until it's in the right place.

If your field length indicator now reads 15, press RETURN.

You'll now see a square marker appear. This marks the end of tne 'Lastnames' field.

1.2.5 A SUMMARY OF THE FIELD SETTING PROCEDURE

You'll be repeating this procedure for setting up fields time and time again, so let me summarize it for you:

STEP 1. Key in the name of the field.
STEP 2. Move the cursor to where you want it to start.
STEP 3. Mark the start of the field by pressing. F-1
STEP 4. Set the type of field.
STEP 5. Move your cursor to where you want the field to
        end, i.e. set its length.
STEP 6. Press RETURN.

CORRECTING ERRORS WHEN SETTING FIELDS

If you make a mistake setting up a field, you can easily erase it after you've pressed RETURN. You place the cursor on either of the field markers, then press 'f1' and the letter 'E' for 'Erase'. The field will then disappear and you can start again.

SETTING UP THE SECOND FIELD

Next we'll create a field for firstnames. So move the cursor down two lines. And now back to the left until it's in line with the 'L' of Lastname. And key in the word:

FIRSTNAME

This time we're going to make it a 'Text' field, which as you'll see later has a different use to a 'Key' field.

Move the cursor to the right one space. Now as you did for the 'Lastname' field, press the 'f1' key. But this time, press the letter 'T' to tell Superbase you want this to be a 'Text' field.

You'll see that this field is marked with a different marker, so you can tell the difference between field types.

We want this field to be 18 characters long, so move the cursor across until the indicator reads 18 and now press RETURN.

Ok you've set your first two fields, for 'Lastname' and 'Firstname'. Next we'll set the address fields. Move the cursor down two lines and across until it's situated below the letter 'F' of 'Firstname'.

SETTING UP THE ADDRESS FIELDS

We'll split each address into four separate fields, that's address line 1, address line 2, address line 3, and address line 4. You could call them anything you like, for instance, Street, City, State, Code, whatever you prefer.

Let's key in our first address field. Key in:

address1

Again we want the address lines to be text fields, so move the cursor along one space press the 'f1' key and then letter 'T'. Not many address lines are more than 24 letters long, so we'll set all four address fields at 24 letters long, starting with this one. Have a go at this one on your own.

Now move the cursor down one line and across until it's under the 'a' of 'address1'. Then key in:

address2

Then move one space to the right and press 'f1', followed by the letter 'T'. then set the field length on your own, to 24 again.

Now I want you to set the next two address fields on your own and make them each 24 letters long.

1.2.6 A SUMMARY SO FAR

You've finished setting up the fields for the names and addresses of your friends and business contacts and you made all of them 'Text' fields, except for the 'Lastname' field which you made a 'Key' field.

1.3   FRIEND OR BUSINESS CONTACT?

Next, you need some way of noting whether each person is a business contact or a personal friend, so we'll set up a field one character long into which you can enter a 'B' for Business or a 'P' for Personal.

Move your cursor down two lines and position it below the first 's' of address line 4.

Now type in:

                    B/P

That's B for Business and P for Personal. Now move the cursor to the right one space and on your own, mark the field, set it as another 'Text' field, one character long.

Just to remind ourselves what B/P stands for in future, let's just make a note to the right of the field so we don't forget. Move the cursor to the right three spaces and type in:

                    Business/Personal

1.3.1 SETTING A FIELD FOR BIRTHDAYS

You're going to be recording the names of your friends, so it would be useful to also keep a record of their birthdays. So let's now set up a field for birthdays.

Move the cursor down three lines and position it below the letter 'a' of address4. Now type in the word 'Birthday', then one space, then press 'f1' again.

This time we're not setting a text field, we're setting a DATE field, so watch the cursor as you press 'D' for 'Date', press D

now. You'll see the cursor has jumped across the screen seven
characters, that's because Superbase automatically gives you seven
characters for your date field. Now press RETURN.

There's only one more field to set up now in your name and address
file. This field will keep a note of what profession each of your
business contacts is in. So let's call this field 'Profession'
and make it another 'Text' field. Start by moving the cursor so
it's positioned two lines below the letter 'B' of 'Birthday'.

Now key in the word 'Profession' and then set this as a 'Text'
field, 15 characters long.

That's it, you've finished setting up all the fields, so the next
thing to do is to save this format on disk.

1.4   INVERTING ONE LINE OF LETTERING

But just before we do that, I want to show you a few of Superbase's
features which will help to improve the look of our form layout.

First I'm going to show you a way of 'Inverting' the lettering.

Start by moving the cursor onto the letter 'L' of the word 'Lastname'.
Then press 'f1' and then the letter 'I'.

That 'I' stands for 'Invert', and that's just what it's done to the
'Lastname' line. Instead of having dark lettering on a light background,
you now have light lettering on a dark background. To get the screen
back to normal, simply repeat the process. Try it now, press 'f1' and
the letter 'I'.

1.4.1 INVERTING EVERYTHING ON THE SCREEN

Now we'll invert the WHOLE screen. Simply press 'f1', then the
letter 'S', and everything's now inverted.

If you're using a color screen, we'll try changing the colors.
It's easy, just hold the CONTROL key (that's the one marked CTRL
on the left-hand side of the keyboard), and at the same time,
press the number 1 key a few times.

As you see, the color of the background changes each time you
press number 1. The number 2 and 3 keys change the color of the
other parts of the screen in the same way. So it's the control
key and either 1, 2, or 3. Have a go at changing colors now on
your own until you get a combination you like.

1.4.2 A SUMMARY SO FAR

You've entered all the field names and field lengths needed for
your name and address file. You've inverted the lettering on the
whole screen with 'f1', S. Finally you had a go at changing the
colors on the screen.

1.5 SAVING THE FORM LAYOUT ON DISK

So far the form you've designed is stored in the computer, but you'd lose
it if you switched the computer off. So you need to store it permanently
on disk. Your data disk should still be in the disk drive, so press
'f1', and then the key marked RUN STOP.

Superbase now works its way down your form and changes the field markers
to 'greater than' and 'less than' signs (> and <). It will then display
a question on the message line:

Allow Duplicate Keys?

1.5.1 DUPLICATE KEYS

If you remember, we set the 'Lastname' field as a 'Key'field.
That means that when you enter names in future into this field,
Superbase automatically sorts and stores them in alphabetical
order.

We chose 'Lastname' as the key field, but we could have made any
of the other fields 'Key' fields, for example 'Address1' or maybe
'Firstname', as long as we only have one 'KEY FIELD' for each
record. Superbase would then have stored these in alphabetical
order and used them for reference purposes.

The question on the screen is asking you if you're going to allow
Superbase to accept more than one record with the same key field.
In other words, is it okay to accept more than one Mr Brown into
our name and address file? If you answered 'Yes', you could have
more than one Mr Brown in the file.

In this case, we do want to allow duplicate keys, but there are
times when duplicate keys are NOT a good idea. When you've
finished the tutorial, have a look in your Reference Manual to
find out more about this. Now press the letter 'Y' to answer
'Yes'.

Superbase now displays the word 'Processing', while it's saving
your form. And that's it, you've finished designing the file
format for our name and address file.

SHIFT for f2 f4 f6 f8

1.6   USING THE MENUS

You should have a message on your screen which reads:

mode : Menu

Every time you create a new file, Superbase automatically brings up a FORMAT option so you can design the format for the new file. But every time you call up a file that's already been used, you'll be automatically put into the MENU mode.

There are two menus available, MENU 1 and MENU 2. They both list the various things you can do with the file you're working on. Right now, you should be looking at MENU 1. To see MENU 2, simply press RETURN key once and then have a look at it to see the difference.

You'll see a list of 'f' keys down the screen, these refer to the function keys on the right end of your keyboard. Each one gives you a different option, for example option 2 says 'FORMAT', you'd use this one if you wanted to design another format.

1.7   ENTERING NAMES AND ADDRESSES

We want to enter some names and addresses into our name and address file so we need MENU 1. Press RETURN again to get back to MENU 1 and we need to use the Enter option, so press 'f1'.

The screen displays the heading:

mode : Entry

You'll see the form you've just designed. Your cursor is flashing at the start of the 'Lastname' field. And if you look in the top right corner of the message area, you'll see:

1 k

This tells you you're now in field number one and the letter 'K' tells you it's a KEY field.

ENTERING THE LASTNAME AND FIRSTNAME

We'll imagine you have a friend called John Baker, whose name and address you want to put in the file. Key in his last name, 'Baker' and press RETURN.

The cursor jumps down to the beginning of the next field, the 'Firstname' field. Here key in 'John' and press RETURN. The cursor moves to the address1 field.

You'll find that the cursor will move about quite freely within

the fields, but will not move anywhere outside.

Try it. Press the upward cursor control key just once and you'll see the cursor moves back up to the previous field, NOT into the spaces between the two fields.

ENTERING THE ADDRESS

Press RETURN just once to move the cursor back to the address1 field. Then key in:

<div align="center">20 Rose Terrace</div>

And press RETURN.

Now type the town as 'Woking'. And press RETURN. Now type the final part of John Baker's address, the code, WR2 6TJ, and press RETURN.

There's no address line 4 for Mr Baker's address, but this one will come in handy in future for people with longer addresses. We can skip it now by pressing RETURN.

MAKING AN ENTRY IN THE B/P FIELD

Next the Business or Personal field. John Baker is a personal friend of yours, so key in the letter 'P' and press RETURN.

ENTERING THE BIRTHDAY

Now you need to fill in the birthday field. Remember, we set this one up as a DATE field. And with Superbase, you always have to enter dates in a particular form, either the DAY of the month, a three letter abbreviation of the MONTH and the last two digits of the YEAR, or if you prefer, you can put MONTH, DAY, YEAR. Try entering a date. Key in:

<div align="center">12JUL54</div>

And press RETURN.

The message area now displays 'MON' (short for MONDAY). Superbase is telling you which day of the week John Baker was born.

We don't want to fill in the profession field for John Baker, so that completes your first record. All you need to do is to save your work.

1.7.1 STORING THE RECORD

Press RETURN to skip the Profession field and Superbase asks you

to press RETURN to store. Press RETURN.

Superbase now invites you to enter another record. Well, we DO
want to enter another, so do as the message tells you, and press
the space bar just once.

1.7.2 ENTERING SIX MORE EXAMPLE RECORDS

At the end of Part 1 of the written tutorial, you'll find six more
example records which I want you to enter into your name and
address file on your own. Enter the six records now.

After you've pressed RETURN to store the last of the six records,
your screen will be prompting you to press the space bar to enter
another. We don't want to press the space bar to enter another.
We don't want to enter any more, so press RETURN to get back to
MENU 1.

1.8   SUPERBASE COMMANDS

Before we take a look at some of the other options on the menus, I want
to tell you about Superbase's COMMANDS.

Superbase can be controlled in two ways, either by using the menus, or by
using commands. In other words you can either use the menus and the
function keys to get to certain options OR you can key in the commands on
the command line.

Try it. Instead of pressing the 'fl' key to use the enter option, just
key in the word ENTER. You'll see it appear on the command line at the
top of the screen. Now press RETURN, and you'll see you're in ENTRY
mode. You can get any of the menu options in this way, by simply keying
them in on the command line and pressing RETURN.

1.8.1 THE QUIT COMMAND

But we don't want to enter any more records right now so to get
rid of this option, you have to tell Superbase to 'quit'. First
press 'fl', then the letter 'Q' for 'quit'. And you're back at
MENU 1. There are other ways of quitting the options which you'll
find out about in Tutorial 3.

1.8.2 A SUMMARY SO FAR

Up to this point, you've designed the format of your name and
address file, you've entered a number of records and saved them on

disk, you've seen how to use the menus and options, and you've had a go at entering commands on the command line.

1.9   VIEWING THE RECORDS YOU'VE STORED

Now you'll want to view the names and addresses you've stored. Look at the menu and you'll see the SELECT option and its function key number 2, f2. To get to this function key, press the shift key and 'f2' together.

1.9.1   THE SELECT MENU

You'll now see one of Superbase's 'SUB-MENUS'. This one's called the SELECT menu, and it lists eleven options. The SELECT menu offers you various ways of displaying the records in a file.

To start with, let's just 'browse' through the records in our file. It's like flicking through the pages of a name and address book. We'll turn to the first page.

If you look at the SELECT menu on the screen now, you'll see an option called 'First', so press f6.

You'll see the record for Julie Adams. Although this was not the first record you entered, it's now the first in the file, because Superbase sorts keyfields into alphabetical order, and your keyfield was for 'Lastname' so the name Adams is now first in the file.

ONE LETTER ABBREVIATIONS OF THE SELECT COMMANDS

Across the top of the screen you'll see a row of letters. These are abbreviations for the commands you've just been looking at on the SELECT menu. These abbreviations are very logical, for instance, to view the next record, simply press the letter 'N' for NEXT, and you get the second record on the file for John Baker.

Press 'N' again and you get George Collins name and address. To go backwards through the file is just as easy. Press 'P' for PREVIOUS, and you get the previous records.

To get to the last record in the file, press the letter 'L' once. And here you are at the end of the file with Richard Thomas record. You can prove it's the last record in the file by pressing the letter 'N' once more, and you'll see a blank record and a massage on the screen telling you it's the end of the file.

Now press 'F' for 'FIRST' to get to the first record.

Now I want you to practise browsing through the file using the one letter commands I've just shown you, (F,L,N,P) First, Last, Next,

Previous.

When you've finished practising, press RETURN just once to get back to the SELECT menu.

1.9.2 PICKING OUT RECORDS

Next we'll have a look at ways of picking out particular records, because if you're dealing with a much larger file, you won't want to browse through them all to find the one you want!

First, we'll try picking out records by particular key fields. We want the option which says 'Key' and it's function key number 1, so press 'f1'. Superbase asks you for the key field you're looking for. Let's imagine you want to find the address of Mr Smythe, so key in:

                    Smythe

Press RETURN and the record for Jeremy Smythe appears on the screen.

1.9.3 PARTIAL MATCHING

Now press RETURN to get back to the menu. You can often save time by typing in an abbreviated version of the key field entry you're after, you don't always have to type in the full key option and so this time key in:

                    Smy

Those are the first three letters of SMYTHE. And press RETURN.

You'll still get Jeremy Smythe's record, even though you abbreviated his name.

You'll see a message on the screen telling you it's only a partial match. It's not the exact one you asked for, but it is the nearest one Superbase could find. Now press RETURN to get back to the menu.

1.9.4 THE MATCH OPTION

Next, we'll have a look at one of Superbase's most powerful options, the MATCH option.

This allows you to call up a group of records which all have something in common, for instance you could call up (or 'MATCH')

all those people whose first name was David, or maybe all those
people who live in the same town. Try it.

SELECTING ALL THE FRIENDS IN THE FILE

We'll match all those people who are personal friends of yours and
view their records. Press the f7 key now to get the MATCH option
and you'll get a blank record and a message prompting you to
'Select Match Data'.

So you must tell Superbase what criterion it must base its
selection of records on. There are many ways of doing this and
you'll find a list of them in the reference section of your
manual.

For now, we want to match all those people who are personal
friends. Move the cursor down to the B/P field and key in a
Capital 'P' for Personal.

This is the only criterion we're going to give Superbase to make
its selection on, so press SHIFT and the RETURN key together.
This tells Superbase to start searching through the records.
Superbase now searches for all those people with a 'P' in the B/P
field.

After a short time, Superbase displays the first of the records
it's found that matches the criterion. If you look in the B/P
field, you'll see a letter 'P' to signify this person is a
Personal friend.

VIEWING THE NEXT RECORD

To view the next record that matches this criterion, simply press
the letter 'M' for Match and you get the next personal friend,
John Baker. I want you to carry on pressing the letter M to check
that Superbase has found all the relevant records. Stop the tape
while you do it and switch on again when you get a blank screen.

You ALWAYS have to go through all the relevant records in the file
to finish the matching process, but it's a bit slow having to look
at each one in turn to get to the end. But you can reach the end
quickly by simply pressing 'L' for 'Last'.

Now press RETURN to get back to the SELECT menu. You'll use the
MATCH option a lot in future, so we'll try a few more ways of
using it.

We'll find out which of the people in our file is a doctor by
profession. If you think you know how to do it, have a go now on
your own. If you're not sure, then read on.

To find the doctor in our file, press the 'f7' key to get the
match option. Then move the cursor to the profession field and
key in the word 'Doctor'. Then press SHIFT and RETURN together to
start the search. Superbase finds the first doctor in the file

and displays the record on the screen.

To check that there are no more doctors in the file, simply press the letter 'M' to continue the search for doctors. There are no more doctors, and Superbase displays a End of File message. Now press RETURN to get back to the Select menu.

Next we'll try using the match option in a slightly different way. We'll find those records which DO NOT contain a particular field. For instance, imagine you wanted to pick out all your friends who live OUTSIDE Birmingham. Try it.

Press 'f7' to get the match option. In all the addresses in our file, the town or city, in this case Birmingham, will appear in the third or fourth address line. So move the cursor down to address line 3 and key in :

#Birmingham

Now do the same in address line 4. The hash symbol tells Superbase you want to find all those addresses which DO NOT contain the word Birmingham in address line 3 or 4.

Remember we're looking for all your 'Friends' who live outside Birmingham, so next we must tell Superbase to only find personal friends, in other words, those records with a letter 'P' in the B/P field.

Move down to the B/P field and as we did before, key in the letter 'P', to tell Superbase to find personal friends only. Then press SHIFT and RETURN together as usual and Superbase begins its search.

Superbase finds the first record that matches our criteria, it's John Baker's record. Now press 'M' once again to find the next matching record in the file. Superbase can't find anymore, and gives you the 'End of File' message as before. Your name and address file is only a small one but if you needed to search through a larger file the MATCH Option would come in very useful.

We've finished with this now, so press RETURN to get back to the SELECT MENU and RETURN again to MENU 1.

1.10   EXITING FROM SUPERBASE 64

We've finished with Superbase for the moment, so try exiting from the program. Key in:

          quit

And press RETURN.

Your screen now shows the Commodore 64 display. If you want to take a break, take the disk out of the disk drive and switch off your computer.

But just before you do that, let's just check what you've done so far.

1.11   A SUMMARY OF TUTORIAL ONE

You've created a file and designed its format. You've entered records
into the file, and you've seen how to browse through those records and
pick out particular ones with the Key and Match Options. You've seen how
you can control Superbase with commands or by using the options from the
menus and sub-menus.

In Tutorial Two we're going to leave our name and address file and create
a brand new file called 'Invoices', so that you can try out some of the
other things you can do with Superbase.

EXAMPLE RECORDS FOR YOUR NAME AND ADDRESS FILE   -   TUTORIAL ONE

Here are six more example records for you to enter into your name and
address file. Enter them in any order and Superbase will sort and store
them in alphabetical order of the firstnames.

Start the tape again when you've entered all six records.

Adams, Julie
783 Hilton Road
Selly Oak
Birmingham
B32 3TC
Personal - 12may60

Roddis, Kevin
67 Apple Tree Road
Kempsey
Worcester
WR3 6FG
Business - builder

Collins, George
Taps Plumbers
34 High Street
Worcester
W2 8JS
Business - plumber

Smythe, Jeremy
Manson House
Hilltops
Worcester
WH1 7TY
Business - MP

Evans, Paul
22 St John's Road
Malvern
Worcester
WR12 2HA
Business - doctor

Thomas, Richard
23 Malvern Road
Selly Park
Birmingham
B27 5TQ
Personal - 14may64

TUTORIAL TWO

2.1   INTRODUCTION

At the end of the first session, we closed down Superbase with the quit command and we switched the computer off. So before we start the second session, make sure your computer's switched on.

2.1.1 LOADING SUPERBASE

Once your computer's switched on, you need to load Superbase again. I'd like you to do this on your own using the instructions from Tutorial Introduction. Find the section headed 'Loading Superbase Using a Prepared Data Disk' and follow the instructions from step 19 to step 27. You should end up with the screen display of the following prompt:

                    ENTER A DATABASE NAME

Now key in:

                         TRAINING

And press RETURN.

You'll now see a list of all files in this database. It's called a 'DATABASE CATALOG' and we'll come back to it in a minute. For now, press RETURN to get to MENU 1.

During this session, we're going to use Superbase to create a file called 'Invoices'.

2.2   THE HELP FACILITY

First, let's look at Superbase's HELP facility. There's a HELP option on both MENU 1 and MENU 2 and as the name suggests, this facility is designed to help you out should you forget what the various menu options do. Have a look at one of them.

Press the 'f8' key, the one that says 'HELP'. You use the 'f8' key to use HELP on both menus.

At the top of the screen, Superbase is asking which Help screen you require. See what it says about ENTER option, that's the one we've been using. Key in the word 'ENTER' and press RETURN.

You'll now see a 'Help Screen'. This one describes how to use the ENTER option. The instructions at the top of the screen tell you how to view

the next screenful of information about the ENTER option, so follow the
instructions while you read the screen.

When you've seen all the available screens about the ENTER option, you
should now be back at the menu. That's a help screen, and of course,
there's a help screen for each of the options on both menus. So in
future if you're not sure about one of the options, call up the help
screen.

2.3 THE DATABASE CATALOG

Make sure you have Menu 2 on your screen, the one that begins with 'f1
File'. If you haven't got this on the screen, then press RETURN.

We're going to create a new file, so we'll use the file option, Press
'f1' and your screen displays a list of all the files held in the
database you set up right at the beginning of the first session.
Remember, you called your first database 'TRAINING'. The list you now
see is called a 'DATABASE CATALOG'. As you see this Database catalog
includes your file, your name and address file called 'Addresses'. You
may also see some others, but you can ignore them for now.

You'll notice the catalog also gives you the number of records held in
each file. Your name and address file should contain seven.

2.4 CREATING A NEW FILE

Now I want you to key in the name of our new file. Key in:

Invoices

Now press RETURN. Superbase asks if you want to create a new file. You
do, so press the letter 'Y' for Yes.

You're in the FORMAT option, as we were at the beginning of the last
session. Again, we must design the format for our new file.

We'll imagine you're running a small company selling stationery, and you
want to set up a file to hold details of all invoices your company has
sent out.

2.5 SETTING THE FIELDS

Move your cursor down two lines and then right two spaces. Now in
capital letters, key in:

INVOICE NUMBER

SHIFT for f2 f4 f6 f8

Make sure you turn shift off for the space in between 'Invoice' and 'Number'. If you don't, you'll get an unwanted character between the two words.

Make sure shift is off again, the move one space and make this a Key field using 'f1' the letter 'K' for 'Key'. Watch the indicator in the top right corner of the screen and move the cursor along until it reads 6. Then press RETURN to set the field length.

2.5.1 COPYING THE FORM DESIGN FROM THE TUTORIAL

Look in the back of tutorial 2, and find the printed copy of the Invoice file you're now designing, it's headed

INVOICES - FORM DESIGN

You'll see the printed copy tells you what type of field each field should be. Remember it's 'f1' and the letter 'T' for a 'Text' field, and 'f1' and the letter 'D' for a DATE field. The length of each field is also given. For the fields not marked, just key in the field name and we'll put in the field type and length later on.

When you've finished, you should have nine field names altogether, and four of them should have fields set up: 'INVOICE NUMBER', 'Customer', 'Date', and 'Goods'.

2.6 SOME NEW FIELD TYPES

Up to now, you've only tried setting up 'Key', 'Text' and 'Date' fields. In this file you're going to set up three different types of field.

The first field, 'Invoice Number' is a 'Key' field so that in future you can easily pick out any record you want simply by quoting the Invoice Number.

Below that are fields for the customer's name, the date the invoice was sent, and, further down, the 'Goods' field is to hold a description of what was sold.

SETTING A NUMERIC FIELD

The next field is 'Quantity' and it'll hold the number of items purchased. As this is for holding a number, we'll set it as a 'Numeric' field. First move the cursor one space after the word 'Quantity'.

Press f1 to set the field, then the letter 'N' for 'Numeric'. You'll notice Superbase has marked this field with a plus sign and a hash sign. The plus reminds you it's a NUMERIC field and the hash tells you that at the moment there's only room for one digit.

SETTING DECIMAL PLACES

In the top right hand corner of the screen, the field length indicator reads 1, 0. This means that the moment there's room for only one digit before the decimal point and none after it. But we want there to be enough room for three digits.

You need to make extra room. So move the cursor two spaces to the right and the indicator should read 3,0. Now press RETURN. You've increased the length to hold three digits.

The next field down is the 'Unit-Price' field. This one will hold the price per unit of the goods bought.

This one will also need to be a 'Numeric' field, so move the cursor until it's positioned one space after 'Unit-Price', and as before, press the 'f1' key, then the letter 'N'.

As this field will be holding amounts of money, it should be formatted for Dollars and Cents or Pounds and Pence. We'll format it so it will hold three digits before the decimal point, and two digits after. Move the cursor two spaces and you'll see the field length indicator reads 3,2. That's the format you want, three digits before the point and two after, so press RETURN.

SETTING A RESULT FIELD

The 'Total-Price' will be the result of multiplying Quantity by the 'Unit-Price'.

That makes the 'Total-Price' field a 'Result' field, so move the cursor one space after the words 'Total-Price'. Then press the 'f1' key and then the letter 'R' to make it a 'Result' field.

This field is also going to hold an amount of money so again we'll make room for four digits before the point and two after it. So move the cursor along three spaces, key in a full-stop, then move the cursor along another two spaces and press RETURN.

SETTING A FIELD AS A CONSTANT

The next field we must set up is the 'Tax' field. So move the cursor one space after the word 'Tax'. The rate of Tax will be the same on all our invoices so we can set this field as a CONSTANT. Press 'f1', then the letter 'C' for CONSTANT.

Now move the cursor along until the indicator reads 5. We need to allow 5 spaces including decimals. Now press RETURN. We'll imagine the rate of TAX is 15% and as a reminder, we can type this onto the screen next to the field.

Move the cursor along two spaces and key in 15%. That completes the TAX field so move on to the last field, the 'Amount Due' field. This field will be a RESULT field to hold the result of the Total Price plus 15% TAX.

SHIFT for f2 f4 f6 f8

So set it up as a 'Result' field. Move the cursor down so that it's positioned one space after the word 'Due' and then on your own, set this field as a 'Result' field with room for five digits before the decimal point and two after.

2.7   SAVING YOUR WORK

You've finished setting the field TYPES and LENGTHS so you should save what you've done so far. Press 'f1', then the key marked RUN STOP and your work is saved.

2.8   ENTERING CALCULATIONS INTO THE FIELDS

Now you must finish designing this form by entering calculations into some of the fields. Superbase will later use these calculations to automatically work out the totals on your invoices for you.

THE TOTAL PRICE FIELD

Superbase is prompting you to 'Enter Calculation' and the 'Total-Price' field is highlighted. So this is the first field that needs to contain a calculation. This calculation will be 'Quantity' multiplied by the 'Unit-Price'.

Whenever you refer to a field name in a calculation or in a command, you must put square brackets around the field name in question. Right now we're going to multiply the contents of the 'Quantity' field, so key in:

                        [quantity]*[Unit-Price]

Press RETURN and that's finished this first calculation.

THE TAX FIELD

You'll now see that the 'Tax' field is highlighted. Superbase is prompting you to enter a calculation into this field. The 'Tax' in your case is fifteen percent, so key in the number 15 (you don't have to put the percentage sign, Superbase will treat it as a percentage). And press RETURN.

THE AMOUNT FIELD

Superbase now asks for a calculation to go in the 'Amount Due' field. This will be the Total Price plus 15% Tax', so key in:

                    [TAX]/100*[Total-Price]+[Total-Price]

That completes the calculation in the 'Amount Due' field. Now press

RETURN.

There are no more fields which need calculations, so you've finished
designing the form. Superbase now asks if it should allow duplicate
keys. This time we want each record to be unique, in other words to be
able to call up one record at a time by the key field. So in answer to
this question press 'N' for no. You then have to wait while Superbase
processes the information.

2.9   ENTERING RECORDS INTO THE INVOICE FILE

You can now start entering some records into your newly created Invoice
file, and as before, you start by pressing 'fl' just once to get the
ENTER option from the menu.

Notice that the 'Tax' field is already filled in. That's because you set
it as a CONSTANT at 15% for every record you enter. Now enter the first
record.

Make this invoice number 100. Key in:

                    .100

And press RETURN. Then key in the customer's name. Key in:

                    Senders

And press RETURN. Next the date. Key in:

                    09SEP83

And press RETURN. Next the 'Goods' field. Key in the goods as:

                    PACKETS OF ENVELOPES

And press RETURN. In the 'Quantity' field enter the figure 20 and press
RETURN.

For 'Unit-Price', imagine that one packet of envelopes costs 40 cents, so
key in the figure 0.40, using a period as the decimal point. Then press
RETURN. You'll see that Superbase has automatically calculated the
'Total-Price' and the 'Amount Due' so this invoice is finished.

SAVING THE RECORD

You now need to save this record. You could just press RETURN to take
the cursor down to the last field and then press RETURN again. But
there's a quick way of saving a record wherever you are within the form,
(as long as you've made an entry in the key field). You simply hold down
the SHIFT KEY and press RETURN. Try it you get the message prompting you
to press RETURN to store, so do as the prompt says.

2.9.1 ENTERING MORE RECORDS FROM THE TUTORIAL

As you did with the name and address file, have a go on your own at entering some more example records. You'll find these records at the back of Tutorial 2.

When you've entered the last record, the one numbered 106, press RETURN instead of the space bar, and Superbase will return you to MENU 1.

2.10   THE CALC OPTION

Look down this menu and you'll see the option called CALC. CALC is very useful for performing all kinds of calculations, here's an example. Select the CALC option by pressing 'f5' from MENU 1. And key in the following calculation:

$$676*2.3$$

That means 676 times 2.3. Now press RETURN to get your answer. So you can use CALC as a calculator any time you like from the menu. Now press RETURN again to get back to MENU 1.

You can use CALC to change the contents of any field, but before you can do that, you have to get the relevant record into the computer's memory. We want to use CALC to update Invoice number 100, so get invoice 100 into memory.

USING CALC TO UPDATE AN INVOICE

First press the 'f2' key for the SELECT option, then 'f6' to get the 'First' record into the computer's memory. This first record is the one you want to perform the calculation on, so let's look at it to see what needs changing.

You'll see this record details a quantity of 20 packets of envelopes. We'll imagine you made a mistake and the customer really purchased 30 packets of envelopes. This is where the CALC option comes in very handy, try it.

Press RETURN to get back to the SELECT menu, and then RETURN again to get back to MENU 1. (Don't worry about the record you selected, it's still in the computers memory.) Press 'f5' for the CALC option and you'll get a message prompting you to enter the calculation required.

We want the field called 'Quantity' to equal 30 instead of 20. So key in:

[Quantity]=30

Remember, the square brackets tell Superbase 'Quantity' is the field we want the calculation to work on. Now press RETURN.

Now press RETURN again. You won't see much happen, so use the SELECT
option to check that Superbase has carried out the calculation. Press
'f2' for the SELECT option, then the letter 'C' to get the current record
on the screen, that's the one you were last working on. You'll see that
invoice number 100 now has a quantity of 30.

2.10.1 THE STORE COMMAND

CALC does not save the record permanently unless you use a command
called 'Store', try it now. Press RETURN twice to get back to the
MENU 1 and type in the word STORE. Finally, to activate the STORE
command, press RETURN.

Superbase proceeds to overwrite the original record of Invoice 100
and replaces it with your amended version. Just to prove that
Superbase has saved a copy of the amended invoice, have a look at
it. Press the 'f2' key for SELECT and then the letter 'F' for
'First', and the amended invoice 100 appears on the screen.

You've seen only two uses of the CALC option, but you'll discover
further uses if you look in your Manual later on.

There's a simpler way to update records using the letter 'R' for
REPLACE on the select Menu. We won't try the REPLACE option now,
but you can try it yourself, when you've finished this Tutorial.

2.11 THE BATCH OPTION

Now press RETURN twice to get back to MENU 1. Then press RETURN once
again to get to MENU 2, and have a look for the BATCH option.

CALC is fine if you only want to perform calculations on one record at a
time, but what happens if you want to change a value on more than one
record in a file. Well that's where the BATCH option can help. Here's
how it works.

Press the 'f3' key, that's the BATCH option. You get a prompt on your
screen which reads:

                    all/from 'list' (item list)

The first part of this prompt is asking which records you want the
calculations you're about to enter to be performed on.

You can tell Superbase to operate on 'all' the records in the file or
just on those 'from' a separate list of records you've previously created
and stored. You'll see how to create one of these lists later on. Right
now we'll get the BATCH option to operate on 'All' the records in this
file.

TUTORIAL - LEVEL TWO

USING BATCH TO REDUCE PRICES BY 10%

Imagine you decide to reduce all your prices by 10%. So in each record in the file, you'll have to find 10% of the 'Unit-Price' and then deduct that amount.

You key in the calculations in exactly the same way as with the CALC option. Key in:

all [Unit-Price]=[Unit-price]-0.1*[Unit-Price]

Your calculation will overflow the first line and continues on the next line down, this is perfectly normal.

The calculation is saying, take the 'Unit-Price' and find 10% of it, then subtract that value from the present 'Unit-Price' and then put the answer back into the 'Unit-Price' field. Now press RETURN.

Superbase takes a while to work its way through all the records and when it's finished, MENU 1 appears back on the screen.

CHECKING THAT THE BATCH CALCULATION HAS WORKED

Superbase has made the BATCH calculation, so check that it's done as you asked. First call up the SELECT option, then press the letter 'F' for 'First'. If you now look at the 'Unit-Price' field on this first invoice, you'll see it's been reduced by 10% and now reads 36, that's 10% less than the original 'Unit-Price' of 40. Use the letter 'N' for 'Next', to look through the records and you'll see that each 'Unit-Price' has been reduced in the same way. And of course, Superbase has recalculated all the 'total-prices' and 'amounts due'.

The BATCH option differs from CALC in that it automatically saves each record that's amended, so you don't have to tell Superbase to store each one separately. Now get back to MENU 1 by pressing RETURN twice.

2.12   SOME WAYS OF SELECTING RECORDS FROM THE FILE

You've already seen how to SELECT records from a file and display them in the screen by using the MATCH option. But Superbase has some other ways of selecting records. First, there's the FIND option.

2.12.1 THE FIND OPTION

Look at the menu and you'll see it's function key number 3. The FIND option selects records in the same way as the MATCH option, but when you use FIND, Superbase keeps a list of the records you've selected and stores the list on your data disk for future use, for example, when you're printing or doing batch calculations. Try it now, press 'f3'.

You're going to sort out all those records where the Amount Due is more than 25 dollars.

TELLING SUPERBASE WHAT TO SEARCH FOR

Your screen should now be displaying a blank record. Superbase is waiting for you to key in the criteria on which to make its selection of records. Move the cursor down to the 'Amount Due' field and key in:

>25

And press RETURN. As Superbase works its way through the records it'll display each key field on the screen. It then compiles all those invoices owing more than 25 dollars into a separate list. Superbase stores the list on disk and then returns you to MENU 1.

2.12.2 NAMING THE LIST

Superbase automatically gives all lists of records the name "hlist", unless you tell it otherwise. So it's a good idea to give each list you create a different name, then Superbase won't keep overwriting the previous list. But DON'T give a list the same name as a file or you'll confuse Superbase.

You'll find the procedure for changing names of lists in your Reference Manual. That's something else you can try out on your own later.

2.12.3 VIEWING THE RECORDS IN THE LIST - THE OUTPUT OPTION

Now you need to be able to have a look at the records on the list. You can either display the records on the screen or you can get a print out on your printer. Either way you use the same option, the OUTPUT option. So press the 'f4' key to get to the OUTPUT option. You'll get the prompt which reads:

all/from "list" (item list)

Superbase is asking you whether you want to display 'All' the records in the file or just those 'From' a selected list. We want to have a look at the records on our 'hlist', so key in:

from "hlist"

And press RETURN.

You'll see the records displayed on the screen, but this display doesn't include field names. Superbase allows you to change the way the records appear on the screen. Try it.

2.12.4 CHANGING THE DISPLAY - DOWN AND ACROSS

First press RETURN to get back to MENU 1. Then key in the word 'down' and press RETURN. The next time you use the OUTPUT option, this 'down' command will display the field names and their contents down the screen rather than across. As before, press the 'f4' key to get the OUTPUT option. Then key in:

from"hlist"

Press RETURN and this time the records are displayed one at a time and you'll see they're a lot easier to read.

To view the next record on the list simply press RETURN. Have a go on your own at looking through the rest of the records and you'll end up back at the menu.

Just now, you typed in the word 'down' to change the way Superbase displays the information (in Superbase terms, its 'Output Format'). That new setting, 'down', will stay in force until you tell it otherwise. When you DO want to change it back, you simply key in the word 'across'. So, you can set the format to down or across.

2.12.5 DISPLAY RECORDS ON SCREEN AND PRINTER

You can control the OUTPUT option in much the same way. So far, you've used the screen to display information, but if you have a printer, you can get a printer output. To get a printed output you simply enter the command 'print' and to switch back to screen display, you enter the command 'display'.

You've just been looking at a list of all those people who owe more than 25 dollars and you've been viewing whole invoices. But it would be useful to be able to view or get a print out on paper. Superbase has a way of doing this.

If you've got a printer, make sure it's connected up properly and that it has paper in. If you haven't got a printer, don't worry.

Key in the word 'across', which will save paper, and then press RETURN.

Next, if you have a printer, you can tell Superbase you want a PRINTED copy of the records. You'll need to key in the word 'Print' and press RETURN. But only do that if you want a PRINT-OUT!

Make sure you have MENU 1 on the screen and then press 'f4' for the Output option. Now key in the following instruction:

from"hlist"@10&[customer]@25&5,2[due]

Don't press RETURN yet.

SHIFT for f2 f4 f6 f8

2.12.6 SOME OTHER WAYS OF CONTROLLING THE OUTPUT

You're probably thinking that looks a little complicated. That's because, in this string of instructions, I've included a few new examples of other ways in which you can control the output with Superbase, as follows:

@10

gives the position at which the printing will start, in this case it's column 10.

&[customer]

tells Superbase to remove any trailing spaces, but it can have another use, as you'll see in a moment.

@25

sets column 25 as the print position for the next bit of information.

The next ampersand means something different. This one is not in front of a 'Text' field, it's in front of a 'Result' field. The bit that reads 5 comma 2 sets the number of digits in the result, in this case, it's 5 places in front of the decimal point and 2 places after.

Those are just a few of the ways you can control the output with Superbase. You can find out more from the Reference Guide after you've finished this tutorial. Now to see what effect this command will have, press RETURN and you'll get a screen (or print out) showing customers and amounts due.

2.13   A FINAL SUMMARY

During this Audio Tutorial, you've seen how to create databases and files, you've used the FORMAT option to design layouts and you've seen how to store records. You've recalled records and printed them out, and you've had a go at performing calculations.

We didn't have time to cover every single Superbase facility, there are a few Menu options and some commands we haven't covered. But you should how have enough knowledge to use Superbase on a day to day basis AND use your Superbase Manual to explore the full power of Superbase 64. Once you're confident with the material you've covered so far, move on to Tutorial 3.

You can now go back over any of the areas you're not sure of and have another go. But if you've finished, then close down the system by pressing RETURN to get back to MENU 1. Then key in the word 'quit' and press RETURN. Your screen now returns to the Commodore 64 display. So you can take the disk out of the disk drive and switch off your computer.

Don't forget to fill in and send your Precision Software Registration
form which you'll find in the front of your Superbase 64 Manual. You'll
then be able to get details of special Superbase packages for the
business, home and professional user.

INVOICES - FORM DESIGN - TUTORIAL TWO

Key in the invoice form as shown below. Remember, press 'f1' and then the appropriate letter for each field, i.e. K for a key field, D for a xate field, T for a text field.

The length of each field is also given below.

Some of the fields below have not been given a field type and length, so for these fields, just key in the field title and we'll put the field types and length in later on.

Start the tape again when you've keyed in all fields.

****

INVOICE NUMBER   (Make this a KEY field, 6 characters long.)

Customer   (Make this a TEXT field 20 characters long.)

Date   (Make this a DATE field.)

Goods   (Make this a TEXT field 20 characters long.)

Quantity

Unit-price

Total-price

Tax

Amount Due

SHIFT for f2 f4 f6 f8

EXAMPLE RECORDS FOR YOUR INVOICES FILE - TUTORIAL TWO

Here are six more example records for you to enter into your invoices file. Enter them in any order and Superbase will sort and store them in numeric order of the invoice numbers

Start the tape again when you've entered all six records:

Note dates can equally be in the format 'sep1283'

Inv No:	101
Customer:	D. Signer
Inv date:	12sep83
Goods:	graph paper packs
Quantity:	23
Unit-price:	1.74

Inv No:	104
Customer:	Writers
Inv date:	01nov83
Goods:	A4 paper pads
Quantity:	100
Unit-price:	1.20

Inv No:	102
Customer:	H. old
Inv date:	20sep83
Goods:	box paper clips
Quantity:	34
unit-price:	1.60

Inv No:	105
Customer:	Printers
Inv date:	21nov83
Goods:	spiral binders
Quantity:	6
Unit-price:	1.20

Inv No:	103
Customer:	I. Pearce
Inv Date:	02nov83
Goods:	stapler
Quantity:	1
Unit-price:	1.10

Inv No:	106
Customer:	Page
Inv Date:	12dec83
Goods:	A1 pads
Quantity:	25
Unit-price:	1.8

TUTORIAL THREE

3   INTRODUCTION

This is a more advanced tutorial than the previous two, so you should be
prepared to take more than one session to complete it. The tutorial
begins with two sections on topics that everyone needs to know about: how
to escape from functions, and tne rules about changing disks, naming
files, and backing up disks. Then we look at the MEMO Option, and look
again at the FORMAT and OUTPUT Options. A section on COMMANDS and
PROGRAMS is followed by one on SORT. The tutorial ends with a look at
the Superbase REPORT generator.

Begin tne tutorial by loading Superbase in the usual way. Insert your
data disk, and select the 'TRAINING' database and then the "invoices"
file. Now work through the sections that follow. Some expect you to do
some keying in, others are just for reading.

3.1   ESCAPING FROM COMMANDS

From time to time, everyone selects a command by mistake. You need to
know how to get out of every command quickly.

This is a table of Function Keys and how to escape from each selection:

Menu 1			Menu 2	
Enter	f1 Q		File	RETURN
Select	RETURN		Format	f1 Q
Find	f1 Q		Batch	RETURN
Output	RETURN		Sort	RETURN
Calc	RETURN		Prog	f1 Q
Report	RETURN	(1)	Maintain	RETURN
Execute	RETURN	(2)	Memo	RETURN
Help	RETURN		Help	RETURN

1 Once past the first prompt you must go right through all prompts.
2 Except that when a program is in memory it runs.

Select

Key	You must enter a character (such as "z") and press RETURN to get to end of file. Then press RETURN.
Current	RETURN
Next	RETURN
Last	RETURN
Previous	RETURN
First	RETURN

Match   f1 Q
Output   RETURN after output and RETURN for the menu
Add   f1 Q
Replace   f1 Q
Delete   Enter n to 'Confirm Deleted Record?' and press RETURN

Maintain

Status   STOP
Catalog   RETURN after output
Import   RETURN
Export   RETURN
Directory STOP
Backup   STOP STOP
New Disk   STOP
Other   RETURN

In BACKUP and NEW DISK you can quit by entering 'n' to the 'Are You Sure?' prompt.

To gain confidence, try out all these escapes for yourself before doing any more of this tutorial.

3.2   DISKS, DATABASES, FILES, AND LISTS

As you get more used to Superbase, you'll find that you want to set up several different databases. Probably you won't be able to keep all your data on one disk. This section explains the relationships between disks and databases and gives more information about files and lists.

3.2.1 THE DATABASE COMMAND

Whenever you change from one database to another, you MUST give the database command before selecting a file. At either menu, type the command

            database

and press RETURN. Do this now, and you'll see the prompt

            Enter Database Name?

You should give the name of another trial database, say 'test'.

After a few seconds, Superbase will give the message

            Database does not exist: Create it?

Enter 'y', and the database will be created. You will be in it, with no file selected. You would use the FILE Option if you wanted to create a

file.

You may get stuck in a 'loop' if you keep responding 'n' to the 'Create it?' prompt. Give the name of a known database, such as 'Training', to escape.

You can give the command 'database "test"' on a single line, with the same result as above.

Finally, look at your disk directory from the MAINTAIN sub-menu. You'll see the databases TEST and TRAINING. They are both in upper case letters so you can tell them from other files.

DATABASE NAMES

A database name can be up to 16 characters long. Don't put any numbers in the name. See below and Page P-14 for more information.

DATABASE COPYING

You can make a backup of a disk with a database on it. But you can't COPY a database with the file 'copy' command. Data transfer between databases is done with the 'export' and 'import' commands.

3.2.2 DISKS AND DATABASES

You must give the 'database' command whenever you change disks.

You can have as many databases on a disk as will fit. You cannot have a database continuing from one disk to another. If your data needs to be divided between disks, you'll have to set up more than one database.

To change from a database on one drive to a database on the other, for example from 0 to 1, give the database command in the form

database "test",8,1

The 8 signifies the floppy disk unit, and the 1 signifies the drive number. See Programming Section 2.1.9 for further details.

SHIFT for f2 f4 f6 f8

3.2.3 FILE NAMES / RECOVERING A LOST FILE

The actual data in a database is stored in the database files. These are quite separate from file formats, which are ordinary disk files. Among the advantages of this system is the ability to COPY a file format ('file definition' is another common term) and use it in more than one database.

You need to know that the file format can be lost by accident. This happens if you use the name of an existing file when specifying a key list or a data file created with 'export' or 'output to'.

Recovering is quite easy. First give the key list or data file another name - use the file 'rename' command from MAINTAIN OTHER. (see Reference Section 15.6) Then use FILE and FORMAT to set up the lost file format exactly as it was, under its original name. You'll find that you can get at your data.

This should help you see why it's a good idea to keep printed copies of all file formats. Print them with this command line:

print:maintain status:display

Finally, remember that database filenames can be up to 10 characters long. If you make one longer it will be cut short.

3.2.4 KEY LISTS / DISK FILES

These are external to the database like file formats.

A KEY LIST is a list of some or all of the key fields in a database file. Key lists are a very important part of the system, helping you to work with selected groups of records in many different ways. They are created by FIND or SORT. The functions that can use key lists are:

SELECT FROM	REPORT	SORT
OUTPUT	BATCH	

Notice that SORT both uses and creates key lists.

You can ADD to a key list. This is done by placing a comma and the letter a after the name in FIND or SORT:

find "newlist,a" where [LASTNAME] is "=Jones"

DISK FILES are quite different from 'database files'. They consist of data copied from the database, and are created either by 'output to' or 'export'. They are usually intermediate files that will be used by another function such as 'import', or another program such as EASY SCRIPT.

Word processing often requires name and address data from a database. 'Output to' is the function to use. See Reference Section 8.11.

Disk files are plain sequential files, each line consisting of a number of characters (usually a field from a database file) followed by RETURN, usually with a RETURN on a line by itself separating the records.

If you give such a file a name beginning with h, such as "hdatafile", you can view its contents with the HELP Option.

Disk files and key lists may have up to 16 characters in their names.

Remember that if you don't explicitly name a key list, it will be named "hlist" by Superbase. But each new "hlist" overwrites the previous one.

3.2.5 BACKUP

See Reference Section 15.4 for details of how to make a backup copy of a data disk.

Do disk backups regularly to protect your data. It's best to do backup at the end of each session, as the single disk backup function clears Superbase itself out of the computer.

If you have a dual disk drive, use the dual drive option given at the beginning of the backup operation. This does not clear Superbase out.

If you use Easy Script word processing you can backup work easily using this function.

3   CREATING A MEMO SCREEN

Superbase has a function for writing documents for display or printing. This is the MEMO function, available from Menu 2.

Create a Memo Screen now.

SELECT MEMO

Use the RETURN key to obtain Menu 2 and from it select the MEMO Option by pressing the 'f7' key. You will see a blank screen with the words 'Enter Memo Name' at the top of the screen.

Type 'diary' and press RETURN (a Memo screen can have any name of up to sixteen characters). You will see the words 'Mode: Memo Writer' above the

TUTORIAL - LEVEL THREE

screen with the cursor in the HOME position.

WRITE MEMO

Type a few appointments onto the screen:

        Monday 4th 11.00 dentist

        Wednesday 6th 8.30 pm party at Sam's

        Weekend - up at the lake

The full set of Memo editing commands is given in Reference Section 16. If your printer is connected hold down the 'CTRL' key and press 'P' to print out the current screen. When you are finished press the 'f1' key followed by the 'RUN/STOP' key to store the Memo. You can recall the Memo screen at any time from Menu 2 by selecting the MEMO Option and typing 'Diary' when prompted to 'Enter Name'.

RECALL MEMO

Try recalling the Memo screen in this way to prove to yourself that it is there, and when you are finished with it press the 'f1' key followed by the 'Q' (for Quit) key to return to Menu 1.

A Memo Screen can be revised by recalling it by using the 'MEMO' command from the Main Menu, typing your amendments, and then re-storing it by using 'f1' followed by 'RUN/STOP' rather than the usual 'f1' followed by 'Q'.

3.3.1 HELP MEMO SCREENS

You have already looked at examples of the special kind of Memo Screen called HELP SCREENS which can be obtained from either of the Main Menus by pressing the 'f8' key.

You may want to redesign one of the Help Screens or to create a Help Screen for one of the sub-options for which there is no built-in Help Screen available, or for one of your programs.

This can be easily done by means of the MEMO Option. All you have to do is create a Memo Screen as normal, but prefix its name with an 'h'. For example, if the screen is to contain advice about the Invert Screen and Invert Line commands you encountered above, then call the Memo Screen you create "hinvert".

Having done this you can then obtain this advice by selecting the HELP Option and typing 'Invert' when asked 'Enter which help required'.

You can put an instruction in a user program to automatically

display a screen beginning with "h" such as "hmymenu" :

100 help "hmymenu"

3.4   CHANGING THE FILE FORMAT

While you're getting to know Superbase, you'll probably want to make
changes to the file formats you set up. This is quite easy, but to avoid
unnecessary mistakes we include nere explanations of a number of aspects
of formatting.

When we use the term 'Formatting commands', we can mean one of two
things: file format editing commands or output formatting commands. In
this section we are not referring to output format at all - this is
discussed below.

Before you change a format, print out the file status as described above
in Section 3.2.3.

To change an existing format, select the file with the FILE command, then
press the 'f2' key on Menu 2 for the FORMAT Option. After a seconds
Superbase will display the field names and markers as they were when the
file was being set up.

3.4.1 CHANGING FIELDS

Full details of the rules for changing field types are given in
Reference Section 4.1.5. The main point is that you can only add
or remove fields from the END of a format. To change a field type,
or set it as a FORCED FIELD (see below), erase it first by
positioning the cursor over either field marker and pressing 'f1'
followed by 'E'.

FIELD NAMES

Field names can be changed, but if you have referred to a field by
name in a program, you must change that too.

Remember that field names should be unique, unless you want a
piece of data to appear more than once in a record: such fields
are called REPLICA fields.

Field names can oe up to 12 characters long, counting from the
first space to the left of the field name.

FORCED FIELDS

If you press SHIFT/RETURN at the end of setting a field it becomes
a Forced Field. This means tnat when using the ENTER Option you
must put some data into the field before you can store the record.

3.4.2 UNIQUE KEYS AND DUPLICATE KEYS

A Superbase file may have either DUPLICATE or UNIQUE keys. The KEY to a record is, as you will remember, the field that is used for fast access to a record in a file. Usually it is best to keep every key in a given file UNIQUE: that is, not matching any other key in the file. Partially matching keys are fine, and may come in very useful in some situations. And it is also all right to give the same key to records in different files.

DUPLICATE keys are keys within the same file that are exactly the same. Suppose you want to use peoples' names as keys - as in the Addresses example in Tutorial 1. If you know two 'Smiths', you can only give the records for the two individuals the same key if you have previously replied 'y' to the 'Allow Duplicate Keys?' question at the end of the FORMAT Option.

The major drawback of duplicate keys is that when retrieving records for display or printing it can be difficult to access the second record or subsequent records with the same key as another.

You can overcome this difficulty by adding a new field to the end of the record. You change the old key field to an ordinary text field, and then make the new field the key. You put into the key field a CODE based on the name of the person, combined with a unique number if necessary, for example, 'SMI/02' and 'SMI/02' for two different people named Smith.

Remember that you can use the FORMAT Option and leave a file unchanged except for changing the reply to the 'Allow Duplicate Keys?' question at the end of the process.

3.4.3 USING NUMBERS AS KEYS

Superbase key fields are text fields. You can put numbers into a key field, but each digit will be treated as a separate character when it comes to storing the record in order. This means that records with the keys '1', '2', '10', '110', and '200' would be stored in the order

$$1 \qquad 10 \qquad 110 \qquad 2 \qquad 200$$

The solution is to type in enough leading zeros to make all keys the same length:

Maximum 9999	Maximum 999
0001	001
0002	002
0010	010
0110	110
0200	200

3.4.4 MULTIPLE SCREENS

Superbase records can include up to four separate screens. So far in the tutorials we have been working with single screen records, but we shall now add an extra screen to the invoice file.

REDEFINING THE FILE FORMAT

To do this we will have to edit the screen format again, so press RETURN to get Menu 2 and then hold down the SHIFT key and press 'f2' to select the FORMAT option.

OBTAINING EXTRA SCREENS

Once you have the Invoice Format on the screen, press 'f1' and then the '+' key. The message 'Forward Screen' will indicate that you have moved forward to a new screen. This is how you obtain an extra page for your records.

The '+' command can also be used in the SELECT Option. The key '-' is used for returning to the previous screen.

TEXT FIELD

On line 2 of the new screen, type the field name 'Paid', move the cursor along a couple of spaces and set a TEXT FIELD by pressing 'f1' followed by 'T'. Make the field three characters long to allow you to enter 'yes' and 'no', and then set the end of the field by pressing RETURN. Then press 'f1' followed by STOP to finish the format, and end the function as you have done before. Check the results with the SELECT Option, using '+' and '-' to move from screen to screen.

3.4.5 ALLOWED CHARACTERS

All characters may be entered into Superbase text fields, except for the following:

- " / & > < ? * = # -

The " and - characters are strictly forbidden, except that the - character may accompany negative numbers. The other characters may be included, but their presence can invalidate the SELECT MATCH and FIND operations which use the same characters for control purposes.

TUTORIAL THREE

3.5   OUTPUT / WORD PROCESSING LINK

You've already seen how to use the OUTPUT command to produce printed or displayed lists of selected items from your data. In this section we go over the different forms of output and the output formatting commands. Then we look at how to produce a file from the database for use in word processing.

3.5.1   OUTPUT COMMAND

OUTPUT can be combined with the following options:

```
all       or    from "list"
across    or    down
display   or    print
```

Here are some examples using the single field [customer]:

```
output display all across [customer]
output print all down [customer]
output display from "hlist" down [customer]
output print from "newlist" across [customer]
```

There are full command lines. In practice you won't need all this detail every time, since some items remain set after being included. These are the 'print' or 'display' selection, and the 'down' or 'across' selection. And you can give the initial output command with the 'f4' function key (on Menu 1), following it with the rest of the command on the command line.

3.5.2   OUTPUT FORMAT COMMANDS

These are the '@' and '&' signs, used before field names to position and control the output. The numbers can of course be varied.

@10 [customer] displays the contents of the field at column 10.

@10,4 [customer] displays the contents of the field at column 10, row 4, each item on a new page in screen.

@0 positions the cursor at line 1, column 1, without clearing the screen.

@5,0 causes a carriage return to column 5. Use @1,0 to print a blank line.

& [customer] removes all trailing spaces from a text item.

&5 [customer] cuts the text item short to 5 characters.

&4,2 [unit-price] puts a number into the form of 4 digits before and 2 after the decimal point. Rounding is automatic. If insufficient places are allowed, '#' signs are displayed to indicate overflow.

If your printer allows underlining, these commands can be used with 'Output':

@-[customer] @- switcnes underlining on for (customer) and then off again.

@+ [customer] switches underlining on for the next text item only.

Here is an example of a fully formatted output command:

output print all across @10,5@-&12[customer]@25&5,2[unit-price]@-

Try this for yourself, and then vary the row, column, and formatting values to see the effects.

3.5.3 'PRINT' AND 'DISPLAY' WITHOUT 'OUTPUT'

You can only use the output command options 'all', 'from "list"', 'across', and 'down' in the output command itself. This means that you must either press the 'f4' key or type 'output' before you use any of them.

However, 'print' and 'display' will work as first word commands with the output formatting commands described in the previous section.

See Reference Section 8.1.2.

3.5.4 OUTPUT TO DISK FOR WORD PROCESSING

If you want to obtain a list of, for example, name and address data to be used for printing standard letters, you use the OUTPUT TO command. This is described in full in Reference Section 8.11.

The sequence of operations is:

1. Unless you want data from all records, use 'find' to produce the list of selected records you want to output.

2. Use 'output to' to create a disk file containing the actual data.

3. Quit from Superbase and load Easy Script.

4. Load or type the standard letter.

5. Output the letter, specifying the 'F' option for a fill file. When prompted, give the filename specified at step 2 above.

3.6   COMMANDS AND PROGRAMS

We have explained and mentioned that Superbase has a dual control structure, that it is both Menu-driven and Command-driven. You will now have had experience of both kinds of control.

Anything that you type on the lines at the top of the screen is a command.

In fact, you can get at all of Superbase's options and facilities without the use of the MENUS at all.

OUTPUT USING THE COMMAND LINE

You shouldn't use capitals in the command words themselves, except when abbreviating as explained below.

From either Menu, type the Command Line 'output all the records' and press RETURN. This has exactly the same effect as pressing 'f4' to obtain the OUTPUT Option and then responding 'all the records' to the prompt.

A Command line always begins with a Primary Command such as those which appear on Menu 1 and Menu 2, and is followed by the Secondary Commands and expressions associated with the option corresponding to the Primary Command.

3.6.1   ABBREVIATING THE COMMAND LINE

The words 'the' and 'records' and the spaces are not actually needed for Superbase to understand your Command Line but serve simply to make the syntax more natural. You could have entered the last Command Line simply as 'Outputall' if you had wanted to.

You could even abbreviate further to the first letter of the command with the second letter SHIFTed as in 'oUaL' or 'oUfR"hlist"[goods][unit-price]'.

The rule is that any command word can be reduced to the shortest possible unique form of the command, with a minimum length of 2 characters.

You may want to try to obtain the results you achieved earlier via the Menus by using command lines instead. Try 'file "invoices"' then 'select first'.

3.6.2 COMMAND LINES WITH MORE THAN 1 COMMAND

A Command Line may include more than one Primary Command if they are all in different CLAUSES separated by colons.

For example, this was how we suggested you print out a copy of your file status: 'print:maintain status:display'.

Up to 79 characters are available for multiple commands.

CALC in particular often requires you to use multiple commands. You can use:

> calc [unit-price]=500;[quantity]=25

(note the compulsory semicolon) to change more than one field at once (use 'display' if you want to see the results). But if you refer to a field more than once, including references in a result field formula, you must use colons:

> Calc [unit-price]=500;[quantity]=25:calc[total-price]*1.1:
> calc [total-price]

The reason we cannot display these fields in a single CALC Command line itself is that field references within a single command are always to the original value of the field. Only by typing a full command line with colons to separate the individual commands to modify and then to display a field (or its derived result fields) can you achieve both modification and display in one operation.

3.6.3 REPEATING COMMANDS WITH THE '<-' KEY AND STORING THEM

In order to recall the last Command Line entered we use the left-arrow key at the top left of the keyboard. The Command Line will be displayed at the top of the screen, either to be executed again (press RETURN) or to be modified (type modifications).

If you don't want to execute it but want to go back to the menu, insert 'rem' at the beginning of the line.

For a simple example, type the command:

> display "Customer is: "[customer]

and press RETURN. After the display, press the back-arrow key. The command re-appears. Press RETURN again to execute it. You can repeat this a few times.

An extra reason for the left-arrow displaying the Command Line instead of immediately executing it is not only so that you can modify it but also so that you can store it permanently. How this is done will be explained in the next section.

3.6.4 LINE NUMBERS AND PROGRAMS

You have seen how the current Command Line can be recalled by
means of the left-arrow key to be used again. However, once a new
Command Line is typed in, the old one is lost.

To store a Command Line permanently for future use you must first
give it a LINE NUMBER. And before that you should make sure that
Superbase's program area is clear. Do this by typing the command
'new'. Press RETURN. Now type in the command

output display all across @20[customer]

Before you press RETURN, move the cursor to the beginning of the
line, hold down SHIFT, and press the INST/DEL key 4 times. Then
type the number 100, and press RETURN. No processing takes place,
but that line is now treated as a program, and is stored in the
program area. To view it, type 'list' and press RETURN. Any menu
command can be placed in a program line in this way. When you're
back at the menu, you can execute the program by pressing the 'f7'
key. The EXECUTE option works on the current program if there is
one, or asks you for a program name if there isn't.

Let's add one line to the program. Type the command

200 display "program finished" : wait

and press RETURN. Again type 'list' and press RETURN to view the
program. Now execute it once more with the 'f7' key.

Lastly, SAVE the program for re-use later. Type

save "myprog"

and press RETURN. Superbase will put the program on the disk
under the name "myprog.p". To get it back, you can type

load "myprog"

and press RETURN. Remember that programs are always saved from
and loaded into the program area. Once a program is loaded you
can add to it as we did above, or do more comprehensive editing
using the PROG option from Menu 2.

3.6.5 RUNNING TOTALS / USE OF VARIABLES

Superbase uses variables in the same way as BASIC. You can set a
string variable by placing a '$' after it, as in

a$ b$ day$ name$

String variables hold alphanumeric text characters. Numeric
variables have no dollar sign, and hold actual numbers:

<center>t x total amt</center>

the value of a variable changes as a program runs. Among other
things, string variables make it possible to execute program lines
in a loop, or repetition, thus saving much memory space in the
computer. To understand this subject fully study your Commodore
manual, or other books on BASIC programming.

In Superbase, a common use of a variable is in a RUNNING TOTAL
batch operation. First, set the variable that will accumulate the
total to zero:

<center>calc t=0</center>

Press RETURN. Nothing is displayed, but 't' is now set to zero.
Then give the batch command:

<center>batch all the records t =t + [due]; "total due is: ";t</center>

Press RETURN. This command goes through all the records in the
"invoices" file, adding the contents of the [due] field to 't' and
displaying 't' as it goes (t must appear at the end of the command
if you want to display it).

When you're back at the menu, type the command:

<center>display t</center>

and press RETURN. The final value of t will be shown.

For more explanation of how to program Superbase, see the
Programming Section of the manual.

3.6.6 APPLICATION PROGRAMS

Superbase's programming feature lets you design quite
sophisticated applications when you're ready for it. The menus
and the command line are stepping stones to more complex programs.
An example of a Superbase program is the "labels" program that
comes free on your disk. This lets you print labels in up to 4
columns. You can try it on ordinary paper with your "addresses"
file.

If you want to interrupt the program near the beginning while it's
still asking for input, follow these steps:

1. Hold down the STOP key.
2. Hold down the RETURN key.
3. Take your finger off the STOP key and then hold it down again.

SUPERBASE HOME AND BUSINESS APPLICATIONS

Superbase can be useful immediately you buy it. If you want to
accelerate its usefulness, you should consider one or more of the

Superbase library of applications. These cover the entire spectrum of applications, from home inventories to stock control and other business systems. Precision Software has many years of experience of business software on both micro and mini computers, and our Superbase applications concentrate this expertise, at the same time giving you the opportunity to learn from it.

3.7   SORTING RECORDS

The SORT Option is for producing lists of the keys to records sorted into an order different from their normal alphabetic order. The records in the file remain unchanged and in their original order.

The list of sorted keys is used in other operations such as OUTPUT and REPORT.

From Menu 2 press the 'f4' key (remembering to hold down the SHIFT key) to obtain the SORT Option.

You will be prompted with:

    all/from "list" (item list....)

Type in the response:

    all on [customer][due] to "sorted list"

and press RETURN.

The message 'Processing' will be displayed. The record counter will change as you watch and after an interval you will be returned to the Main Menu.

Your response to the prompt signified that you wanted to produce a list of all the invoices sorted in order of the Customer name, and for those records with the same name, in order of the amount due.

The list you have named "sorted list" will now contain the Keys of the records in this sorted order.

If you had included the letter 'D-' before the word 'on', the customer names and amounts would have been sorted in DESCENDING order, i.e. beginning with the alphabetically last one for text items, and with the largest one for numeric items.

Verify that the SORT has taken place. Use the OUTPUT Option to Display from "sorted list":

    output from "sorted list" across [customer] [due] [number]

SORT is very important if you're producing reports with several levels of subtotal. You must do a sort on all the fields for which subtotals are required. Imagine a database containing a set of accounts for customers with data for type of business, county, region and city. To get

subtotals for these, you would have to sort on all the relevant fields, in order:

      sort all on [type] [county][region][city] to "sorted list"

Then a Superbase REPORT can use "sorted list" to obtain subtotals for each group of customers in each city, in each region, in each county, for each type of business.

3.8   PRODUCING REPORTS

We shall now conclude this tutorial by using the REPORT Option to create a report on how much each customer owes and has paid on the goods bought.

For a more comprehensive account of the powerful REPORT facility see Reference Section 13.

From Menu 1 use the 'f6' key to obtain the REPORT Option, remembering to hold down the SHIFT key.

The REPORT GENERATOR is entirely prompt driven and constructs for you a Report Program which when executed will produce the report.

REPORT FILE

The first prompt is:

    Enter File to Report on

Type "Invoices" (you must use double quotation marks) and press RETURN.

REPORT TITLE

You will then be asked:

    Enter Report Title

Enter "REPORT ON GOODS SOLD" and press RETURN. Note that the title must be within double quotation marks. This is the heading of your report and will appear at the top of each page of the report.

In case you wanted a title larger than would fit in the Command Area you are asked:

    Any More?

Type 'N' for no.

TOTALS AND SUBTOTALS

The next prompt is:

TUTORIAL - LEVEL THREE

Enter Total Calculation

These are the calculations required for Totals at the end of the report
and subtotals during the report itself. They are entered in the same way
As the total we specified in the BATCH option at 3.6.5 above. You have
ten special Total Variables, t0, t1....,t9 and ten Subtotal Variables s0,
s1....,s9 to use in this option.   Type:

    s0=s0+[total-price];t0=t0+[total-price]

and press RETURN. You will be asked 'Any More?' in case the line of
totals and subtotals is longer than can be fitted in the two line command
area. Reply 'y' as this is the case now. The next prompt is:

Enter Total Calculation

Continue by typing the rest of the calculation and press RETURN.

    s1=s1+[due];t1=t1+[due]

You will be asked 'Any More?' again. This time reply 'n'. We have
specified that we want to total and subtotal the total-price and the
amounts due on all of the invoices.

SUBTOTAL BREAK POINT

After specifying totals and subtotals you will be prompted with:

Enter Field for Subtotal Break

Type '[customer]' and press RETURN. The field for subtotal break
determines when the subtotals are to be printed. Each time the field
specified changes its value we will get a subtotal. By specifying the
'Customer' field we will have a different subtotal for each customer.

Next there is a prompt of:

Enter Subtotal Text

This is the text you want printed with the subtotals to indicate what it
is. Type the following (avoid spaces so as to keep the command on 1
line):

    @1,0"Total for customer:@19s0@1"Total due"s1

and press RETURN.

You will be asked 'Any More?' in case you want more subtotals, but since
we do not, type 'N'.

KEY ORDER OR USE A LIST

A prompt will next be given to find out whether you want the records from
the file in the order in which they are stored (i.e. their key order -
this would be ALL the records), or those from a Key list. Although we do

want to use all of the records we do not want the records to be printed
in key order. Instead we want to use the Key List "sorted list". So
that the information is grouped according to customer and amount due (see
the section on SORTING records above), so respond with:

from "sorted list"

and press RETURN.

REPORT DETAIL

The detail that will form the main substance of the report is prompted
for next with:

Enter Report Detail

Type

@1,0 [customer] [goods] [due]

and press RETURN. Again you will be prompted 'Any more?' Reply as
before. It is the contents of these fields we want to appear for each
record used in the report.

END OF REPORT

The final prompt for the specifications of the report itself is:

Enter End of Report Text

This is the information you want displayed at the end of the report
including the final totals. Type

@1,0 "Report Total-price"t0 @1 "Report Total due" t1

and press RETURN. The 'Any more?' prompt is presented for the last time.
Type 'n'.

STORE THE REPORT

The program created by the Report Generator to your specifications will
now be displayed and you will be asked:

Save Report Definition

Type 'Y' for 'Yes' and the following prompt will ask you what you want
the Report Program to be called on disk:

Enter Report Name

The screen shows

save "

Type

SHIFT for f2 f4 f6 f8

Sales"

(ending with double quotation marks), and press RETURN. The Report
Program will be stored for you to use at any future date.

If you wish to print the report type 'print' first to switch output to
the printer. To print the Report itself press the 'f7' key from Menu 1 or
type in the command 'Execute' directly from either Menu.

There may be errors in your Report Program. This is reasonable, since you
have just used the Superbase Report Generator for the first time.
However, you will wish to correct them so that the Report will run
smoothly. The Program should look like this:

```
100   report "invoices"
200   title "REPORT ON GOODS SOLD"
300   total s0=s0+[total-price];t0=t0+[total-price]plus
400   s1=s1+[due];t1=t1+[due]
500   subtotal [customer]@1,0"Total for customer"@19s0@1"Total due:"s1
600   detail from "sorted list"@1,0[customer] [goods] [due]
700   endreport @1,0"Report Total-price:"t0@1"Report Total due"t1
```

Correct your Report Program so that it looks like this, using the PROG
editing facilities. You must then re-save the Program from the Main Menu.

HINTS AND TIPS

You are strongly advised to BACK-UP your data disk regularly. A
particularly important time to do BACK-UP is before any major
system update to ensure the integrity of your data. BACK-UP is
done from the MAINTAIN Option. See Reference Section 15.4.

On changing data disks always ensure that you reselect your
database by typing the command 'database' on the command line
and following the prompts.

Do not duplicate the name of a database. If you use the name of
an existing list or file, it will be overwritten by the new
list.

LABELS A versatile labels program has been provided. See
Reference Section 13.6. and HELP topic "labels".

1   THE MAIN MENU - MENU 1

1.1   USING MENU 1

Superbase combines great sophistication with simplicity of operation. By means of the various Menus you can access all of the options provided in an easy and natural manner.

MENU 1 is your entry point into Superbase's most often used facilities, each of which is described briefly below beside the Function key used to obtain it.

```
    mode : menu 1          Superbase 64
    V 1.0G     (c) Precision Software,1983


    File Selected  = inv


        f1  Enter

        f2  Select

        f3  Find

        f4  Output

        f5  Calc

        f6  Report

        f7  Execute

        f8  Help
```

1.2   THE OPTIONS

f 1	ENTER	This is the option used to ENTER information into your files. Deselect with 'f1' followed by 'Q'. See Section 5.
f 2	SELECT	The SELECT Option is used to find and display any record stored in the database. It has been given a Menu of its own from which you can choose a wide range of facilities. Deselect with RETURN. See Section 6.

f 3 FIND The FIND Option is used to find records matching a particular set of criteria. It stores a list of the keys of these records to be used by other options such as SORT and OUTPUT. Deselect with 'f1' followed by 'Q'. See Section 7.

f 4 OUTPUT The OUTPUT Option is used to display or print information from all records or a previously selected list of records. Text as well as the contents of fields can be output and BASIC variables and calculations included. Deselect with RETURN. See Section 8.

f 5 CALC The CALC or CALCULATE Option is used to evaluate and/or display any expression. The full range of BASIC functions including trigonometrical functions can be performed. Results can be stored in fields or BASIC variables or simply displayed. Deselect with RETURN. See Section 11.

f 6 REPORT This REPORT Option provides you with a full set of commands for producing printed REPORTS from the information in your files. Deselect with RETURN. See Section 13.

f 7 EXECUTE The EXECUTE Option allows you to run previously designed PROGRAMS which can automatically perform whole sequences of operations on your files. Whole jobs can be carried out at the touch of a button. Deselect with RETURN. See Section 14.

f 8 HELP The HELP Option is used to display a HELP SCREEN designed to give reference information and memory joggers for all of the major facilities offered by Superbase. Deselect with RETURN. See Section 17.

2   THE SECONDARY MENU - MENU 2

2.1   USING MENU 2

Menu 2 provides a range of further options, mainly those capable of having most impact on the system. These options are also obtained by means of the Function Keys on the right of the keyboard.

Menu 2 is obtained simply by pressing RETURN from Menu 1.

```
mode : menu 2          Superbase 64
V 1.0G    (c) Precision Software,1983


File Selected  = inv


      f1  File

      f2  Format

      f3  Batch

      f4  Sort

      f5  Prog

      f6  Maintain

      f7  Memo

      f8  Help
```

2.2   THE OPTIONS

f 1	FILE	The FILE Option is used to change the current file you are working with or to create an entirely new file in the database. Up to fifteen files can be created for each database. Deselect with RETURN. See Section 9.
f 2	FORMAT	The FORMAT Option is used to define the screen layout of a new file and to revise the screen layout of the current file. Each file may have up to four screens formatted for each of its records. Deselect with 'f1' followed by 'Q'. See Section 4.

        Shift for f2 f4 f6 f8

f 3	BATCH	The BATCH Option is used to perform calculations using information from all or selected records in the current file. This is the option you use to carry out UPDATING operations on your files. Deselect with RETURN. See Section 12.

f 4	SORT	The SORT Option is used to sort all or a selected list of records by fields other than the KEY field (records are already stored in key order). The result of a Sort operation will be a file on disk of the record keys in the order of the Sort parameters. The original file remains unchanged. This list can then be used in the OUTPUT, BATCH, REPORT or SELECT options. Deselect with RETURN. See Section 10.

f 5	PROG	This is the Option by means of which PROGRAMS can be created and stored on disk. The PROG Option gives Superbase the power of an applications generator, providing a BASIC extended by all of the Superbase commands. Deselect with 'f1' followed by 'Q'. See Programming Section.

f 6	MAINTAIN	This MAINTAIN Option provides you with a further menu of options to enable you to carry out various utility functions on your files including the EXPORT and IMPORT of data to and from other programs. Deselect with RETURN. See Section 15.

f 7	MEMO	The MEMO Option enables you to create screens of information which can be accessed later by yourself or by other users of Superbase. In particular you can modify or design HELP SCREENS by means of this option. Deselect witn RETURN. See Section 16.

f 8	HELP	Available from both Main Menus, the HELP Option is used to display a HELP SCREEN designed to give reference information and memory joggers for all of the major facilities offered by Superbase. Deselect with RETURN. See Section 17.

Shift for f2 f4 f6 f8

3   COMMAND LINES

3.1   USING DIRECT COMMANDS

Although Superbase has been configured to allow the user to control its many facilities by means of the two Main Menus, it is also possible to bypass the menu system of control and to enter all Superbase commands directly.

Each of the commands included on the Main Menus can be entered in the command area together with a number of supplementary commands provided for the advanced user.

Commands can either be entered individually or joined together with separating colons into a more complex COMMAND LINE.

3.1.1 ENTERING COMMAND LINES

Commands must be typed in lower case (small) letters only, except for the first letter and when abbreviating (see Section 8.10). From either of the Main Menus you can simply type a Command Line such as:

    select next:display [Lastname]

which would obtain the next record in the file and display one field from it, or:

    find "chase-list" where [due] is ">100":output print
    the records from "chase-list"

which would print out the records of customers who owe you more than $100.

For the more experienced user of Superbase this method of control is a faster way of using Superbase's facilities since several functions can be carried out consecutively with no further intervention.

3.2   REPEATING COMMANDS

Whenever you execute a Command Line in this way, you can recall it without typing it in again by pressing the left-arrow key at the top left of the keyboard.

This will result in the Command Line last entered being displayed at the

top of the screen, ready for you to execute it again by pressing RETURN
or for you to modify it.

The Programming Section describes how to insert line numbers and link
Command Lines together to form a PROGRAM.

3.3   THE SYNTAX OF COMMAND LINES

A Command Line consists of a number of CLAUSES each of which is separated
by a colon.

Each clause consists of a PRIMARY COMMAND followed by one or more
SECONDARY COMMANDS.

The Primary Commands are commands such as those whose names appear on the
two Main Menus:

ENTER, SELECT, FIND, OUTPUT, CALC, REPORT, EXECUTE, HELP, FORMAT, BATCH,
SORT, PROG, MAINTAIN and MEMO.

Other Primary Commands are provided for more advanced users and are
detailed in the Programming Section.

The Secondary Commands differ according to which Primary Command you are
using but examples are as follows:

WHERE: Used with FIND as in:

find "listname" where [County] is "=Devon"

FROM: Used with OUTPUT as in:

output the records from "listname"

or used with SORT as in:

sort the records from "listname" on [due]

ALL: Also used with OUTPUT as in:

output all the records

Each of the above Command Lines consist of only a single clause but several clauses can be strung together separated by colons as follows:

find "listname" where [County] is "=Devon":output the records from "listname"

3.4 FURTHER SECONDARY COMMANDS

Further Secondary Commands and other uses of those above are detailed in the section relating to the Primary Command with which each is associated.

If you are new to Superbase it is recommended that you use the menu system of control until you are familiar with the individual commands.

4   FORMAT

4.1   THE FORMAT OPTION

Superbase stores information in files of records. A file may be a collection of invoices or business cards, or perhaps a collection of recipes for meals, depending on how the file has been set up by means of the FORMAT option.

Each of the individual invoices or business cards or recipes is stored on a separate record in the file, which is put into the file by the use of the ENTER option (see section 5.1).

Before the records can be entered, however, the FORMAT option must be used to design the layout of the records and to determine the type of information they are to contain. Use the 'Maintain Status' Option to obtain a printout of you file layouts in case you need to reformat a file.

The FORMAT option can also be used to change the layout of existing records. If you have created a record format and wish to change it, skip to section 4.1.5.

4.1.1   CREATING A RECORD FORMAT

If you have just started up Superbase and have selected a previously non-existent file, or have set up a new file by means of the FILE option (see section 9.1), you will have been automatically put into the FORMAT option.

You should see a blank screen with the words 'MODE: FORMAT' in the message area at the top left of the screen.
You should avoid quitting from a completely blank format without any field names. If you do this, you won't be able to get at the format. Overcome the problem by entering another database, selecting the blank file format and putting in at least one field. Quit, then delete the file as described in Section 6.2.11.

The screen is the 'blank page' on which your screen layout will be designed. Each record may have up to four such screens, each of which can have a different layout and contain different information.

The maximum number of characters per record is 1107. This includes every character visible between field start and end markers for text, constant, key, numeric, and result fields; maximum of 5 characters for date and calendar fields; and a field separator between every 2 fields (i.e. the total number of fields minus 1). Note that a decimal point counts as 1 character, and every numeric and result field has an additional character reserved for the sign. Sign and decimal place character positions are visible between field markers and are counted as part of the field length.

The minimum actual data area per record is 128 bytes. This restriction facilitates Superbase's fast dynamic disk space allocation technique. For further information see the TECHNICAL APPENDIX.

4.1.2 DESIGNING THE RECORD LAYOUT

A record layout consists of two basic types of item: FIELDS, which are the blank slots where items of information will be entered, and DESCRIPTIVE TEXT. You may type any descriptive text onto the screen, but of major importance are the names you decide to give to the fields such as 'address1' or 'LASTNAME' which help make clear what the information in the fields is supposed to be. Up to 1K of descriptive text including lines and borders but excluding the FIELD NAMES themselves, is allowed.

4.1.2.1 FIELD NAMES

These FIELD NAMES are of vital importance since they are the means by which Superbase keeps track of where the data belonging to tne file is to be displayed.

More importantly, the field names are your means of referring to the information held in the fields throughout the file.

The field name can be of any length up to twelve characters and is always the last piece of descriptive text to the left of the field, regardless of how many spaces there are between the field and its name. Field names must be on the same line as the field start marker.

The name must all be on one line and must not contain any spaces. If you were to type a field name containing spaces, such as 'TOTAL PRICE', Superbase would take 'PRICE' as the field name since it would be the last word to the left of the field. 'TOTAL' would be just a piece of descriptive text. To make 'TOTAL PRICE' different from 'PRICE' insert a hyphen or underline between TOTAL and PRICE.

You may use the same field name more than once in the same record layout. If you do so, the contents of the first occurrence of the field will be duplicated in all subsequent occurrences of the field. Occurrences after the first cannot be edited. Under program control you may therefore ensure that data is protected by creating a field on Screen 0 and making Screen 1 (which would contain an uneditable copy of the original field) the default screen. Moreover, tne length of the field and consequently the number of characters displayed may be varied for each copy. This allows you to display only a limited portion of the field contents; but you must always display from the first character rightwards.

Superbase will aiso ignore the case that the field name is typed in. That is to say that 'ADDRESS' will be treated as the same as 'address' or 'Address'.

4.1.2.2 FIELD TYPES

There are seven types of fields, each corresponding to a different type of information you may wish to store in your records.

Each of these types may also be either a NORMAL Field or a FORCED Field.

A FORCED Field differs from a normal field in that during use of the ENTER option, you are forced to enter some data in forced fields and may not leave them empty.

TEXT FIELDS   TEXT Fields are used for storing items of information like names, addresses or phone numbers, which consist of strings of letters or numbers mixed with letters or other characters such as hyphens.
Examples would be '21 Highview Avenue' or '01-654 8989'.

NUMERIC FIELDS NUMERIC Fields are for storing numeric information such as prices, or other quantities of any sort and will not accept non-numerical characters.
Examples are '12.75' or '2'.

KEY FIELDS   These are the same as TEXT Fields except that they can be used to locate the record quickly in a KEY SEARCH (see section 6.2.1), and to keep the records sorted in alphabetical order. Every record must contain a KEY Field, which can be anywhere on any screen of the record. A KEY can be up to 30 characters but we recommend short keys for maximum efficiency.

FORCED FIELDS KEY Fields are always FORCED Fields. Some information must be entered into a forced field - it cannot be left empty.

Any field can be a FORCED Field.

DATE FIELDS   These are for storing dates. They have a fixed length of seven characters; two each for the year and the day and three for the month. Dates must be entered in the form '01Jan82' or 'Oct1883' (either capitals or lower case). Superbase will calculate the day of the week from the date and display it in the message area at the top of the screen. Dates are valid within the range 1 January 1900 and 31 December 1999.

A DATE Field can, however, be set to be eleven
characters long so that the day of the week can
be displayed in the field itself. In such a case
you would enter the date as above and leave the
day of the week for Superbase to calculate and
display automatically.

CONSTANT FIELDS   CONSTANT Fields are used for holding information
which is the same throughout the file of records.
An example would be a field for storing the TAX
rate in a file such as the Customer Invoice file
in Tutorial Two, or a field for storing PI or
some other constant in a scientifically oriented
application. The initial value to be held in a
CONSTANT Field is set during the formatting
process and this will appear as a default value
in each record during data entry.

If the value in the CONSTANT Field is altered by
reformatting the file, then all subsequently
created records will display the new value as a
default, leaving the old value unchanged in
previously existing records. Thus if there were a
change of tax rate then new records would contain
the new tax rate but records entered while the
old rate was in effect would continue to display
the original value. To change the constant
field in old records use the BATCH option.

When entering data the CONSTANT Field can be
overwritten for the current record.

RESULT FIELDS   These are NUMERIC Fields which are to contain a
value dependent on the value of the contents of
other NUMERIC Fields within the record. A formula
such as '[PRICE]*[MARGIN]' is specified, where
the square brackets with names enclosed denote
the fields referred to by those names and '*'
signifies that we want the contents of these two
fields to be multiplied together. In such a case
the result field would contain the mark-up value
for the product.

Superbase will automatically calculate the value
to be stored in a RESULT Field without any
further intervention by the user. If the values
in the fields specified in the formula are
altered, Superbase will readjust the value it
holds in the RESULT Field.

You may use any constant or BASIC function in
your formula, and by using parentheses the
formula can be made more complex (e.g.
'([PRICE]*0.15) + [PRICE]' which would increase
the price by 15%). Square brackets around field

names as in the above example signify the contents of that field.

Note that field names must be full and complete. Up to 79 characters can be used to describe the calculation as it is entered at the top of the screen (the last example above uses 22 cnaracters). The calculation is stored in a compressed form, with a maximum of 30 characters. Each field name takes 2 characters. Spaces are not counted. All arithmetic operators (including opening and closing parentheses) and functions take 1 character each. Field names used in a calculation can be anywhere in the record and on any screen. RESULT Fields can make use of other RESULT Fields, so if 79 characters is insufficient, intermediate RESULT Fields can be created on screens that are not normally viewed.

It is important to bear in mind that you may even use the names of non-numeric fields in a calculation, in which case Superbase will pick up the first item of numeric information in those fields. In a TEXT Field containing the information ' 2 8amp Fuses ' for example, the value '2' would be picked up in a calculation which refers to the contents of that field, as it would if 'Fuses, 2' were contained in the field. If the field contained '8amp fuses, 2' however, the value of the field would be taken as '8'.

It is not until after you have finished designing your record layout and have selected the 'End Format and Store' option that you will be asked to enter the formulae for your RESULT Fields.

CALENDAR FIELDS   CALENDAR Fields store dates like DATE fields, but are also like RESULT fields in that what they contain depends on calculations carried out on other dates within the record.

They could be used for the automatic calculation of regular appointments or of a deadline which is a fixed number of days from another date in the record.

4.1.3 SETTING THE FIELDS

The previous sections have described each of the field types and what they are for. In the sections to follow you will be shown how to set fields of each of these types in your record layouts.

You will see that to set the start of any of the fields, you can use the 'f1' key followed by the first letter of the field type to be set (e.g 'f1' + 'T' for a Text field).

4.1.3.1 SETTING A KEY FIELD

Having typed a field name such as 'NAME' you may set the start of a KEY Field by pressing the 'f1' key followed by the 'K' key.

The message 'Set Key' will appear in the message area at the top left of the screen and a small rectangle will appear just before the flashing cursor. You will also see the number '1' in the right hand message area at the top of the screen.

The small rectangle signifies the position where the KEY Field starts and the number signifies the current length of the field.

After choosing the length of the field (perhaps 15 to allow for names up to fifteen characters long) press the cursor right key at the bottom right of the keyboard to move the cursor along to the end of the key field. The maximum length of a key field is 30 characters.

> Note: The key should be as short as possible while allowing each key to be unique. The shorter your keys the faster your record access times will be, and the less disk space will be occupied by the file index.

You will notice that as the cursor moves along the line the number in the right hand message area will increase to show you the current length of the field.

You may also use the cursor left key to reduce the length of the field.
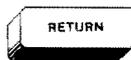
Once the field is the size you require (check the length count) press the RETURN key to set the end of the field.

Note that field lengths can be easily changed at any time without loss of data, so choosing a field length at this point does not limit you in any way. However, once information has been entered into the Key field, it should not be shortened to less than the maximum used length in any record. REPLACING a record that has had its Key field shortened so that it becomes the same as another record might result in damage to your records.

You will notice a small striped square on the screen just before the cursor. This is the field-end marker, and may be one of two kinds depending on the direction of the stripes.

If the stripes run diagonally from bottom left to top right then the field-end marker signifies the end of a normal field, but if the stripes run diagonally bottom right to top left then the field-end marker signifies the end of a FORCED FIELD.

A forced field is obtained with SHIFT/RETURN, and must have data entered into it during the ENTER option.

Placing the cursor over either the field-start or field-end marker will result in the field type being indicated at the top of the screen.

4.1.3.2 SETTING A TEXT FIELD

To set a TEXT Field press the 'f1' key followed by the 'T' key.

You will see another field-start marker appear on the screen, this time a small square. The message 'Set Text' will be displayed in the left-hand message area, and the number '1' on the right to indicate the field length.

Use the cursor right key again to set the length that you require. Check the number of characters with the counter in the right-hand message area and press RETURN to set the end of the field. The maximum length of a Text field is 255 characters, so the field start and end markers may be on different lines. You cannot start a field on one screen and end it on the next.

4.1.3.3 SETTING A DATE FIELD

A DATE Field can be set by positioning the cursor where you want the date to be shown on the record and pressing the 'f1' key followed by the 'D' key.

The word 'Date' will appear in the left-hand message area and the cursor will jump to the end of the field.

Unlike other fields mentioned above, the DATE Field will be set to a fixed length of seven characters, the minimum length for a date field, unless you use the INSERT key to extend it to eleven characters in order to make room for the automatic calculation of the day of the week to be displayed in the field. DATE fields are stored in numeric form using up to a maximum of 5 characters.

4.1.3.4 SETTING A NUMERIC FIELD

A NUMERIC Field, e.g. one that is to contain information as to the price of an item, can be set by pressing the 'f1' key followed by the 'N' key.

The message 'Set Numeric' will appear in the message area and a small square preceding a '#' character will appear on the screen just before the cursor to mark the start of the field.

This time there will be two numbers separated by a comma in the right-hand message area; the first representing the number of digits before the decimal point, the second representing the number of digits after the decimal point.

A NUMERIC Field may contain up to a maximum of nine digits. There may be up to nine before and up to four after the decimal point. A numeric field that is to contain financial information such as a price will normally have anything up to seven digits before and two digits after the decimal point. Numbers are rounded automatically when necessary, but it should be noted that the results of rounding can be unpredictable when very large numbers are involved, due to limitations in the computer's way of doing arithmetic. However, only very small fractions of a penny (in currency processing) are involved.

Note that although a NUMERIC Field does contain a sign for plus or minus (for profit or loss for example) it will not contain a currency sign such as '$' or '£'. The currency sign can be included with the descriptive text immediately before the start of the field.

4.1.3.5 SETTING A RESULT FIELD

To set a RESULT Field press the 'f1' key followed by the 'R' key. You will see the message 'Set Result' in the message area at the top of the screen.

The rest of the process of setting a RESULT Field is the same as for setting a NUMERIC Field above, since the formula for a result calculation is not specified until you have finished formatting the record layout as a whole.

A combined maximum of 32 RESULT, CONSTANT, and CALENDAR fields may be used in a record format. When setting a calculation, you cannot refer to the field itself.

4.1.3.6 SETTING A CONSTANT FIELD

You can set a CONSTANT Field by pressing the 'f1' key followed by the 'C' key. The message 'Set Constant' will be displayed at the top of the screen and you may use the cursor control keys to set the size of the field in the same way as for a TEXT field. The maximum size of a Constant field is 30 characters. The contents of the Constant field are specified at the end of the FORMAT operation.

4.1.3.7 SETTING A CALENDAR FIELD

Set a CALENDAR Field by pressing 'f1' followed by SHIFT 'C' key. Apart from the message 'Set Calendar' the process is the same as that for setting a DATE field above. The formula for the Calendar field is specified at the end of the FORMAT operation.

4.1.3.8 SETTING A FORCED FIELD

Any field may be set as a FORCED Field simply by pressing SHIFT/RETURN instead of RETURN when setting the end of the field. This will force the user to enter data into the field before continuing to enter data into subsequent fields. Very useful where a field contains vital information which might otherwise be left out.

Note that KEY Fields are always FORCED Fields. In this case you may press either RETURN or SHIFT/RETURN to set the end of the field. CONSTANT Fields are not forced, but are automatically filled with the constant value when records are being added to the file.

4.1.4 FURTHER FORMAT COMMANDS

There are a number of further commands which you can use while creating a record format. They can be used to increase the number of screens in the record, enhance the appearance of the records and make the records more intelligible by dividing the information in the fields from the descriptive text.

FORMATTING ADDITIONAL SCREENS

When you have finished formatting your current screen you can obtain the next blank screen to format by pressing the 'f1' key followed by the '+' key. Up to four screens are available for each record layout.

RETURNING TO THE PREVIOUS SCREEN

If you are formatting a multiple screen record layout you can return to the previous screen by pressing the 'f1' key followed by the '-' key.

INVERTING A LINE

You can invert a line of the record so that it appears light on dark rather than dark on light. This has the effect of highlighting the line you have inverted.

Position the cursor on the line to be inverted and press the 'f1' key followed by the 'I' key.

INVERTING THE SCREEN

If you prefer, you may invert the whole screen so that the entire record appears light on dark.

Press the 'f1' key followed by the 'S' key.

You may reverse the effect of either Invert Screen or Invert Line by repeating the command.

ERASING A LINE

[f1] [E]   A whole line can be erased by positioning
the cursor on the line to be blanked and
pressing the 'f1' key followed by the 'E'
key.

Used in this way, the ERASE command will only erase lines of
descriptive text such as field names and other text entered onto
the screen during formatting. If you want to remove fields from the
record you must position the cursor over the field-start marker or
the field-end marker before pressing the 'f1' key followed by the
'E' key.

DELETING A LINE

This command differs from the command above in that whereas the
latter will replace an original line of descriptive text with a
blank line, this command will remove it from the record altogether,
shifting all subsequent lines up to fill the gap.

Note that you cannot use this command to delete lines which have
fields on them. This is to ensure that you do not remove fields
accidentally, but have to consciously go through the procedure
described under the ERASE command above.

[f1] [INST/DEL]   Just press the 'f1' key followed by the
'INST/DEL' key at the top right of the
keyboard.

INSERTING A LINE

Similarly, a new line can be inserted into the record, shifting all
subsequent lines down to make room.

[f1] [SHIFT] [INST/DEL]   Position the cursor at the start of the
line before which you want the new line
to appear, and press the 'f1' key
followed by the 'INST/DEL' key with the
'SHIFT' key held down.

DRAWING A BORDER

[f1] [B]   You may wish to draw a box around the
record or to draw a divider between two
parts of the record. Press the 'f1' key
followed by the 'B' key. You will then be

asked 'Border Character?'.

Pressing a key at this point will enable you to draw repeated characters of a particular kind simply by using the cursor control keys.

The cursor will leave in its wake a stream of characters of the type you have chosen until a key other than a cursor control key is pressed.

Note that many of the graphics symbols on the front of the keys are available if you hold down the 'SHIFT' or 'CBM' key while selecting the character to be repeated, but you cannot use the symbols used by Superbase as field-start or field-end markers.

Try experimenting with different keys until you find tne symbol you wish to use.

To erase a border that nas been created in this way, simply select the BORDER option again but choose the space character as the border character and draw a border of spaces.

SCREEN DUMP

You can obtain a paper printout of the screen at any time by holding down the CONTROL key while pressing the 'P' key.

QUIT FORMAT

If you wish to escape from the Format Option at any point and return to Menu 1, you can do so by pressing the 'f1' key followed by the 'Q' key.

You may wish to do this if you nave entered the Format Option by mistake. Any changes made prior to this command will not be saved.

CLEAR FORMAT

If you are totally dissatisfied with the format you have designed, you can clear the screen to start again by pressing the 'f1' key and then the 'CLR' key at the top left of the keyboard.

SHIFT for f2 f4 f6 f8

Note that only the current screen is cleared if you are working with a multi-screen file.

This is another key which requires the SHIFT key to be held down.

END FORMAT AND STORE

When you have finished formatting your record you can store the screen layout by pressing the 'f1' key followed by the 'STOP' key.

You will notice each of the field-start and field-end markers being replaced by angle brackets.

If you have included RESULT or CALENDAR Fields in your record format then you will be asked:

'Enter Calculation?'

Type in the formula you require and press RETURN (see section 4.1.3.1 above for details of formulae in RESULT Fields).

You will also be asked to specify the contents of any CONSTANT Fields at this point.

DUPLICATE KEYS

After specifying the calculations and constants you will be asked:

'Allow Duplicate Keys?'

If your application can be set up using a UNIQUE KEY then type 'N' for 'no' in response to this question, otherwise type 'Y' for 'yes'.

A duplicate key file is a file in which more than one record can have the same KEY. In a file such as the Address Book file in Tutorial One, where the Key Field is NAME, there could be two separate 'John Smiths'.

The disadvantage of duplicate keys lies in accessing records with identical keys from a key list. Although a duplicate key such as 'John Smith' will appear on the key list as many times as there are records with that key, when the list is used only the first actual record will be accessed, over and over again, for each identical key encountered. This obliges you to devise a program using the SELECT NEXT command to obtain the second and subsequent 'John Smith' records.

It is recommended that you normally use UNIQUE KEYS. Only use DUPLICATE KEYS where there is an overriding reason for doing so. One good reason might be to have the facility to obtain the most

recently created record of a number of records sharing the same
key, where records are records of orders, for example. If Superbase
has to add a duplicate key, it inserts the key in the key index
before any existing identical keys. This means that every search
for such a key will retrieve according to the principle of 'last
in, first out.'

4.1.5 EDITING AN EXISTING RECORD FORMAT

If at any time you wish to change the format of one of your files
you may do so without losing any data. You should always do a
STATUS command on the file to print out the format characteristics
including any formulae before embarking on a file reformat
operation. See Reference Section 15.1.1

FIELDS MAY ONLY BE REMOVED FROM OR ADDED TO THE END OF THE RECORD.

You can change the length of the fields or change the descriptive
text. If you change a field name you must make sure that any
references to the field in programs are also changed. Although
field types may be changed, this should be done with caution as you
may inadvertently cause damage to your data.

From Menu 2, obtain the FORMAT option by
using the 'f2' key on the right of the
keyboard. Hold down the SHIFT key and
press the key marked 'f1' on top and 'f2'
at the front.

Move through the existing record format using the INST/DEL key to
insert or remove spaces inside field markers. Add lines, borders,
etc. as required. Change field types with the following rules and
guidelines in mind.

1 If a date or calendar field is converted to a non-date or
   calendar field, the date that was in it will be displayed as a
   number.

2 If you change a field to become a result or calendar field, the
   formula for the next following result or calendar field will be
   displayed for editing at the end of the operation. You must
   overtype the display with the new formula, and re-enter the old
   formula into the proper result field.

3 If you change a text field to a numeric field then any text data
   in that field will be lost when the field is subsequently
   edited.

4 If you specify another field as the key field, the current key
   will be re-assigned to that field and whatever was in that field
   will be lost. This procedure is NOT recommended!

5 If you change a replica (i.e. copied) field to a unique field, you will create a new field. This will not affect the order of fields within the record. The new field will have no data in it. Likewise, converting unique fields to replica fields is permissible, but will result in the data from the original of the replica being displayed in that field.

Full examples of setting up record layouts are given in Tutorials One and Two.

4.1.6 TRANSFERRING AN EXISTING RECORD FORMAT BETWEEN DATABASES

If you wish to create a file format in either the current or another Superbase database that is the same or nearly the same as an already existing one, there is an easy way of doing so.

Use the MAINTAIN OTHER Option to copy the file format information to a file with a new name (see Reference Section 15.6). The records themselves cannot be copied as they are stored in the Database file itself, which is listed in the disk directory in upper case letters. Once you have created the new format file, you can enter its name after selecting the FILE Option, either in the current or the new database.

4.2 SUMMARY

The Format Option is used to set up screen layouts for the records in a file, or to modify already existing screen layouts.

You can obtain the FORMAT option to revise a screen layout by pressing the 'f2' key from Menu 2.

You are automatically put into the FORMAT option whenever you select an as yet non-existent file from the Database Catalog, either at start-up or while using the FILE option.

Sets a Key Field.

Sets a Text field.

Sets a Date field.

f 1 **N**	Sets a **Numeric** field.
f 1 **R**	Sets a **Result** field.
f 1 **C**	Sets a **Constant** field.
f 1 **SHIFT** **C**	Sets a **Calendar** field.
f 1 **+**	Gives you the **next** screen to format for this file (up to four, numbered 0 to 3).
f 1 **–**	Takes you back to the **previous** screen.
f 1 **I**	**Inverts the line** of the screen where the cursor is currently positioned.
f 1 **S**	Inverts the whole **screen**.
f 1 **E**	**Erases** a line of descriptive text where the cursor is currently positioned.
	Erases the field which has the cursor positioned over its field start or field end marker.
f 1 **INST DEL**	**Deletes** the line the cursor is currently on and moves up the subsequent text to fill the gap left behind.
f 1 **SHIFT** **INST DEL**	**Inserts** a line just before the current cursor position and pushes the subsequent text down to make room.
f 1 **B**	Enables the cursor control keys to be used to draw a line or border of characters of your choice.

R-23   SHIFT for f2 f4 f6 f8

CTRL P

Causes whatever is currently on the screen to be **printed** out.

f 1 Q

Enables you to **quit** the Format option and return to Menu 1. The Format is abandoned.

f 1 SHIFT CLR/HOME

Clears the whole format on the current screen to enable you to start again.

f 1 RUN/STOP

Ends the formatting process, asks for calculations and constants, and stores the record format.

5   ENTER

5.1   ENTERING INFORMATION

Once you have created a file (see section 4) you can enter information
into it.

With the ENTER option, you fill in a blank record with the information
you want to keep, then add that filled-in record to the file.

5.1.1 OBTAINING THE ENTER OPTION

      From Menu 1 press the f1 key on the right
of the keyboard.

You should see the blank record from the file selected appear on
the screen.

Superbase uses the message area at the top of the screen to tell
you:

MODE: ENTER	that you are in the ENTER option
#1 k	that the field of the record you are about to enter information into is the first field, and is a KEY FIELD.

Note that the first field of the record need not have been a KEY
FIELD. Every record must contain a key field but it can be in any
position in the record.

You are now ready to fill in each item with the desired
information. All characters are valid except double quotation marks
(").

5.1.2 FILLING IN THE BLANK RECORD

The following control keys allow you to move the cursor so that you
can enter information where you want:

      Moves the cursor to the right unless the
cursor is at the end of the field, in
which case it moves the cursor to the
next field.

Moves the cursor to the left unless the cursor is at the beginning of the field, in which case it moves the cursor to the previous field.

Moves the cursor directly to the next field.

Moves the cursor directly to the previous field.

Sends the cursor to the first field in the default screen. Any of the four screens can be set as the default screen by typing 'Screen n' from the Main Menu, where n is the number of the screen wanted as the default screen. This screen will be the first to be displayed when ENTER is selected.

Clears all of the fields in the record and sends the cursor to the first field of the default screen.

Enables you to exit from the ENTRY option without any information being stored. This is useful if you have selected the ENTRY option by mistake.

Dumps the current screen to the printer to provide you with a hard-copy print out of the screen layout or the record you are currently entering.

Moves the cursor directly to the next field unless the cursor is in the last field of the last screen, in which case it displays 'Press Return to Store' in the message area. Pressing RETURN again at this point stores the record, along with the information you have entered, into the file.

Note that if the current file is NOT a Duplicate Key File (see section 4.1.5) and the KEY FIELD contains information identical to that in an already existing record, the message 'Key Already Exists' will be displayed in the message area together with 'Press Return to Continue'. The record you have just defined will NOT be stored. You will remain in the ENTER option so that you can type a new key.

To change an existing record you should use the REPLACE function of the SELECT option (see section 6.2.10).

SHIFT RETURN

Displays 'Press Return' in the message area. Pressing RETURN will then store the record in the file. This command can be entered wherever the cursor is at the time. Cancel it by pressing any key other than RETURN.

5.1.3 FORCED FIELDS

If the cursor is in a field which has been set up as a FORCED FIELD (see section 4.1.3.1), you will be prevented from storing the record until some information has been typed in all FORCED FIELDS.

The message 'Forced Field: Please Enter Data' will be displayed in the message area at the top of the screen and the cursor is placed in the first FORCED FIELD.

5.1.4 DATE FIELDS

In a field which was defined as a DATE Field during record formatting (see section 4.1.3.1), Superbase will only accept entries of the form '18oct83' or 'oct1883' (capitals or lower case). Superbase accepts single character dates so it is unnecessary to enter 04oct83 as 4oct83 will be accepted.

Attempting to enter a sequence of characters of any other kind will result in the message 'Invalid Date' being displayed in the message area, and the cursor will be prevented from moving to another field until a valid date has been entered.

Once a valid date has been entered, Superbase will calculate which day of the week corresponds to that date and will display that day in the message area at the top left center of the screen.

If the DATE Field is long enough (11 or more characters) Superbase will also display the day of the week in the field itself.

To enter a date a designated number of days forward, merely add days to the date and Superbase will calculate the valid date. For example, if the date is 12Jan and you require 20 days on, type in 32Jan.

See the DATE command in Programming Section 2. Single keystroke input of a pre-assigned date may be achieved under Program control.

Full examples of the use of the ENTER Option are given in Tutorials One and Two.

5.1.5 MODIFYING NUMERIC FIELDS

There is an easy way of entering multiples of numbers into NUMERIC Fields. Suppose you know that your customer has bought 17 items at $37.95. First enter 37.95 into the NUMERIC Field. Then place the cursor at the beginning of the field and type in '17*' and press RETURN. The value stored in the field will be the result of multiplying 37.95 by 17.

You may modify NUMERIC Fields in this way using any of the arithmetic operators; '+', '-', '*' or '/' provided a space is available in the field for the additional character.

You cannot insert operators if the field is full.

If you want the number and operator to be after the field contents, as in '/6', you can use the DELETE key to pull the field contents over to the left so that you can fit in your number and operator.

This facility for modifying the contents of a NUMERIC Field is also available with the ADD and REPLACE Options in the SELECT Option.

5.3 __SUMMARY__

The ENTER option is used to store information into new records in your file.

f 1	Selects the ENTER option from the Main Menu.
CRSR →	Moves the cursor to the right within a field, or if at the end of a field, moves the cursor to the next field.
SHIFT CRSR →	Moves the cursor to the left within a field, or if at the beginning of a field, moves the cursor to the previous field.
CRSR ↕	Moves the cursor directly to the next field.
SHIFT CRSR ↕	Moves the cursor directly to the previous field.
RETURN	Moves the cursor directly to the next field, or if in the last field, when pressed again will store the record in the file.
SHIFT RETURN	With the cursor in any position, displays 'PRESS RETURN' message. Pressing RETURN again stores the record in the file.
f 1 CLR HOME	Moves the cursor to the first field of the default screen.
f 1 SHIFT CLR HOME	Clears all of the fields in the record and sends the cursor to the first field of the default screen.
f 1 Q	Exits from the ENTER option without any data being entered.
CTRL P	Prints the current screen.
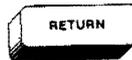
6   SELECT

6.1   SELECTING A RECORD

The SELECT Option provides you with a number of ways of obtaining
particular records from your file.

Note that records are stored in the file alphabetically according to the
contents of the KEY Field of each record (see section 4.1.2.2). Numbers
are treated as coming 'alphabetically' before letters.

6.1.1 OBTAINING THE SELECT OPTION

To obtain the SELECT Option from Menu 1,
use the 'f2' key at the top right of the
keyboard. This is the 'f1' key with the
SHIFT key held down.

You should now see a further Menu, the SELECT Menu, with a number
of sub-options listed on the screen. To return to this Menu after a
SELECT operation, press RETURN. Press RETURN again for Menu 1.

```
    mode :   Select Menu


        f1   Key

        f2   Current

        f3   Next

        f4   Last

        f5   Previous

        f6   First

        f7   Match

        f8   Output

        A    Add

        R    Replace

        D    Delete
```

6.2 THE SELECT OPTION CONTROL KEYS

The various choices available to you at this point, and the control keys used to obtain them, are as follows. From the SELECT Menu or from any SELECT option use the function key selection or the initial character of the SELECT option.

6.2.1 KEY

f 1 or **K**
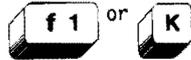
This command enables you to search your file for a record with particular information in the KEY Field. On selection you will be asked: 'Key?'

Type in the information you think is held in the KEY Field of the record you want and press RETURN. You may enter the full or partial contents of a Key Field for a full or partial match.

Superbase will then display either the record whose key matches your entry exactly, or the following record that contains the nearest key to the characters entered.

If a record is found with a key that starts with the same characters as those you entered, but has more characters, then the message 'Partial Match' will be displayed.

If no record has a KEY starting with your specified characters, then the message 'Key Not Found' will be displayed together with the record which has the alphabetically closest KEY.

6.2.2 CURRENT

f 2 or **C**

This command obtains the record you are currently working on in this file.

Superbase will remember the CURRENT record for up to the last three files used. This can be used in multifile programming situations. If there is no current record, you will see the 'End of File' message and a blank screen.

6.2.3 NEXT

f 3 or **N**
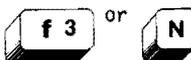
If you have just been using a record or have just viewed a record using one of the other commands, this command obtains the NEXT record in the file.

This will be the next record alphabetically according to the key field. Use 'M' to obtain next 'Matching' record (see Section 6.2.7).

If you have not yet accessed any records in this file, then attempting to use 'Next' will give you the first record in the file.

6.2.4 LAST
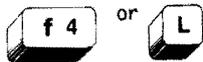
This command obtains the LAST record in the file. In a file of invoices with the invoice number as the key, the LAST command would display the invoice with the highest number. This would be the most recent invoice stored.

6.2.5 PREVIOUS

After viewing a record you may wish to see the PREVIOUS record in the file, in which case use this command.

6.2.6 FIRST
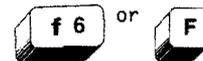
Use this command to obtain the FIRST record in your file.

6.2.7 MATCH

The MATCH Command provides you with a slower but much more flexible method of searching your file for particular records.
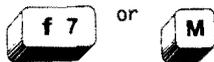
You may use this option to view selected records based on a wide range of criteria in any field or combination of fields.

SUMMARY OF SELECTION CRITERIA

Note that "text" can be letters or dates, as appropriate.

Exact match	"=text"	"=number"
Sliding match within field	"text"	
Exact exclusive match (not equal to)	"#text"	"#number"
Sliding match from field onwards	"text-"	
Terminate the sliding match	"*"	
Match greater than field content	">text"	">number"
Match less than field content	"<text"	"<number"
Match alternatives	"t1/2/etc"	"n1/n2/etc"
Match range of values	">t1&<t2"	">n1&<n2"
Match partial text	"=text*"	
Match with 'wild' character	"=text??"	
Request match in command area	"<-" (back-arrow)	

You can specify that the records selected have particular values in specified fields, or that they have that value in a field within a particular range of fields. You should not use the characters = # - * > < ? / or & as part of field contents if you wish to use them for matching.

It is possible to require that they have EITHER of two values in a specific field or range of fields, or that a field or one of a range of fields contains a particular string of characters amongst others. You can also specify that a particular field or one of a range of fields holds a value within certain limits, such as between 100 and 500.

Facilities such as these, alone or in combination, ensure that even in a file of thousands of records you can select any particular record or group of records you want with ease.

RECORD TEMPLATE

On entering the **MATCH** option you will be asked: 'Select Match Data'. Superbase will display a blank record on the screen with the cursor in the first field. This is the 'Record Template' into which you enter the criteria to be matched during the search, which begins when you have finished entering criteria.

Using the cursor control keys and RETURN to move from field to field, you may now enter the specification that will determine which record or records are to be selected and displayed.

ENTERING CRITERIA FOR MATCHING

Each field may either be left blank or may have some characters (numbers, letters, or other characters) typed into it. These characters are called the CRITERION for that field. The criterion typed into a field will consist of a string of characters (e.g. 'London') optionally preceded by an operator (e.g. '=London'). The operators available are '=' (equal to), '<' (less than), '>' (greater than) and '#' (not equal to).

If no operator is provided then SUPERBASE will simply look for the string of characters ANYWHERE in the specified field. This is called a SLIDING MATCH and is detailed below.

If a field is not left blank then the specification entered into it will be compared with the contents of each record and only those records which match that specification will be selected.

For example, If '=Jones' is typed into the 'Customer' field of an Invoice record, then only those Invoice records pertaining to Jones will be selected.

Similarly, if the specification consists of '=Jones' in the 'Customer' field and '>500' in the 'Amount Due' field then only those of Jones's invoices for more than $500 will be selected.

STARTING THE SEARCH

Once you have finished entering your specifications into the fields you can store the match criteria and start the search by holding down SHIFT and pressing RETURN. If the cursor is in the last field of the record then just RETURN will do.

The first such record will be displayed and any others can be obtained by pressing 'M' for 'Match' repeatedly.

Each time 'M' is pressed, the next record in the file which matches the specification will be displayed.

INTERRUPTING AND RESUMING THE SEARCH

At any time you may instead interrupt the display of selected records by pressing 'N' for 'Next' or 'P' for 'Previous', in which case the next or previous record alphabetically according to the key field will be displayed, whether or not it matches your specification.

Pressing the 'M' key again will resume the display of records matching the specified criteria.

In this way you can view the records selected by your 'Match' criteria and pause occasionally to browse through neighboring records in the file.

You may even use the ADD or REPLACE commands to modify the file and then continue viewing the selected records where you left off.

ENDING THE SEARCH

To cancel the current MATCH operation in order to set up new match criteria, use the LAST command to jump to the end of the file. You may then use MATCH to enter new specifications.

6.2.7.1 SLIDING MATCH

You may search for a string of characters anywhere in a field by omitting the '=' symbol or other operator in the match specification.

This is known as a 'Sliding Match'.

Whereas '=Desk' would only select records with precisely the word 'Desk' in the appropriate field, 'Desk' would also select records with 'Large Desk', 'Pine-desk', 'desktop' and so on in the specified field.

You can also combine a sliding match criterion with other criteria using operators such as '#', '=' or '>'.

6.2.7.2 FIELD-INDEPENDENT MATCHES

Another facility offered by the MATCH Option is a field-independent match.

Place the cursor in any field and type the specification followed by a hyphen (e.g. 'London-' or '50-'). The records selected will be those with the specified criterion occurring in any subsequent field.

As described above, the field-independent match will look for your specified criterion in all of the fields including and following the field where the specification was entered. It is also possible to restrict the range of fields to be included by typing the FIELD-INDEPENDENT MATCH DELIMITER symbol '*'. This will exclude the field it occurs in and all subsequent fields from the fields to be searched, thus speeding up the search. Also, if you place a field-independent match in field 1 and an exact match in field 4, the search will be canceled for fields after the exact match.

This facility may also be combined with other types of match criteria. Other criteria must be before the field-independent match and after the delimiter '*'.

6.2.7.3 THE 'AND' OPERATOR AND THE 'OR' OPERATOR

You may also use the operator '&' (AND) to specify a range of values, and the operator '/' (OR) to specify more than one possible criterion within a given field.

For instance, the specification '=London/=Birmingham' would select those records with EITHER 'London' OR 'Birmingham' appearing in the chosen field.

Similarly, the specification '>100&<150' would select only those
records with a value in the given field above 100 AND below 150.

6.2.7.4 PATTERN MATCHING

Pattern matching may also be used within a 'Match' specification.
The '*' symbol indicates that any string of characters beginning
with the characters preceding it will be accepted. Pattern
matching characters should be used in conjunction with the '='
operator, as sliding matches are available for wider ranging
matches.

Thus '=Sm*' would select any record with 'Smith', 'Smythe',
'Smullyan' etc. appearing in the chosen field.

Note that the '*' symbol can only be put after a string of
characters and must have no other characters following it.

Similarly the '?' symbol can be used as a 'wildcard' character so
that 'Hutch?ns' would select both 'Hutchens' and 'Hutchins'.

These pattern matching symbols are very useful if you cannot
remember how a name is spelled, or if you suspect that it was
spelled incorrectly on entry, but they are also useful if you want
to ignore characters in a string for the purposes of the match.

6.2.7.5 USING THE BACK ARROW

If you wish to enter a criterion that is longer than the space
allowed for it on the screen, such as the specification of
combinations and alternatives, the back-arrow '<-' provides a way
of doing so.

Instead of entering the specification, place a back-arrow in the
first character position of the field. Press RETURN and continue
with the other criteria if any.

When you have finished specifying criteria in the record template,
Superbase will prompt you in the command area to enter the
criterion for the field with the back-arrow in it. Only when all
such fields have had their specifications entered will the search
begin.

6.2.7.6 SUMMARY

These various types of Match Criteria, used individually or in
combination, add up to a powerful facility for selecting records
from your files. You will see in Section 7 that groups of records
selected in this way can be indexed by a list called a KEY LIST
which can be stored for future use.

6.2.8 OUTPUT

The OUTPUT command available from the
SELECT Option provides a display of the
field names and field contents of the
CURRENT record, either on the screen or
to the printer. To output to the screen
use 'display' and to output to the
printer use 'print'.

The contents of the record are displayed across the page. The full
field sizes are used and information wraps over onto following
lines.

You can also change the format of the output from ACROSS TO DOWN by
typing 'down' from either Main Menu. The two commands can be typed
in together as in 'display down' to display each field on a new
line.

The field names are displayed down the left hand side of the screen
if the display is DOWN and only if all fields are output, with the
contents of each field to the right of the field name.

If you want the output to be directed to the printer instead of the
screen you must first change the direction of output by typing
'print' from either Main Menu.

Whichever of the commands 'display', 'print', 'down' or 'across'
were last used will remain in effect until the converse commands
are used.

6.2.9 ADD

The ADD command is for adding a new
record based on an existing record. The
new record must have a different key
field and may also be changed in any
other fields.

This is useful if you want to enter records which have much
information in common with an existing record. It allows you to
avoid typing all the information in again.

Using the KEY, NEXT, PREVIOUS or other command, select the record
you wish to base the new record on and tnen use the ADD command to
create it.

Note that unless you are working with a Duplicate Key File, the key
field of the new record created by means of this command must
differ from that of the record on which it was based. If you have
not changed the key field, Superbase will display the message 'Key
Exists' and will return the cursor to the key field.

6.2.10 REPLACE

REPLACE is the facility you use to edit the records in your files. It is like the ADD command except that instead of producing a new record based on a record you have selected, it will instead replace the selected record with the modified version you have created.

Whereas the ADD command requires that the key field is changed so that the new record can be distinguished from the record it was based on, the REPLACE command requires that the key field remains the same as in the record to be replaced. Superbase stores records in key order. If you modify the key, you effectively create a new record (see ADD above). If you do this, you may then wish to delete the old record.

See Section 5.1.5 for discussion of an easy method of modifying the contents of numeric fields.

6.2.11 DELETE

This command is used to delete the record that is currently selected from the file.

You will be asked: 'Confirm Deleted Record' so that you can change your mind before any harm is done. Type 'N' for 'no' if you have made a mistake, otherwise type 'Y' for 'yes' and the record will be permanently removed from the file.

6.3 ALTERNATIVE WAYS TO EXECUTE THE SELECT COMMANDS

Note that each of these commands can also be chosen by typing the first letter of the command (e.g. for 'First' type 'F'). A list of these letters is provided in the message area above the main screen throughout the SELECT Option.

It is also possible to bypass the Select Menu by typing one or more of the Select commands directly from either of the Main Menus. The command line you type (e.g. 'Select First') will appear in the message area above the screen. Just press RETURN and the command line will be executed.

If you are selecting on more than one criterion, you must separate them with semicolons:

        select match where [customer] is "=Jones";[goods] is "radio"

You can even join commands together, separating them with colons (':') to create longer commands such as

select match where [Customer]is "=Jones":select next:display [Customer]

Superbase will execute these commands one after the other without any pause between them. (See the Additional Commands Section for an explanation of the 'where' command.) If there is an error in your command line, Superbase will display an error message and stop. You can recall the line and make changes to it by pressing the back arrow key. More details about these COMMAND LINES, as they are called, are given in Section 3 and The Programming Section.

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7   FIND

7.1   USING THE FIND OPTION

The FIND command enables you to set up a list of the KEYS of a selected
group of records which can then be used with the SORT, OUTPUT, BATCH,
REPORT and SELECT commands to access and process just those records on
the list.

The process of specifying which records are to be included in the KEY
LIST is exactly the same as in the MATCH command of the SELECT option
(see section 6.2.7).

7.1.1 OBTAINING THE FIND OPTION

f 3   To obtain the FIND option press the 'f3'
                   key from Menu 1.

You will see a blank record screen as in the MATCH option, ready
for you to enter the match criteria governing the selection of the
records to be included in the list.

7.2   THE DEFAULT LIST

Once you have entered your match criteria as detailed in section 6.2.7,
the message 'Processing' will be displayed at the top of the screen while
Superbase searches through the file for the records specified, adding the
keys of all matching records to its KEY LIST. You will then be returned
to Menu 1.

Unless you specify a name for the KEY LIST as will be detailed below,
Superbase will give the list the default name "hlist". Like all lists,
"hlist" is automatically stored on disk. Every time a new "hlist" is
created, the old one is lost.

The reason for the leading 'h' is to allow you to display the list by
using the HELP command. As explained in Section 17, all file names
preceded by an h' are treated as HELP SCREENS and so can be viewed by
means of the HELP option.

To view the current "hlist", obtain the HELP option and type 'list' when
asked to specify which help you require.

Whatever Key List you last created by the FIND command will remain the
current "hlist" until you create another.

7.3   NAMING AND STORING A KEY LIST / APPENDING TO A LIST

Using the default Key List is convenient for constructing temporary lists
of records for various purposes, but there will be many Key Lists that
you will want to keep to use again and again.

You may, for example, want a permanent list of customers who have bought
a particular product from you, or a list of products with a particular
discount rate.

For purposes such as these you need to be able to store a Key List on
disk with the appropriate file. In order to do this, all that is
required is to give your Key List a name other than "hlist". The maximum
length of a list name is 16 characters.

From either Main Menu, type the COMMAND LINE 'find "listname"', where the
listname can be any name not already used as the name of a Superbase
file, and must be enclosed in double quotation marks.

Do not use the name of a database. If you use the name of an existing
list or file, it will be overwritten by the new list.

To avoid confusion it is a good idea to call all of your Key Lists by a
name ending in 'list'. Examples would be "update-list", "10%d-list" and
so on.

To append to an existing list, use the form: 'find "update-list,a"'.
This is useful when you already have a list (e.g. last month's orders)
and want to add to it without repeating the original processing.

After typing 'find "listname"' from either Menu, you will be presented
with the blank record template for entering your match criteria just as
you are when you press 'f3' to obtain the FIND command from the list of
options on Menu 1.

7.3.1 BYPASSING THE RECORD TEMPLATE

You can even bypass the record template altogether by entering your
match criteria in a COMMAND LINE from either Menu. See Section 3
and the Programming Section for further details of command lines.

In a FIND command line you can specify several match criteria one
after the other, using the WHERE secondary command to indicate the
start of the list of criteria sought for the record. Instead of
placing the operator (if any) and text or number value inside the
field angle brackets, you must place it inside double quotation
marks. The rules for matching are the same as when using the record
template.

You can if you wish place the back-arrow "<-" inside quotation
marks instead of a value. This will produce prompts for any such
fields before the search begins, which is useful when long strings
of characters must be entered. When done under program control this

technique will produce requests for run-time parameters.

An example would be:

    100 find "newlist" where [date] is ">01JAN84";[goods] is "<-"

This is an optional method of specifying the match criteria - you can always use the record template if you wish, but the Key List must be given its name by means of the direct command 'find "listname" etc' if it is to be stored on disk.

Note that you must separate multiple search items with semicolons.

7.4   USING THE KEY LIST

Once a Key List has been created it can be put to use in a number of ways. You might want to obtain printed copy from the records in the list. Either obtain the OUTPUT option (see section 8) and in response to its prompt type 'the records from "listname"' (don't forget that "listname" here can be "hlist" if you want), or you can type the following Command Line directly from one of the Main Menus:

    output the records from "listname"

This is only one limited example of the use of a command using a Key List. Details of its use with the SORT, BATCH, REPORT and SELECT commands are given in the sections relating to those options.

Because the old "hlist" is overwritten every time a new default list is written, you will want to rename some "hlists" immediately after creation. Select the OTHER Option from the Maintain Menu, and type:

    r0:newlistname=0:hlist

See Section 15.6.

8   OUTPUT TO SCREEN, PRINTER, OR WORD PROCESSING DISK FILE

8.1   OUTPUTTING INFORMATION FROM FILES

The OUTPUT option is used to display or print information from all or selected records in the current file. See Section 8.11 for information on files for use in word processing. Selected or all fields, descriptive text, calculations, and BASIC variables can be output. Special commands can be used to format the output fields. Output commands, like other Superbase commands, may be abbreviated.

8.1.1 OBTAINING THE OUTPUT OPTION

    [SHIFT] [f 4]   From Menu 1, press the f4 key. This is the key marked f3 on top and f4 on the front pressed while the Shift key is held down. You will be prompted with:

        'Enter: all/from "list" (item list....)'

You are being asked whether you want the output from ALL of the records or just those from a predefined KEY LIST, and which fields you want to output. The '(item list....)' signifies that field names and/or variables may be included in the command.

8.1.2 OUTPUT WITH OR WITHOUT FUNCTION KEY

The form of the command is different according to whether it is executed from the menu or typed on the command line.

If you press the f4 key you will be prompted as above. But if you type the command, you must supply the word 'output' at the beginning of the line. If you use the back-arrow key to recall an 'output' command line that was done with the function key, you must insert the word 'output' to make it execute properly.

'Print' and 'display' do not work as first words in the command if it contains any 'output' syntax, i.e. 'all', 'from "listname"', 'the records', etc.

The examples in this section usually assume that you have pressed a function key, so you may need to insert the word 'output' before they will work.

8.2   DISPLAYING ALL RECORDS

The simplest response to the output prompt is 'all'. Field names followed by their contents are displayed one after another across the screen with data wrapping over the ends of lines. Pressing RETURN displays the next screenful of records from the file. Display of records can continue until the end of the file is reached.

Responding to the output prompt with:

    all the records down

will result in information from the first record in the file being
displayed down the screen with the field names on the left of the screen
and the field contents to their right. The message 'Press Return to
Continue' will be displayed on the command line.

Pressing RETURN results in a similar display of the next record in the
file, record by record until the end of the file is reached.

```
Press Return to Continue                 7
No.              00907
Ref              SMI/10090
Date             23MAR83
Goods            12 Tapes
Price                2.00
Amount              24.00
Disc.            0
Total               24.00
Tax              15%
Due                 27.60
Paid             no
Total-paid          10.00
Outstanding         17.60
Last-Paid           10.00
Date-Paid        01MAY83
Update           no
```

Output record from demonstration file "cust.inv"

8.3 DISPLAYING FROM A KEY LIST

Alternatively you could respond to the prompt with:

    the records from "listname"

where "listname" is the name of any KEY LIST you have created by means of
the FIND command, including "hlist" (see section 7).

The display would be the same as with the 'all' command, but would be of
only those records whose keys appear on the Key List you have specified.

8.4 PRINTING OUTPUT

To obtain your output on the printer rather than the screen, the command following 'f4' is:

    print all the records

or

    print the records from "listname"

The converse of the 'print' command is the 'display' command which redirects the output to the screen, as in:

    display all the records

The command last used, 'print' or 'display' will remain in effect until the direction of output is changed by the converse command.

8.5 OUTPUTTING SELECTED FIELDS

The commands above output information from all of the fields in each record. You can restrict the amount of information to be displayed or printed to one or more fields by responding to the output prompt:

    all the records [number]

or

    all the records [number] [due]

or any combination of fields in the records, where each field name is enclosed in square brackets. Superbase automatically inserts a space between fields unless you use '+' to concatenate them, as in [number]+[customer].

The result is as in the following screen:

```
Press Return to Continue                    5

SMI/10086          0.00
SMI/10090         10.00
JON/10098         12.00
BLO/10075          0.00
```

8.6   OUTPUT ACROSS OR DOWN

If your display is 'across' the screen, a space will be left between each selected field. If output is 'down' each selected field will be on a new line.

To display across respond to the prompt that follows f4 with:

    display across all the records [customer] [due]

After filling the screen with the information from each record displayed horizontally, the message 'End of Page' will appear at the top of the screen.

If more fields were displayed than could fit across the screen, the information would wrap around the edge of the screen. This can be avoided by use of the formatting commands detailed below.

To reverse the 'across' command you can use the 'down' command as in:

    display down all [customer] [goods] [due]

Just like the 'print' and 'display' commands above, whichever of the 'across' or 'down' commands was used last will remain in force until the converse command is used. The default on start up is 'across'.

8.7 OUTPUTTING EXTRA TEXT WITH INFORMATION FROM RECORDS

You may also include strings of text with your output as in:

display across all [number] "has paid" [due]

```
   Press Return to Continue                   5

   SMI/10086   has paid        0.00
   SMI/10090   has paid       10.00
   JON/10098   has paid       12.00
   BLO/10075   has paid        0.00
```

Note that if formulae and BASIC variables are to be output they should not be enclosed in quotation marks like text strings.

8.8 OUTPUTTING CALCULATIONS ON INFORMATION IN FIELDS

The information displayed or printed need not be restricted to how it appears in the records since you can specify calculations to be performed on the fields before they are displayed.

Suppose that you wanted to output a list of items showing a 10% price increase. You could respond to the output prompt with:

across all [goods] "New price is" 1.1*[unit-price]

Any calculation on the field contents can be used including calculations using BASIC functions. More details on performing calculations on the fields is provided in the section on the CALC command in section 11.

BASIC variables can also be output in addition to, the fields, calculations and text strings discussed in this section. This is detailed in the Programming Section.

8.9   FORMATTING OUTPUT INFORMATION

Two commands are available to improve the appearance of the output on screen or in your printed copy: the TRUNCATOR COMMAND '&' and the POSITION COMMAND '@'.

8.9.1 TRUNCATING OUTPUT

Text fields will be printed or displayed with the length specified when the fields were set by means of the FORMAT Option (see section 4) unless the TRUNCATOR COMMAND is used.

A text field such as 'Item' may have been set to eighteen characters long to allow for big product names, but the product names included in the Key List you are using may not actually be more than ten characters long.

This would mean that when these product names are output, the extra spaces after the product name would be included unnecessarily. To avoid this you can include the truncator symbol with your response to the output prompt as in:

        display across all &[goods] [unit-price]

This would chop off all of the trailing spaces from [Item].

It is also possible to truncate the output to a particular length. Typing a number after the truncator symbol will truncate the contents of the field concerned to the number of characters specified. For example

        print all &6[goods] [unit-price]

would print just the first six characters from the 'Item' field.

The contents of numeric fields can also be truncated, but two numbers separated by commas must be included after the truncator symbol, one for the number of digits before the decimal point and one for the number of digits after the decimal point. The default numeric format is 10 positions before and 2 after the decimal point.

You can mix truncation commands for text and numeric items, as each truncation command applies to the NEXT appropriate item.

Truncation forces rounding. If the field contains a number with more digits after the decimal point than specified by the truncator command the number will be rounded up. For instance, if the price of an item were '75.87' and the output specification were:

        all [goods] &2,1[unit-price]

Then the price would be output as '75.9'.

You must take care, however, not to specify a truncation of a

numeric field which has fewer digits BEFORE the decimal point than a number to be output. If you do, the number will be printed or displayed as a string of '#' symbols to indicate that the number overflowed the format you specified for it.

The command &0,x will suppress leading spaces in the next numeric item, causing left justification with one space for the sign (only the '-' sign is printed).

8.9.2 POSITIONING OUTPUT

The second formatting command available for use with OUTPUT is the POSITION COMMAND.

This command is used to position your output on the screen or printed page and must have either one or two numbers following it, the first for the COLUMN and the second for the LINE.

For instance, the command

    all the records @20[number]

will position the contents of the 'Number' field at column 20, halfway across the screen, as in the following diagram:

```
    Press Return to Continue                5
                        SMI/10086
                        SMI/10090
                        JON/10098
                        BLO/10075
```
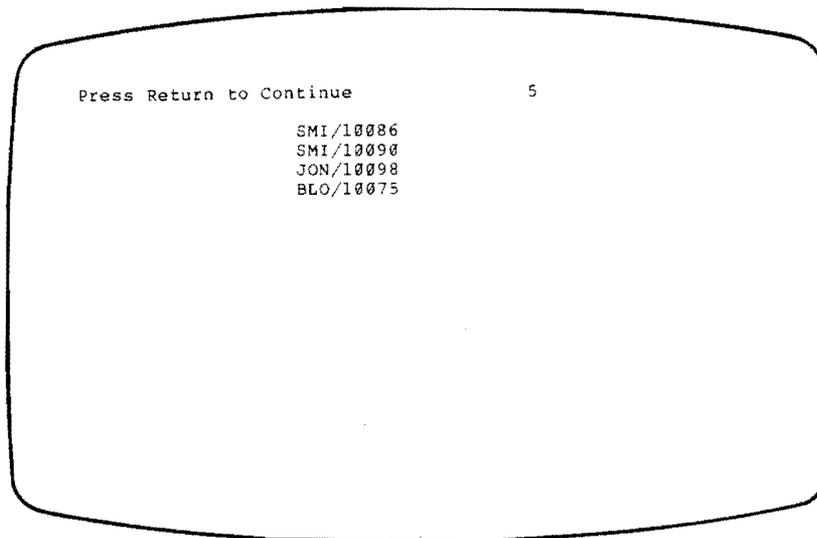
The command applies only to the NEXT item. Following items without
their own positioning commands will appear in sequence either
across or down as appropriate. To achieve column and line location
use a command such as

the records from "hlist" @10,15[customer]

which would position the output at column 10 and 15 lines down the
screen.

Note that if you specify just a column number it is possible to
display information from many records, one below the other starting
at the same column, but if you specify both a column and a line
number then only information from one record at a time can be
displayed on the screen.

This is for the simple reason that two items of information can be
in the same column by being one below the other, but cannot be in
the same line AND column without one overwriting the other.

Two further forms of the command exist. The command @0 positions
the cursor at line 1, column 1 of the current screen, without
clearing the screen.

The command @x,0 will cause a carriage return to column x. Use @1,0
to force the printing of blank lines.

For the underlining command, see note 7 in Section 13.6.

Used in combination with the other output formatting commands, the
position command gives you enormous flexibility as to how your
output should appear on either screen or printer.

8.10   ABBREVIATING OUTPUT COMMANDS

Various examples were given above of output commands using the words
'the' and 'records' as in

print down all the records [number]

and

display across the records from "hlist" [customer]

In fact these two words, and also the spaces between words, are not
needed at all by Superbase and are allowed merely to make the syntax more
natural.

These commands could instead have been entered as:

printdownall[number]

and

    displayacrossfrom"hlist"[customer]

We can even abbreviate further since all Superbase commands can be
reduced to their shortest unique form, with a minimum of 2 letters.
Usually you can type just the first letter followed by the second letter
with the SHIFT key held down.

The previous two commands then become:

    prIdOaL[number]

and

    dIaCfR"hlist"[customer]

Once you are fully familiar with the commands you may wish to use these
abbreviations to cut down the amount of typing required.

8.11   OUTPUT TO A FILE

Superbase is designed for integration with word processing packages, Easy
Script in particular. Integration is achieved by outputting data (in CBM
ASCII code) from a Superbase file into a file that can be read in by the
word processor. The command is entered on the command line in the usual
way when the OUTPUT Option is selected from Menu 1.

There are 2 forms of the command. The first one outputs to a file
exactly as to the screen or printer, following all truncation commands.
If the output is DOWN, no field names will be output, as they usually are
with OUTPUT DOWN. If the output is ACROSS, field contents will be output
one after the other on the same line, up to the maximum specified with
the right margin setting command, RMARG. The command is:

    down all to "addresses" [lastname] [Address1] [Address2]

This would produce a file called "addresses" containing the name and 2
lines of address from all the records in a Superbase file. Be sure that
the filename you give is NOT that of an existing database file. Each
field will appear on a separate line and each line will end with a
carriage return character. A blank line with just a carriage return on it
will be output between records.

A Key List may also be used:

    across from "hlist" to "addresses" [lastname] [Address1] [Address2]

This would use the Key List "hlist" (usually obtained with a FIND
operation) to produce a file called "addresses" containing the name and 2
lines of address from the selected records in a Superbase file. All 3
fields will appear on the same line with a space between fields, and each

line will end with a carriage return character. A blank line with just a carriage return on it will be output between records.

The other form of the command is especially designed for Easy Script, and uses the additional command FILL:

    all fill to "addresses" [lastname] [Address1] [Address2]

The use of FILL specifies that output will automatically be DOWN; that trailing spaces will be truncated from fields (unless the &[field] format is used); and that numbers will be output with 1 leading space for the sign, 2 digits after the decimal point, and left justified, unless an '&x,y' formatting command specifies otherwise. Each line will end with a carriage return and a blank line with just a carriage return on it will be output between records. (The blank line will need to be 'trapped' in a variable block in a comment line - *nb - in an Easy Script document.) You can concatenate fields with '+', but you will have to insert your own spaces.

8.12   ENTERING OUTPUT COMMANDS IN A COMMAND LINE

As with all of the Superbase commands it is possible to bypass the Menu selection and type in your commands directly as a COMMAND LINE from either of the Main Menus. All you have to do is to prefix the commands with the Primary Command 'Output' as in

    output all the records [date][customer]

You can also combine output commands with others in the same Command Line such as:

    find "hlist" where [due] is ">500" : output from "hlist"
    [customer];[number]

Further examples of using the Output command can be found in Tutorial Two and Three and more details about Command Lines can be found in Section 3.

8.13   CONTROLLING THE DISPLAY

Clear the screen with 'display chr$(147)'. Print at the home position with 'display @0', if you want to leave a screen intact but add data to it.

Use the semicolon at the end of a line to prevent a carriage return:

                 display [name];

                 display [customer]

This is also valid for printing.

9   FILE

9.1   FILES AND DATABASES / CHANGING DISKS

Superbase organizes your stored information in files of records, each of which has a different filename and may have a different record format.

These files are held in groups of fifteen and each such group is known as a database. Information may be exchanged between databases by using the IMPORT and EXPORT commands, available from the MAINTAIN Menu. Never remove a database disk and replace it with another without using the 'DATABASE' command. The procedure is to return to either Main Menu, change disks, and type the command: 'database "name"' where "name" is the name of the new database. See also Programming Section 2.1.9.

9.1.1   OBTAINING THE FILE OPTION

The FILE Option is used whenever you wish to change the file you are currently working with to another file in the database or to create a new file.

[f 1]   From Menu 2 press the key marked 'f1' on
                 the right hand side of the keyboard.

The message 'Mode: Enter Filename' will be displayed in the message area at the top of the screen and the main screen area will display a list of files available in the current database. Superbase will wait for you to type in the name of the file you wish to select, which may be either one of the existing files listed on the screen or the name of a new file that you want to set up.

New files may be added to the current database up to a maximum of fifteen files. Use letters, numbers and the full-stop or period only.

If you have selected an existing file, you will be returned to Menu 1. Notice that the 'File Selected' Indicator shows the name of the file you have chosen.

You may now use any option from the Menu, such as ENTER if you want to enter information into the file, or SELECT if you want to access a particular record.

If, on the other hand, you have selected a file that does not exist, the screen will clear and the following prompt will appear:

    'File Does Not Exist: Create It?'

If you respond 'y', you will be placed in the FORMAT Option, ready to design the screen layout for the new file. If you respond 'n', you will be returned to Menu 1. The new filename will not show in the 'File Selected' Indicator until the format has been completed.

Directions on how to FORMAT a new file are given in Section 4.

9.2 CHANGING FILE BY DIRECT OR PROGRAM COMMAND

A new file may be selected using the 'file' command followed by the filename in quotes.

Examples

```
file "invoices"
a$="addresses":file a$
```

The above commands avoid the standard 'Enter Filename' prompt and allow programs to transfer to another file without user intervention.

The command 'file' on its own in a program will cause the 'Enter Filename' prompt to appear on the command line and await operator response. See the "start" program at Appendix A.

9.3 SUMMARY

The FILE Option is used to access a file from the current database. This may be either an existing file or else may be a file that you want to set up.

| **f 1** | Selects the File Option from Menu 2. |

| RETURN | After typing a Filename, accesses that file if it already exists, or gives you the option to FORMAT the new file if it does not exist. The database must also have fewer than fifteen files created. |

10   SORT

10.1   SORTING THE RECORDS

Superbase automatically keeps the records in a file sorted alphabetically
according to the contents of the KEY Field of each record.

You may, however, want either all of the records or the records in some
Key List sorted according to the contents of a field other than the KEY
Field.

For instance, in a file of invoice records you might want to SORT the
records according to the amount each customer owes you.

With the SORT command you can create a sorted list which is just like a
Key List except for the order in which the records are listed. This list
can then be used as a Key List in the OUTPUT, BATCH, REPORT and SELECT
options.

10.1.1 OBTAINING THE SORT OPTION
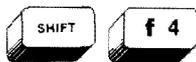
                    From Menu 2 press the 'f4' key.

10.2   ENTERING THE SORT PARAMETERS

On entering the SORT option you will be prompted with:

    'all/from "list" (item list....)

If you want to produce a sorted list of all the records in the file, type
'all'. Otherwise type 'from' followed by the name of tne Key List of
records to be sorted. The (item list....) signifies that field names but
not variables or functions may be included in the command.

You can omit the name of the Key List and just type 'From""' in which
case the current default Key List, 'hlist', will be used (see
Section 7.2).

You can also choose a DESCENDING SORT or an ASCENDING SORT. A Descending
Sort will sort the records in a reverse alpnabetic or numeric order and
is specified by typing 'D-' after the selection of records to be sorted.
The order is from z to 'space', including from 9 to 0. If you leave out
the 'D-' then Superbase will assume tnat you want a normal Ascending
Sort. With 'D-', all fields are sorted in descending order.

Next you must specify which field or fields you want tne sort to be
performed 'on', enclosing the name of each field chosen in square
brackets. If you specify more than one field, Superbase will take those
records having the same contents in the first specified field and sort

those according to the second field specified and so on. Do not specify
the key as a field to sort on, as it is automatically included at the end
of the list.

The sort will use ten characters from each chosen field unless otherwise
specified by the Field Truncator command '&' (see section 8.9.1). For
instance,'on &6[lastname]' will only use six characters from the
'LASTNAME' field and ignore any others for the purposes of sorting.

To include the whole field contents in the sort, even if the length is
greater than ten characters, '&[lastname]' can be used. The maximum
number of characters to sort on is 256 minus the length of the key.

Finally you can specify the name of the new list of records which the
sort will produce by typing 'TO "new listname"'. This will result in the
sorted list being stored on disk under that name. If you leave out the
'TO' command then the sorted list will be stored under the name "hlist"
as in the FIND Option.

After typing in these parameters, such as:

    from "hlist" D- on [due] [customer] to "order-list"

or perhaps

    all on [customer]

press RETURN and the message 'Processing' will be displayed at the top of
the screen. During the sort Superbase may require space for its
intermediate sort file called "hslist". This file, if created, will be 8K
in size initially, and will increment in size by 8K each time it is
recreated during the process. You can delete any "hslist" files left on
the disk after a sort if you need to create space. A record counter is
used during the sort to indicate the number of records sorted and written
to disk. After Superbase has finished creating the sorted list you will
be returned to the Menu 1 and the sorted list will be ready for use.

            Note that the fewer or shorter the parameters
            specified, the quicker the sorting process will be.

11   CALCULATION

11.1   THE CALC OPTION

The CALC Option is provided to enable you to carry out calculations which can be on the information in the fields of your current record.

As well as normal arithmetic operations, the whole range of BASIC functions including trigonometric functions and string functions is available.

The results of your calculations can be stored in the fields of the record, stored in BASIC variables or simply displayed on the screen.

RESULT Fields and CALENDAR Fields cannot be altered by the CALC Command. KEY Fields can be set and the new record can be added to the file. See Section 11.4.

11.1.1 OBTAINING THE CALC OPTION

f 5

From Menu 1, press the 'f5' key. The message 'Enter Calculation' will be displayed at the top of the screen.

11.2   ENTERING CALCULATIONS

The simplest type of calculation you can enter is a straightforward expression such as '0.15*48.60'. This would display the result of the expression, namely '7.29'. Any such expression entered which does not include an '=' sign will cause the result of the expression to be displayed in this way.

Expressions can of course be a good deal more complex, such as 'cos(sin(9)/log(10))↑2' and may include string functions such as 'left$([Name],3) to obtain just 3 characters of a field.

Using the '=' sign will cause whatever is to the left of the '=' sign to be assigned the value of whatever expression is to the right. For instance '[unit-price]=18.50' will assign the value 18.50 to the PRICE field in the current record.   Similarly,   '[lastname] ="Hodgkins";[Address1]="35 Sunnyview Crescent"' will result in the LASTNAME and ADDRESS1 fields being changed accordingly. Note that when assigning strings of text to non-numeric fields, the text assigned must be put in double quotes as above.

It is important to remember, however, that when the contents of fields are modified in this way the modifications are only retained temporarily unless you issue the STORE command to tell Superbase that you want the

Shift for f2 f4 f6 f8

modified version of the record to be stored on disk.

In fact without the STORE command the modifications will only be retained until another record becomes the current record. This is useful since you may be modifying numeric fields just to see what effect the modification would have on the RESULT fields in the record. In this way, the CALC option provides you with a 'What if?' facility for exploring the effects of various changes such as changes of discount rates or tax rates or whatever.

The STORE command can be typed in when you have returned to the Main Menu after using the CALC option. Simply type 'Store' and press RETURN.

Also note that CALC lines involving more than one calculation must have the individual calculations separated by semicolons.

11.2.1 STORING RESULTS IN BASIC VARIABLES

Another possibility is to assign values to BASIC variables such as 'x=[unit-price]-[unit-price]*0.15', which would give 'x' the value of the price minus a fifteen percent discount. 'x' could then be used in further calculations either in the same CALC Command or later on in a new calculation.

This facility can be exploited in the BATCH option to produce running totals (see Section 12.3).

Since any expression not including the '=' sign displays the result on screen, you can evaluate an expression and then display the result as in 'x=[unit-price]-([unit-price]*0.15);x'. Information to be displayed in this way should always be the last item in the CALC line. Only BASIC variables, not fields can be displayed in this way.

The examples above are both examples of assigning numeric results to variables. It is also possible to assign strings of TEXT to variables, but care must be taken that TEXT VARIABLES are used for this purpose as in:

x$="1 Portable TV"

A text variable differs from a NUMERIC VARIABLE in that it always ends with a '$' sign as in 'a$', 'al$' and 'x$'.

11.3 ENTERING CALCULATIONS AS COMMAND LINES

As with other Superbase commands, you can type a CALC command in directly from either Main Menu (see Section 3). Just type in a CALC line as above but with the Primary Command 'CALC' preceding it as in:

Calc x=[unit-price]/2;y=[unit-price]/3;x;y

which would display one half and one third of the 'unit-price' field in the current record.

Calculations can be combined with other Superbase commands as in

select match where [customer] is "=Robins":calc x=[Due]*[1.1]; [Due]=[Due]+x;x:store

Note the use of the STORE command here to make the modification to Robins' record permanent.

Remember to separate the various Command Clauses by colons and the various calculations within the CALC Command Clause by semicolons.

If you modify a field with CALC and wish to display it subsequently, you must use a further CALC clause to do so. This is because all references to a field within the same clause will use the original value ('value' here meaning both text and number value) of the field. However, you can assign the value of a modified field to a BASIC variable and display that all in one command.

11.4 ENTERING A NEW RECORD WITH THE CALC COMMAND

Since CALC can be used to set the contents of fields, it can be used to enter a new record into the file. To do this however, you must first CLEAR the current record by issuing the CLEAR command and you must end by storing the new record with the STORE command. It is also mandatory to enter a KEY in the KEY Field. You cannot CALC a RESULT or a CALENDAR field, only the fields that they are derived from. Nor can you CALC a replica field. You can, however, CALC a CONSTANT field.

The CLEAR Command, which is detailed in the Programming Section with the STORE command and others, does not delete the current record. Instead, CLEAR produces a "blank" record which may be "filled in" with the CALC command (the ASK command can also be used). An example would be:

clear:calc [number]="01670";[goods]="1 FR80 Camera";[unit-price]=79.85: store

where [number] is the KEY Field.

If there are any errors in the CALC commands, the STORE command will not work, so you cannot create invalid records.

12   BATCH

12.1 THE BATCH OPTION

The BATCH option, like the CALC option, is for carrying out calculations
on the information in your files. But whereas the CALC option performs
calculations on the fields in the CURRENT record, the BATCH option
carries out calculations on the fields in either ALL of records in a file
or on a predefined selection of records using a KEY LIST (for details
about setting up a Key List see Section 7).

This ability to perform operations on selected fields of records
throughout the file makes UPDATING your files a simple, automatic
process.

12.1.1 OBTAINING THE BATCH OPTION


```
f 3
```

To obtain the BATCH option from Menu 2,
press the 'f3' key.

12.2 PERFORMING CALCULATIONS ON ALL RECORDS OR SELECTED RECORDS

When you enter the BATCH option you will be prompted with:

'Enter: all/from "list" (item list....)'

If you type 'All' before the calculations you specify, they will be
performed throughout the file. If you type 'From "listname"' then they
will only be performed on the records specified in the Key List you have
named. The '(item list....)' signifies that field-names and/or variables
may be included in the command.

The calculations themselves are entered in exactly the same way as in the
CALC option detailed in the last section. You do not have to use the
STORE command to make modifications to fields in the records permanent.
The BATCH command automatically stores the modified records for you.

An example of using BATCH to update a file such as the "invoices" file
from Tutorial Two is as follows:

from "price list" [unit-price]=[unit-price]*1.1

12.3 CALCULATING TOTALS

The BATCH option can also be used to display running totals of fields in
the records. Suppose you wanted to total the amount outstanding on all
invoices in the Customer Invoice File. The BATCH command for this would
be:

    all x=x+[due];x

Here the BASIC variable, 'x', is being used as an ACCUMULATING variable.
SUPERBASE will go through all the records in the file, adding the value
in the OUTSTANDING field to the previous value of 'x' and displaying the
result. In this way 'x' will accumulate the values in the OUTSTANDING
field for each record. Note that the variable should be set to a value of
zero before you begin, with a command of the form 'calc x=0'.

12.4 USING THE BATCH COMMAND IN A COMMAND LINE

Like all of the other Primary Commands, BATCH commands can be entered
directly from either of the Main Menus. Simply prefix the command with
the word 'Batch' as in:

    batch all x=x+[due];x

The BATCH command can also be combined with other commands to form a more
complex Command Line as in:

    find "hlist" where [goods] is "Radio";[Quantity] is ">10":
    batch from "hlist" [unit-price]=[unit-price]-0.1*[unit-price]

This Command Line would find all the invoices for more than ten radios
and reduce the unit price by 10%.

Remember to separate multiple items with semicolons, as in CALC.

13   REPORT

13.1 THE REPORT GENERATOR

The REPORT Option provides you with a REPORT GENERATOR for producing printed reports based on information from your files including TOTALS and SUBTOTALS calculated on any field.

The reports can be formatted in a number of different ways with the commands used in the OUTPUT Option (see Section 8). Text of your choice and calculations of the kind available in the CALC and BATCH Options can be included.

The REPORT GENERATOR is entirely prompt driven. In other words you are given a series of prompts, the responses to which determine the nature of the report produced.

From your responses to these prompts the Report Generator will produce a PROGRAM which creates the report itself. This program becomes the current program in memory and can be modified like the user-created programs of the PROG option or can be simply executed or stored on disk for future use. You can use the special report commands to write report programs without using the Report Generator.

The report can either be displayed on screen or printed out on paper depending on which of the commands 'display' or 'print' was last used. You can change from one to the other by typing either 'display' or 'print' from either Main Menu before executing the report.

13.1.1 OBTAINING THE REPORT OPTION

From Menu 1 use the 'f6' key to obtain the REPORT Option. The 'f6' key is the key marked 'f5' on top and 'f6' on the front, pressed while the SHIFT key is held down.

13.2   USING THE REPORT GENERATOR

Throughout the REPORT Option you will be given a series of prompts regarding the parameters of the report to be produced.

SELECTING THE FILE

On entering the REPORT Option you will be asked:

    'Enter File to Report on'

Type in the name of the File containing the information you wish to include in the report and press RETURN. **Note that the file name must be enclosed in double quotation marks.**

All parameters from here on are optional, with the exception of the 'All or From "list"' prompt, which must have one or the other specified (but see note 4 in Section 13.6). If you wish to omit any of them, just press RETURN when you receive the prompt concerned.

ENTERING THE TITLE

The next prompt is:

'Enter Report Title'

The **Report Title**, which must also be enclosed in quotation marks, can be as long as you like and can be positioned on the page with the POSITION command '@' (see Section 8.9.2).

Your title may be just a line or two of text to head or to explain the nature of the report, or it may include the headings of any columns of information in the report. To force a new line, use the formatting command '@1,0'.

If your title takes up all of the 79 characters available in the command area at the top of the screen you should split the title up and enter it in parts. You will be prompted with:

'Any More?'

If you want a longer title than you have so far entered then type 'Y' for 'Yes' otherwise type 'N' for 'No'.

TOTALS AND SUBTOTALS

After entering your title and pressing RETURN you will be prompted with:

'Enter Total Calculation(s)'

Each report can contain up to ten TOTALS on any of the fields in the file you have specified. These totals, which can be printed at the end of the report are designated t0, t1,..., t9 and can be specified by using any of the parameters available in the CALC option. A simple example which would total the amount due from every record is 't1=t1+[due]'. Multiple totals may be specified, and must be separated with semicolons.

You could also specify calculations on the totals such as:

t1=t1+[unit-price]*0.8; t2=t2+[unit-price]*1.1

Another option open to you at this point is to specify up to ten SUBTOTALS which are printed at various break points in the report. The subtotals are designated by s0, s1,..., s9 and are specified in the same way as totals:

s1=s1+[quantity]

Again, any of the calculations available in the CALC Option can be performed on subtotals.

If you want to specify more totals and subtotals after using up the available space, respond 'Y' to the 'Any More?' prompt.

SUBTOTAL BREAK

After specifying the totals and subtotals you will be prompted with:

'Enter Field for Subtotal Break '

Subtotals will be printed every time the field you specify as the field for subtotal break changes its value.

For example, you may be producing a report about sales of various goods based on a file containing quantities of goods sold. Suppose you want a subtotal of the number of each product sold. You would specify a subtotal such as 's0=s0+[quantity]' and respond to the Subtotal Break prompt with '[goods]'.

USING A LIST OF SORTED RECORDS

SUBTOTAL BREAK FIELDS are only relevant if you produce a key list sorted on all these subtotal fields, before executing the report. If you do not do this first then the records will be printed in the ordinary alphabetical order of their key fields, and the value of the field specified as the Subtotal Break Field will change arbitrarily, giving you subtotals with no significance.

Having sorted the records you should use the name of the SORT LIST when asked 'All or From "list"' (see below).

If you want more than one Subtotal Break Field then specify all of the break fields in the SORT.

THE SUBTOTAL TEXT

Next, a prompt of

'Enter Subtotal Text'

will allow you to specify any text to be printed when the value of the field for subtotal break changes. The text must be inside double quotation marks. You might wish to print the words "Subtotals for department" each time the 'department' in a Sales Report changes. The quoted text may be preceded or followed by the subtotal variables to be printed, i.e. s0, s1, etc. Only if these are specified in the first line of Subtotal Text will they be automatically set to zero after being printed. Type in the text and commands you require and press RETURN.

You will again be prompted with:

'Any More?'

If there is to be more than one Subtotal Break Field then type 'Y' for 'Yes' otherwise type 'N' for 'No'.

USING A KEY LIST

The next prompt displayed is:

'Enter All or From "list"'

As in other options like OUTPUT and BATCH you can specify whether you want ALL of the records in the file to be used or just those in a particular KEY LIST. Type 'all' or 'from' followed by the name of the key list enclosed in quotation marks and press RETURN.

SELECTING THE FILE

The next prompt governs the main details in the report. You are requested to:

'Enter Report Detail'

The detail may consist of the contents of fields, strings of characters or the values of BASIC variables. You can use computed fields such as '[Sales] - [Costs]'. Most often the Detail section will consist of fields with text to describe what they are such as:

"Goods: ";@8[goods];"Price: ";[unit-price]

If you are producing a report consisting of columns of information, however, it would be preferable to use column headings in the TITLE section and just use the word 'TOTAL' in the ENDREPORT section.

Any of the facilities provided with the OUTPUT Option can be used to specify and format the report detail (see section 8) and there are additional commands available such as LMARG, RMARG, PLEN, TLEN, LFEED, SPACE, CONT, PDEV, PDEF and PLUS which are detailed in the Programming Section.

END OF REPORT

The next prompt in the report sequence is:

'Enter End of Report Text'

You should enter here any line of text and totals you want printed at the end of the report such as '"Total Due is";t1'.

SAVING THE REPORT PROGRAM

Having specified the report parameters in this way you will next see the Report Program itself displayed on the screen and will be asked if you

want to save the Report Program on disk for future use. The prompt is:

'Save Report Definition?'

Type 'Y' for 'Yes' if you do want to save it otherwise type 'N' for 'No'. If you type 'N', the report program will still be available for execution as the current program in memory and you will be returned to Menu 1.

If you answered 'Y' to the last prompt then the final prompt in the report sequence is:

'Enter Report Name'

Below the prompt you will see 'Save "' followed by the cursor. Type the name you want to give the Report Program, prefixing it with '1:' if you want to store it on drive 1 of a dual drive unit, and press RETURN. The Report Program will be stored on disk and you will be returned to Menu 1.

13.3   EXECUTING A REPORT PROGRAM

Once you have created a Report Program you can produce the report itself by using the EXECUTE Option (see Section 14).

Either select the EXECUTE Option by pressing the 'f7' key from Menu 1 or type the direct command 'Execute' from either Main Menu.

13.4   LOADING A REPORT PROGRAM

By storing Report Programs on disk you can build up a library of different types of Reports for future use. If you want to produce a Report from one of these Report Programs and it is not the CURRENT PROGRAM then you must first LOAD that Report Program by issuing the LOAD command from either Main Menu.

Just type 'Load "reportname"' where 'reportname' is the name you gave to the Report Program when it was created. That Report Program will then become the Current Program and can be executed in the normal way. As for all programs, only a copy is loaded into memory, with the original remaining on disk.

13.5   OTHER WAYS OF CREATING A REPORT PROGRAM

Once you have become thoroughly familiar with the procedure of setting up the Report Program there is no reason why you shouldn't produce reports by modifying already existing programs or even writing your own. Details about creating and modifying programs are given in the Programming Section.

13.6 ADDITIONAL REPORT PROGRAM FEATURES

To complete your knowledge, or if you are going to edit the programs
produced by the Report Generator, you should be aware of the points
discussed in this section.

1 Use the 'plus' command to obtain multiple lines of title, totals,
subtotal text, detail, and report ending. See Programming Section
2.1.31.

2 Subtotals are only cleared to zero if they are declared in the first
line of a subtotal command. Subtotal variables declared in this way
are printed before being cleared to zero if they appear in subsequent
program lines. However, there may be applications that need a large
amount of text to be printed, requiring the use of plus commands to
create multiple subtotal text lines. In these cases, if the subtotals
to be printed appear on lines other than the first, they would not be
cleared. To overcome this, type the subtotals to be cleared after the
plus command but on the first line of the subtotal command. See point
3 for an example.

3 To retain the old subtotal break field for printing after a change of
subtotal break field has been detected, assign the subtotal break
field to a string variable as part of the total line: e.g.
'a$=[town]'.

Here is an example of a subtotal line that uses this feature:

```
subtotal [town] plus s1 s2
@5,0 "SUBTOTALS FOR " a$ " are" @40 &5,2 s1 @50 &8,2 s2 plus
@41"--------------------"
```

This example also makes use of the feature described in point 2.

4 If you omit both the 'all' and the 'from' from your detail line, the
report will be from the current record. You can cause the current
record to be selected according to your own requirements by
appropriate programming (with select match, for example).

5 The report and endreport commands are compulsory in a report program.

6 If you have difficulty printing the £ sign, you can use a direct
command to assign the necessary escape sequence (which should be
described in your printer manual) to a BASIC variable before printing
the report. For example, 'P$=chr$(27)+"Y"' will work for some
printers. Then when 'P$' is placed in the report detail line, a £ sign
will appear. The same technique can be used to access other characters
such as other currency signs.

7 You may wish to produce underlined text or fields if your printer
supports this feature. Two forms of the '@' command are provided:

@-[Field]@-

This switches underlining on for [Field] and then switches it off
again.

@+[Field1] [Field2]

This switches underlining on for the next text item only. In this case, 'Field1' will be underlined, but not 'Field2'.

If this command is used with screen output, the underlined areas will appear in reverse video. On Commodore matrix printers (which do not support underlining) the reverse effect will also appear.

8 Single-column labels may be printed without programming. Multi-column labels may be printed with a program that stores details of the name of more than one record in an array in memory, then prints them out line by line. A utility program for printing labels is provided on the Superbase disk. Load "labels" from the Superbase disk and save it onto your own data disk. The program may be edited for your own special needs.

See the HELP topic "labels" for detailed information.

14   EXECUTE

14.1   THE EXECUTE OPTION

The purpose of the EXECUTE Option is to run a Program previously created either by means of the PROG Option or by numbering individual Command Lines (see Section 15).

Programs are lists of numbered COMMAND LINES made up from the Superbase commands, both those appearing on the various Superbase MENUS and the extra commands detailed in the Programming Section. You can also use most BASIC commands in a Program. This enables you to automate sequences of Superbase operations.

14.1.1 OBTAINING THE EXECUTE OPTION

To obtain the EXECUTE Option press the 'f7' key from the Main Menu.

14.2   EXECUTING THE CURRENT PROGRAM

The Program in memory is called the CURRENT PROGRAM. There are two ways in which Superbase holds Programs: on disk and in memory. The last Program created will always be the one in memory. You can view it with the 'list' command.

If it exists, this is the Program that will be executed when you select the EXECUTE Option from the Main Menu. If there is no Program in memory, the message 'Enter Program Name' will be displayed.

14.3   EXECUTING PROGRAMS FROM DISK

Programs can be given names and stored on disk. They can be executed directly by typing 'load "progname":execute ' from either Main Menu.

Alternatively they can be executed as follows:

Remove any existing Program from memory with the 'new' command. See below.

Select the EXECUTE Option from the Main Menu.

Enter the name of the Program required when prompted with 'Enter Program Filename'. When loading and saving, you do not need to supply the '.p' suffix that Superbase uses to distinguish programs.

14.3.1 REMOVING THE CURRENT PROGRAM FROM MEMORY

Since the current Program is automatically executed when you select EXECUTE from the Main Menu, you must first remove it from memory if you want to execute another Program in this way.

The Command 'new' is provided for this purpose and can be typed in from either Main Menu. The 'new' command could also be included as the last executed command in the Programs themselves so that once a Program has been executed it will be removed from memory.

14.3.2 SAVING AND PROTECTING PROGRAMS ON DISK

If you want to save the current Program on disk for future use you should use the 'save' command. Programs may be protected on disk with the 'protect' command.

Note that once protected, Programs cannot be listed and edited, so ensure that you take an unprotected copy first.

From either Main Menu type 'save "progname"' and press RETURN. You can give a '1:' prefix to save on drive 1 of a dual drive unit. The Program will be saved permanently on disk under the name you have given it.

You may wish to build a library of Programs on a separate disk. If you exchange disks (while in the Main Menu) in order to load a Program, you should re-initialize the database from the Main Menu with the 'database' command.

14.3.3 LOADING PROGRAMS

Once you have Programs stored on disk you can call up any of them to take the place of the Program currently in memory. Use the DIRECTORY Option from the Maintain Menu to look at your programs. They are the ones with a '.p' suffix, such as "start.p" (You omit the '.p').

From either Main Menu type 'load "progname"' and press RETURN.

For more information about Programs and the 'new','load' and 'save' commands see the Programming Section.

15   MAINTAIN

15.1 THE MAINTAIN OPTION

The Maintain Option provides a series of utilities for performing various
operations on your databases. It allows you to obtain either a list of
the fields in your current file together with their types and lengths, or
a list of all the files in the current database. It also enables you to
transfer data to and from an external program, and to carry out various
disk commands including a single-drive back-up, a disk formatting command
and a disk directory command.

15.1.1 OBTAINING THE MAINTAIN OPTION

SHIFT   f 6   From Menu 2 press the f6 key.

You should see a further menu screen. This is the Maintain Menu.

```
    mode :   Maintain Database




        f1   Status

        f2   Catalog

        f3   Import

        f4   Export

        f5   Directory

        f6   Backup

        f7   New Disk

        f8   Other
```

THE MAINTAIN MENU

The Maintain Menu offers eight sub-options each of which is detailed below alongside the function keys required to obtain them. Certain items are covered more fully later in this section.

f 1 STATUS

This option provides a list on the screen of each of the fields of the current file along with their field-types and their lengths. The output may be directed to the printer.

f 2 CATALOG

A list of all of the files in the current database can be obtained with this option. This database CATALOG is the same as that provided by the FILE Option (see Section 9) when you want to change the file you are working on. The output may be directed to the printer.

f 3 IMPORT

This option allows data from external programs to be read into Superbase. Deselect with RETURN.

This may be data from another Database Management System you wish to convert to Superbase or it may be data from a different type of program altogether. You can also re-import data that has been exported by Superbase as a means of transferring files from one of Superbase's databases to another.

For full details see Section 15.3.

f 4 EXPORT

The EXPORT Command is used to produce a SEQUENTIAL File of data from any Superbase file which can be kept as an ARCHIVE copy to be stored on disk or tape, or can be IMPORTED back into Superbase as a means of transferring data from one Superbase database to another. Deselect with RETURN.

These sequential files can also be used by external programs.

To output data to EASY SCRIPT see the command OUTPUT TO. Reference Section 8.11.

For full details see Section 15.2.

f 5 DIRECTORY

A list of all programs and files on a disk can be generated by this option.

f 6 BACKUP

This option allows you to make a back-up copy of your data disks. For full details see Section 15.4. Deselect by entering 'n' to the 'Are You Sure?' prompt.

f 7 NEW DISK

Formatting a blank disk or a disk you wish to re-use can be done by means of this option. Deselect by entering 'n' to the 'Are You Sure?' prompt.

In this way you can avoid having to leave Superbase to type in the Commodore disk formatting command.

f 8 OTHER

Other Commodore disk commands can be executed by means of this option. Deselect with RETURN.

Examples are renaming a file, copying a file and deleting files from the disk. For full details see Section 15.6.

15.2 IMPORT

The IMPORT command is the converse of the EXPORT command in that it allows you to read data into a Superbase file from an external SEQUENTIAL FILE.

One advantage of this is that if you already have a database system containing a large amount of data you can transfer the data to Superbase. To do this, set up a Superbase file with the same format as the one to be imported. Ensure that the selected Superbase file has at least as many fields as the file being imported. The NAMES of the fields do not matter but the order of the FIELD TYPES must be the same (e.g. TEXT or NUMERIC) in the file to be imported and the Superbase file set up to receive the data.

Note that the external file must first have been copied onto the Superbase DATA DISK unless you are using a dual-drive system. Files to be imported must be in Commodore ASCII format. In some cases, a conversion must be performed prior to the IMPORT operation. For example, certain screen code files must be processed to remove double quotation marks, strip trailing spaces, and change the end of line marker, chr$(31) to a carriage return, chr$(13). Public domain software exists for this purpose or the SUPERSCRIPT program on 2/3/4/8000 series Commodore computers may be used to create converted ASCII format files.

On selecting IMPORT from the Maintain Menu you will be prompted with 'Enter Import Filename'. If you have a single drive and are importing a sequential file in which the fields of data are just separated by 'RETURN's (see section 15.2), type just 'filename' and press RETURN.

If you have a dual-drive system you can type '1:filename' to specify that the source file is on a disk in drive one. If the source file has separators between its fields and records other than 'RETURN' then you

can also specify these from the Main Menu as in 'import"filename", "/."'
which specifies slashes between fields and full stops between records.

The IMPORT command can also be used to re-import data from a sequential
file created by EXPORT of data from another Superbase database.

Use IMPORT to transfer files across databases within Superbase itself.

When transferring files from 4040 to 1541 format, use the BACKUP Option
to read a 4040 disk and copy it to a 1541 disk. Use the same technique
when transferring from 1541 to 4040.

> **Note that the disk error light (and ·tone if fitted) will
> signal extensively during the IMPORT operation. This does not
> normally signify an error.**

15.3 EXPORT

The EXPORT command takes the data in one of your files and converts it
into a SEQUENTIAL FILE. A sequential file is a sort of common currency in
which information can be accepted by another program.

If the external program you wish to export data to uses something other
than RETURN to separate the fields you can specify one or two separators
after the file name.

On selection of the EXPORT option from the MAINTAIN menu you are prompted
with 'Enter Filename'. The filename you give is NOT that of the
currently selected database file, but that of the new file you're about
to create. If you respond with just a name as in 'Exportfile' the
sequential file created will consist of all of the fields from your
current file, record by record, with each separated by a 'RETURN'.

From the Main Menus you may type 'export"filename","/."' then the fields
would be separated by slashes and the records by full stops (an ASCII
code such as chr$(10), not inside quotation marks, may be used if you
prefer).

The sequential file created by the EXPORT command can also be re-imported
into another of Superbase's databases. For this purpose there is no need
to specify special field and record separators. Use the FORMAT option to
set up a record layout to accept the incoming data.

Another use for a sequential file that has been exported from one of your
files is as a long term ARCHIVE for security storage on disk or tape.

Note, however, that the EXPORT command will export ALL of the fields from
·ALL of the records. If you want a field and record selective output then
you should use the 'OUTPUT TO' command which is detailed in Section 8.

15.4 **BACKUP**

The BACKUP Option allows you to make duplicate copies of a disk. All
files on a disk are copied. BACKUP handles both single and dual disk
drives.

Owners of a CBM 2031 disk drive may use the single drive backup procedure
provided a suitable interface is installed. The procedure will also work
with drive 0 of a 4040 dual drive unit, but not with 8050 or 8250 units,
which must use the dual drive backup procedure.

Owners of a hard disk unit should use the EXPORT Option to create a
backup data file on the hard disk, which may then be copied to floppy
disk or tape using DOS utilities. Superbase file formats, text files,
programs, and lists may be copied freely. A Superbase program may be
written to carry out hard disk backup operations.

Using BACKUP requires the full computer memory and consequently Superbase
will close down when the process is complete. Reload as normal if you
wish to continue.

The disk to be copied is referred to as the SOURCE DISK, and the disk
onto which the data is to be copied is referred to as the DESTINATION
DISK.

When BACKUP is selected the first question asked is:

Single Drive? (y or n)

Respond 'y' or 'n' as appropriate.

15.4.1 **DUAL DRIVE BACKUP**

The first screen prompt is:

Insert Blank Disk in Drive 1

Press Return to Continue

Insert the destination disk in drive 1 and press RETURN. The next
prompt is:

All Data on Drive 1 Will Be Destroyed

Are You Sure?

This allows you to double-check that the disk you are using as the
destination disk is the correct disk. It can be either a new disk
from the box or an old disk that you want to re-use.

When you are satisfied that the destination disk is correctly
inserted, press RETURN. Superbase will duplicate the disk on drive
0 onto the disk in drive 1.

15.4.2 SINGLE DRIVE BACKUP

The first screen prompt is:

Insert Blank Disk in Drive 0

Press Return to Continue

Insert the destination disk in drive 0 and press RETURN. The next prompt is:

All Data on Drive 0 Will Be Destroyed

Are You Sure?

This allows you to double-check that the disk you are using as the destination disk is the correct disk. It can be either a new disk from the box or an old disk that you want to re-use. When you are satisfied that the destination disk is correctly inserted, press RETURN.

PREPARE DISK

The next prompt is:

Enter Disk Name, id

You must give your disk a name and identification code. The name can be any combination of up to 16 characters, including spaces but excluding the colon (:). A meaningful name such as 'work disk' is advised. The identification code must be 2 characters, such as 'aa'. Give every disk a different code,'ab','ac', etc.

Type the disk name and code, including a comma between them, and press RETURN. The message 'Processing' will be displayed while the disk is prepared for use.

INSERT SOURCE DISK

When the disk is ready, the flashing message 'Insert Source Disk' will appear. Remove the newly prepared disk, insert the source disk into the drive, and press RETURN.

The message 'Please Wait' appears with a line of dots following it. The line extends dot by dot as Superbase reads in the data to be copied.

INSERT DESTINATION DISK

When Superbase is ready, the flashing message 'Insert Destination Disk' will appear on the screen. Remove the source disk and insert the destination disk. Press RETURN. Again the message 'Please Wait' appears with a line of dots showing that Superbase is

writing data onto the destination disk.

REPEATING THE CYCLE

If there is a lot of data to be copied, Superbase may require the process to be repeated, up to a maximum of 4 cycles. The message 'Insert Source Disk' will appear again if the cycle must be repeated. In this case, go through the actions as before, starting at the INSERT SOURCE DISK paragraph.

15.4.3 CONCLUDING BACKUP

When all data has been copied, Superbase will close down, resetting the computer to the state it was in just after it was switched on. To continue using Superbase, reload it in the normal way.

15.5 NEW DISK

If you require a formatted disk you may use this option to create one. A disk formatted with this process will be suitable for storing a database and the files, lists, and programs that go with it. However, the supplied HELP screens and the 'start' program will not be present. If you require a disk to have these on it you should create a new disk with the facility available when Superbase is started up.

The process is like the first stage of the BACKUP process.

The first screen prompt is:

Insert Blank Disk in Drive 0

Press Return to Continue

Insert the destination disk in drive 0 and press RETURN. The next prompt is:

All Data on Drive 0 Will Be Destroyed

Are You Sure?

This allows you to double-check that the disk you are using as the destination disk is the correct disk. It can be either a new disk from the box or an old disk that you want to re-use. When you are satisfied that the destination disk is correctly inserted, press RETURN.

The next prompt is:

Enter Disk Name, id

You must give your disk a name and identification code. The name can be any combination of up to 16 characters, including spaces but excluding the colon (:). A meaningful name such as 'work disk' is advised. The identification code must be 2 characters, such as 'aa'. Give every disk a different code,'ab','ac', etc.

Type the disk name and code, including a comma between them, and press RETURN. The message 'Processing' will be displayed while the disk is prepared for use.

During the process the current database is deselected. To restart type 'database' and press RETURN. Then enter the database name, without quotation marks.

15.6 USING THE DISK COMMANDS

The 'OTHER' option allows you to type in certain Commodore disk commands without exiting from Superbase.

You may use the following disk commands:

Rename, Copy and Scratch - described below (not available from command
vn: Validate   line).
$n   View disk directory (pattern matching can be used)

For full information on these and other disk commands see the manual which comes with your Commodore disk drive.

Note that if you are using the 1541 single drive unit you should type 'O' (in place of 'n') for the drive number.

The following Disk commands may not be used within Superbase:

        in: Initialize disk
        un: Reset
        nn: New   (See Section 15.5)
        dn: Duplicate (See Section 15.4.1)

RENAME

The RENAME Command renames an existing file. The new name specified in the command must not already exist. If it does, 'FILE EXISTS' error message will be displayed. The format of RENAME is:

        r0:newname=0:oldname

If you rename a database, it must be in UPPER CASE letters. Do not rename a data file inside the database. The database would not be able to identify the records belonging to that file. Be sure to rename Programs with a '.p' suffix, and HELP screens with 'h' as the first letter. These rules also apply to any renaming done with the COPY command.

COPY

The COPY Command allows you to create multiple copies of files (under different names if they are to be on the same disk). Do not attempt to make a copy of a database: the only way to do this is with the EXPORT and IMPORT commands. The format of COPY is:

    c0:newname=0:oldname

SCRATCH

The SCRATCH command is for removing unwanted files from the disk. The format of SCRATCH is:

    s0:filename

You will be asked 'Are You Sure?'.

SCRATCHING A DATABASE FILE

To delete a data file from the database you must first SELECT DELETE all the records in the file and then do an extra SELECT DELETE to delete the file. Then and only then delete the file definition using the SCRATCH command.

SCRATCHING A DATABASE

A database may be scratched from within Superbase, or removed using the following BASIC program:

```
10 open 1,8,15,"s0:databasename"
20 input#1,er,em$,et,es
30 print er;em$;et;es
40 close 1
```

This will scratch all indexes and data within the database. Programs, screen definitions and other files are unaffected.

You may wish to remove the TRAINING database from your disk and create an uncluttered source disk.

16   MEMO

16.1 USING THE MEMO OPTION

The MEMO Option has a dual purpose. It can be used to write and store messages to oneself or to other operators of Superbase which can later be recalled and read, and it can also be used to produce or amend a HELP SCREEN to provide advice to users having difficulties with any of the options of Superbase (see Section 17.1).

16.1.1 OBTAINING THE MEMO OPTION

f 7   From Menu 2, press the 'f7' key on the right hand side of the key board.

You should see a blank screen with the words: 'Enter Name' in the message area at the top of the screen.

You may call your MEMO by any name you choose up to 16 characters long, but if you want it to be a HELP screen, recallable by means of the HELP option, then you must prefix the name with an 'h'.

For example, if you want to create a HELP screen which offers advice on the IMPORT facility of the MAINTAIN option (see section 15.5), you should call your MEMO 'himport'.

Type in the name you have chosen and press RETURN.

If a MEMO already exists with the name you have typed, that MEMO will now appear on the screen for you to read or to edit with the flashing cursor at the top left.

The words 'Mode: Memo Writer' will be displayed in the message area above the screen.

If there is no MEMO with that name, the screen will remain blank and the cursor will appear ready for you to create it.

The following control keys are available for use while creating your MEMO screen:

CRSR   These keys are used to move the CURSOR to the LEFT or RIGHT across the screen.

CRSR   These keys are used to move the CURSOR UP or DOWN the screen.

CLR HOME   This key takes the cursor directly to the 'HOME' position at the top left of the screen.

INST DEL   Characters can be INSERTED or DELETED with this key.

f 1   **INST DEL**

If you wish to DELETE a line from the memo screen use this key. All subsequent text will be moved up to fill the gap left by the deleted line.

f 1   **E**

You can also ERASE a line without moving up the text which follows it. Use this key to erase the line and whatever text was on that line will be replaced by blank spaces.

CTRL   **P**

Use this command to print the current MEMO screen.

f 1   **SHIFT**   **INST DEL**

Lines can be INSERTED into the Memo screen with this key. Subsequent lines will be moved down to make room for the new line that has been inserted.

f 1   **SHIFT**   **CLR HOME**

If you want to CLEAR the whole screen to start again, use this key.

f 1   **Q**

You can QUIT the Memo option and return to the Main Menu by using this key.

Any changes you have made to an existing memo or any new memo you have created will be disregarded.

This option is mainly for returning to the Main Menu if you have entered the Memo option to read an existing Memo.

f 1   **RUN STOP**

When you have completed the Memo screen, use this key to STORE the memo.

The word 'Finished' will appear in the message area and after a short delay you will be returned to the Main Menu.

Memos may be multi-screen. Create each page separately with a different name. Use the disk copy command (see Section 15.6) to join the files together: c0:newfile=0:memo1,memo2,memo3, up to 4 joined files. The large file may be edited by moving forward from page to page with the normal finishing command.

Note f1 Q must be used with caution as it erases the current and all subsequent screens.

17   HELP

17.1 HELP SCREENS

The HELP Option enables you to display special screens for advice on the use of Superbase facilities.

Superbase has a Help screen already provided for each of its major options, but you may design your own by using the MEMO Option (see section 16.1).

The first line of the built in HELP SCREENS follows a standard pattern. On the left a reference is given to the User Manual for further details. On the right the name of the Help Screen is given in capitals followed by the page number you are viewing.

You may obtain a printed copy of any Help Screen by holding down the CONTROL key and pressing 'P'.

17.1.1 OBTAINING THE HELP OPTION

SHIFT   f 8   From either Menu 1 or 2, press the 'f8' key.

You should see the message: 'Enter which help required' in the message area at the top of the screen.

Type in the name of the option which you want advice about, e.g. 'Help', and press RETURN. Do NOT type the 'h' that prefixes every Help text file.

You will see the Help Screen displayed line by line and then the message 'End of Help, Press Any Key'.

When you are ready, press any key to return to the Main Menu.
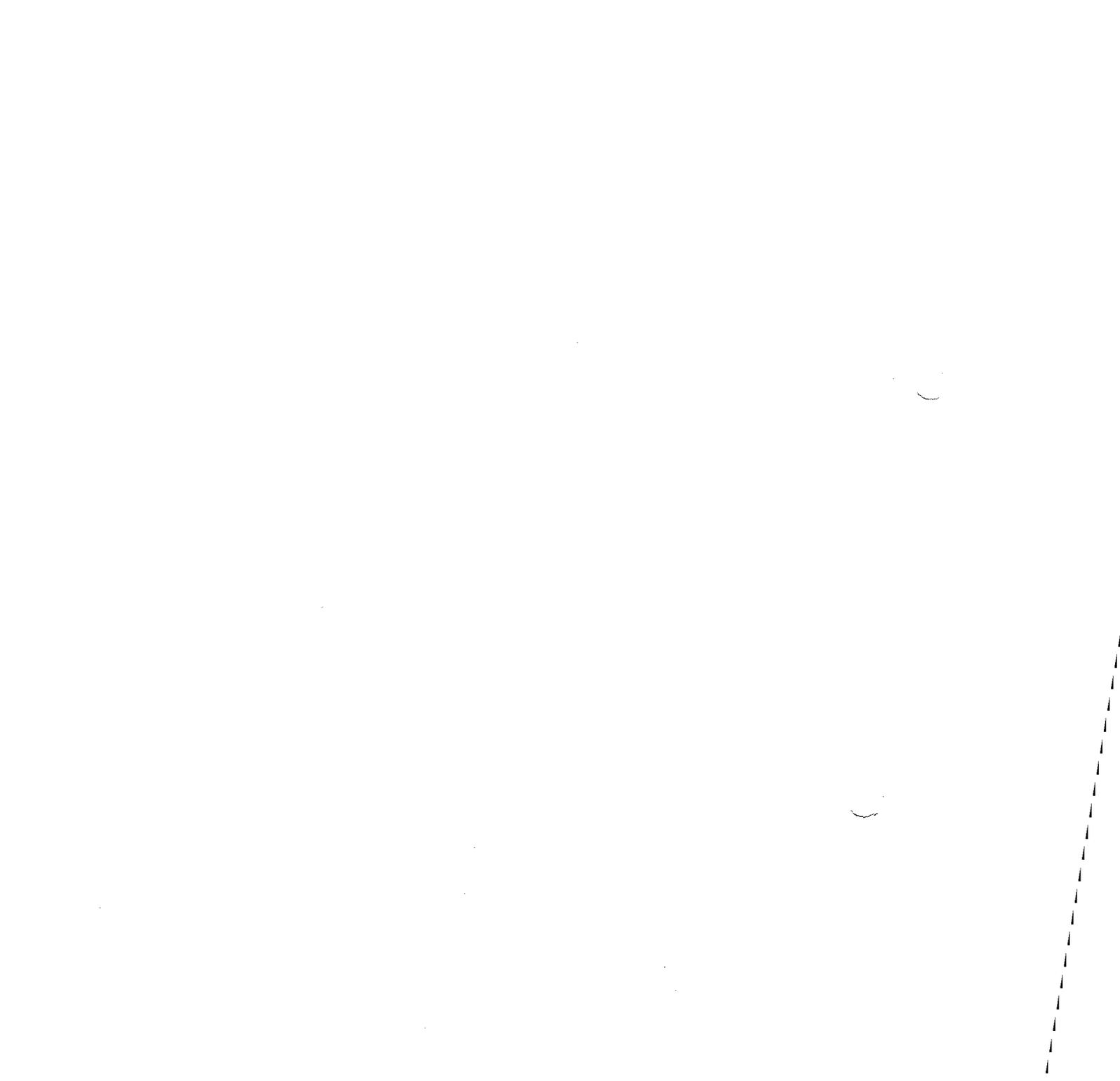
1   PROG

1.1   THE PROG OPTION

The PROG Option is a special program editor with which users can write
their own Superbase programs. PROG is the means by which Superbase
becomes not only a Database Management System but also a powerful
Applications Generator and Database Programming Language.

Many users will confine themselves to using just the Menu-driven system
of control which is perfectly adequate for routine Database Management.
The PROG option however, enables more advanced users to write their own
PROGRAMS utilizing more than forty additional commands that Superbase
provides in addition to BASIC.

These user-written programs can be designed to automate complex sequences
of Superbase operations which can then be executed with just one key, the
EXECUTE key, 'f7'.

It is even possible to use the PROG Option to set up user-defined Menus
to give access to these programs in the same way that the Main Menus give
access to the built-in options of Superbase.

1.1.1 OBTAINING THE PROG OPTION

f 5

To obtain the PROG Option, press the 'f5'
key from Menu 2. The message 'Program
Writer' will appear above an editing
screen.

1.2   USING THE PROG OPTION

An area of the computer's memory is reserved for users' programs. Any
program in this area is called the "current program". An existing program
may only be edited after it has been loaded into the program area.

An existing program that is to be edited must be loaded from the main
menus, before the PROG Option is selected. To load a program, type 'load
"programname"' and press RETURN (omit the .p extension). 'Load' clears
out any existing program. When the program is loaded, select the PROG
Option. If there is no current program (i.e. after a 'new' command), PROG
will display a blank screen. You should use the 'new' command from the
menu before starting to write a new program.

The program editor presents an editing window of 10 double lines (maximum
length 79 characters) of program text. This may be scrolled up and down
with cursor control keys. Programs are written by entering line numbers
and Superbase commands in the desired sequence. A knowledge of the BASIC

programming language will help the user to construct effective programs. The editing facilities of PROG are described in the next section. When a program has been written, exit from the editor by pressing f1 followed by RUN/STOP. The program will be held in memory, and may be executed by pressing the f7 'Execute' key.

To save a program after exiting from PROG (i.e. while at the main menu), use the command 'save "**programname**"' (omit the .p extension - this is supplied automatically). Specify a "1:" prefix if you wish to store the program on drive 1 of a dual drive unit.

1.2.1 EDITING FACILITIES

Vertical scrolling	Use the cursor up and down arrows key.
Horizontal movement	Use the cursor left/right arrows key.
Insert and delete	Use the INST/DEL key.
Abbreviate commands	Optionally use short form commands which will be expanded when the program is listed.
Redisplay screen	Use SHIFT/RETURN to redisplay after changing order of line numbers, etc.
End of line above	Use the back-arrow key '<-' to move the cursor to the right-hand end of the previous line.
Create work space	Use SHIFT/CLR to obtain a clear screen for writing program lines. This command does not delete existing lines, which may be scrolled into view. Line numbers are automatically placed correctly when program is listed.
Insert blank line	Press 'f1' followed by INST to insert a blank line at the cursor position.
Copy line	Change the line number to the new line number. The old line will still exist.
Delete line	To delete a program line, type the line number and press RETURN.
List program	Type the command 'list' or 'prog', without a line number, and press RETURN. You can also type 'prog <line number>' to see a listing from the entered line number. (the '<' and '>' are not actually typed in.
Run program	Type the command 'run' or 'execute', without a line number, to run the program.

You can also type 'run <line number> to start execution at the specified line number. At the end of the program you will be returned to the Main Menu unless you specify the instruction 'PROG' as the last line of the program, which will return you to the Program Writer.

Invalid line   All lines entered must have a line number except when using the direct commands 'list', 'prog', 'run', and 'execute'. The error message 'Invalid line: Re-enter' usually indicates a missing line number or a command syntax error. The highest line number allowed is 63999.

Check available memory   Up to 4K is available for programs and variables. You can find out how much is left by returning to the Main Menu and typing 'display fre(0)'. The number displayed is the number of bytes left. For complete accuracy, type 'clr' first to clear out the program variables.

Print program listing   The best way to obtain a hard copy program listing is to return to the Main Menu and type 'print:list:display'.

1.3   CREATING A PROGRAM

In the sections which follow the creation of programs will be explained and you will be introduced to some elementary programming techniques. All the examples refer to the "cust.inv" and "cust.rec" file formats applied on your disk.

It will be explained how a program is developed out of a sequence of COMMAND LINES and how such devices as LOOPS and CONDITIONALS can be utilized to make your programs more versatile.

If you are unfamiliar with the commands used in these sections which do not appear on the Main Menus you should refer to the section on ADDITIONAL COMMANDS, Programming Section 2.

1.3.1 PROGRAMS AND COMMAND LINES

In Reference Section 3 the notion of a COMMAND LINE is explained. A Command Line is simply one or more Superbase commands separated by colons (:).

A PROGRAM is essentially nothing more than a sequence of such Command Lines where each has been given a LINE NUMBER determining

the order in which the instructions are to be carried out.

In fact Programs can be created without the use of the PROG Option at all, simply by typing in Command Lines from either Main Menu as normal, but with a line number in front of them as in:

    100 find "update-list" where [update] is "=yes"

This could then be followed by another such as:

    200 output the records from "update-list"

All we need to make these two lines into a simple program is another line to signify that the program has ended:

    300 end

The reason for numbering lines in hundreds is to allow plenty of room for further lines should you want to edit the program later with the PROG Option.

Having typed in a sequence of numbered Command Lines in this way you then have a program resident in memory which can be executed with the 'f7' key from Menu 1, or directly with the (unnumbered) command 'EXECUTE' from either Main Menu, or with the command 'RUN'.

Programs are only held in the computer's memory until the power is switched off unless they are stored on disk with the SAVE command.

To store a program you have created in the PROG Option, use the SAVE command from the Main Menu, as described above.

1.3.2 PROGRAM LOOPS

The program created in the last section simply constructs a Key List of records that need updating and displays them. Suppose however that we wanted to actually carry out operations on these records such as adding the contents of one field to the contents of another.

We might have a field called 'Last-paid' which we want to add to the contents of a field called 'Total-paid', as in the CUSTOMER INVOICE file "cust.inv" supplied on the disk.

The Command line for this calculation is:

    calc [Total-paid]=[Total-paid]+[Last-paid]:store the record

Replacing line 200 in the three line program above with this Command Line however, would only result in the calculation being performed on the current record. To carry out the operation on all of the records in the Key List requires what is known as a PROGRAM LOOP.

A Program Loop consists of two lines, the second of which returns to the first, in between these two lines will be a number of other Program Lines which carry out the operations required. These lines constitute the MAIN BODY of the loop.

For example, in the following program:

```
100 find "hlist" where [update] is "=yes"
200 select from "hlist"
300 calc [Total-paid]=[Total-paid]+[Last-paid]:store the record
400 goto 200
```

lines 200 and 400 constitute the loop itself and line 300 is the body of the loop. (Note that this program as it stands will loop indefinitely.)

Line 200 tells the computer to select a record from the Key List, line 300 specifies an operation to be carried out on that record and stores the modified version and line 400 tells the computer to go back to line 200 to select another record for processing.

In this way all of the records in the list would be processed.
A word of warning. The 'goto' command is very useful but can if overused become a source of great difficulty when debugging long programs.

1.3.3 CONDITIONALS

The only thing wrong with the above program is that once the computer enters the loop it will never get out unless the STOP key has been enabled and is used, or the power is switched off.

What is needed is a Program Line in the body of the loop which will return to the Main Menu once all of the records in the Key list have been processed.

For this purpose we can include another line-

```
350 eol Menu
```

The command 'Eol' which stands for 'End of list' is what is known as a CONDITIONAL since the command following it (in this case the MENU command which returns us to Menu 1) is only executed on the condition that EOL is satisfied. EOL is satisfied whenever the end

of the list has been reached.

Any Command Line can follow EOL, as in

    eol display "All records processed":wait

or

    eol output all records from "hlist"

As in our original example, these Command lines will not be executed unless the end of the list has been reached.

1.3.4 OTHER CONDITIONALS

Two other useful conditionals are 'EOF' and 'IF...THEN...'

The first of these, EOF is similar to EOL except that it is satisfied (i.e. the rest of the Command Line following it is activated) when the end of the file has been reached.

EOF would be used when ALL of the records in the file were to be processed as in:

```
100    select the first record
200    [Total-paid]=[Total-paid]+[Last-paid]:store the record
300    select the next record
400    eof menu
500    goto 200
```

Another useful conditional is the BASIC command 'IF...THEN...', as in:

    300 if [Outstanding] > [Credit-limit] then display
        [Name][Address][Outstanding]

This Program Line would display the requested information only IF the particular customer owes more than their credit limit allows.

Any condition can follow the 'IF' and any command may follow the 'THEN', so the general format of the IF...THEN... command is:

    if <condition> then <command>

1.4 LINKING BETWEEN FILES

Another facility useful in User-written programs is the set of commands
SETLINK, LINK, RLINK and ELINK which enable you to update a record with
information from a record in another file. It works like this:

1. Select file A.
2. Specify a link to file B (setlink).
3. Process file A.
4. Use any key from file A as the index key to a record in file B (link).
This record is now the current record.
5. Process file B. You can update it with data from file.A that has been
temporarily stored in variables.
6. Terminate the link (rlink) and return to file A.
7. Carry on processing file A.
8. At the end of your processing, you can make file B the selected file
(elink).

Suppose that we wanted to add the contents of the 'Last-paid' field in
the Customer Invoice file to the contents of the 'Balance' field in the
Customer Records file from Tutorials Two and Three.

The following modifications to the program outlined in section 14.3.2
would suffice:

```
100    file "cust.inv"
200    setlink "Cust.Rec"
300    find "nlist" where [update] is "=yes"
400    select from "hlist"
500    eol menu
600    [Total-paid]=[Total-paid]+[Last-paid]
700    store the record
800    a=[Last-paid]
900    link [ref]
1000   [Balance]=[Balance]+a:store
1100   rlink
1200   goto 400
```

Note that line 200 sets the link to the Customer Records file, the link
remaining in force throughout the program. Line 300 stores the amount
last paid in a BASIC variable. Line 900 links to the record in that file
having the same Customer Reference as the record we are linking from.
Line 1000 adds the value stored in the BASIC variable to the Balance
field in the record we have linked to. Line 1100 returns from the file
that was linked to, and line 1200 returns us to select the next record
key from "hlist".

We could improve this updating program with the following line:

```
650   [update]="no"
```

This modifies the Update field to show that the record has been updated.

(Editing hint: while testing a program, insert a temporary line
containing the commands **'wait:prog'**. This returns you to the editor

automatically.)

DIRECT SELECTION BY KEY

Finally, note that in Programs you can 'select' a record directly using
any of the forms: 'select a$', 'select "jones"', 'select [name]', or
'select left$(a$,4)' (or any BASIC string expression).

1.5 LOADING PROGRAMS FROM DISK

By constructing programs in this way, using the PROG Option to write and
modify them you can save a library of programs on disk.

Whichever program (if any) you last created since switching on the system
will be the current program in memory, and this will be the program
executed if you press the 'f7' key from Menu 1 or type in the command
'EXECUTE' from either Main Menu.

If you want to execute one of the other programs on disk you have to load
it first so that it becomes the current program in memory.

To do this simply type the command

    load "programname"

from one of the Main Menus and the program you have selected will be
ready to execute.

1.6 VARIABLE AND FIELD NAME RULES

Field Names may be up to 12 characters long, with no spaces. The
characters (!), (#) and (") are not allowed.

Any word may be used in a field name.

BASIC variable names may be any length, but only the first 2 characters
are significant, i.e. 'elephant$' is the same as 'elegant$'.

The permitted character range is a to z together with 0 to 9. The first
character may not be a number.

No part of a variable name may contain a BASIC or a Superbase command.
Examples of illegal names are:

do$ newvalue$
do%   link$
screen$ date$
total

A common and perplexing syntax error can be caused by inadvertent

combinations of letters in program lines, for example:

    if t and (b=3) then ...

produces an error because the function TAN will be detected. The
solution is to use parentheses as follows:

    if (t) and (b=3) then ...

1.7 PERMITTED BASIC COMMANDS

Because Superbase incorporates many high-level commands, not all the
standard BASIC commands are available. A list of valid commands follows.

PRIMARY

clr	goto	rem
data	if...then	restore
dim	list	return
for...next	load	run
end	new	save
get	on	step
gosub	read	stop

OPERATORS AND EXPRESSIONS

abs	int	right$
asc	left$	sin
atn	len	sqr
chr$	log	str$
cos	mid$	tan
exp	'pi'	val
fre		

2   ADDITIONAL COMMANDS

A number of additional commands are provided which do not appear on either of the Main Menus.

These commands can either be used in COMMAND LINES typed in from one of the Main Menus (see Reference Section 3) or can feature in PROGRAMS written by the user (see Programming Section 1).

While many users will opt to use only the Menu driven commands of Superbase, the advanced user will find that the addition of the commands detailed in this section extend the power of the system considerably.

In fact, used as a command driven system, Superbase is an advanced Database Language which extends BASIC by at least 40 commands.

In the following sections a specification is given of the additional commands which includes a category titled STATUS.

The status of a command is either PRIMARY or SECONDARY. SECONDARY commands are those commands which must follow other commands and cannot be executed on their own. In the following examples, references to file formats are to the "cust.inv" and "cust.rec" formats supplied for training purposes on your program disk.

2.1   THE COMMANDS

2.1.1   ACROSS

STATUS: Primary or Secondary Command

FORMAT: < <command> across "<string>";<[field]...> >

PURPOSE: To set the output to ACROSS the page or screen.

COMMENTS: See Reference Section 8.6.

2.1.2   ALL

STATUS: Secondary Command

FORMAT: output all < <format command> <[field]...> >

PURPOSE: Used with the OUTPUT command to signify that ALL records in the file are to be used for the output operation.

EXAMPLES: output all the records @20 [Name][Outstanding]

             Outputs the contents of the NAME and OUTSTANDING fields from every record in the file.

2.1.3   ASK

STATUS: Primary Command

FORMAT: ask x$
             ask x
             ask "text";x$
             ask "text";x
             ask [field]
             ask "text";[field]
             ask @x,y <all options>
             ask &n <all options>   (where n is a number, 1-254)

DEFAULT: Enter? (in command area at the top of the screen).

PURPOSE: To allow input from the keyboard during program
             execution.

COMMENTS: The text following the 'ASK' command will be
             displayed on the screen and whatever you type will
             become the value of the TEXT VARIABLE (X$) or FIELD
             ([field]) specified. To avoid formatting problems,
             do not enter double quotation marks. RETURN on its
             own is not accepted. Non-numeric input to numeric
             variables or fields will produce the 'Invalid
             Numeric Result' error message. The same message
             appears if the input number is too large for a
             field format, or if a result field calculation
             overflows its format as a result of a field
             parameter input with 'ASK'.

             The "text" need not include the word 'Enter' as
             this is supplied for all prompts that do not have
             positioning commands @x,y.

             The & option must precede all others if used; the
             default is 40.

             This command can be used to set up user-defined
             Menus.

EXAMPLES: 100   display @5,5"1> Update Accounts";@5,8"2> Show
                   Clients over Credit Limit";@5,11"3> Print
                   Report on Sales"
             200   ask a
             300   if a<1 OR a>3 then goto 200
             400   on a goto 500,600,700
             500   load "Program 1"
             600   load "Program 2"
             700   load "Sales Report"

             Displays a Menu from which user-written programs
             can be accessed.

2.1.4 BRKOFF - STOP KEY OFF

STATUS: Primary Command

FORMAT: brkoff

PURPOSE: To disable the STOP key after it has been enabled with the BRKON command.

2.1.5 BRKON - STOP KEY ON

STATUS: Primary Command

FORMAT: brkon

PURPOSE: To enable the STOP key to function as a means of breaking out of a program that is running.

COMMENTS: The STOP key can be disabled again with the BRKOFF command.

2.1.6 CLEAR

STATUS: Primary Command

FORMAT: clear

PURPOSE: Clears all fields allowing the current record to be used as a new record. Information can be entered into the fields with the CALC command. (see Section 11.4).

COMMENTS: After entering information into a record in this way, the STORE command must be used.

EXAMPLES: clear:calc [Name]="Davis, A";[goods]="1 CBM 64 Computer":store

Enters a new record with the details as shown.

2.1.7   CONT - CONTINUOUS PRINT

STATUS: Primary Command

FORMAT: **cont** <1 or 0>

DEFAULT: 0

PURPOSE: To specify whether or not you want Superbase to
             pause after each page has been printed.

COMMENTS: 'CONT' is normally switched on (1). To force the
             end of page break, set 'CONT' to 0. Printing may
             also be paused with the 'WAIT' command.

EXAMPLES: **cont 1**

             Suppresses the end of page break.

             cont 0

             Switches end of page break back on.

2.1.8   CONVERT

STATUS: Primary Command

FORMAT: **convert** n, x$

             convert [datefield], x$

PURPOSE: To convert a number or numeric expression, or the
             contents of a date or calendar field to a named
             BASIC string variable.

COMMENTS: 'CONVERT' allows dates to be changed from numeric
             form to an easily manipulable string form. Dates
             are stored internally as numbers.

EXAMPLES: 100   convert [Date], d$
             200   dd$=left$(d$,2)
             300   mm$=mid$(d$,3,3)
             400   yy$=rignt$(d$,2)
             500   print dd$;"/"; mm$; "/"; yy$

             This example assumes European style dates and
             presents the date in a different format.

2.1.9 **DATABASE**

STATUS: Primary Command

FORMAT: **database** "name" <,unit number, drive number>

PURPOSE: To select a database to work in or to create a new
               database.

COMMENTS: If no database "name" is given, the prompt 'Enter
               Database Name' will be displayed. Enter a database
               name without quotation marks. If database "name"
               is given, it must be enclosed within quotation
               marks. Used within a Program, the command may
               transfer processing to another database without
               user intervention.

               Defaults for unit number and drive number are 8 and
               0 respectively.

               Enter $ to the prompt 'Enter Database Name' to view
               the disk directory and ascertain database names.
               Database names must **not** begin with '$', and must
               not contain numbers.

2.1.10 **DATE**

STATUS: Primary Command

FORMAT: date x$, n

PURPOSE: To set the date-style to European (day month year)
               or American (month day year). Also returns the
               number of the month from x$ in n. If n=0 the date
               is invalid.

               The date-style is set by each use of the command
               and date format may therefore be reversed.

COMMENTS: Use 'Date' in conjunction with 'ask' and test for
               date validity.   Dates must be input using
               alphabetic month abbreviations.

EXAMPLES: 100   ask &7a$
               200   date a$,n
               300   if n=0 then 100

2.1.11 DETAIL

STATUS: Primary Command

FORMAT: detail all/from <"text";<[field]>...>

PURPOSE: To specify the main body of detail in a
            User-written report.

COMMENTS: Instead of writing your own Report Programs, you
            could choose to have them written for you by the
            REPORT GENERATOR (see Reference Section 13).

EXAMPLES: detail from "hlist" [ref] [quantity] [price]

2.1.12 DISPLAY

STATUS: Primary or Secondary Command

FORMAT: display <command line>

PURPOSE: To set the direction of output to the screen as
            opposed to the printer, and optionally display any
            parameters following it. The command 'display
            chr$(147) chr$(7)' will clear the screen and sound
            the tone. Numeric variables should be separated by
            semicolons.

COMMENTS: See Reference Sections 8.2 and 8.3.

2.1.13 DO

STATUS: Primary Command

FORMAT: do "<string>"
            do X$

PURPOSE: To execute a Command Line stored in a string
            variable or enclosed in quotation marks.

COMMENTS: A number of Command Lines can be assigned to string
            variables and a program can be designed to choose
            between them depending on predefined criteria.
            Multiple clauses may not be used. The maximum
            length of the command string is 80 characters. 'DO'
            must be the last command if on a multi-clause line.

EXAMPLES: a$= "display [goods]":do a$

2.1.14 **DOWN**

> STATUS: Primary or Secondary Command
>
> FORMAT: < <command> down "<string>";<[field]...> >
>
> PURPOSE: To set the output to DOWN the page, one record at a time.
>
> COMMENTS: See Reference Section 8.6.

2.1.15 **DUMP**

> STATUS: Primary Command
>
> FORMAT: dump "<filename>"
>
> PURPOSE: To print, display, or store on disk a file of the variables and their current values from the program currently in memory.
>
> COMMENTS: A file of variables can be read back into tne program at a later date by means of the SET command. If no filename is given the dump will be to the screen or printer, whichever is the current output device.

2.1.16 **ELINK** - **END OR REVERSE LINK**

> STATUS: Primary Command
>
> FORMAT: elink
>
> PURPOSE: To reverse the link established by the SETLINK command so that the linked file becomes the current file or the opposite. No actual link is active after an 'ELINK'. The 'File Selected' indicator will show which file is the current file after the 'ELINK' by displaying '='.
>
> COMMENTS: Used with the SETLINK, LINK, and RLINK commands.

2.1.17 ENDREPORT

STATUS: Primary Command

FORMAT: **endreport** < "text";<total variables> >

PURPOSE: To specify the text and totals you want to display
             at the end of a report generated by a User-Written
             Report Program.

COMMENTS: Instead of writing your own Report Programs, you
             could choose to have them written for you by the
             REPORT GENERATOR (see Reference Section 13).

EXAMPLES: **endreport** "Total Paid ";t0;"Total Outstanding ";t1

             Will display the totals accumulated in the Total
             Variables t0 and t1 together with text to explain
             what these quantities are.

2.1.18 EOF - END OF FILE

STATUS: Primary Command

FORMAT: **eof** <Command(s)>

PURPOSE: Used in user-written programs containing the
             'SELECT' command to carry out the stated action
             when the last record in the file has been reached.

COMMENTS: EOF is a CONDITIONAL. This means that the execution
             of those commands which follow it in the same line,
             is conditional on it being true. EOF is true
             whenever the end of the file has been reached.

EXAMPLES: eof **Menu**

             Will return to Menu 1 when the last record in the
             file has been processed.

2.1.19 EOL - END OF LIST

STATUS: Primary Command

FORMAT: eol <command(s)>

PURPOSE: Used in user-written programs containing the 'FROM "list"' command to carry out the stated action when the last record in the Key List has been reached.

COMMENTS: EOL is a CONDITIONAL. This means that the execution of those commands which follow it in the same line is conditional on it being true. EOL is true whenever the end of the Key List has been reached.

EXAMPLES:
```
100    select the records from "hlist"
200    calc a$=[goods];a$
300    eol display @1,0 "Press any key":wait
400    eol menu
500    goto 100
```

After all of the records in the Key List have been processed, the program will pause until a key is pressed and will then return to Menu 1.

2.1.20 FROM

STATUS: Secondary Command

FORMAT: <command> from "<list>"

DEFAULT: "hlist"

PURPOSE: To specify which Key List is to be used in a Superbase operation.

EXAMPLES: select from "debt list"

Selects just tnose records whose keys appear on the Key List named "debt list".

2.1.21 <u>IS</u>

STATUS: Secondary Command

FORMAT: <<command> where [field] is <"condition">>

PURPOSE: Used with commands containing WHERE which operate
             on those records WHERE some field IS of some value
             or range of values.

EXAMPLES: find "Debt-list" where [Outstanding] is ">0"

             Creates a Key List of records of people who owe you
             money.

             select match where [Town] is "=Paris"

             Allows you to view just those records of people who
             live in Paris.

2.1.22 <u>LFEED</u> - <u>LINE FEED</u>

STATUS: Primary Command

FORMAT: lfeed <1 or 0>

DEFAULT: 0 (off)

PURPOSE: To send a linefeed to the printer after each
             carriage return.

COMMENTS: 'LFEED' is either ON or OFF <1 or 0>.

EXAMPLES: lfeed 1

             Switches the linefeed on.

             lfeed 0

             Switches the linefeed off again.

PROGRAMMING - ADDITIONAL COMMANDS

2.1.23 LINK

STATUS:	Primary Command
FORMAT:	link <[field]> link "text"
DEFAULT:	Key field of current file.
PURPOSE:	To access a record in another file of which the key has the same value as the parameter in the current record specified in the LINK command.
COMMENTS:	Set which file you want to link to with the SETLINK command. If no parameter is specified, the key of the current record is used. The 'File Selected' indicator will show a '+' instead of its usual '=' when a link is active.
EXAMPLES:	See the 'SETLINK' example.

2.1.24 LMARG - LEFT MARGIN

STATUS:	Primary command.
FORMAT:	lmarg <number>
DEFAULT:	1
PURPOSE:	Sets the left margin for both screen display and printed output.
COMMENTS:	'LMARG' can be used before an OUTPUT command to set the margin of the output. Maximum value is 250. Use with no value to reset the default value.
EXAMPLES:	lmarg 20

Sets the left hand margin to column twenty.

2.1.25 LOAD

STATUS:	Primary Command
FORMAT:	load "filename"
PURPOSE:	To load a Superbase program file from disk.
COMMENTS:	The ".p" suffix may be omitted. A drive specifier may be used. If a program is loaded by another (i.e. chained), it will run automatically. An existing program will be cleared.

2.1.26 MENU

STATUS: Primary Command

FORMAT: menu

PURPOSE: To return to Menu 1. Often used with a conditional.

EXAMPLES: **eof menu**

Returns to Menu 1 when the last record in the file has been processed.

eol menu

Returns to Menu 1 when the last record in the Key List has been processed.

2.1.27 NMAT - NO MATCH CONDITIONAL

STATUS: Primary Command

FORMAT: nmat <command(s)>

PURPOSE: 'NMAT' is a conditional used with SELECT KEY. This means that the execution of those commands which follow it in the same line is conditional on it being true. 'NMAT' is true whenever a select key MATCH operation is unsuccessful (key not found).

COMMENTS: See Reference Section 6.1.7 for details of the MATCH command.

Both NMAT and PMAT can be used after LINK.

EXAMPLES: nmat display "Sorry...I couldn't find that key field":wait

Displays the above message if no record is found matching or partially matching the criteria you have specified.

2.1.28 PDEF - PRINTER DEFINITION

STATUS: Primary Command

FORMAT: pdef <number>

DEFAULT: 0

PURPOSE: To set the printer type to be used.

COMMENTS: The start-up program "start.p" may be edited to set the printer definition.

EXAMPLES: **pdef** 0   CBM Dot Matrix: sends CBM ASCII code with a cursor down character at the start of each line to produce lower case letters. Graphics not available.

pdef 1   Epson MX80 type: sends true ASCII.

pdef 2   Daisywheel type: e.g. Diablo, Qume, etc., sends true ASCII.

pdef 5   Epson MX80 type: sends CBM ASCII.

pdef 6   Daisywheel type: e.g. CBM 6400, sends CBM ASCII.

Low cost daisywheel type printers should work with either 2 or 6. RS232 interface and/or printer buffer may be necessary. For non-CBM dot matrix printers, select 1 if you want Superbase to convert to true ASCII, or 5 if you are using an interface device to convert.

2.1.29 PDEV - PRINTER DEVICE NUMBER

STATUS: Primary Command

FORMAT: pdev <parameter1> <parameter2><parameter3>

DEFAULT: 4,7,0 (for 1515/1525/MPS 801 printers)

PURPOSE: To set parameter 1 to device number, and if necessary parameters 2 and 3 to required values.

COMMENTS: pdev x,y,z sends to the secondary address specified in y, and so should be able to set up printers not encompassed below. We suggest you incorporate your defaults into program "start.p".

EXAMPLES: This table illustrates appropriate pdev values:

	IEEE	RS232	CENTRONICS
64	4,7,0/4,255,4 (a)	2,8,0 (b)	0 (c)
700	4,255,0	2,8,0 (b)	0
8096	4,255,0	4,255,0 (d)	0

(a) 4,7,0 for printers requiring no interface;
    4,255,0 for printers requiring interface,
    e.g. 3022,4022,8023,6400.
(b) Check Appendix C for values.
(c) All connected to user port.
(d) External RS232 interface attached to IEEE port.

2.1.30   PLEN - PAPER LENGTH

STATUS: Primary Command

FORMAT: **plen** \<number>

DEFAULT: 66

PURPOSE: To set the length of paper for reports and other
              printed output. Maximum is 255 and minimum 3.

EXAMPLES: **plen 72**

              Sets the standard page length for the Commodore
              1515 printer.

2.1.31   PLUS

STATUS: Secondary Command

FORMAT: \<command parameters> **plus** \<parameters>

PURPOSE: For extending the parameter list of a command
              beyond 1 program line.

COMMENTS: The REPORT GENERATOR (see Reference Section 13)
              uses 'PLUS' in the REPORT PROGRAM it creates to
              join the responses to its prompts after the user
              has answered 'Y' for 'Yes' when asked 'Any More?'.

              Note that PLUS can only be used in programs and not
              as a Direct Command. Parameters may include text
              within double quotation marks. 'PLUS' is valid in
              DISPLAY, PRINT, OUTPUT, TITLE, TOTAL, DETAIL,
              ENDREPORT, and SUBTOTAL.

EXAMPLES: 100   display "this is a string of text too long to
                    fit in the seventy nine "plus
              200   "characters allowed for command lines"

              Displays the two pieces of text as though they had
              been entered as one line.

2.1.32 PMAT - PARTIAL MATCH CONDITIONAL

STATUS: Primary Command

FORMAT: pmat <command(s)>

PURPOSE: 'PMAT' is a conditional used with SELECT KEY. This means that the execution of those commands which follow it in the same line is conditional on it being true. 'PMAT' is true whenever a select key MATCH operation is PARTIALLY successful, and untrue if a full match is obtained.

COMMENTS: See Reference Section 6.1.7 for details of the MATCH command. You can use PMAT after LINK.

EXAMPLES: pmat display [Name]

Displays any name which partially matches the criteria specified.

2.1.33 PRINT

STATUS: Primary or Secondary Command

FORMAT: print <command line>

PURPOSE: To set the direction of output to the printer as opposed to the screen, and optionally print any parameters following it.

COMMENTS: The 'print' command is used primarily when switching output or printing variables, field names etc. It must be preceded by 'output' when using the 'output' option syntax. See Reference Section 8.4.

2.1.34 PROTECT

STATUS: Primary Command

FORMAT: **protect** "<program name>"

PURPOSE: To save the current program in a form that prevents
            it from being listed or edited. Always take a
            reserve copy first.

COMMENTS: Programs protected by this command can be LOADED,
            RUN, or DELETED, but not LISTED or edited.
            Protected programs are encrypted. If an attempt is
            made to LIST a protected program, the message 'End
            of Program' will be displayed unless the first
            statement in the program is a 'REM' statement, in
            which case text following the 'REM' on the same
            line will be displayed. This allows Copyright
            warnings, etc., to be included in users'
            applications, which may be marketed as Superbase
            applications modules. Contact Precision Software
            for further details of marketing agreement.

2.1.35 QUIT

STATUS: Primary Command

FORMAT: **quit**

PURPOSE: Used to exit from Superbase and return to CBM
            BASIC.

COMMENTS: 'Quit' shuts down Superbase in an orderly manner,
            resetting the computer for other use.

2.1.36 RESTART

STATUS: Primary Command

FORMAT: **restart**

PURPOSE: To re-initialize the current database and file
            after severe system errors such as disk errors, I/O
            error, 'file not open' error, etc.

COMMENTS: Restart can be used to recover a deleted file if
            used immediately after a 'File Deleted' message
            caused by the SELECT DELETE command.

2.1.37 RLINK - RETURN FROM LINK

STATUS:	Primary Command
FORMAT:	rlink
PURPOSE:	To return from tne linked file to the original file.
COMMENTS:	Used with the SETLINK, LINK and ELINK commands.
EXAMPLES:	See the 'SETLINK' example.

2.1.38 RMARG

STATUS:	Primary Command
FORMAT:	rmarg <number>
DEFAULT:	80 for the printer. Screen width is fixed at 40.
PURPOSE:	To set the right margin for screen display and printed output.
COMMENTS:	Can be used before the OUTPUT command to set the right margin of the output. Maximum value is 255 and minimum 20.
EXAMPLES:	rmarg 76
	Sets the right margin to column 76.

2.1.39 SAVE

STATUS:	Primary Command
FORMAT:	save "filename"
PURPOSE:	To save a Superbase program file on disk.
COMMENTS:	A ".p" suffix is appended to the filename automatically. A drive specifier may be used. Any existing program of tne same name will be overwritten.

2.1.40 SCREEN

STATUS: Primary Command

FORMAT: screen <number>

DEFAULT: Screen 0

PURPOSE: To set the default screen. This is the screen first
             displayed in the ENTER, SELECT and FIND options.

COMMENTS: Any of the four screens in use can be set as the
             default screen. The range is 0 to 3.

EXAMPLES: screen 2

             Sets the default screen to the third screen.

2.1.41 SET

STATUS: Primary Command

FORMAT: set "<filename>"

PURPOSE: To execute commands or retrieve variable values
             stored in a sequential file on disk.   Uses include
             the storage of control values such as incrementing
             transaction numbers, and the execution of sub-
             routines or command sequences from within a
             program. The filename may be a BASIC string
             variable.

COMMENTS: This allows you to set variables as they were when
             stored. The file may be stored with 'DUMP' or
             created with 'MEMO'. If the sequential file is
             created with 'MEMO', no line numbers are required.
             Any commands in the file will be executed in
             sequence without the file being loaded from disk.
             This means that certain programming operations may
             be executed with virtually no memory overhead for
             the program instructions. If this technique is
             used, do not attempt to produce a Key List, read
             another file or list, load or save a program, or
             execute a goto, gosub, or for/next loop. However,
             you can read the database. 'SET' must be the last
             command if on a multi-clause line.

2.1.42 SETLINK

STATUS: Primary Command

FORMAT: setlink <"filename">

DEFAULT: Current file

PURPOSE: To establish which of the other files in the
               database is to be accessed by the LINK command.

COMMENTS: The SETLINK, LINK, RLINK and ELINK commands enable
               information to be exchanged between files in the
               same database. They also allow you to access a
               record in another file by linking via its key.

               They are particularly useful for updating one file
               with information from another, such as updating a
               BALANCE field in an accounts file with information
               from an invoices file.

               You can only use SETLINK (and therefore LINK,
               RLINK, and ELINK) on one file at a time.

EXAMPLES: 100   file "Cust.Inv"
               200   setlink "Cust.Rec"
               300   find "update list" where [update] is "=yes"
               400   select the records from "update list"
               500   eol menu
               600   [update]="No"
               700   [Total-paid]=[Total-paid]+[Last-paid]
               800   x=[Last-paid]
               900   store the record
               1000   link [No.]
               1010   [Balance]=[Balance]+x
               1020   store the record
               1030   rlink
               1040   goto 400

               For an explanation of this program, see Programming
               Section 1.

2.1.43 **SPACE**

STATUS: Primary Command

FORMAT: **space <number>**

DEFAULT: 0

PURPOSE: To set the number of spaces between lines in output produced by the REPORT or OUTPUT commands.

COMMENTS: 'Space 1' gives double spacing, 'Space 2' gives triple spacing etc. Range is 0 to 3.

EXAMPLES: **space 1**

Double spaces your output or reports.

2.1.44 **STORE**

STATUS: Primary Command

FORMAT: **store**

PURPOSE: To make permanent any changes made to a record by means of any command other than ENTER or BATCH.

COMMENTS: Unless STORE is used, changes to records made other than by ENTER or BATCH will only remain in effect until another record becomes the CURRENT record.

EXAMPLES:
```
100  find "hlist" where [Discount] is "=10%"
200  select from "hlist"
250  eol menu
300  display @1,2 [Goods];[Discount]
400  ask @5,5 "Change the discount?";a$
500  if a$<>"y" then 200
600  ask @5,7 "Enter new discount";[discount]
700  store the record: goto 200
```

Will store any changes you make to the discount rate on any goods.

2.1.45 SUBTOTAL

STATUS: Primary Command

FORMAT: **subtotal** [field] "subtotal text"

PURPOSE: To specify a field for which a change in the
             contents will produce a subtotal break in a report
             generated by a user-written REPORT PROGRAM.

COMMENTS: The 'SUBTOTAL' command is only to specify the field
             for the subtotal break, and any accompanying text.
             Subtotal break fields are only relevant if the
             report is using a Key List previously sorted on
             this field. Subtotal variables are specified with
             the 'TOTAL' command. To ensure that a subtotal is
             cleared, place it in the first line of the
             'SUBTOTAL' command (see Reference Section 13).

EXAMPLES: 400 **subtotal** [Department]"Subtotal for department:"
                 plus s0
             500 @40 &6,2 s0

             Prints the subtotal variable s0 and then clears it.

2.1.46 TITLE

STATUS: Primary Command

FORMAT: **title** "<report title>"

PURPOSE: To determine the text to appear at the top of a
             REPORT page; may include column headings.

COMMENTS: For use in User-written REPORT PROGRAMS.

             Instead of writing your own report Programs, you
             could choose to have them written for you by the
             REPORT GENERATOR (see Section 13). Positioning is
             done with the @x,y command. 'PLUS' is used to
             extend titles beyond a single program line.

EXAMPLES: **title** @30 "Sales Report 18/10/83"

2.1.47 **TLEN - TEXT LENGTH**

STATUS: Primary Command

FORMAT: tlen <number>

DEFAULT: 60

PURPOSE: To set the number of lines of text to be printed on
             the page. Maximum is 255 and minimum 3.

EXAMPLES: **tlen 55**

             Sets the number of lines of text to be printed on
             the page to 55.

2.1.48 **TOTAL**

STATUS: Primary Command

FORMAT: **total** <total parameters> <subtotal parameters>

PURPOSE: To specify totals and subtotals to appear in a
             report generated by a User-written REPORT PROGRAM.

COMMENTS: The parameters are calculations on Total Variables
             (T0, T1, ... T9), and Subtotal Variables (S0, S1,
             ... S9), and have the same format as calculations
             in the CALC Option.

             Instead of writing your own report Programs, you
             could choose to have them written for you by the
             REPORT GENERATOR (see Section 13).

EXAMPLES: 400 **total** t0=t0+[total-paid] plus
             500 t1=t1+[outstanding] plus
             600 s0=s0+[total-paid]; s1=s1+[outstanding]

             At the end of the report total paid and amount
             outstanding will be available for printing. At each
             change of the field or fields specified in
             'SUBTOTAL' any Subtotal Variables specified are
             available for printing.

2.1.49 WAIT

STATUS: Primary Command

FORMAT: **wait**
               wait a
               wait a$

PURPOSE: Used within a user-written program to force the program to pause until a key is pressed.

COMMENTS: 'Wait' is useful when a program is displaying information on the screen. It returns a single keystroke from the user - no additional RETURN is needed. 'Wait a' will accept only numeric input.

EXAMPLES:
```
100   find "hlist" where [town] is "=London"
200   select from "hlist"
300   eol menu
400   wait
500   display [Name];[Address]
600   goto 200
```

The program will pause between each record it retrieves until a key is pressed.

2.1.50 WHERE

STATUS: Secondary Command

FORMAT: <Command "list"> **where** [field] is "<condition>";
               <[field] is "<condition>";...>

PURPOSE: Used with FIND and SELECT MATCH to specify a condition to be met by those records to be selected.

COMMENTS: See Reference Sections 7 and 6.1.7 for details of the FIND and SELECT MATCH commands. If multiple items are specified semicolons must be used to separate them.

EXAMPLES: find "update list" **where** [Pending-Update] is "=yes"

Creates a Key List of those records which need updating.

Select Match **where** [Name] is "=Jones"; [City] is "=London"

Displays all records belonging to people named Jones who live in London.

        SHIFT for f2 f4 f6 f8

2.1.51 CHECK

STATUS: Primary Command

FORMAT: check [fieldname]
             check a$.

PURPOSE: Checks a fieldname against the file definition of
             the currently selected file.

COMMENTS: Acts as a conditional. Commands on the same
             line as 'check' will only be executed if there is
             an error, i.e. if the fieldname does not exist in
             the current file definition.

EXAMPLE: 100 ask a$
             200 b$ = "["+ a$ +"]"
             300 check b$: goto 1000
             400 display b$
             500 stop
             1000 display "field does not exist"
             1100 wait : goto 100

TECHNICAL APPENDIX

The Technical Appendix provides information for both the general user and
the applications developer. The four sections are (1) Maximum System
Values; (2) Data Storage; (3) File Manager; (4) Start-up Program.

         Note: "Unlimited" in the descriptions below implies
               limited by disk storage constraints only.

MAXIMUM SYSTEM VALUES

Database Level   Database Name: 16 characters
                     Databases: unlimited number
                     Files in a database: 15
                     Programs in a database: unlimited
                     Key Lists in a database: unlimited
                     Memo files in a database: unlimited

File Level   File names: 16 characters (key list, memo)
                                                14 characters (program)
                                                10 characters (data)
                     Records in a file: unlimited
                     Linked files at one time: 1
                     Memo file length: 23 screen lines
                     Program size: 4k including variables
                     Key List length: unlimited (may be appended)

Record Level   Fields: 127, including key
                     Descriptive text in file definition: 1k
                     Key - anywhere in record: 1 field
                     Combined result,
                         calendar and constant fields: 32 fields
                     Record length: 1107 characters
                     Screens: 4
                     Calculations: 79 characters expanded, 30 characters
                                   compressed (Field names take 2 characters.
                                   Functions including '(' and ')' take 1.
                                   Spaces do not count).

Field Level   Field name length: 12 characters
                     Key: 30 characters
                     Text: 255 characters
                     Numeric: 9 digits, up to 4 after decimal pt,
                                        plus 1 sign character position
                     Date: 7 or 11 chars. - 1Jan1900 - 31Dec1999
                     Calendar: 7 or 11 characters
                     Constant: 30 characters
                     Result: as numeric

Miscellaneous   Command line: 79 characters
                     Program line: 79 characters
                     Screen width: 40 characters
                     Screen length: 23 lines
                     Printer columns: 255

DATA STORAGE

When calculating maximum stored record length, follow these rules:

1. Count every character position visible between field angle brackets for text, key, numeric, result, and constant fields. Allow 5 characters for each date or calendar field. Replica fields do not count.

2. Add 1 byte for field separators (i.e. number of fields minus one). Replica fields do count. Separator is chr$(96).

3. Field names and descriptive text do not count.

4. Trailing spaces and numeric zeros are not stored. Nor are leading spaces.

5. Add 1 record separator chr$(0) per record.

6. Floating point storage, which requires minimum 5 bytes per number, is not used, allowing more economical storage of integers < 10000.

7. Database files are linked into the main disk directory allowing the use of the disk VALIDATE command from outside Superbase.

When calculating file length, follow these rules:

1. Minimum data area is 128 bytes per record, 5 bytes of which is required by the system, leaving 123 bytes for data. If more than 123 bytes are used in a record then a further 128 bytes will be assigned. This is a design feature that optimizes record access times and efficient dynamic disk space allocation.

2. File indexes are stored as 1 key per record (trailing spaces removed) plus 3 bytes. Index size varies according to the length of the key (the shorter the better) and the number of blocks in use. Blocking factor (average percentage of index block in use) is approximately 65%. As the index grows it creates a multi-level tree structure with higher levels pointing to index blocks instead of data areas as in the bottom level (B+ tree type).

3. Database files and data will be stored on the same drive. File definitions should be stored on the same drive as the database but could be accessed from another drive. Key lists, help screens, programs, import/export files, and 'output to' files may be stored on either drive (use the '1:' prefix if necessary). Output to a named list, program, memo or export file will overwrite any existing file of the same name.

4. Data is stored from and including track 2 of the disk. 5k is therefore reserved for non-database storage. Directory areas of the disk will be avoided.

FILE MANAGER

Superbase requires approximately 32k of memory for program code. 4k is
allocated for user programs, but chaining is possible (see also the SET
and LOAD commands).

More than 1 file definition may reside in memory at any one time, provided
that the total number of fields does not exceed 127, the total number of
calculations does not exceed 32, and the total amount of descriptive text
does not exceed 1k. A maximum of 3 simultaneously resident definitions is
possible if these totals are not exceeded. Multi-file applications will
run faster if file definitions do not have to be loaded from disk each
time the current file changes with the FILE command.

The process of creating a file clears all definitions from memory.

START- UP

A start-up program, "start.p", is included on the Superbase disk. It is
optional, and if not present at start-up may be ignored by pressing RETURN
when the "File Not Found" message appears. The original start-up program
resides on the Superbase disk. It may be edited using the PROG Option to
suit each user's requirements. Applications developers may modify the
program to present applications of their own design.

"Start" may for example display HELP screens containing program option
menus, request and validate input (including passwords), and load programs
for execution.

Systems do not have to use the standard Superbase Option menus at all.

Also if "start" and other programs are encrypted with the PROTECT command,
a completely secure application can be created.

An annotated listing of "Start" is included here. Study it to understand
how Superbase's system parameters may be set. These parameters are set
automatically to the values below at load time but have been included in
the program as an explanatory aid:

        brkon   STOP key enabled
        across   OUTPUT command direction mode
        display   OUTPUT command device mode
        lmarg 1   Left printer margin 1
        rmarg 80   Right printer margin 80
        plen 66   Paper length 66 lines
        tlen 60   Text length 60 lines
        lfeed 0   Linefeed off
        cont 1   Continuous print on
        space 0   Single line spacing
        pdev 4   Output device no. 4
        pdef 0   CBM printer type

THE START PROGRAM

```
100   brkon:gosub 400:rem allow break key and set system parameters
110   display @11,3"-------------"
120   display @11,4"["@+"Superbase 64""]"
130   display @11,5"-------------"
140   display @1,17"------------------------------------------------"
150   display @1,19"------------------------------------------------"
160   display @0:rem reset display count
170   ask &16 @1,18"   Enter Database Name :";a$
180   database a$,8,0:rem disk 8,drive 0
190   file:rem superbase asks for file
200   new:rem clear program goto menu
400   rem *** set system parameters ***
410   lmarg 1:rmarg 80:rem margins
420   plen 66:tlen 60:rem page & text length
430   pdev 4:pdef 0:rem printer device 4 cbm code
440   lfeed 0:cont 1:rem no line feeds, continuous print
450   space 0:across:rem normal line spacing, output across
460   screen 0:rem screen 0 is default
470   return
```

ERROR MESSAGES

> Note: ERROR LIGHT   Superbase uses the error channel extensively
> when allocating disk space. Error light flashing during disk
> write operations does not normally indicate disk errors.

ALREADY LINKED

A LINK command has been issued while a link is already in progress.

COMMAND SEQUENCE ERROR

You have entered a Command Line having a Command in the wrong position.

DATA MISMATCH

System error or hardware failure. Can be caused by failure to use
'database' command after changing disks. Enter 'database' RETURN and
carry on. If this fails, export all files, create a new database using
same file definitions and import the data.

DATABASE NOT FOUND

The DATABASE you have selected is not on the current disk.

DATABASE NOT SELECTED

Commands have been issued that require access to a DATABASE when none is
selected.

DISK ERROR MESSAGES

Standard COMMODORE disk error messages are displayed on the STATUS LINE,
or the top line of the screen. See your disk drive manual for further
details.

Certain errors are also detected by Superbase because of device
malfunction. These are input/output errors and are displayed as:

I/O Error No.   0   Routine terminated by the STOP key
                      1   Too many open files
                      2   File already open
                      3   File not open
                      4   File not found
                      5   Device not present
                      6   File is not an input file
                      7   File is not an output file
                      8   File name is missing
                      9   Illegal device number

EQUATION ERROR

You are either attempting to assign a value to a field of the wrong type
to accept that value (e.g. attempting to assign a string of TEXT to a
NUMERIC field), or else you have missed out an 'IS' or '=' where there
should be one.

FIELD NAME OR BRACKETS ERROR

Your Command Line either refers to a non-existent field or you have typed
an uneven number of brackets in the Command Line.

FIELD TOO LONG

You have entered a calculation which assigns a string too large for the
field you have assigned it to.

FILE DEFINITION INVALID

The FILE command has attempted to load a file definition and accessed an
invalid file. This error can occur if the file definition is overwritten
by a key list of the same name. To recover, reformat the file using
'FORMAT'.

FILE DELETED

You have issued a SELECT DELETE command to a file with no records, which
has caused the Database to delete the file. See the RESTART command.

FILE NOT FOUND

The FILE you have selected is not on the current disk.

FILE NOT SELECTED

You have attempted to issue a command requiring use of a file before
selecting a file.

FMS COMMAND ERROR

The File Manager has detected an invalid command due to system or hardware
error. Reload Superbase if you cannot continue work.

FORCED FIELD: PLEASE ENTER DATA

You are attempting to store a record/leave a KEY FIELD or another field,
that has been set as a FORCED FIELD empty of information.

FULL DISK

There is no more space available on the disk you are using.

INDEX MISMATCH

System error or hardware failure. Can be caused by failure to use 'database' command after changing disks. Enter 'database' RETURN and carry on. If this fails, export all files, create a new database using same file definitions and import the data.

INSIDE FIELD: CAN'T SET

You are attempting to set a field in a position already occupied by another field.

INVALID COMMAND PARAMETER

You have issued a command with a parameter too large, too small, or of the wrong type.

INVALID DATE

You have attempted to enter into a DATE FIELD information not of the form '05may83' or 'may0583'.

INVALID DIRECT COMMAND

You have issued a command which is either a command only for use within a PROGRAM or COMMAND LINE or is totally foreign to Superbase.

INVALID FMS PARAMETER

You have tried to access a record by using an INVALID KEY. Can be caused by editing a KEY LIST or using an invalid or corrupt KEY LIST.

INVALID LINE: RE-ENTER

You have tried to enter a PROGRAM LINE with no LINE NUMBER while in the Program Writer provided by the PROG Option.

INVALID LINK FILE

You have attempted to LINK to a non-existent file or to a file in a different DATABASE.

INVALID NUMERIC RESULT

You have either assigned a value too large or of the wrong type to a numeric field by means of an ASK or CALC command, or the result of your using one of these commands has caused a RESULT field to assume a value of the wrong type or too large for its format.

INVALID SCREEN NUMBER

You are trying to go to a screen which has not been formatted for the current file, or to format a screen when the current file has already a full complement of four screens.

KEY ALREADY EXISTS

You are trying to ENTER a record with a KEY which already exists on another record.

KEY FIELD NOT DEFINED

You have tried to format a RECORD LAYOUT without including a KEY FIELD.

LINE NOT FOUND

You have issued a GOTO command to a Program Line that does not exist.

NO FIELD DEFINED

You have attempted to format a RECORD LAYOUT without any fields at all.

NO HELP AVAILABLE

You have requested a HELP SCREEN that does not exist. Remember, you should not type the 'h' that prefixes the Help text file.

NO LINK SET

You or a Program have issued a LINK command without having first specified which file is to be linked to with the SETLINK command.

NO PROGRAM PRESENT

You have issued an EXECUTE command when there is no Program resident in memory.

NOT A DATABASE FILE

You have attempted to select a database with a filename which is that of a

file other than a database file.

NOT A PROGRAM FILE

You have specified a filename in a LOAD or EXECUTE command which is not
the name of a PROGRAM but of some other file.

OUT OF MEMORY

Your computer has run out of free memory space.

RECORD TOO LONG

You have tried to format a record larger than the permitted size (for
limitations on record sizes see the TECHNICAL SUMMARY).

SEMICOLON MISSING ERROR

You have omitted a semicolon between calculations in a CALC command.

SYNTAX ERROR

Incorrect use of Superbase and/or BASIC commands or functions. It may
help to look at Programming Section 1.6.

TOO MANY COMMENTS

You have attempted to FORMAT a RECORD LAYOUT containing too much
DESCRIPTIVE TEXT (for limitations on amounts of descriptive text see The
TECHNICAL APPENDICES)

TOO MANY FIELDS

You have attempted to FORMAT a RECORD LAYOUT containing too many fields
(for limitations on numbers of fields see The TECHNICAL APPENDIX.

TOO MANY FILES

You have tried to create more than the maximum fifteen files for a given
database.

RS232 CONTROL REGISTERS

Users of the RS232 port will need to set the values of 2 CONTROL REGISTERS in order to instruct the computer how to send data to the printer. These values are entered with the command 'PDEV 2,x,y' where x is the value described in 3 and y is the value described in 4 below.

1. Study your printer manual and note down the correct settings for these items:

    baud rate   handshake
    data word length   parity
    number of stop bits

2. For each of these items, look up the corresponding value for the required setting in the appropriate table below, and note the value down.

BAUD RATE	VALUE	DATA WORD LENGTH	VALUE	NO. OF STOP BITS	VALUE
50	1	8	0	1	0
75	2	7	32	2	128
110	3	6	64		
134.5	4	5	96		
150	5				
300	6				
600	7				
1200	8	PARITY			
1800	9	TYPE	VALUE	HANDSHAKE	VALUE
2400	10			0-3	0
3600	11	disabled	0	1-X	1
4800	12	odd	32		
7200	13	even	96		
9600	14	mark transmit	160		
19200	15	space transmit	224		

3. Add together the values you obtained for baud rate, data word length, and number of stop bits. Enter this as 'x'.

4. Add together the value for parity and handshake. Enter this as 'y'.

Example

```
baud rate 9600        - value 14
word length 8         - value 0
no. of stop bits 1    - value 0

total value of A, B and C - 14

Enter 14 as 'x'

parity odd            - value 32
handshake 0-3         - value 0

Enter 32 as 'y'
```

You can incorporate these values into the start-up program "start.p" as defaults. See Appendix A the Technical Appendix.

If your printer doesn't seem to work properly, try decreasing the baud rate. If it only works properly below the expected baud rate, this may signify an incorrect value for handshake. Change the 'y' parameter value.

SELECTED GLOSSARY

BASIC VARIABLES

Locations in the computer's memory which can be used to store information temporarily during processing.

BORDER

A string of characters, usually graphics characters, used to draw a border around the SCREEN LAYOUT.

CHARACTER

A single symbol that appears on the screen. Created by pressing a key or combination of keys.

COMMAND AREA

The top two lines of the screen where commands are entered. This is also the MESSAGE AREA where Superbase displays its messages to you.

COMMAND LINE

A sequence of commands separated by colons and executed one after the other.

CURSOR

The flashing block on the screen that indicates where the next character which is typed will appear.

CURSOR CONTROL KEYS

Marked with arrows. Used to move the cursor.

DATA

Information stored in FILES.

DATA DISK

The disk used for storing your files.

DATABASE

A collection of up to 15 Files held together on disk.

DEFAULT LIST

The KEY LIST created during a FIND or SORT operation if no listname is specified. The default name "hlist" is assigned.

DEFAULT VALUES

Those values which Superbase assigns to parameters if no others are specified.

DELETE

Remove text without leaving a gap, i.e. the remaining characters move up to fill the space that had been occupied by the deleted text. (Contrast with "erase".)

DESELECT

The operation of leaving a selected option without entering any parameters or taking any other action.

DESCRIPTIVE TEXT

Text that appears on a SCREEN LAYOUT to make clear what the various items in the record are meant to be. This may include graphics characters to underline or box in sections of the screen or to provide a BORDER around the screen.

DIRECTORY

A list of the names of the files on a disk.

DISK FORMATTING

The process of setting up a blank or recycled disk for use as a Superbase DATA DISK.

ERASING

Blanking a line of DESCRIPTIVE TEXT with spaces without filling the gap left by the line erased (as opposed to DELETING).

FIELD

A 'blank slot' where information is stored in the record.

FIELD END MARKER

A striped rectangle which appears in the Format Option to signify where a field ends.

FILE

A collection of Records stored together on disk with the same Screen Layout.

FILE DEFINITION

The file on disk storing the details of the RECORD LAYOUT.

FILL FILE

A file of information used by a wordprocessing program to fill in blank slots (variable blocks) in a standard letter.

FORCED FIELD

A FIELD which must have data entered into it and may not be left blank.

FORMATTING COMMANDS (1)

Commands which enable you to adjust the way that output is displayed on screen or printed on paper.

FORMATTING COMMANDS (2)

Commands which are used to set up the structure of the screens in your RECORD LAYOUT.

FUNCTION KEYS

The large keys on the right of the CBM 64 keyboard, used to control many Superbase operations.

HOME POSITION

The top left corner of the screen or text. The cursor can be moved to the top left of the screen by pressing CLR/HOME.

INSERT

Add characters, words or lines in between other characters, words or lines in a descriptive or other text.

INVERTING

Changing from dark characters on a light background to light characters on a dark background. Single lines or whole screens can be inverted.

ITEM LIST

A list of parameters following an OUTPUT, SORT or BATCH command. It may include field-names and/or BASIC variables and expressions.

KEY

Every record has a Key, which is whatever is stored in the Key Field of the record. The Keys are what Superbase uses to order the records in the file.

KEY LIST

A list of KEYS of records which can be used to restrict various Superbase operations to just those records whose keys appear on the list.

LINE NUMBERS

Numbers placed at the beginning of COMMAND LINES to turn them into PROGRAM LINES.

LOAD

Take a file that is on a disk and copy it into the computer's memory.

MATCH CRITERIA

The information you enter into a RECORD TEMPLATE to determine which RECORDS are to be selected for viewing or for incorporating into a KEY LIST.

MEMORY

That part of the computer where your document is held. The contents of memory are erased when the computer is turned off.

MESSAGE AREA

The top line of the screen where Superbase displays its messages to you.
This is also the first of the two lines where you can enter COMMAND LINES.

PARAMETER

A named field, named BASIC variable, string or numeric expression that may
include field names or BASIC variables, or number, entered as part of a
command to tell the program what information to process, and sometimes how
to process it.

PROGRAM

A sequence of numbered COMMAND LINES which are executed in numerical
order.

PROGRAM LINE

A COMMAND LINE which has a number in front of it so that it can be grouped
with other program lines to form a PROGRAM. These Command Lines are then
executed in the order dictated by the LINE NUMBERS.

RECORD

A collection of FIELDS which can be spread over up to four screens and can
be regarded as a unit. Records are held together in FILES and every record
within a file is of the same size and layout and has the same fields as
the others in that file.

RECORD FORMAT

The SCREEN LAYOUTS of the RECORDS in a FILE.

RECORD LAYOUT

See RECORD FORMAT.

RECORD TEMPLATE

The blank RECORD FORMAT as provided to enable you to enter MATCH CRITERIA
or criteria to determine which RECORDS are to be included in a KEY LIST.

REPLICA FIELD

A record field copied from an already defined field in the same record.

SAVE

Take a file that is in the computer's memory and copy it onto a disk.

SCRATCH

Remove a file from a disk.

SCREEN LAYOUT

The skeleton of a record screen consisting of FIELDS and DESCRIPTIVE TEXT. This is a blank record form like an empty card in a card-index.

SCREEN DUMP

A printout of whatever is on the screen at any given time.

SEQUENTIAL FILE

A file which consists of a stream of data with each field separated by a RETURN. Sequential Files can be used to transfer data between Superbase and other programs or between separate Superbase DATABASES.

SORT PARAMETERS

The parameters entered in the SORT Option which determine the order in which the records are to be sorted.

STRING

A sequence of characters (letters and/or numbers).

STORE

Save a file from the computer's memory onto a disk.

TRUNCATION

Trimming or shortening a string of characters to a particular size.

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