D ATA™ BASE MANAGEMENT

A versatile filing and reporting system designed for home and small business applications.

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1.0 INTRODUCTION

Navarone Industries, Inc., congratulates you on your wise choice of the Navarone **DATA BASE MANAGEMENT (DBM) SYSTEM** for your TI-99/4A computer. This simple, low-cost investment provides you with the most powerful data base system available for your TI-99/4A home computer. And this simple, straightforward manual will guide your steps as you make use of your Navarone DBM System to organize and automate your tasks and needs: From inventory to investment, from charitable donations to coin collections. The choice is yours! Your Navarone Data Base Management System will help you find your needs and fill them.

This reference manual is directed toward specific uses you will make of your Navarone DBM System; it is not a handbook of data base techniques. It is also not an independent study program for learning to use your TI-99/4A computer. In order to use this book (and your Navarone DBM System) well, you need to be familiar with data bases and your computer. If you should get confused, a glossary is located at the back of this manual for your assistance.

Manual Format

This manual is broadly written to give you a general introduction to Navarone's DBM System. If you don't find specific examples of your particular data base needs, don't despair! There are likely to be some local users' groups that can be of assistance, and there are always libraries and bookstores.

Our approach has been to provide a general discussion of how to use the Navarone DBM System. We have included a sample data base for your reference. You'll find it on the program diskette under the setup file name of **SETUP,** and the data file name of **DEMO.**

A word of caution, though, before we start. Your Navarone DBM System is sophisticated, but so easy to understand and use, that you might be tempted to start constructing your data bases as you read along. We know we have a good product, and we're proud of it, but we also know that a little knowledge is, if not dangerous, at least frustrating. So please read the entire manual before you try out your Navarone DBM System. Believe us, it's worth the effort!

2.0 DBM SYSTEM STRUCTURE

Your Navarone DBM System is a series of program modules, written in Assembler language to allow you to take full advantage of the power of your 16-bit computer. There are four separate modules you can choose, according to your needs:

2.1 DBM SETUP

This module allows you to design your own data files. The formatting features of the SETUP module permit you to create screen formats according to your particular data entry requirements, and to design your own record formats. You can create data bases with up to 25 fields and 32000 records. (Each record is limited to a maximum of 255 bytes.)

2.2 DBM ENTRY

This module uses the screen format and file setup that you designed with the SETUP module to let you enter your data base. The ENTRY module gives you complete file maintenance functions, so you can FIND and DISPLAY, CHANGE, ADD, and DELETE records in your files with ease.

2.3 DBM SORTS

This module sorts your data base files, using any of the six possible nested keys you can specify with your data base files. By using assembly language and high-speed sort algorithms, DBM SORT sorts your files at disk speed, limited only by available disk space. (If you use double-sided/double-density or hard disks, you can greatly increase the sort capacity of the SORT module.) DBM SORT has a special Select Code feature that gives you the option of sorting only selected records from within your files.

2.4 DBM REPORT

This module uses your data base files to print reports that you design. You can use the REPORT module to generate reports without having to learn to program your computer. You can also use special options of the REPORT module to customize your report forms, even make calculations on them as they are being printed.

3.0 DESIGNING YOUR DATA BASE

Your first task is to identify what you want to store in your data base. Then, once you know what you want, you have to decide:

- How much information will you need?
- How do you want to store it?
- How do you want to retrieve it?
- Will you want to retrieve it more than one way?

These questions help you determine the structure of your data base. The structure is important because it determines how your computer locates the records on your data base. Let's examine each of these questions to see how they help you design a database.

3.1 How much information will you need?

This question really means "What do I want to know?" and "How many fields will I need to find it out?" Imagine you want to create an order entry screen model. You could design your screen to have one field for CUSTOMER NAME. Or you could have one field for First Name; one field for Last Name; one field for Middle Initial. Decide how many fields you need, how big they should be, and how detailed their contents should be.

3.2 How do you want to store it?

Again, let's look at our order entry model. If we want a date field, do we want it to be numeric (01-11-85) or non-numeric (January 11, 1985)? And how many characters should it hold? Once you have decided on the format for any field type (date fields, name fields, etc.), you should always have fields of that type have the same format. If you have one date field that is numeric (DDMMYY) and one that is non-numeric (Month, date, year), you could find yourself unable to produce reports that require a consistent format.

3.3 How do you want to retrieve it?

3.4 Will you want to retrieve it more than one way?

These questions are taken together because they are related. In data base terminology, methods of accessing data stored on data bases are called views of the data base. Each view is determined by a key. DBM SETUP allows you to nest one key within any record. The keys you imbed within your records allow you to retrieve information.

3.5 Deciding On Key Fields

Each record needs one unique **KEY**. This key allows the computer to distinguish one record from another on your data base. A key field can be any of the information fields you include in your data entry screen, as long as the contents of the key field are unique for each record. A CUSTOMER NUMBER Field would make a good key, since it would be unique to each customer. If you chose another field as the key, say the CUSTOMER ZIPCODE, you would soon encounter problems with your data base. Once you had entered a record for one customer in a zip code area, you could never enter another record for that same zip code. **Remember, your key field for each record must be unique for that record.** Please do not confuse this KEY with SORT KEYS when using the SORT Module. The SORT KEY is unique to that module only.

When you know what fields you need on your data entry screen, and which will be your KEY FIELDS, you are ready to begin creating your data base. Your data base will reside on fixed-format files. This means that the data fields begin in the same position for every record in the file. That's why you had to figure out what sort of fields you wanted to store your information in. Each record must have the same number of fields starting in the same position for each record, and having the same length.

4.0 THE DBM SETUP MODULE

Once you know what you want in your data base, you can begin to create your data base with the DMB SETUP module. The first step is to design your data entry screen format. The format you design with the SETUP module will also be used by your computer as the model for generating record formats with the DBM ENTRY module.

This may sound complicated, but don't worry. The DBM SETUP module isn't only for creating formats, it's also used to modify them. So, if your original design needs improvements, you don't have to start all over again. You can use DBM SETUP to edit the existing file setups.

4.1 Creating A New Setup File

There are two steps in this process: defining the data base and positioning the fields on the screen. You've already made the first steps towards both of these goals by thinking about what you want to include in your data base, how detailed you want your information to be, and how you want to store and retrieve it.

4.2 Defining A Data Base

Every data base must be defined before it can be used. Follow these steps to begin the process of defining your data base by creating a new setup file:

- Load your DBM System into memory
- Insert your DBM System Diskette into DISK DRIVE #1
- Select Option 3 — DBM Setup
- Press any key — This loads the setup program from the System Diskette
- Your computer will display the message

      Enter Setup File name:

  Since you are just starting to create your new DATA Base, there is no Setup file defined.

- PRESS ENTER — your computer will then display a blank screen with a FLASHING Cursor.

Think of this blank screen as an empty piece of paper on which you will design a form. The form you design is composed of fields. Each field on your form has two parts: a **field name** and a **field specification.** The field name describes the field specification. Look at Figure 1 below.

```
CUSTOMER NUMBER:      ▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓
  (field name)         (field specification)
```

Figure 1. Sample Field Name and Field Specification

Our screen is an order entry screen in this example. We have decided that the first field on the screen will be the customer number. That is its **field name.** What we actually enter in the field is its **field specification.** In this case, it will be an identification number up to ten digits long.

4.3 Positioning Fields On The Screen

When you begin designing your screen, decide where you want your fields to go. To put your fields where you want them, move the cursor to the point on the screen where you want the field name to start. Type in the field name. Then type in the field specification. In the example in Figure 1, the field specification is indicated by The Bar. Normally, field specifications are entered using the <INSERT> (<FCTN 2>) key. The specification for each field should be as long as the largest entry you expect to have, but not to wrap around to the next line.

These are the steps you take to enter the example in Figure 1:

- Use the arrow keys to move the cursor to where you want the field name to begin
- Type in CUSTOMER NUMBER
- Move the cursor to where you want the field specification to begin
- Press <FCTN 2> to insert as many spaces as you want

Adapt this procedure for the field names and specifications you want to create. Enter all the field names and specifications you need for your data base.

To define your fields and create your screen format, use the **FUNCTION** arrows and the <**ENTER**> key to move your cursor around the screen. The two keys you will find most useful for this are.

    <FCTN 2>   <INSERT>

Creates and/or lengthens field specifications

    <FCTN 1>   <DELETE>

Deletes and/or shortens field specifications

4.4 Using The New Setup File To Create A File Structure

Once you have entered all the field names and specifications you need, position the cursor on the first field you want as a **KEY.** Press <PROCEED> (<FCTN 6>). DBM SETUP displays the **FIELD DEFINI-TIONS SCREEN.** This is where you can:

    Define KEY Fields
    Define NUMERIC Fields
    Create AID Messages

When you call up the FIELD DEFINITIONS SCREEN, DBM SETUP prompts you with a series of questions about each field specification. These prompts are described below.

IS THIS A KEY FIELD?

The only valid answers are **Y** (for yes), and **N** (for no). The first field you are defining is a KEY FIELD, so answer **Y** for this one. The contents of the key must be unique for each record.

IS THIS A NUMERIC FIELD?

Answer **Y** or **N.** If you answer Y, DBM ENTRY will right-justify the contents of this field for proper sorting.

AID KEY MESSAGE FOR FIELD

You can write up to four lines of explanatory text here. Any message you enter can be displayed by anyone using DBM ENTRY by pressing the <AID> key at any field. For example, if you were writing an AID message for the field specification in Figure 1, the order entry screen, it might be:

ENTER THE 10-DIGIT CUSTOMER NUMBER HERE

When you have answered all the questions for a field, press the <PROCEED> key to return to the main screen (the one you are designing). Continue the process of defining each of the fields on your screen.

4.5 Saving Your Setup File

When you have completed designing your screen, and all the fields have been defined, press the <BACK> key from your main screen. DBM SETUP will prompt you for three additional bits of information.

```
DO YOU WANT AUTO SEQUENCE*
```

Answer **Y** to this question. Auto sequence causes all fields within the record to be aligned automatically.

```
ENTER DATA FILE NAME
```

Enter the name of the data file for this setup. Setup file names and data file names should be unique.

```
ENTER SETUP FILE NAME
```

Enter the name of the setup file of this setup. Setup file names and data file names should be unique.

Be sure to remove your DBM System Diskette and insert a formatted diskette into the drive where your setup file will reside.

NOTE: *If you are unsure of the rules for naming files, consult section 4.6, DBM File Naming Conventions.*

When you have replied to the three prompts, your setup file is saved, and DBM SETUP redisplays the setup screen for you. You can inquire about the definition of any of the fields (by positioning the cursor on a field specification and pressing <PROCEED>). You can use the <QUIT> key to exit from setup mode.

CAUTION: *If you hit the <QUIT> key before completing this sequence, your setup will not be saved.*

* Notice the program sometimes makes reference to AUTO FORMAT
—This is the same as Auto Sequence.

4.6 DBM File Naming Conventions

The naming conventions for data base files (setup and data) are:

- Each file must have a two-node name.
- The first node is the disk drive code. This code consists of the letters DSK followed by the number of the disk drives it uses: 1, 2, 3 or 4.
- The first node is separated from the second node by a period.
- The second node is the file name. It cannot exceed six alphameric characters.

Figure 2 contains examples of data and setup file names.

```
DSK1.SETUP1
DSK1.SETUP2
DSK2.S1DATA
DSK1.S2DATA
```

Figure 2. Sample Setup File and Data File Names

There, you've done it. You've designed your own data base and data entry screen. To see what it looks like, you can use DBM SETUP to verify the results.

4.7 Modifying Existing Setup Files

You can modify an existing DBM SETUP file as long as you haven't actually begun to enter data for it with DBM ENTRY.

To add new fields to an existing setup file, enter them on the bottom of the screen, from left to right. This is done to protect the integrity of the previously-entered fields that were stored using Auto Format. If you attempt to enter new fields to an existing setup file in the middle of the screen, you will disrupt the sequence of information that DBM ENTRY expects to find.

If you really need to alter the position of the fields within your records, it is actually easier to design a new setup file.

4.8 Creating Data Files Using BASIC

Even though DBM System automatically will create the data file, you may create a data file using the BASIC command below:

>OPEN #1:"DSK1.filename",OUTPUT RELATIVE,FIXED nnn

where "filename" is the six-character name you assigned the data file, and nnn is the size of the record. The maximum record size that DBM ENTRY permits is 255. You can specify up to 25 data fields within each record.

CLOSE #1

Records are stored within data files in display-relative format. This means that once the sequence of fields is established, it cannot be altered. It can be expanded, but only as described above.

5.0 THE DBM ENTRY MODULE

Select option 2 from the title screen to access the DBM ENTRY module. Press any key to continue. DBM ENTRY will prompt you for the name of the setup file. If you have just completed work with the DBM SETUP module, the diskette containing the setup file is already in the Disk Drive.

5.0.1 If you entered a DATA FILE name during the SETUP Mode, the computer will try to load that DATA FILE. Since you have not yet created any data records, the computer will display a Message.

```
        FILE DOES NOT EXIST.
     DO YOU WANT IT CREATED?   (Y/N)
```

At this time press "Y" to create your data file or press "N" to enter a new data file name.

5.0.2 If you do not enter a data file name during the setup mode, or you have answered NO to the step above, the computer will display the message

```
        ENTER Data File Name:
```

5.0.3 Enter the file name for the data file you wish to use. Again, if the data file does not exist, the computer will display the message shown in Paragraph 5.0.1

If it does exist, a message will display informing you that the File is being cross referenced.

```
     YOUR FILE IS BEING CROSS REFERENCED.
```

If there there are no file errors DBM ENTRY displays the data entry screen you created with DBM SETUP. Those fields you selected as KEY FIELDS are highlighted (they appear brighter than other fields).

5.1 Cursor Control Keys In The DBM ENTRY MODULE

Figure 3 displays a table of cursor control keys used in the DBM ENTRY Module.

KEY		CURSOR MOVEMENT
LEFT ARROW	FCTN S	LEFT
RIGHT ARROW	FCTN D	RIGHT
DOWN ARROW	FCTN X	TO NEXT FIELD
UP ARROW	FCTN E	PREVIOUS FIELD
<DELETE>	FCTN 1	DELETES SPACES FROM FIELD
<INSERT>	FCTN 2	INSERTS SPACES IN FIELD
<ERASE>	FCTN 3	RESETS FIELD TO BLANKS
<CLEAR>	FCTN 4	DELETES RECORD FROM FILE
<BEGIN>	FCTN 5	CREATES NEW DATA RECORD
<PROCEED>	FCTN 6	WRITES RECORD TO FILE
<AID>	FCTN 7	DISPLAYS AID TEXT FOR FIELD
<BACK>	FCTN 9	EXITS RECORD; NO CHANGE

Figure 3. DBM ENTRY Module Cursor Control Keys

5.2 Creating A New Data File Record

To create a new data file record, position the cursor over any KEY FIELD and hit the <BEGIN> key.

DBM ENTRY highlights all fields on the data entry screen, and displays the screen border as blue. You can now enter or modify data. Move the cursor to any field where you want to enter data.

5.3 Saving New Or Modified Data Records

To save your new data file record, hit the <PROCEED> key. Your new record will be written to the data file, and the data entry screen is redisplayed. You must use the <BEGIN> key to enter new records.

5.4 Modifying Existing Data File Records

There are two ways to access existing records to modify them. Either enter a KEY FIELD specification, if you know it, or hit the <REDO> key. The <REDO> key provides a sequential access to the data file records, and allows you to browse the file without knowing any actual KEY FIELDS for any record.

Remember to press the <BACK> key before pressing <REDO> when Browsing sequentially through the file.

Once you have found the record you wish to modify, make your changes, and save the record with the <PROCEED> key.

5.5 Leaving Existing Records Unchanged

If you decide you don't want to change the record after all, simply press the <BACK> key. This allows you to back out any changes before they are written on the file, leaving the record as you found it.

5.6 Deleting Existing Records From The Data File

To delete an existing record from the data file, access it using one of the methods described above. Once you have accessed the data file record, simply press the <CLEAR> key to delete the record from the file. Answer Y if you wish to delete this record. DBM ENTRY then redisplays the data entry screen.

5.7 Terminating Processing With DBM ENTRY

Once you have saved a new or modified record, or deleted an existing record, DBM ENTRY redisplays your data entry screen. From this screen, you can continue adding records with the <BEGIN> key, browsing and/or modifying records with the <REDO> key, or you can exit from the file.

To exit from a data file, you must use the <QUIT> key. This ensures that any changes you made in this session are recorded properly.

DO NOT TURN OFF YOUR TI-99/4A WITHOUT FIRST USING THE <QUIT> KEY OR YOU MAY LOSE DATA AND REVISIONS.

6.0 THE DBM SORT MODULE

Select option 5 on the title screen to bring up the DBM SORT module. Be sure to put your DBM System Diskette into Disk #1 before continuing. This program makes a copy of your data file and sorts the records of the new file (according to your specifications) into a new output file. Just as in the DBM ENTRY MODULE you found key fields that allow you to identify and retrieve records from your data base, the DBM SORT MODULE lets you specify SORT KEYS that regulate how your data records will be sorted.

A SORT KEY can be any field within a record that you instruct the DBM SORT MODULE to use to determine the order of the records in the new output file. DBM SORT allows you to specify up to six levels of sort keys. When you specify more than one level of sort keys, they are known as nested sort keys.

You can determine the location and lengths of each field by using the SETUP Module to examine the FIELD INFORMATION. See Paragraph 4.6.

Look at Figure 4. Here are the first four fields of three records in a data file.

SAMPLE FIXED-FORMAT DATA RECORDS

POSITION:		1	2	3

```
           1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0
RECORD 1   1 0 0 J O H N      J O H N S O N        1 0 2 8 8 3
RECORD 2   1 0 1 M A R Y      S M I T H            1 0 1 4 8 3
RECORD 3   1 0 3 S A M        J O N E S            1 0 3 0 8 3
```

Figure 4.   Sample Fixed-Format Data Records

The records pictured in Figure 4 are all fixed-format records, because identical fields in individual records begin in the same column. Notice that each Number begins in column 1, each First Name begins in column 4, each Last Name begins in column 10, and each Date begins in column 20. These facts are rearranged in Figure 5.

FIELD LENGTHS IN BYTES

FIELD NAME	POSITION	LENGTH (IN BYTES)
Number	1	3
First Name	4	6
Last Name	10	10
Date	20	6
		25 Bytes

Figure 5.   Field Lengths In Bytes

By looking at the information in Figures 4 and 5, you can see that fixed-format files can always expect to find identical data fields beginning in the same positions in every record in the file. If you wanted to sort the records of this file alphabetically, you could choose as your SORT KEY the field Last Name.

If you want to sort the records of any file using more than one SORT KEY, you must determine the sequence of the SORT KEYS, and indicate the order to DBM SORT by using SORT KEY 0, SORT KEY 1, etc., with the SORT KEY 0 being the primary sort criterion.

For an example of nested sort keys, let's return to our order entry example of earlier. If we have customers in different states, we may want to sort the contents of our data files according to state (SORT KEY 0), salesman name (SORT KEY 1), and customer last name (SORT KEY 2). This gives us a nesting sequence of three sort keys.

If you intend to use your sorted output file to generate a report later with DBM REPORT, be certain to note the length of each of the fields in the output report. Additionally, you will need to know where the fields begin in relation to each other. (The first field always starts at 1.) You will need this information later.

6.1 DBM SORT MODULE Screen Prompts

DBM SORT displays a series of conversational prompts that you must answer to give it the instructions for sorting your file. Each of these prompts appears below, with a short discussion of the possible answers.

ENTER SOURCE FILE

Enter the Data File name of the file you want to sort. This will normally be the data file name you created with the DBM Entry. The format of the data file name is:

DSKn.filename, where n is the number of the disk drive.

ENTER OUTPUT FILE

Enter the Output File name you want to store the new sorted file under. Remember to use this file name in the report module when the computer asks for the Data File name. The format for the output file name is:

DSKn.filename, where n is the number of the disk drive.

SORT SELECTION FIELD
ENTER POSITION

Enter the location of the first byte of the field you want to use as the SELECTION field for your sorted output file.

STRING

Enter up to 25 characters that you want to use as the mask string for the SELECTION field.

LOGIC E/NE

If you want to sort records having contents in the SELECTION field identical to the STRING, enter **E**.

If you want to sort records having contents in the SELECTION different from the STRING, enter **N**.

SORT KEY 1:
ENTER POSITION

Enter the relative location of the first byte of the field you chose as the SORT KEY. Remember that position is determined by the length of each field (in bytes) from position 1 (column 1 in the figure).

LENGTH

Enter the length of the field (maximum number of characters allowed).

DIRECTION (A/D)

Enter **A** to sort records in ascending sequence (least value to greatest value).

Enter **D** to sort records in descending sequence (greatest value to least value).

You may enter up to 6 SORT KEYS, if less than six keys are used, simply press enter at the prompt for the next SORT KEY to start your SORT SEQUENCE.

After you have responded to these prompts, DBM SORT begins sorting the records of your file.

EXAMPLE: .

Suppose you wish to produce a file which contains only those records for all customers whose last name begins with the letters **JO**.

Use the SELECTION FIELD POSITION of the LAST NAME (i.e., In example from figure 4, the last name begins in position 10).

The SELECTION STRING will then be the letters **JO**. So you would enter **JO** and press return.

Use LOGIC E.

6.2 DBM SORT MODULE Information Messages

Once DBM SORT begins to actually sort your data file records into the new output file, the only messages you should see are information messages. The purpose of these messages is to let you know the progress of the job.

START PASS 1

This message tells you that DBM SORT is beginning the first pass at sorting your file. If the size of your data file exceeds the space available in RAM (24K), DMB SORT creates a temporary output file to hold each segment of the sorted output file. These temporary output files are then merged into the new sorted output file during Pass 2 of the SORT program. Once these files have been completely merged with the output file, DMB SORT deletes the temporary files.

START PASS 2

This message tells you DBM SORT is beginning the second pass of the SORT program. Any merge activity and temporary file deletion is performed now.

RECORDS SORTED: *nnnn*

This message tells you the number of sorted records that are now in your new output file. Remember, the new output file contains data records that have been sorted according to your instructions to DBM SORT. The original data file from which DBM SORT retrieved these records is still in its original state.

PRESS ENTER TO RESTART

This message indicates that the SORT program has ended. You could, if you wished, restart the SORT program and specify new records, new files, new sort patterns, or another version of the same sort. Or press <QUIT> to exit program.

6.3 DBM SORT Error Messages

If an error occurs while sorting your data file, the following message will be displayed.

```
FILE ERROR IN: DSKn. filename
PAB: XXXX XXXX XXXX XXXX XXXX
```

A Disk Error has occurred. DBM SORT displays the name of the file where the error occurred, as well as the first five words of the PAB.

PAB (Peripheral Access Block) can be found in the Editor Assembly Manual.

When the message is displayed, DBM SORT prompts you for instructions as to whether to ABORT or RETRY the operation that caused the error.

In the event an error occurs you must restart the entire SORT process. Some error conditions may prohibit the SOFTWARE RETRY operation resulting in a "Computer Lockup."

7.0 THE DBM REPORT MODULE

The DBM REPORT module allows you to custom-design report formats for the contents of your data base files. Among the features available to you are the capacity to generate subtotals and totals for numeric fields, and record breaks for files that have been sorted in some order. You can also use the DBM REPORT module to generate form letters or address envelopes.

7.1 Designing A Report Using an Existing Setup File

The easiest (and most logical) use of the DBM REPORT module is to create reports for data stored on your data base. You created the setup file using DBM SETUP, entered the data using DBM ENTRY, sorted the data using DBM SORT, and are now ready to produce a report with DBM REPORT.

NOTE: *DBM REPORT allows you to load setup files, but you cannot resave them as Entry setup files. All files saved using DBM REPORT are saved as report files.*

Report files cannot be loaded or used by any other module.

The reports you design are divided into two parts: headers and record forms. The page header is any explanatory material that you want to appear on each printed output page. The header cannot contain any data fields. The record form, on the other hand, is the set of data fields making up the output record.

You may have designed a setup file that contains numerous data fields. Using DBM REPORT, you can specify that the entire file print, or you can print only the portion you want (or need).

7.2 DBM REPORT Procedures

Make sure your DBM System Diskette is in Drive 1 Before Selecting the Report Option.

When you first enter the DBM REPORT module, it displays the following prompt:

```
ENTER SETUP FILE
```

If you are using an existing SETUP file, enter the setup file you want to use to design a report. The format for the name is **DSKn.filename** (see paragraph 4.6 disk naming conventions).

To create a new REPORT SETUP FILE, just press enter.

7.2.1 CREATING A REPORT SETUP FILE

The report setup file is like a template that contains a "MASK" for your report. It is very similar to the setup file you use in the ENTRY of your data base, but there are some interesting differences.

7.2.2 LINE LOCATIONS

You can press the <AID> key to display the line and column location on the screen. By pressing this key again the display removes these numbers.

7.2.3 POSITION YOUR FIELDS

Using the arrow keys, place the cursor to the position on the screen where you wish your fields to be printed. Everything you type on the screen will become a part of the Report SETUP MASK.

Refer to DBM setup for more information on how to set up your screen using the cursor control keys as defined in the following paragraph.

7.2.4 Cursor Control Keys In the DBM REPORT Module

Figure 11 is a chart of the cursor control keys in the DBM REPORT module.

KEY	CURSOR MOVEMENT
<ENTER>	MOVES CURSOR TO NEW LINE
<INSERT> (FCTN 2)	CREATES AND/OR LENGTHENS FIELDS
<DELETE> (FCTN 1)	DELETES AND/OR SHORTENS FIELDS
<PROCEED> (FCTN 6)	DISPLAYS INFORMATION ABOUT A FIELD
<AID> (FCTN 7)	DISPLAYS LINE AND COLUMN NUMBERS
<BACK> (FCTN 9)	SAVES PAGE FOR LATER USE
<QUIT> (FCTN +)	EXITS THE PROGRAM
<BEGIN> (FCTN 5)	START PRINTING
<CLEAR> (FCTN 4)	INTERRUPTS PRINTING
CTRL or FCTN <M>	MOVES FIELD
CTRL or FCTN <.>	ENTERS CONTROL CHARACTERS
CTRL <D>	INSERT CHARACTER
CTRL <S>	DELETE CHARACTER
CTRL <X>	INSERT LINE
CTRL <E>	DELETE LINE

7.2.5 MOVING FIELDS <FUNCTION M>

You can move fields by positioning cursor on the field you want to move, (the red bar), then press either <CONTROL M> <FUNCTION M> to "grab the field". Now move the field to the desired location by using the arrow keys.

Press any other key to FIX the field in its new location.

7.2.6 The <PROCEED> Key: Getting Field Information

When you position the cursor over a field on the setup screen and press the <PROCEED> key, you encounter three new prompts for information about the field.

DO YOU WANT TO TOTAL THIS FIELD?

Obviously, this applies only to numeric fields. If you want this field to be totaled on the output report, enter **Y.** If you enter a Y here, you must also specify a numeric format in the last prompt.

If there is data overflow, you will see the word -OVER- printed in the field on the output report.

DO YOU WANT TO BREAK ON THIS FIELD?

You can only specify **Y** here if this field was a SORT KEY for DBM SORT. Each time the value of this field changes in the output report, a record break is generated. A record break is a dummy record (not part of the original input file) containing the break value, subtotals of any totaled fields, and the number of records contained in the break section.

You cannot specify break and total for the same field.

FIELD FORMAT?

There are four valid format types: blank, T, $ or numeric.

BLANK	Leaving a blank ' ' in the format prompt area (or any character not a valid indicator for another format) results in output records identical to input records. No formatting of any sort is performed.
$	Provides two decimal places and a leading $ (dollar sign). This is used for output of amounts of US currency.
T	This format removes leading and trailing blanks from the field contents. This is useful in letters, envelopes, and text reports where field contents (like names) may not always use the entire field.
NUMERIC	There are five valid numeric formats: 0, 1, 2, 3, 4, and 5. They indicate to DBM REPORT where to insert the decimal point in a numeric field. The number corresponds to the number of decimal places that will be displayed in the output field.

7.2.7 Entering Control Characters With DBM REPORT

Most popular printers have special print modes that require the use of certain CONTROL CODES. The DBM REPORT module provides you with a means of entering any of these special codes into your report format.

As illustrated in Figure 11, the CTRL or FCTN <.> keys allow you to enter control characters.

Pressing either of the keys enters an escape character in the position indicated by the cursor. This escape character appears on your screen as a white block with left bracket [(ASCII 27).

Typing a 0 over the control code produces the control 0 (ASCII 15), which displays on your screen as a white block with 0 in it.

All other control characters are similarly entered.

NOTE: *It is advisable not to use control characters unless you are certain that you understand how they work with your printer. For further information, consult the instruction manual for your printer.*

If you enter control characters on a report form that contains columns, it is likely that the control characters will cause problems in column format that follows them.

7.2.8 COMPLETING A SETUP FILE
When you complete your setup screen, Press <BEGIN>.

ENTER OUTPUT DEVICE

The default value is PIO. If you wish to route the report elsewhere, enter some other value. If you wish to send the report to the screen, blank out the contents of the field.

ENTER DATA FILE NAME

The default value (if any) of the setup file is displayed here. To get a report from a sorted data file you must enter the name of the sort output file here see section 6.1. If no name appears, enter the name of the data file you created with DBM ENTRY.

LAST LINE OF PAGE HEADER

Enter 00 to have the top of the setup screen appear on each page.

Enter 0 to get no header at the top of each page.

Otherwise, press <ENTER> to use the default value. This causes DBM REPORT to use the line before the first line containing a field.

In the sample setup screen display in Figure 6, the first five lines constitute the desired page header. So, the correct response for the prompt would be **5**.

LAST LINE OF RECORD FORM

Press <ENTER> to use the default value. This causes DBM REPORT to use the line following the last line containing data. The default value results in output containing blank lines between each record.

Changing the last line of the record form so that it is only one line long results in dense columnar output with no blank lines between records.

So if you don't want a blank line after each record then sub 1 from the default value.

NO. OF LINES PER PAGE
If you are routing the report to a printer, the default value is 66 lines per page.

If you are routing the report to the screen, the default value is 23 lines.

DETAIL SUPPRESSION (Y/N)
The system default for this prompt is **N** (for no). If no detail suppression occurs, then the fields comprising a report section are displayed before the section's break record.

Choosing detail suppression instructs DBM REPORT to print only the break record for each report section. This may be handy in a summary type report.

PAUSE BETWEEN PAGES
When output is routed to the screen, the default is **Y** (yes).

When output is routed to a printer, the default value is **N** (no). If you are not using continuous-form paper, you need to enter **Y** to be able to insert and adjust each of the sheets of paper you will use.

Once you have reponded to all of the prompts, your report will be sent to the destination you chose (screen or printer).

SAMPLE SETUP

```
01[ Mike's friends
02[ And their phone numbers
03[
04[    Name              Phone
05[ :::::::::::::::::::::::::::::  :::::::::::::::::::::::
06[   XXXXXXXXXX      nnnnnnn
07[
```

Figure 6. Sample Setup Screen Display

A SAMPLE OUTPUT PAGE

Mike's friends	] page header top line
And.their phone numbers	]
	]
Name Phone	]
::::::::::::::::::: ::::::::::::::::	] page header last line
Rick 8614032	] first record
George 4313768	] second record
Laurie 9324667	] last record

Figure 7.   Sample Output Page

ANOTHER SAMPLE SETUP

```
01[ Mike's record collection
02[
03[ Name of the album:
04[ XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
05[ Who currently has it:
06[ XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
07[
08[ Type of music:        Date purchased:
09[ XXXXXXXXXXXXXXX       nn/nn/nn
10[ Price of album:       Catalog #:
11[ $nn.nn                nnnnnnnnnn
```

Figure 8. Another Sample Setup Screen Display

If you want to print out a report from this data file that just gives the name of your album and who has it currently, you would have to specify a last line of record form of 07. This would result in an output page like the one in Figure 9.

NOTE: *If you have a text line that contains no data fields (header information, miscellaneous explanatory text, etc.) that you want to appear with each record in the report output, it must not be included in the page header. (See Figure 8)*

NOTE: *The default value for the last line of the page header in this example is 03. But if you want to print that title information along with your output records, then you need to specify 02 as the last line of the header.*

ANOTHER SAMPLE OUTPUT PAGE

Mike's record collection	] page header line
Name of the album: Ernani Who currently has it:	] first record first line
Kurt Adler	] first record last line
Name of the album: Purple Rain Who currently has it:	] next record first line
Lonnie Chambers	] next record last line

Figure 9. Another Sample Output Page

7.3 Designing And Creating Form Letters

If you want to create a form letter using DBM REPORT, load the DBM REPORT module. In response to the prompt for the name of the setup file, enter the name of the VAR 80 file that contains the body of your letter. A sample form letter body is provided for your illustration in Figure 10.

The name of the data file you enter in response to the third prompt indicates to DBM REPORT where to find the records that you want to use in the form letter.

Answer the rest of the prompts, and you'll start producing form letters with DBM REPORT.

A SAMPLE FORM LETTER BODY

February 15, 1985

Dear XX XXXXXXXXXX XXXXXXXXXX:

As you know, every year the Ladies' Auxiliary of the Chagrin Falls Muskrat Wrestlers' Association has its Annual Vermin Dusting and Bacterial Injection Day for local Poultry and Swine shows. As it is one of the highlights of the local social season in XXXXXXX, its planning and development keep us quite busy for several months of the year, and the local population (human, fowl, and porcine) in a state of near-prostration due to excitement.

But we couldn't do it without the continued support of ordinary people like yourself. So, won't you please dig deep, almost until it hurts, and come up with the wherewithal to match the generous donation of $xxxx that we received from you last year?

Figure 10. Sample Form Letter Body

7.4 Other Options For Using DBM REPORT

When you are prompted for the name of the setup file, you can answer with the name of any file previously saved by DBM REPORT.

Or you can hit <ENTER> and begin with a totally blank screen.

APPENDIX 1: Converting Variable Format Files To Fixed-Format

If you created your data base files as variable-format instead of fixed-format, then you need to convert them before you can use them with DBM SORT or DBM REPORT.

The process is essentially just reversing the steps of analyzing your data base needs:

1   Examine your variable file and determine the maximum record length. This equals the variable attribute in the OPEN statement for your variable file. If no variable was specified, then the default is 80.

2   Find the maximum length of each of the fields in the file (byte count). Then pad each field with blanks to achieve the proper length.

Look at the example in Figure A-1. Here you have your fields, their length, sequence and byte count.

FIELD	VARIABLE	SIZE	POSITION
1	CUSTNO	5	1
2	FNAME	20	6
3	LNAME	20	26
4	ADDRS	30	46
5	CITY	20	76
6	STATE	2	96
7	ZIP	5	98

TOTAL BYTES IN RECORD: 103

Figure A-1.

Since we will need to write a program in BASIC to actually convert this file to a fixed-format file, we had best ensure that the records will always be found where DBM REPORT expects them. This is done by padding each field with blanks until its length equals the maximum.

The following statements can be used to accomplish this task:

```
100    S=5 (MAX SIZE OF FIELD)
110    CUSTNO$=SEG$ (STR$ (CUSTNO)
       &RPT$ (" ",S), 1, S)
120    S=20
130    FNAME$=SEG$ (FNAME!RPT$ (" ",S), 1, S)
```

Do this for each of the fields that you need to convert. (Remember to adjust each statement to your field size and structure.)

Then, it becomes a simple matter of concatenating the variables into one string, as shown in the example below:

R$=CUSTNO$!FNAME$!LNAME$!ADDRS$!CITY$!STATE$!ZIP$

This string R$ now contains all the variables, located in the positions shown in Figure A-1, where DBM REPORT expects to find them.

ASSEMBLY LANGUAGE   A computer-oriented language that may provide facilities such as the use of macro instructions.

BASIC   (Beginner's All-Purpose Symbolic Instruction Code) A programming language with a small repertoire of commands and a simple syntax, primarily designed for numerical applications.

BYTE   A binary character operated upon as a unit. The representation of a character.

CONTROL CHARACTER   A character whose occurrence in a particular context initiates, modifies, or stops a control operation. Control characters can be recorded for subsequent use, and may have graphic representation in some instances.

DATA BASE   A storage mechanism that allows a set of similarly structured records to be accessed and manipulated by different programs.

DISK DRIVE   A device for moving and controlling a magnetic disk.

FIXED-FORMAT   A dataset (file) format in which logical records are the same length.

KEY   A field within a record that distinguishes the record from others on the same data base.

MODE   Method of operation.

MODULE   A program unit that is discrete and identifiable with respect to compiling, combining with other units, and loading.

NEST   To incorporate a structure or structures of some kind into a structure of the same kind.

NODE   A means of determining the location of an object. With regard to naming, levels of identification.

VIEW   A method of accessing data stored on a data base.