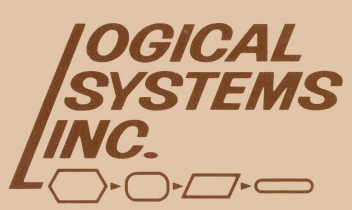
LITTLE BROTHER



DATABASE MANAGER

TABLE OF CONTENTS

INSTALLATION AND INITIAL START UP 1

NORMAL START UP PROCEDURE, Option 1 3
- Main Menu description 3
- Auto start up 4

FILE AND FORMAT DEFINITION

DEFINE SCREEN FORMAT, Option 8 7
- Screen definition commands 8
- Calculated fields 12
- Screen password 16

DEFINE PRINTER FORMAT, Option 9 19
- Physical printer parameters 22
- Field formats 28
- Form layout 36
- Headers and footers 42
- Printer control codes 50
- Form letters 55

DEFINE DATA FILE FORMAT, Option 10 59
- Starting new files 60
- Defining fields 62
- Explanation of master password 67
- Send fields to printer 72
- Saving definitions, initializing data file 73
- Editing existing data definitions 77

ADD DATA RECORDS, Option 2 81
- Adding data records 81
- Switching screen displays 83
- Using the Add index 83

UPDATE, VIEW OR DELETE DATA RECORDS, Option 3 85
- Delete records 86
- Edit records 86
- Using indexes 87
- Changing screen displays 87
- Searching for data 88

PRINT DATA RECORDS, Option 4 91
- Printing a range of records by number 93
- Printing using an index file 93

SELECT AND SORT DATA RECORDS, Option 5 97
- Single field indexing 98
- Multi-field selecting 99
- Sorting 99, 103

AUTOMATIC MODE, Option 6 105
Creating a job file 105
Manually using a job file 105
Automatic operation with job files 106

MAINTENANCE FUNCTIONS

EXPAND DATA FILE ALLOCATION, Option 7 107
SET DEFAULTS, Option 11 108
CHANGE MASTER PASSWORD, Option 12 109
VIEW DATA FIELD DEFINITION, Option 13 110
CHANGE PATH (MS-DOS only), Option 14 111

TECHNICAL INFORMATION

PROGRAM FILE DESCRIPTIONS 113
DATA AND FORMAT FILE DESCRIPTIONS 114

LIMITED WARRANTY

Installation and Initial Start Up Information

Before you attempt to use the Little Brother system, we recommend that you make at least one copy of the Little Brother diskette(s), using the disk copying utility provided with your computer's operating system. Never use an original master diskette to run Little Brother. Use a backup copy in the following steps.

The recommended procedure for first time users is to follow the steps below:

1) Read the appropriate installation and start up booklet (either MS-DOS type or TRS-80 computer).

2) Read the charts describing the different keys used in Little Brother, noting any specific descriptions dealing with your computer type.

3) Read the following brief description about creating a Little Brother data system.

4) Perform the initial installation.

By following these steps, you should be able to start up Little Brother and create your data formats in a minimum amount of time.

The maximum sizes of Little Brother data fields and records are:

65,534 records per file *
64 fields per record
254 characters per field
1024 bytes per record

* Total records also limited to one drive volume.

HOW TO CREATE A LITTLE BROTHER DATA SET

Creating a Little Brother data set is a three step procedure. The first step is to decide what data you wish to store on disk, and exactly how it is to be entered. Plan ahead, writing down the different items you will store, how many characters you plan to allow for each item, etc. Once you have everything figured out, follow the initial start up procedure to bring up the main LB menu.

Step two is to tell Little Brother how you want the data stored on disk. This is done by choosing option 10 (Define Files) at the main menu. The define program will allow you to name your storage fields, assign each field a length and type, and let you protect a field if desired. You will also allocate disk space to

hold data records. When that job is complete, you will return to the main menu.

The third step in creating a data set is to draw a display screen. This screen will be used to add and update your data records. Option 8 (Define Screen) at the main menu will run the screen drawing program. You will be able to place your data fields on the screen, and add any comment or instructional text that you need. Once the screen is complete and saved on disk, you will return to the main menu.

At this point you are ready to start adding data to your file. One other task you may also consider doing at this time is setting up your report or label formats. This would be option 9 (Define Print Formats) at the main menu.

If you are running on floppy drives, you should be careful to properly label all disks used with the name of the data base you have just created. This is especially important on MS-DOS systems, where a separate disk in drive A: is needed for each data set.

Normal Start Up Procedures - Little Brother Main Menu

This section will describe how to start up Little Brother and work on a data base. It is assumed that you have followed the initial installation instructions, and have created your data field definitions and screen format.

There are three ways to enter Little Brother and start working on a data base. They all involve bringing up the Little Brother main menu and using option 1 to name the data base you wish to use. With any of these methods, the data base will remain active until you exit Little Brother or select a different data base with options 1 or 10. Refer to the following screen display and discussions.

```
        Little Brother - LSI Database Version 1.0.0
        Copyright (C) 1985 by Logical Systems, Inc.

                    1) Select Data Base Name

     2) Add Records                  8) Define Screen Formats
     3) Update or Delete Records     9) Define Print Formats
     4) Print Records               10) Define File Format
     5) Sort or Select Records      11) Set Screen/Add Index
     6) Run Automatically           12) Change Password
     7) Expand Data File            13) View Field Definitions

                  14) View/Modify Path Settings

Name:          Index:None    Screen:0   Allocated:0   Used:0
---------------------------------------------------------------
Enter Selection Number ..
```

The main options available are all listed on this screen. To use any of them except option 10, an existing data base file must be active. You activate a file with option 1, Select Data Base Name. The name of the file set will then appear after the "Name:" near the bottom of the screen. If you have set a default screen or add index, the status of those two displays will also change. The number of disk records allocated to the data file and how many of those records are in use will also be displayed. Option 14 will only appear on MS-DOS systems.

When using Little Brother, you must be sure that your data and definition files are NOT on write protected disks.

EXITING

To exit Little Brother and return to DOS, press the <ESC> key twice.

Starting Little Brother - Method 1

At the DOS ready prompt, type the command:

```
LB
```

This will start up Little Brother and bring you to the main LB menu. Now choose option 1, "Select data base name", and then enter the data base name and password (if appropriate). You are now ready to use your data files.

Method 2

At the DOS ready prompt, type the command sequence:

```
LB filename password
```

The "filename" is the name you assigned to the data base when the file was first created. The "password" is the data base master password, and its use is optional. If there is no password assigned to the data base, then nothing need be typed after the filename. This command will execute and display the Little Brother main menu, with the data base you specified active. You may begin to use your data files at this point.

Method 3

This method is used to start Little Brother and have a user job file automatically take over and run the system. Creating and using job files is discussed in detail under option 6, Run Automatically. The entry syntax is:

```
LB filename password *jobfile
```

The first part of this command is identical to method two, where the data base name and password (if appropriate) are entered. The "*jobfile" is an asterisk followed by the name of the job you want to have run the system. The description of option 6, Run Automatically, gives detailed descriptions of the use of auto-start job files.

Possible problems

There are several error messages that can appear when starting up Little Brother. If the main menu file is not on the disk, an error message will come on the screen and the DOS ready prompt will reappear. Check and be sure that you have the Little Brother disk in the drive.

Little Brother creates a temporary file to pass data back and forth between the different options. If an error occurs during the creation of this file, the following message will appear:

Must enter via LB

The most common cause of this is a full disk. Check the disks you are using, and be sure that there is enough space for the file. It will require less than 100 bytes.

After the main menu appears, the data and definitions for the name you supplied will be checked. One of the following messages may appear:

Data file missing
Definition file not found

The most common cause of these errors is a typographical error when entering the data base name. Try option 1 again, taking care to check the spelling of the name. If the error still occurs, perhaps the disk containing the data and/or definition file is not in the proper drive.

There is one other message that deals with checking the data and definition file:

Mismatch between data and definitions

This can occur if you happen to use an older disk in one drive and a newer disk in the other, if you have a damaged disk, etc. If you see this message, carefully check to see which disks you have in the drives. If necessary, you may have to revert to a backup set in case of disk damage.

When using method three to enter LB and automatically start a job file, you may see the following message:

Auto file not found

If this is the case, you may want to check and make sure the job file you specified can be found. Again, misspelling of the job file name may be the cause of the error message.

Main Menu Option #8 - Define Screen Formats

The Define Screen Formats option at the main menu will allow you to create a "display screen" file. It is by this screen format that information in your data base is displayed. A display screen will be used for purposes of adding and editing records in your data base, and must be defined before records can be added to a new data base. Initially, you will prompted to:

Enter screen number to define or edit (1 - 10) ..

If you press <ESC> in response to this prompt, you will exit the define screen formats mode and will return to the main menu. Otherwise, answer this prompt by entering the number (1 - 10) corresponding to the screen format that you wish to deal with.

If the given screen format does not exist, you will be notified that it is a new screen, and will need to press <RET> to continue. Doing so will cause the menu to be displayed, at which time you will be able to create a new display screen.

If the screen exists, the information in the file will be loaded into memory. If a password has been assigned to the screen, you may be prompted to enter it (for more information on assigning a screen password and uses for a screen password, see the detailed explanation of the Edit Command). After the password has been properly accounted for, you will be allowed to edit the information contained in the existing display screen. At this point, the scan menu will appear.

Before selecting the Define Screen Formats option, you may wish to print out a listing of all your data base fields (using main menu option number 10). This will be handy in defining your display screen, since all field definitions in the display screen will be made by entering your data base field numbers.

Note: The following message may appear if you are editing an existing screen and your data base field formats have changed from when the screen was created (i.e. you have added or deleted data base fields, or changed the lengths of data base fields):

Field/Screen Definition Mismatch - In-memory Screen Altered

In this case, Little Brother has removed one or more fields from the display screen. This is done to ensure that the display screen matches your field definitions. At this time you should re-establish the removed fields in your screen and save it back to disk. Any time you have an existing display screen and have altered your data base field definitions, you SHOULD use the Define Screen option BEFORE adding records, to make sure that the display screen matches your field definitions.

There are six options available in the define screen formats mode. These are Help, Quit, Define, Edit, Print and Save. To select an option, simply press the key corresponding to the first letter of the desired command. An alternative method for selecting an option is to use the space bar or the arrow keys (left/right) to move the reverse video highlight over the desired command, and then press <RET>. Also, pressing <ESC> twice at the scan menu will act the same as the Quit Option.

We will now discuss all options available at the define screen format scan menu.

<H>elp Command

The Help command will display help information regarding the Define Screen Formats mode on the top portion of the screen. The word "More" will appear on the bottom line of the screen between pages of help information. Press the <RET> key to view the next page of information, or <ESC> if you do not need any more help. When all help information has been displayed, you will be returned to the scan menu.

<Q>uit Command

The Quit command will exit the Define Screen Format mode. After selecting quit, you will be prompted to verify your decision to leave Define Screen Formats. Pressing <ESC> in response to the verification prompt will cause you to exit back to the main menu. If you do not wish to leave Define Screen Formats, press <RET> in response to the verification prompt, and you will be returned to the scan menu.

Note: If you wish to save the screen format as it exists in memory, you must select the Save option prior to quitting. Choosing the Quit option will NOT save the current screen format.

<D>efine Command

The Define command will allow you to establish your display screen. After choosing the Define command, the Define Screen editor will be activated. You will be allowed to enter/edit the information in your display screen. After the Define command has been given, the cursor will be moved to the upper left hand corner of the screen (Row 0, Column 0), and the scan menu will be replaced by a summary of allowable screen editing commands.

While in the screen editor, any key that you press will be entered in the screen table. As characters are typed, they will appear

on the screen, and the cursor will advance to the right for each typed character. The information on the bottom of the screen (Row and Column) will be continuously updated to reflect the current cursor position. When you are finished making changes within your screen table, press either <F3> or <ESC> to return to the scan menu.

Along with being able to type characters into the screen table, you will be allowed to move the cursor transparently through the screen table, to any desired position. The cursor movement keys that will be accepted are:

<Right Arrow> - Move the cursor one position to the right

<Left Arrow> - Move the cursor one position to the left (Backspace may also be used)

<Up Arrow> - Move the cursor up one row

<Down Arrow> - Move the cursor down one row

<RET> - Move the cursor to column 0 of the next row

By positioning the cursor within the screen table and entering information, you dictate the exact place in which information will be displayed on the screen.

The screen table itself consists of 22 rows (numbered 0 - 21) and 80 columns (numbered 0 - 79). If the cursor is positioned on column 0, pressing the <Left Arrow> will move the cursor to column 79 of the previous row (if not on row 0). Similarly, if the cursor is positioned on column 79, pressing the <Right Arrow> will move the cursor to column 0 of the next row.

In addition to the cursor positioning keys, there are six special command keys available when in the screen editor. These command keys are:

1) <CTRL><D>
2) <CTRL><F>
3) <CTRL><L>
4) <CTRL><R>
5) <INS>
6) <DEL>

Note: The command summary display line shows <^D>, <^F>, <^L> and <^R> for the first four commands listed above. For these commands, the key sequence <CTRL><x> needs to be pressed (where x corresponds to D, F, L and R).

Pressing the <INS> key will toggle on/off the character insert mode for the screen editor. When the insert mode is active, the

word "Insert" will appear above the command summary on the bottom of the screen. The insert mode in the screen editor works much the same as the insert mode for the Little Brother input editor. When active, characters will be inserted into the screen table before the current cursor character. If the insert mode is not active, any characters entered will overtype existing information. Any time that an insertion would cause a character to move past the 79th column of the given line in the screen table, the insertion will still be made, but the previous 79th character will be lost.

Pressing the <DEL> key will delete the character under which the cursor is positioned, and will move all remaining information one position to the left on the current line.

Pressing <CTRL><R> will toggle on/off the "reverse video" mode. With the reverse video mode on any characters entered will appear in reverse video. The word "Reverse" will appear above the command summary on the bottom of the screen when reverse is on.

Pressing <CTRL><L> will allow you to insert or delete an entire line in your screen table. After choosing this option, you will be prompted to:

<I>nsert or <D>elete line ? .

If you do not wish to perform a line insert or delete, press <ESC> in response to this prompt, and you will be returned to the screen editor. Otherwise, enter <I> to insert a line or <D> to delete a line.

When inserting a line, the insertion will be made at the current cursor row. Any information contained on that row (and any subsequent rows) will be moved down one line. After the line has been inserted, you will be returned to the screen editor. You will not be allowed to insert a line if the last row on the screen table (row 21) contains any information.

When deleting a line, all information on the current cursor line will be deleted, and all subsequent lines will be moved up one line. After the line is deleted, you will be returned to the screen editor. You may not delete a line containing a field unless you first delete the field.

The <CTRL><F> and <CTRL><D> commands will allow you to insert or delete a data base field into/from your screen table, respectively. Pressing <CTRL><F> will allow you to insert a data base field within your screen table. The field will be inserted at the current cursor position. After <CTRL><F> has been pressed, you will be prompted for:

Field number to insert ..

Pressing <ESC> in response to this prompt will cancel the field insertion, and you will be returned to the screen editor. Otherwise, enter the number corresponding to the field that you wish to insert in your screen table. The number to enter is the same number that Little Brother assigned to the field when it was defined (see Define File Formats for more information).

If the number entered does not correspond to an existing data base field, you will be notified that no such field exists. From this point, you will be returned to the screen editor.

Each field in your data base may appear within your display screen only once. You do not necessarily have to establish all data base fields in your screen. Those fields that are not defined in your display screen will not appear during editing, nor will information for these fields be prompted for when adding records. At least one "enterable" field must be defined in your display screen.

After the number of a valid field has been entered, a line of periods <.> will appear in the screen table as a representation of the field. The number of periods that will appear will be the same as the length of the field. Once the field has been inserted, you will be returned to the screen editor.

The <CTRL><D> command will allow you to delete a field from your screen table. To do so, simply position the cursor anywhere within the field (so that the cursor is over one of the periods within the field). Once this is done, press <CTRL><D>, and the field will be removed from your screen table. The <CTRL><D> command will be ignored if the cursor is not within a field.

Note: While in the screen editor, if cursor is moved through a data base field, the corresponding field number will be displayed above the command summary on the bottom portion of the screen.

If a field is to be inserted over text within the screen table, the field insert will take precedence, and will overwrite any text information.

There must always be enough room to insert a field. That is, a field cannot be inserted over an existing field. If a field insert were to cause an overlap of two fields, an informative message will appear, and the insertion will NOT be done.

You will never be allowed to overtype any field characters (periods). You will be allowed to insert characters before a field definition. This will cause the field to be moved to the right for each character inserted. However, inserting characters before a field definition will NOT be allowed if the insertion

would cause any part of the field to wrap to the next line. If this circumstance should happen, any characters typed will simply be ignored.

Due to the fact that the maximum allowable field length is 254 characters (with only 80 characters per line on the video display), field definitions can wrap around from the end of one line on the display to the beginning of the next line. When a field definition wraps to a new line, you will NOT be allowed to insert or delete characters on the line containing the first character of the field definition. If the <DEL> key is pressed in such a situation, it will be ignored. Futhermore, any attempt to insert characters will also be ignored.

You may not delete a line that contains a field definition. Attempting to do so will cause an informative error message to be displayed. If you wish to delete a line containing a field definition, you must first delete the field (via <CTRL><D>).

In most cases you will be allowed to insert a line when the current cursor line contains a field definition. Inserting a line will simply move the field definition down one line.

The only time that you will NOT be allowed to insert a line is when the line contains a wrapped field (i.e. the line insertion would split the field definition). If you attempt to do so, an informative error message will be displayed.

All of the above information regarding the insertion of data base fields applies to all field types with the exception of calculated fields. There are special considerations to be made when defining a calculated field. We will now discuss these considerations.

Defining Calculated Fields in Your Display Screen

If the field number that you are inserting into your display screen represents a calculated field, you will need to enter information regarding the formula and the formatting used to display the calculated result. When you enter a calculated field number (in response to the "Field number to insert" prompt), you will be further prompted to:

Enter Formula .....

It is at this time that you define the formula to use in determining a calculated result. If you do NOT wish to define a formula at this point, press <ESC> in response to the prompt, and you will be returned to the screen editor.

In defining a formula, you may include addition, subtraction, multiplication and division (using the symbols + - * and / respectively). You may use these operations both on constant values (i.e. absolute numbers entered into your formula) and number type fields out of your data base. The valid field types that may be included in a formula are Numeric, Right Justified, Dollar and Float (you may NOT use other calculated fields within a formula).

In order to specify a data base field in your formula, simply enter the letter <F> (or lower case <f>), followed by the field number to use (the field number is the same number that was assigned to the field when it was defined).

As an example, suppose that field numbers 9 and 10 are defined as "dollar" fields in your data base. You wish to obtain the calculated result of adding field 9 to field 10. The formula to use in obtaining this result would be:

f9+f10

To carry this example one step further, suppose that we wish to first add field 9 to field 10, and divide the result of this addition by 100. In order to accomplish this, the following formula could be used:

f9+f10/100

In evaluating formulas, Little Brother will always perform the operations in a left to right manner. There is NO hierarchy or order of operations. Use of parentheses is NOT allowed.

You may use a decimal point in any constant value (only one per value), and a unary minus may be incorporated before any field or constant value. Using the above example, if we wanted to divide by a negative 10.5, the following formula could be used:

f9+f10/-10.5

As a final example, suppose that we wish to multiply field 9 by the negative value of field 10. In order to do this, the following formula could be used:

f9*-f10

You may NOT use spaces in your formula definition. Use of any extraneous character in the formula will cause it to be invalid.

If the formula entered represents a valid formula, you will be allowed to continue, and the next calculated field prompt will appear. If it is NOT valid, (due to either extraneous characters in the formula, or by specifying a non-number field in the formula), you will remain at the "Enter Formula" prompt, with

the invalid formula being displayed. At this time you may use the Little Brother input editor to correct the formula.

After a valid formula has been entered, you will be prompted to:

Enter total digits (2-16) ..

Pressing <ESC> in response to this prompt will cancel the formula definition for the calculated field, and you will be returned to the screen editor. Otherwise, enter the TOTAL number of digits that are to be displayed for the calculated value. The value entered for this prompt will represent the combined total number of digits (both to the left and the right of the decimal point) that will be displayed. The acceptable values for this prompt fall in the range of 2 to 16, inclusive.

The last prompt that will be encountered in defining a calculated field is:

Enter decimal places ..

Again, pressing <ESC> in response to this prompt will cancel the formula definition for the calculated field, and you will be returned to the screen editor.

In order to complete the calculated field definition, you will need to respond to this prompt by entering the number of digits to be displayed to the right of the decimal point. The value entered for this prompt must be in the range of 0 to "Total digits minus 1", inclusive.

As an example, suppose that you wish to set up a calculated field to be displayed in the same manner as a dollar field (i.e. 8 digits to the left of the decimal point, and 2 to the right). Since there are a total of 10 digits displayed in a dollar field, you would need to answer the total digits prompt with "10", and the decimal places prompt with "2" (i.e. display 10 digits total with 2 of them to the right of the decimal point, leaving 8 to the left).

After responding to the decimal places prompt, the calculated field will be defined in your display screen. The display length for a calculated field will always be at least 1 character more than the total number of digits. This character will be used to display the sign of the calculated value (for negative numbers). If a non-zero value is entered for the decimal places prompt, the display length will be 2 characters more than the total number of digits, allowing an additional character for the decimal point.

When data base records are added and edited, any calculated field will always be displayed as decimal point aligned. This will allow you to format your display so that the decimal point of a

calculated field can always be lined up with the decimal points of the fields used in the calculation. If a calculated value does not have enough digits to fill the left display format of the field, pad spaces will be used.

As a final note regarding calculated fields, you should always define enough digits to the left of the decimal point to hold your largest calculated value. If the calculated value will not fit in the display format defined (i.e. the number is too big), a "minus zero" (-0) will be displayed, indicating that an overflow situation has occurred. Minus zero will also be displayed if your calculation results in a division by zero.

This concludes our discussion of the <D>efine command at the scan menu.

<E>dit Command

The Edit command can be used to assign/edit the display screen password. In addition, it can be used to edit a calculated field formula. After selecting the Edit command, you will be prompted to:

Edit <P>assword or <F>ormula ? .

Pressing <ESC> in response to this prompt will abort the edit command, and you will be returned to the scan menu. If you wish to edit the formula that has been assigned to a calculated field, answer this prompt with <F>. Otherwise, answering this prompt with <P> will allow you to assign or edit a display screen password.

Editing a Formula

When editing a formula, you will be further prompted to enter the field # of the calculated field that you are dealing with. Once again, pressing <ESC> will return you to the scan menu. Otherwise, enter the field number whose formula you wish to edit.

You will be prompted to enter the formula for that field, in the same manner that it was initially entered. Any existing formula will appear, and you may use the Little Brother input editor to change the formula. After you have entered the new formula, you will be returned to the scan menu. For more information on entering formulas, see the previous section on "Defining Calculated Fields in Your Display Screen".

Note: You will NOT be allowed to change any of the values regarding calculated field display lengths (i.e. total digits and decimal places). If this information needs to be edited, you must delete the calculated field from your screen table and re-insert it.

Assigning or Editing a Display Screen Password

When creating a new display screen or editing an exiting one, you may assign a password to the display screen. Upon initially assigning a password, you will be prompted to:

Enter password .....

Pressing <ESC> at this point will return you to the scan menu, and no screen password will be assigned. Otherwise, enter the password that you wish to assign to your display screen file.

If the <P> option is chosen at the Edit <P>assword or <F>ormula prompt, and a screen password already exists, the prompt to enter the password will appear, with the current screen password displayed. At this point, the Little Brother input editor will be active, and may be used to alter the screen password. If you wish to eliminate an existing screen password, simply backspace over the existing password, and press <RET> when only input dots are shown.

Uses of a Display Screen Password

The display screen password can be used to lock out an individual ENTIRELY from using a display screen. It's use should NOT be confused with the Master Data Base Password, although for some operations the screen password is used in conjunction with the master password.

In cases where a data base master password has been defined and entered correctly at the main menu, the screen display password will be totally disregarded. In knowing the master data base password, it is assumed that you have complete access to the data base. In this case, NO prompt will EVER appear for a screen password.

However, in the following cases where:

1) The data base master password is NOT known, or
2) NO data base master password has been defined

the screen password will be required in order to:

1) Add records using this screen
2) Edit records using this screen
3) Edit the actual screen display file.

In these cases, if the screen password is NOT known, access to the entire screen display will be denied.

In using a screen password, you will be afforded a small measure of security in that you may lock out an entire screen from a user. However, this should be considered as a limited amount of security. If you require additional lock out features, you will need to assign a master password to your data base. For more information on the uses of a data base master password, see "Explanation of master password uses" in the Define File Format section of this manual.

<P>rint Command

The Print command can be used to print a representative sample of your display screen. All information that is contained on your display screen will be sent to the printer. In addition, the formulas and display settings for all calculated fields will be printed after the contents of the print screen have been sent to the printer.

Prior to performing the print operation, Little Brother will check the printer status. If for some reason the printer is not ready, an informative message will appear on the screen. Pressing <RET> in response to this message will return you to the scan menu. At this time, you may prepare your printer, and try the print operation again.

<S>ave Command

The Save command must be used when you wish to save any edits made to an existing display screen, or when you wish to save a new display screen file. If the save command is NOT given, NO changes will be made to an existing screen file, and a new screen file will NOT be created.

After choosing the save option, you will be prompted to:

Save as screen x (Y/N) ? .

"x" will represent the number of the screen file that you are currently working on. If at this time you do NOT wish to proceed with the save operation, answer the above prompt by pressing <ESC>. This will cancel the save, and you will be returned to the scan menu.

If you wish to save the screen file using the number shown, answer this prompt by entering <Y>. Doing so will cause the display screen file to be saved. An informative message will appear, indicating that the save is taking place. When the save operation has been completed, you will be returned to the scan menu.

Note for TRS-80 users: If the display screen is a new one, you will be additionally prompted to enter the drive on which the

file is to be saved. Answering this prompt with a drive number (0-7) will save the screen display on the given drive. Pressing <ESC> in response to the drive prompt will cancel the save operation, and you will be returned to the scan menu. In all cases where a new screen file is created, you will be prompted for the drive number.

Note for IBM users: All screen files will be loaded from and saved to the designated screen path, and you will never be prompted for where to save the screen file. For more information on changing the screen path, see main menu option number 14.

If you wish to save the screen file as some other screen number, answer the "Save as screen number" prompt with <N>. After doing so, you will be further prompted to:

Enter new screen number (1-10) ..

At this time, enter the number corresponding to the screen file that you wish the current information to be saved to. Pressing <ESC> at this point will cancel the save operation, and you will be returned to the scan menu.

If the number entered corresponds to a new screen file, that file will be created. Once the save is complete, you will be returned to the scan menu.

If the number entered corresponds to an existing screen file, you will need to give permission (Y/N) to overwrite the existing screen file. Answering the permission prompt with <Y> will overwrite the old screen file with the new (in memory) information. Answering with either <N> or <ESC> will cancel the save operation. In either case, you will be returned to the scan menu.

Main Menu Option #9 - Define Print Formats

To print a report using the information in a Little Brother data file, you must first define a print format. Upon choosing option #9 at the Main Menu (Define Print Formats), the following prompt will appear on the command line:

Enter Print Format Number (1-10) ..

You are allowed up to 10 different print formats with Little Brother. Answer this prompt by entering the number that you wish to assign to the print format you are about to create or edit.

If the print format specified is a new print format, you will either be notified that it is a New File (IBM) or you will be prompted for the drive on which to create the new file (TRS-80), and the new print format will be created.

Note: On the IBM, the file will be created on the current screen path. For more information on changing the screen path, see main menu option number 14.

If the print format that you specified already exists, all of the print format information will be loaded into memory, and you will be allowed to revise this information. At this time, the print format scan menu will appear.

Note: The following message may appear if you are editing an existing print format and your data base field formats have changed from when the print format file was created (i.e. you have added or deleted data base fields, or changed the lengths or types of existing fields):

Field/Format Mismatch - In-memory Formats Adjusted

In this case Little Brother has changed the print formats associated with one or more fields. This is done to ensure that the print format definitions match your data base field definitions. At this time, you should edit any of the formats that may have been affected, and save them back to disk. Any time you have an existing print format and have altered your data base field definitions, you SHOULD use the Define Print Formats option BEFORE printing records, to make sure that the print formats match your field definitions.

The scan menu allows 7 different options while working on your print format definitions. These options are:

<H> - Display Help Information
<Q> - Return to Main Menu
<R> - Save/Resave print format to disk
<P> - Define Physical Printer Parameters
<F> - Define printed field formats
<S> - Define the layout of the report screen
<O> - Output to the printer all format information
and a sample report printout

To select an option, simply press the key corresponding to the first letter of the desired command. An alternative method for selecting an option is to use the space bar or arrow keys (left/right) to move the reverse video highlight over the desired command, and then press <RET>. Also, pressing <ESC> twice at the scan menu will act the same as the Quit option.

Every print format consists of three parts. These are the physical printer parameters (option <P>), the printed field formats (option <F>) and the actual layout of the report screen (option <S>). While working on a print format, all changes that are made to the format are kept in the computer's memory, and will not affect the ACTUAL print format (which is stored on a disk) until the RESAVE option is chosen. If you have changed any part of your print format file, you must use the RESAVE option to save these changes to disk.

We will now take a detailed look at all of the options available in the Define Print Format scan menu.

<H>elp Command

The Help command will display information concerning the creation of a print format. Help is only available while at the Define Print Format scan menu. While using help, the word "More" will appear on the bottom line of the screen between pages of help information. Press the <RET> key to view the next page of information, or <ESC> if you do not need any more help. When all help information has been displayed, you will be returned to the scan menu.

<R>esave Command

The Resave command will allow you to save the current in-memory print format to disk. If you have made ANY changes to your print format information, you MUST choose the RESAVE option in order to save these changes to disk, otherwise the print format file will NOT be changed.

When the Resave command is given, you will be prompted to:

Resave as Print Format # x ? .
(where x is the print format number (1-10) you are working on)

Pressing <ESC> in response to this prompt will abort the resave operation, and you will be returned to the print format scan menu.

If you wish to save any changes that you have made to the same print format, answer this prompt by entering <Y>. This will cause the current in-memory print format information to be written to the print format file on disk. Once the information has been saved, you are finished defining print formats and you will be returned to the Main Menu.

If the Resave prompt is answered with <N>, it will be replaced by this prompt:

Re-save as Which Print Format Number? ..

At this time, you may specify a different print format file to save the current in-memory information to. You may answer this prompt with <ESC> to abort the resave operation and return to the scan menu. Otherwise, enter the new print format number that will be used to store the print format information.

If the number you entered corresponds to a new print format file, the message "Saving..." will appear, the current in-memory information will be saved to that print file and you will be returned to the Main Menu.

If the number that you entered corresponds to a print format file that already exists, you will be prompted for permission to overwrite the existing file. Answer the permission prompt with <Y> to save the current in-memory information and return to the Main Menu. If you do not wish to overwrite the existing print file with the current in-memory information, answer the permission prompt with either <N> or <ESC>, and you will be returned to the scan menu without affecting anything.

<Q>uit command

The Quit command is used to leave the Define Print Format option and will return you to the Main Menu WITHOUT saving the current in-memory print format information to disk. Before returning to the Main Menu, you will be prompted to verify your decision to exit without saving the information. Answer the verification prompt with either <ESC> or <Q> to return to the Main Menu.

If you do not wish to exit Define Print Formats, answer the verification prompt by pressing <RET>, and you will be returned

to the print format scan menu. Remember, you must use the Resave command in order to save any changes made to the print format.

<P>rt Parm command (Define Printer Parameters)

The <P> command at the scan menu will allow you to establish several parameters which will describe the type of printer you are using, as well as the type of paper or pre-printed form you will be using in printing your report. The following table shows the information that will appear on the screen when the <P> option is chosen. Listed are all of the available parameters and their default settings (i.e. the values that each of the parameters will be assigned when a new print format file is created).

```
Physical Lines Per Page .. 66
Printed Lines Per Page ... 60
Physical Line Length ..... 132
Columns Per Record ....... 132
Left Margin Setting ...... 0
Indent on Wrap-around .... 0
Records Printed Across ... 1
Repeat Record Count ...... 1

<F3> Save  <ESC> Quit  <RET> Next Field
```

Upon initially selecting the <P> option, the cursor will be positioned after the "66" on the "Physical Lines Per Page" line of the display, and the Little Brother input editor will be active. At this time you may use the <BACKSPACE> key to erase the current information and enter the value that you desire. Once the proper value has been given, press <RET>, and the cursor will move to the next line of information. If you do not wish to make any changes to the particular value in question, just press <RET> to retain the displayed value and the cursor will move to the next line.

One at a time, information will be requested for each of these lines. After information has been entered for the last line (Repeat Record Count), the cursor will return to the first input line (Physical Lines Per Page). This type of circular input will continue until either <F3> or <ESC> is pressed. Pressing the <F3> key will save the displayed information as the current printer parameters, and you will be returned to the scan menu.

Pressing <ESC> will cause you to be prompted with the message:

Restore the old Parameters?

Pressing <ESC> again will restore the printer parameters to the values they had prior to entering the <P> command, and you will be returned to the scan menu. Pressing <RET> in response to this

prompt will return you to the circular input of the printer parameters.

The Printer Parameters - What do they mean?

The base foundation of any report is laid with the Printer Parameters. These parameters inform Little Brother of the type of report that you want printed (e.g. do you want to print mailing labels, do you want to print a directory type report, etc., etc.). In order to produce a meaningful and well formatted report, it is essential that the printer parameters be set up properly. Most of these parameters interact with each other to define the precise method by which printing is to be done. The following information will describe all parameters and how their interactions mold the form of your printed report.

1) Physical Lines Per Page and 2) Printed Lines Per Page:

These two parameters are used to define the length of the form that you will be using to print your report and the amount of blank space that you want as a border between pages of your report. The defaults used are 66 Physical Lines Per Page and 60 Printed Lines Per Page. This length corresponds to a normal sheet of paper (8 1/2 by 11 inches) when printing 6 lines per inch. The 66 is the number of total lines that can be printed on a page. The 60 represents the number of actual lines to be printed, and will leave a border of 6 blank lines between pages.

These values may be changed according to the length of the form that you will be using. A typical example of a different size of form would be a standard mailing label. If each mailing label is considered to be separate page, the physical lines per page on a mailing label could be defined as 6 (since the distance between the top of a standard mailing label to the top of the next label is 6 lines, or 1 inch on most printers).

A VERY IMPORTANT point needs to be made regarding the interaction between the Physical Lines Per Page and Printed Lines Per Page parameters. In addition to defining the form size (length) that you are using, these parameters are also used by Little Brother to determine how paging will be done. Paging is how the border space is printed between two pages, so that the first printed line on each page is always in the same place.

There are two different methods by which paging can be done. One method of paging is to keep a count of the number of blank lines that need to be printed in order to page the report out properly. For each blank line that is needed, a newline character is printed (a newline character is the character or character sequence which will cause the printer to perform a line feed and a carriage return). Using this method of paging, if a border space of 6 blank lines was desired, 6 newline characters would be printed.

Note: For TRS-80 users, a line feed will be printed for each newline character. For IBM users, a newline will be the two character sequence of a carriage return and a line feed.

The second method of paging involves printing a single Top of Form (TOF) character to produce the border space (as opposed to printing multiple newline characters). Many of today's printers have internal line counting mechanisms, and will perform their own paging when a TOF character is sent to them (this type of paging is based upon internal settings in the printer which dictate physical page length as well).

When specifying the physical page length and printed lines per page, if the physical page length is GREATER THAN the number of printed lines per page, Little Brother will perform all paging by sending a TOF character to the printer. If the two values are EQUAL to each other, Little Brother will NEVER send a TOF character to the printer when printing records.

Note: Little Brother allows you to include blank lines in the layout of your report format. In most of the situations where you require a border space between pages when you have set the physical page length EQUAL to the number of printed lines per page, you will use blank lines in the layout of your report format. This information will be detailed more in the discussion of the print <S>creen.

In order to obtain a better understanding of when a TOF character should NOT be used, let us once again consider the standard mailing label and how using a TOF could drastically affect the results of printing.

Assume that we wish to print mailing labels, and in doing so have set our physical page length to 6. Also, let us assume that each mailing label will contain 5 printed lines, with 1 blank line used as border space between labels.

If we were to set the number of printed lines per page to 5, all paging would be done by sending a TOF character to the printer (because page length is GREATER THAN the printed lines per page). Doing so would more than likely cause some very strange results when the labels would be printed. In many printers, the internal page length is fixed at 66 lines. Printing in this manner would cause a TOF to be printed after each label, so that the actual printing sequence would be 1 printed label followed by 61 Blank Lines (i.e. 10 blank labels for every printed label, when the internal page length in the printer is 66 lines per page).

A much better approach to this problem would be to set the number of printed lines per page EQUAL to the physical page length, and

incorporate all bordering within the screen table. In doing so, a TOF character will NEVER be sent to the printer, so all bordering will be done by printing newlines from the screen table. More information will be given in the <S>creen section of define print formats regarding the use of blank lines within your print format.

In conclusion to our discussion of the Physical Lines per page and Printed Lines per page parameters, the following restrictions apply. The value entered for Physical lines per page must be greater than 4 and less than 251. The value entered for Printed lines per page must be greater than 4 and less than or equal to the value entered for Physical lines per page.

Physical Line Length, Columns Per Record, Left Margin Setting, Indent on Wrap-around and Records Printed Across:

These five parameters are used for a variety of different tasks, all of which focus on the horizontal formatting of your report. We will first take a brief look at each of these parameters and then examine the interactions between them.

The first parameter (Physical Line Length) is used to set the number of characters per line that your printer is capable of printing. The default setting for this value is 132. Valid entries for this parameter are values in the range of 10 to 250. In most cases, this should be set to the number of characters that your printer can print per line.

The next parameter (Columns Per Record) sets the total number of characters (per record) that you wish to print per line. The default value for this parameter is 132. You may wish to think about this parameter as setting the width of the form that you are printing. When you are NOT printing multiple across records, this will correspond to the number of characters that you wish to print per line. When you ARE printing multiple across records (as an example, multiple across labels), this will correspond to the number of print positions between the first print position of the first label and the first print position of the second label.

The Left Margin Setting determines the number of spaces to be printed at the beginning of each line, prior to printing the information in your report. The default value for this parameter is zero (i.e. no left margin). The left margin setting is useful when you are using a printer with a fixed tractor and want the left most characters of your report to be printed to the right of the first actual print position.

Indent on Wrap-around is used when a printed line will contain more characters than your printer can physically print. The setting of this parameter will determine the number of spaces to be printed

at the beginning of a wrapped line. The default setting of this parameter is zero (no indent on line wrap around). Unless you are performing some advanced printing operations or are using fields larger than your printer can print on one line, you will probably find no need to use this parameter.

Records Printed Across is used when you wish to print more than one record across the page (e.g. when printing cheshire or multiple across mailing labels). The default setting for this parameter is 1.

Similar to the way page length and printed lines per page interact to control the vertical format of your report, these parameters interact to form the horizontal format. Some special considerations need to be made when setting these parameters. Of particular concern is the effect that the setting of these values has on the manner in which Little Brother will perform end of line paper advancement.

All information that is printed by Little Brother must appear in the print screen (created with the <S>creen option). In most cases, each line in the print screen corresponds to a line of printed information. When defining the printer parameters, you establish the MAXIMUM number of characters that are to be printed per line. When printing the information, Little Brother determines the EXACT number of characters that ACTUALLY need to be printed (by examining each line in the print screen), and will print only those characters. Little Brother will ALWAYS perform end of line paper advancement (by printing a newline character) when the number of ACTUAL printed characters is less than the maximum number of characters to print. This type of arrangement will be adequate for most printing needs and will provide proper line spacing. However, due to the vast variety of different printers available, there are a few special cases in which Little Brother will NOT perform end of line paper advancement. We will now consider these special cases.

When printing one record across, the maximum number of characters that will be printed per line will be determined by the quantity of:

(Columns per Record)+(Left Margin Setting)

If this value is less than the physical line length parameter, Little Brother will ALWAYS handle end of line paper advancement by printing a newline character at the end of each line.

If the above quantity EQUALS the physical line length, Little Brother will still print a newline character UNLESS the ACTUAL number of characters printed EQUALS the physical line length (in which case a newline character will NOT be printed).

When printing multiple across records, the maximum number of characters that will be printed per line will be determined by the LESSER of the following quantities:

1. (Columns per record)*(Records Across) + Left Margin

or

2. Physical Line Length

If these values are NOT EQUAL to each other, a newline character will ALWAYS be printed at the end of each line.

If these values are EQUAL, Little Brother will NOT print a newline character at the end of the line (unless the last records in your report do not fill up an entire line).

Note: If you are encountering double line spacing when printing multiple across reports, you should set the maximum number of characters printed per line to be one less than the total number of characters that your printer can print per line.

A few points need to be made concerning the entry of these horizontal formatting parameters. When a parameter is edited, invalid entries will not be accepted. An example of an invalid entry would be if "Columns Per Record" was specified to be greater than physical line length in printing one record across.

The editing of a parameter may cause subsequent parameters to be automatically reset to their default values. This is done as a safeguard so that records are printed with meaningful formatting parameters.

Concerning the Indent on Wrap-around parameter, if the ACTUAL number of characters to print on a line exceeds the MAXIMUM number of characters to print, a line wrap around will occur, and any remaining information will be printed on the next line. The indent on wrap parameter determines the number of spaces that will be printed at the beginning of a wrapped line. When a wrap occurs, only the number of spaces defined by indent on wrap will be printed (i.e. no MARGIN spaces will be printed).

Note: When printing more than one record across, there will NEVER be line wrap around. If the actual number of characters to print exceeds the maximum number of characters to print, only the characters up to the maximum number will be printed, and the remaining characters will be discarded. Also, if the Indent on Wrap-around parameter is set to a value other than zero, the value for Records Printed Across will be reset to 1 and the prompt for that information will be bypassed.

Repeat Record Count:

The Repeat Record Count parameter allows you to print the same record more than one time in succession. The default value for this parameter is 1.

An example use of this parameter could be to print a 2 across label format, where the first and second labels are separated by a perforation line. By setting the Repeat record count to 2, each record would be printed twice (on side-by-side labels). This would produce two separate sets of mailing labels with only one printing.

This concludes our discussion of the printer parameters.

<F>ormat Command (Define Field Formats)

The <F>ormat command at the scan menu will allow you establish the formatting of your database fields within your report. Upon initially entering the <F>ormat command, the format table will appear on the screen. The following is a representative sample of the table that will be displayed (the actual information that will be displayed will correspond to the fields that you have defined in your database).

#	Name	FLEN	PLEN	S	Format	Calc
1	Alphabetic	20	20	N		
2	Upper Alpha	15	15	N		
3	Literal	25	25	N		
4	Upper Literal	20	20	N		
5	Numeric	10	10	N		
6	Right Just.	5	5	N		
7	Dollar	12	12	N	########.##	
8	Float	18	18	N	########.########	
9	Calculated	0	18	N	########.########	

Print Formats - File # x

<F3> Save, <ESC> Quit, <UP ARW>, <DWN ARW>, <+>, <->, F#

The information in this table determines the formatting of each field in your data base for the printed report. The information in the first three columns of the table corresponds to the field number (#), field name (the first 14 characters will be displayed) and the actual field length (FLEN). This information is only displayed in this table, and cannot be changed while defining field formats.

The remaining four columns of information (PLEN, S, Format and Calc) dictate the formatting of each field in your report.

The last line on the display (i.e. <F3> Save, <ESC> Quit, etc.) serves as a command line prompt for editing the field formatting information. It is on this line that all of the formatting commands and editing of the field formats will be done. The allowable field formatting commands are:

<F3> - Save the field formats as the current in-memory formats and return to the scan menu.

<ESC> - Quit defining field formats, re-load the old formats from disk, and return to the scan menu.

<UP ARW>, <DWN ARW>, <+> and <->
Used when there are more than 20 fields defined in your database. <DOWN ARROW> will display the next (higher numbered) field, while <UP ARROW> will display the previous (lower numbered) field. For these two keys, the entire display will scroll one line accordingly. <+> will advance the display by one page, to display the next 20 fields. <-> will display the previous page of fields.

F# - The number of the field whose formats you wish to edit. To edit the format information associated with a field, simply enter its field number as shown in the display.

When you are all through editing your field formats and you wish to save the updated information, press the <F3> key, and you will be returned to the scan menu. All edits that have been made will be kept as the current in-memory information.

If you do not wish to save the edited information, press the <ESC> key. Doing so will cause a verification prompt to appear. Pressing <ESC> again in response to the verification prompt will re-load the OLD field formatting information from disk and return you to the scan menu. If you are at the verification prompt and do not want to re-load the old field formatting information, press <RET>, and you will be returned to the formatting command line.

When you wish to edit field formatting information, simply enter the field number of the associated field when at the formatting command prompt. The prompt will be replaced by the format parameters of that field. At this time you will be allowed to edit the format parameters of the specified field (PLEN, S, Format

and Calc). When editing a field format, the current formatting information will appear, and the Little Brother line editor will be active.

When editing dollar and float field formats, you will be allowed to change only the <F>ormat information. After entering the new format, the screen display will be updated, and the formatting command prompt will re-appear.

When editing any other type of field format information (i.e. when the data base field is NOT a dollar or float field) you will be prompted in a circular manner for the new formatting information. In the case of calculated fields, you will be prompted for the <F>ormat string and the <C>alculation. For all other types of fields, you will be prompted for PLEN and <S>trip.

When you wish to save the edits that you have made for a field, press <F3> after entering your last change, and the screen display will be updated accordingly. If you wish to cancel any edits made, press <ESC>, and the information for the specific field format will be left unchanged.

The format parameters - What do they mean?

The format parameters are used to specify how the fields in your database will be formatted when they are printed. Basically, there are two different types of formatting techniques that can be used in printing your database fields. One method is to print the data in a columnized manner. This is the type of approach that is taken when you print a deck or directory listing of your database. In this type of report, the data will be aligned in columns, and blank spaces will be added where they are needed to produce the columnized effect.

A second method of formatting is to print the data packed or butted together. When printing in this manner, only the characters that exist in the data field will be printed and no spaces will be added. A typical use for this type of format is when printing mailing labels, where you would want the City, State and Zip Code printed together, without any pad spaces.

By using the format parameters, you will be able to produce either type of report. There are also additional format parameters which will allow you to: specify the maximum number of characters that are to be printed for each field, specify the format to use when printing Dollar, Float and Calculated fields, and specify the calculation to use in determining the value of a Calculated field. We will now take a more detailed look at all of the formatting parameters.

PLEN - Printed LENgth (maximum) for each field.

PLEN will determine the maximum number of characters that are to be printed from each field. The initial default setting for PLEN is the actual field length. For Dollar, Float and Calculated fields, PLEN is determined by the Format parameter, and cannot be entered or edited. For all other field types, the value entered for PLEN cannot exceed the actual field length.

A typical use for the PLEN parameter would be to print only the first several characters of a database field. As an example, assume that you have a zip code field with a defined length of 10 characters (5 characters for the normal zip code and 5 for the extension). Assuming that you only wanted to print the first five characters in the zip code field, you would set PLEN equal to 5.

When PLEN is used with a Right Justified numeric field, only the right most PLEN characters out of the field will be printed in the report. If there are more characters in a right justified field than the number specified by PLEN, the printed value will be preceded by an asterisk (*) and the remaining right most characters will be printed. This will indicate that the actual field length exceeded the maximum print length.

S parameter - "Strip" trailing spaces

The Strip parameter is used to specify whether fields in a report are to be printed columnized (<N>o strip) or butted together (<Y>es, strip off trailing spaces). The Strip parameter does not apply to Dollar, Float and Calculated fields. The default setting for the Strip parameter is "N" (no strip). If you wish to have trailing spaces stripped off of a data base field (when it is printed), set the strip parameter for that field to "Y" (Yes, strip off trailing spaces).

A typical use for the strip parameter might be found in the printing of mailing labels. Let us assume that we have a data base defined with the following fields and field lengths, where the PLEN of each field is set equal to the field length:

Last Name - 15
First Name - 10
Address - 25
City - 15
State - 2
Zip Code - 10

Under normal circumstances, we would want to print our mailing labels using the following format:

<First Name> <Last Name>
<Address>
<City> <State> <Zip Code>

Let us further assume that one of the records in our data base contains the following information for the fields that we wish to print:

Last Name : Smith
First Name : John
Address : 1234 Main Street
City : Milwaukee
State : WI
Zip Code : 53223

By examining the results of printing the above information, we will illustrate the difference in specifying the Strip parameter for a field vs. specifying No Strip. The chart below shows the results of printing the same information using two different methods. The information on the left corresponds to printing the label using the Strip parameter for the <First Name>, <City> and <State> fields. The information to the right corresponds to No Stripping of any data field.

Strip set to YES	Strip set to NO
John Smith	John Smith
1234 Main Street	1234 Main Street
Milwaukee WI 53223	Milwaukee WI 53223

Due to the fact that the first name field has a specified length of 10 characters with 4 actual characters in the data field, an additional 6 pad spaces were printed after this field when strip was set to NO. Contrast this to the formatting of the label when strip was set to YES, where the extra pad spaces were not printed.

With strip set to YES, only the actual characters in the data field will be printed, and no pad spaces will be added (in most cases, you would specify one pad space between fields within your print screen). With strip set to NO, pad spaces will be printed when the actual data length is less than the specified PLEN.

A few additional points need to be made regarding the Strip parameter. Please note that when a field is specified as a Stripped field, you will NOT be able to columnize any fields on the same line following the stripped field. Also, when Strip is used on Right Justified numeric fields, all leading spaces will be stripped, and only the actual data will be printed.

If strip is set to YES on a field in which PLEN is a value less than the defined field length (FLEN), the most characters printed from the field will be PLEN. If the PLEN character in the field is a space, all space characters from that point on (to the beginning of the field) will be stripped.

For example, suppose a data base field has a defined length (FLEN) of 15, a PLEN of 10, with strip specified as YES. If the tenth character of the data field is not a space, all ten characters of the field would be printed. However, if the tenth character of the data field IS a space, it would be stripped off during the printing. Futhermore, all other spaces from that point to the first non-space character would also be stripped. In most cases, setting either PLEN or Strip (but not both) will be adequate to produce the desired printed format.

<F>ormat parameter - Define "Numeric" Format Strings

The <F>ormat parameter is used to specify how Dollar, Float and Calculated fields will be formatted during printing, and applies only to these types of fields. It is from the <F>ormat of these fields that the PLEN is determined. All Dollar, Float and Calculated fields must have a format string defined.

The default format strings used for dollar, float and calculated fields are:

```
########.##        for dollar
########.########  for float and calculated
```

When dollar, float and calculated fields are printed, they will use the <F>ormat string specified for the field. This is to ensure the proper printed alignment of the value, according to the decimal point. Taking the defaults listed above as an example, there will be a total of 12 characters printed when the default dollar format is used (1 character for the sign of the number, 8 digits to the left of the decimal point, the decimal point itself, and 2 characters to the right of the decimal point), and 18 characters printed when the default float format is used (same as dollar, except 8 characters will be printed to the right of the decimal point instead of two).

By changing the format associated with a field, you determine the exact manner in which the field information will be printed. In addition to the pound sign <#> and period <.>, the dollar sign <$>, comma <,> and minus sign <-> characters may be used within the format specification.

Before we examine the different results produced by specifying different format strings, let us take a look at the syntax to use when entering format strings. The following list shows all of the allowable characters that may be included in a format

string and the order in which they must appear within the format string.

<$> or <$$> - Will cause a dollar sign to be printed. If <$> is used, the dollar sign will be printed left justified in the same place for all values. If <$$> is used, a floating dollar sign will be printed immediately to the left of the left most digit. Use of either of these is optional, and when used will increase PLEN by one. When used, it must precede the first pound sign in the format string.

<#> - Indicates the number of digits to print. The number of pound signs used dictates the number of digits to be printed. At least one pound sign must be used in the format string.

<.> - Indicates placement of the decimal point in the printed value. By using the period, you determine the number of digits that are to be printed to the left and right of the decimal point. Use of the period is optional. When used, at least one pound sign must appear to the right of the period.

<-> - Indicates that negative numbers will be printed with a trailing minus sign. If NOT used, all negative numbers will have their minus signs printed immediately to the left of the left-most printed character (either the first printed digit or the dollar sign). Use of the minus sign in the format string is optional. If it is specified in the format string, it must follow the last pound sign.

<,> - Indicates that digits to the left of the decimal point will be separated by commas in groups of three. Use of the comma is optional. If used, it must follow the last pound sign in the format string and will increase PLEN by the maximum number of commas to be printed.

Note: If the comma and the trailing minus sign are used together, they must both appear after the last pound sign, but may be entered in either order (i.e. they can be entered as -, or as ,-).

The following chart will better illustrate valid entries for format strings and the results of using different format strings. The values in the left column of the chart represent the numbers that are to be printed. All of the other columns in the chart represent the printed value.

	Formats			
Values	$#####.## PLEN=10	$$####.#,- PLEN=9	######.## PLEN=10	#######,- PLEN=10
123.78	$ 123.78	$123.7	123.78	123
-16.8	-$ 16.80	$16.8-	-16.80	16-
.55	$ 0.55	$0.5	0.55	0
-9999	-$ 9999.00	$9,999.0-	-9999.00	9,999-
0	$ 0.00	$0.0	0.00	0
12345	$12345.00	*********	12345.00	12,345

Observe the differences in printing with a single dollar sign vs. a double dollar sign. Also note the effects of using the comma and the trailing minus sign. In all cases you will observe that the numbers are aligned according to the decimal point (in the case of no decimal point - as in the last format string - the numbers are aligned according to the right most digit).

A few additional points need to be made regarding the padding of formatted numeric information. Spaces will always be used when padding is required to the left of the decimal point.

In cases where there are more pound signs to the right of the decimal point (in the format string) than there are digits to be printed, (such as in the printing of "0" in the first column of format strings), zeroes will be printed for the remainder of the format string.

In the case of having only a decimal value (such as the ".55"), a zero will always be printed to the left of the decimal point (provided that a pound sign exists to the left of the decimal point in the format string).

When there are not enough pound signs specified in the format string to print all digits to the right of the decimal point, only the number of digits specified in the format string will be printed, and any remaining digits in the actual value will be truncated.

If there are not enough pound signs to the left of the decimal point to print a value, asterisks <*> will be printed. This will indicate that a field overflow has occurred (as is the case with the last printed value in the second format column). PLEN number of asterisks will be printed in an overflow situation.

This concludes our discussion of print formatting strings.

<C>alc parameter - Define "calculation" for calculated fields.

The calc parameter of the define field formats allows you to specify the calculation to use in determining the value of calculated fields. You will only be prompted to enter a calculation

if the data base field is a calculated field. Calculations may be entered using constant values and numeric field values. Addition, subtraction, multiplication and division may be performed. Calculations will be performed in a left to right manner. All calculations must conform to the rules governing valid calculations. For more information on valid calculations, refer to the "Define Screen Format" section of the manual.

Calculated values will be printed according to the format string specified. If the calculation produces an error (a divide by zero or an overflow), PLEN number of asterisks will be printed.

This concludes our discussion of all parameters within the <F>ormat scan menu selection.

<S>creen Command - Define Print Screen Layout

The final step involved in defining a print format file is the creation of the "Print Screen". The print screen is used as a template to define the information that is to be printed in your report. You will be allowed to establish headers, footers, any text or field information that you want printed and where the information is to be printed in your report.

After entering the <S>creen command, the current in-memory print screen will be displayed on the top portion of the screen. On the bottom portion of the screen, several print screen parameters will be displayed, and the print screen command line will appear. The following illustrates the display of a typical print screen.

```
------------------------------------------------------------
|                                                          |
|                                                          |
|                                                          |
|      (This area reserved for print screen information)   |
|                                                          |
|                                                          |
|                                                          |
------------------- Print Screen - File # x -----------------
Header : None  Text : 1-6  Footer : None  1 Rec:N  Row:1  Col:1

<V>iew, <E>dit, <F3> Save, <ESC> Quit - Enter Command .
```

At this point you may enter one of four commands in response to the print screen command line. Pressing the <F3> key will store all of the new screen table information as the current in-memory print screen, and you will be returned to the scan menu.

Pressing <ESC> will cause a verification prompt to replace the print screen command line. Pressing <ESC> again will cause the old print screen information to be RE-LOADED FROM DISK, thus cancelling any edits which were made. You will then be returned to the scan menu.

If you do not want the old screen table to be re-loaded from disk, press <RET> in response to the verification prompt, and the print screen command line will re-appear.

Entering <V> at the print screen command line will allow you to view the current field format table. If there are more than 20 fields defined in your data base, pressing <RET> will allow you to view subsequent pages of your field formats. When you have finished viewing the field formats, press either <RET> or <ESC> to return to the print screen command line.

Entering <E> in response to the print screen command line will place you in the print screen editor. You will be allowed to enter/edit information in the print screen, and you will also be allowed to edit the Header/Text/Footer/1 Rec information. After the <E> command has been given, the cursor will be moved to the upper left hand corner of the screen (Row 1, Column 1), and the print screen command line will be replaced by a summary of the allowable screen editing commands.

While in the screen editor, any key that you press will be entered into the screen table. As characters are typed, they will appear on the screen, and the cursor will advance to the right for each typed character. The information on the bottom of the screen (Row and Column) will be continuously updated to reflect the current cursor position. When you are finished making changes within your screen table, press either <F3> or <ESC> to return to the print screen command line.

Along with being able to type characters into the screen table, you will be allowed to move the cursor transparently through the screen table, to any desired position. The cursor movement keys are:

<Right Arrow> - Move the cursor one position to the right
<Left Arrow> - Move the cursor one position to the left
<Backspace> - Same as <Left Arrow>
<Up Arrow> - Move the cursor up one row
<Down Arrow> - Move the cursor down one row
<RET> - Move the cursor to Column 1 of the next row

By positioning the cursor within the screen table and entering information, you dictate the exact place in which information will be printed in your report (i.e. when the "Left Margin" parameter is zero, any information in column 1 of the screen table

will be printed in column 1 of the report). Any text characters that you enter into the screen table will be printed in the report as they appear in the screen table.

The screen table itself consists of 20 Rows and 208 columns. Due to the limitations of the actual video display (i.e. the video display being 80 columns), the screen table will be broken up into three separate display windows. The first window will display columns 1-80 of the screen table, the second window will display columns 65-144, and the third window will display columns 129-208.

When the cursor movement is to the right, moving the cursor beyond columns 80 (when the 1st window is displayed) and 144 (when the 2nd window is displayed) of the screen table will cause the next window to be displayed. If the cursor is positioned at column 208 of the screen table, moving the cursor right will return you to column 1.

When the cursor is positioned at columns 65 (of the 2nd window) and 129 (of the 3rd window), moving the cursor left will cause the previous window to be displayed. If the cursor is positioned at column 1 of the screen table, moving the cursor left will cause the 3rd window to be displayed.

Whenever the print screen is being drawn or re-drawn, a "WAIT" message will briefly appear above the current cursor column indicator. This message serves merely as an indication that the print screen is being re-drawn. You may continue typing characters into your screen table while this message is displayed, and you should not lose any keystrokes.

There are four special command keys available when in the screen editor. These command keys are:

1) <CTRL><R>
2) <CTRL><L>
3) <INS>
4) <DEL>

Note: The command summary display line shows <^R> and <^L> for the first 2 commands listed above. For these commands, the <CTRL><R> and <CTRL><L> key sequences need to be pressed.

Pressing the <INS> key will toggle on/off the character insert mode for the screen editor. When the insert mode is active, the word "Insert" will appear above the Header information. The insert mode in the screen editor works much the same as the insert mode for the Little Brother input editor. When active, characters will be inserted into the screen table before the current cursor character. If the insert mode is not active, any characters entered will overtype existing information. Anytime that an insertion would cause a character to move past the 208th column of the

given line in the screen table, the insert will be made, but the previous 208th character will be lost.

Pressing the <DEL> key will delete the character under the cursor and will move all remaining information one position to the left on the given line.

Pressing <CTRL><L> will allow you to insert or delete an entire line in your screen table. You will be prompted to:

<I>nsert or <D>elete Line?? : .

Answering this prompt with <I> will cause a blank line to be inserted into your screen table. The blank line will be placed in the current cursor row, and all information from that point on will be move down one line. Prior to the line insert, if any information exists on the 20th line of the screen table, it will be lost upon completion of the line insert.

By answering this prompt with <D>, the current cursor line in the screen table will be deleted, and all information from that point on will be moved up one line.

If you do not wish to insert or delete a line, press <ESC> in response to the "Insert/Delete" prompt, and you will be returned to the screen editor.

The last special command <CTRL><R> will allow you to revise the Header, Text, Footer and 1 Rec information. We will forego the discussion of this command for the time being. See the section "Defining Header, Text and Footer Areas" for more details.

When typing characters into the screen table, there are two special characters that are used by Little Brother to signify that special information is to be printed in your report. These are the backslash <\> and the carat <^> characters.

Note: On the TRS-80, the backslash character is entered by depressing the key sequence <CLEAR></>, while the carat is generated with the key sequence <CLEAR><;>. In generating these keys, you must first press the <CLEAR> key, and while holding it down, press the other required key. On the IBM, these two keys can be generated by pressing the single key captioned as either <\> or <^>.

The backslash character is used to send special control codes to your printer. You may use these control codes to establish any kind of special print effects that your printer will handle. You do not necessarily have to use the backslash feature in any of your reports, but if you want to jazz up the appearance of your reports (and your printer can handle special effects print-

ing), you may wish to incorporate some control codes within your screen table. For now, we will delay any further discussion of the backslash character (see the section on "Printing Columnized Reports" for more information).

Of more importance is the carat character. It is by use of the carat (in conjunction with a field number) that data base fields are defined within your screen table. The carat is also used to signify special fields within your report. Included in these special fields are the date, time, page number, data base file name, totals/subtotals and data base record numbers. For now, we will concentrate on data base field specifications. See the section on "Printing Columnized Reports" for further details on all of the other special fields.

When you want to specify a data base field within your print screen, simply ^enclose^ the field number within carats. As an example, suppose that you wish to print field number 5 in your report.

In order to signify to Little Brother that this field is to be printed, you would type the following information into your screen table (at the exact location in the screen table where the field is to appear in the report):

^5^

When specifying a field number, the number MUST be surrounded by carats. ONLY the field number should be enclosed within carats. If extraneous characters appear within the carats (such as a space), Little Brother will assume that you do NOT wish to print a field. In such a case, the characters contained in the screen table will be printed as is. For example, suppose that the above field was specified in your screen table as:

^5 ^

In dealing with this information, Little Brother would print 4 characters (a carat, a "5", a space and a carat) instead of printing field number five from your data base records.

In all cases, whenever Little Brother determines an invalid field specification, the results will be to print the characters as they appear within the screen table. The above illustrates one instance of an invalid field specification. Here are some other cases in which an invalid field specification would occur:

1) By not having the terminating carat after the field number
2) By specifying a field number that does not exist
3) By specifying a calculated field for which no calculation has been defined.

Defining a Print Screen

Having discussed the method by which fields are defined within a print screen, let us now take a look at building a print screen. Our specific example will be to print a standard mailing label.

In the following example, we shall assume that we have a data base established with these field/format definitions:

Field #	Field Name	Field Length	PLEN	Strip
1	Company Name	25	25	N
2	Last Name	15	15	N
3	First Name	12	12	Y
4	Address	25	25	N
5	City	15	15	Y
6	State	2	2	Y
7	Zip Code	10	10	N

In printing our mailing labels, we wish to use this format:

```
Line #1 ----   <Company Name> - if any
Line #2 ----   <First Name> <Last Name>
Line #3 ----   <Address>
Line #4 ----   <City> <State> <Zip Code>
Line #5 ----   (blank line for spacing)
Line #6 ----   (blank line for spacing)
```

For each record in our data base, 6 lines of information will be printed to produce the mailing labels. The actual layout of a screen table to generate this type of mailing label would look like this:

```
Column--   1         10        20  ... etc.
       1 | ^1^
R      2 | ^3^ ^2^
o      3 | ^4^
w      4 | ^5^ ^6^ ^7^
       5 |
       6 |
```

Having this as a screen table, suppose that we also have a data record which contains the following information:

```
Company -------   XYZ Corporation
Last Name -----   Smith
First Name ----   John
Address -------   1234 Main Street
City ----------   Milwaukee
State ---------   WI
Zip Code ------   53223
```

The actual result of printing this data record using the above format is:

```
XYZ Corporation
John Smith
1234 Main Street
Milwaukee WI 53223
(blank line for spacing)
(blank line for spacing)
```

There are some important points to be drawn from this example. Because the Strip parameter was set to YES for fields 3, 5 and 6, the pad space printed in the label for these fields was caused by having a space between the field designations in the print screen. If, for example, you would require two spaces separating the State from the Zip Code, you would enter two spaces between the ending carat of field 6 and the beginning carat of field 7.

At any time, you may intermix verbatim text characters with your field definitions. As an example, suppose that we wish to alter the 2nd and 4th lines of our labels. In the second line, we would like to print the message "Attn: " before the first name is printed. In the fourth line we would like to print a comma after the city while retaining the space as a separator. In order to accomplish these results, the second and fourth lines of our screen table can be changed to:

```
Second Line:    Attn: ^3^ ^2^
Fourth Line:    ^5^, ^6^ ^7^
```

In print the mailing labels, the two blank lines were (in part) a result of having no information on rows 5 and 6 of the screen table. If no information has been entered in a row of the screen table, Little Brother will print a blank line for that particular row.

In this example, we have only considered the first 6 rows of the screen table (remember, a screen table has 20 rows). Assuming that no information was entered in rows 7-20 of our screen table, why did we have only 2 blank lines printed as opposed to 16? The answer to this very important question will be found in the next section.

Defining Header, Text and Footer Areas

The Header, Text and Footer parameters are used to divide the print screen into 3 different parts. More specifically, the values assigned to these parameters instruct Little Brother on where to find (in the screen table) information for report headers and footers, as well as the area of the screen table which contains

the actual report (text) information. The default settings for these parameters are "None" for the header and footer (meaning no Header/Footer in this report), and "1-6" for the text area of the screen (i.e. information for each printed record will be found in Rows 1-6 of the screen table).

Thus in the printing of our mailing labels (from the previous section), only two blank lines were printed because of the setting of the Text parameter (i.e. because the text parameter was specified as starting at row 1 and ending at row 6 in the screen table). If the text parameter would have been set to "1-12", 8 blank lines would have been printed between labels (or 1 blank label for each printed label).

In order to re-define the Header, Text and Footer areas of your screen table, simply press <CTRL><R> while in the screen editor. After doing so, the following prompts will appear (one at a time) on the bottom portion of the screen.

```
Header Start   ..
Header End     ..
Text Start     ..
Text End       ..
Footer Start   ..
Footer End     ..
1 Record/Page  .
```

When editing this information, the Little Brother input editor will be active, and the current setting of each parameter will be displayed. If you wish to retain a particular setting, press <RET>, and the prompt for the next parameter will appear. If you wish to change the setting of a parameter, simply backspace over the current setting, and enter the new information.

When specifying the Header and Footer Start parameters, pressing <RET> with no value specified (i.e. when both input dots are displayed) will cause a value of "None" to be used, and the associated End prompt for that parameter will be bypassed. In order to reset a previously established Header or Footer to "None", simply backspace over the Start value so that only the input dots are displayed, and press <RET>.

At any time during the entry of these parameters, you may press either <F3> or <ESC>. If you press <F3>, any changes that you have made will be retained. By pressing <ESC>, you will cancel any changes made to these parameters. In either case, you will be returned to the screen editor. If you do not press <F3> or <ESC> while editing these parameters, you will be returned to the screen editor after answering the "1 Record/Page" prompt, and all edits that you have made will be retained.

In defining the Header, Text and Footer parameters, these guidelines should be noted. A minimum of 1 line must be specified for the Text area. The value for Text Start must be greater than that for Header End, and the value for Footer Start must be greater than Text End. It is allowable to use the same Start and End value for any of the three parameters (e.g. you may assign 1 to both Header Start and End, which will signify that Row 1 in the screen table contains the Header information). In some cases, changing a value will automatically change the values assigned to subsequent parameters. This is done to ensure the validity of the values for these parameters.

The 1 Record/Page parameter (displayed on the screen as "1 Rec") is used to determine the number of records that are to be printed on a page of your report. The default setting of the parameter is <N> (do not print only one record per page).

Setting this parameter to <Y> (Yes) will cause Little Brother to print only one record on a page. If this parameter is set to <N> (No), Little Brother will print as many records on a page as will fit. Unless you have a specific printing application (such as the printing of a form letter), the 1 Rec parameter should be set to N. As we shall see in the next section, setting the 1 Rec parameter to Y could waste enormous amounts of paper.

Printing Columnized Reports

In this section, we will tie together all aspects of defining a print format file to create a more sophisticated columnized report. Although it is a very easy procedure, there are many important concepts that will be presented in this section. We will discuss the manner in which Little Brother interprets your screen table to produce the printed result. We will also look at the use of control codes within your report, and discuss all of the special fields that you can establish. If you want to take full advantage of the report generation capabilities of Little Brother, you should pay very close attention to the details outlined in this section.

In starting out, let us define the types of data base fields that we will be printing. The table below describes all of the fields that will be involved in our report.

Field #	Field Name	Field Type	Field Length
1	Last Name	L	10
2	Phone Number	N	8
3	Credit Limit	D	12
4	Current Charges	D	12
5	Avail. Credit	C	N/A

When printing a typical columnized report, the report format usually consists of these 3 elements:

1) A report heading, which is printed on the top of each page. The heading supplies titles for each column of the report. It may also be used to print report specific information (such as page number, the current date and time, and the name of the file that is being printed).

2) The textual contents of the report. For each record, one line of text is printed. Data fields from each record are printed below the corresponding heading titles. The number of records that are printed on a page is determined by the page length, the printed lines per page, and the size of the headers and footers.

3) A report footer, which is printed on the bottom of each page. Included in the footer are page totals and cumulative report totals for the numeric fields within the report. When using a printer that cannot perform its own paging, blank lines may also appear in the footer to provide for proper page spacing. Report specific information may be included in the footer if it was not supplied in the heading.

We will be using this type of report format in the example report that follows. Bear in mind that YOU ultimately decide the format of your reports.

The columnized report that we will be generating will consist of 6 columns of information. In order of left to right appearance in the report, these 6 columns will be:

1) Record Number
2) Last Name
3) Phone Number
4) Credit Limit
5) Current Charges
6) Available Credit

In our report header, we will want to print the date and time of when the report was printed, the name of the data base file used to print the report, and a page number for each page in the report. Also, we will want to print a heading title for each column in the report, with a row of dashes <-> separating the heading titles from the printed text. The total number of lines within our header will be 3.

For our footer, we will want 3 lines of printed information. The first line will be a row of dashes, separating the text area from the footer. The second line will contain page subtotals for the three numeric fields, and the third line will contain cumu-

lative report totals for these same fields. We will assume that our printer can NOT handle Top of Form paging, so that we will also want to print 3 blank lines separating the pages in our report. This will give us a total of 6 lines in our footer.

Let us now establish our physical printer parameters for the report. Our paper will be 14 7/8" wide, and will contain 66 lines/page. Our printer can handle 132 columns per line. Thus, we will set Physical Page Length and Printed Lines per Page equal to 66 (since all of our page spacing will be done via blank lines in the footer area of our screen table). We will also set both Physical Line Length and Columns per Record to 132 (we approximate the width of our report to be 80 characters - since no characters will ever be printed beyond column 131, Little Brother will handle all end of line paper advancement). The remaining parameters will be left in their default states. As for the field formats, the following table will show the field formats that will be used:

Field#	FLEN	PLEN	Strip	Format	Calc
1	10	10	N		
2	8	8	N		
3	12	11	N	$$#####.##,-	
4	12	11	N	$$#####.##,-	
5	0	11	N	$$#####.##,-	F3-F4

The only thing that remains is to define our screen table. The following is a sample screen table that will generate our columnized report, based on the defined printer parameters and field formats:

```
Report on file:^f^        On - ^d^        At - ^t^        Page # ^p^
Rec#    Name        Phone#     Limit          Charges      Available
-------------------------------------------------------------------
^r^     ^1^         ^2^        ^3^            ^4^          ^5^
-------------------------------------------------------------------
Subtotals for this page --- ^s3^           ^s4^          ^s5^
Cumulative Totals ------- ^t3^             ^t4^          ^t5^

                              .
                              .
                (Lines 8-20 in the screen table are blank)
                              .
                              .

                        Print Screen - File # 1
Header:1-3  Text:4-4  Footer:5-10   1 Rec :N  Row :1  Column:1

Commands:<^R>Header or Footer, <^L>Line, <INS> char, <DEL> char
```

Before we show a sample print out of data records using this screen table, we will discuss all of the new special field types within this screen table.

In the first line of the screen table, notice the fields defined as ^f^ , ^d^ , ^t^ , and ^p^. These will produce, respectively, the printing of the data base file name, the current date, the current time and the page number of the report. Each of these fields has a fixed printed length. The page number field will be printed as 5 characters. All of the other fields will be printed as 8 characters. The format that will be used in printing these fields is:

Filename - 8 characters, padded on the right with spaces
Date ----- 8 characters in the form -- MM/DD/YY
Time ----- 8 characters in the form -- HH:MM:SS (24 hour mode)
Page ----- 5 characters, padded with right spaces

The filename, date, time and page number fields are only valid in the header and footer areas of the screen table. If any of these are used invalidly (e.g. if used in the text area, or if specified without the terminating carat, etc.), the literal characters used will be printed out as-is in the report.

In the fourth row of the screen table (the row containing the data base field specifications), the field defined as ^r^ signifies that the record number is to be printed. Each record included in the report will have its record number printed. Record numbers will have a fixed printed width of 5 characters. They will be printed in a right justified manner, and will contain leading pad spaces if needed. Record number fields are valid only in the text area of the report.

The last of the special fields that need to be discussed are found in the two totaling lines of the report. These fields are specified with either the letter <s> or <t> preceding the field number (as in ^s3^, ^t3^, etc.). When the <s> prefix is used, a subtotal will be printed for the field in question, while the <t> prefix dictates a cumulative total for the field.

Subtotals are determined by keeping an additive count of all subtotaled fields that are printed on a page. After an entire page has been printed, the subtotaled values are zeroed out. Totals reflect the cumulative added total for the entire report.

Only Dollar, Float and Calculated fields can be totaled or subtotaled. The total/subtotal field specification may only appear within a header or footer. (Note: They will generally appear in the footer. It is quite meaningless to print a subtotal in the header, since no records have been printed on the page as of yet). In order to perform a total/subtotal on a field, that field

must also appear within the text area (Little Brother will not total a field if it is not printed in the report). The total/subtotal field will be printed according to the format string specified for the field number.

You will be allowed to specify up to 30 different totaled and subtotaled fields. Each specification of a totaled/subtotaled field will consume an available totaled field. Thus, if you are both totaling and subtotaling a field, this will diminish the number of available totaled fields by two.

If you are totaling a field, you may wish to allow for the printing of a few extra digits to the left of the decimal point (by incorporating additional pound signs in your format string). In most cases, this will prevent the totaled value from overflowing the printed field format specification. If an overflow occurs when printing a totaled value, asterisks <*> will be printed.

A final point regarding ALL of the special field definitions is that the letters used to signify the field (such as <d> for Date, <t> for Time, etc.) may be entered in either UPPER or lower case. Little Brother will treat the appearance of ^D^ the same as it would ^d^.

Having discussed all of the available field definitions within a screen table, let us look at a sample of the actual columnized report that will be generated. Assuming that we are printing our report in record number order (see Print Records for more details), here is a representative sample of the report that will be generated:

```
Report on file:SAMPLE     On - 03/01/85  At - 10:30:00 Page # 1
Rec#     Name        Phone#      Limit        Charges      Available
-------------------------------------------------------------------
   1     Jones       355-5454    $500.00      $500.00          $0.00
   2     Smith       123-4567  $1,000.00      $750.00        $250.00
   3     Green       123-7654  $1,000.00    $1,000.00-     $2,000.00
   4     Johnson     132-9876  $1,000.00    $2,000.00      $1,000.00-

                                    .
                                    .
                                    .

  56     Brown       198-7654    $250.00        $0.00        $250.00
  57     Davis       145-6789    $500.00      $617.92        $117.92-
-------------------------------------------------------------------
Subtotals for this page --- $12,000.00    $8,552.29      $3,447.71
Cumulative Totals --------- $12,000.00    $8,552.29      $3,447.71
```

(3 blank lines for spacing)

```
Report on file:SAMPLE     On - 03/01/85  At - 10:30:00 Page # 2
Rec#    Name        Phone#      Limit         Charges      Available
-------------------------------------------------------------------
   58   Williams    188-8888       $0.00       $500.00       $500.00-
   59   Able        101-0101   $1,000.00       $750.00       $250.00

                                    .
                                    .
                          (remainder of the report)
                                    .
                                    .
```

Before concluding our discussion of printing columnized reports, several important points still need to be made. The first point that we will touch upon regards the manner in which Little Brother will perform columnization when printing non-stripped fields (since stripped fields CANNOT be columnized, the following information will pertain only to non-stripped fields).

When a non-stripped field is printed from the screen table, Little Brother will be looking ahead in the screen table to see whether or not there is enough space to print the field. This determination is made based upon:

1) The specified PLEN for the field, and
2) The occurrence of the next non-space character after the field definition.

If there is enough space in the screen table to print the field, any information following a field definition will be printed in the same column of the report as it appears in the screen table. In the case of our sample columnized report, there was always enough space left in the screen table to print all of the fields defined.

This can be seen, for example, by the actual position of fields 1 and 2 in the screen table. If you were to count the characters in the screen table, you would find that the beginning carat for field 1 is located in column number 9 and the beginning carat for field number 2 is in column 20 (the beginning carat for field number 2 signifies the occurrence of the next non-space character after the definition of field 1). Therefore, the total space allowed in the screen table for the printing of field number 1 is 11 characters (columns 9-19, inclusive). Since the PLEN of field 1 was defined to be 10, there was enough space in the screen table to print the field. As a result, the printing of field 2 began at column 20.

Let us suppose that our screen table was changed, so that the beginning carat for field 2 was placed at column 15 (as opposed to column 20). If the beginning carat for field 1 was left at

column 9, there would NOT be enough room in the screen table to print field 1. In such cases (where there is not enough room defined in the screen table to print a field), Little Brother will operate in the following manner.

Regardless of the amount of space specified in the screen table for a field, ALL PLEN characters of the field will be printed. From that point, printing will resume with the 1st character following the ending carat of the printed field.

Using the example noted above (where the beginning carat of field 2 was in column 15), field 1 would be printed starting at column 9 and ending at column 18. After field 1 has been printed in its entirety, printing would resume out of the screen table starting at column 12 (since the ending carat for field 1 is in column 11). Thus, in the ACTUAL PRINTED REPORT, columns 19, 20 and 21 would be printed as spaces (corresponding to columns 12, 13 and 14 out of the screen table), and the printing of field 2 would begin at column 22.

The gist of this entire explanation goes something like this:

If you want fields to appear in the same column of your report as they are entered in your screen table, make sure you leave enough space in the screen table for the field to be printed. If you do not have enough space reserved in the screen table to print a field, your report will STILL be columnized, but the columns specified in your screen table will not correspond to the column in which the information is actually printed.

One final point to be made about columnization deals with the printing of a small field. The minimum amount of space that it takes to define a field in the screen table is 3 characters (2 characters for the carats, and either 1 or 2 characters for the field number). Suppose you are printing a field whose length is smaller than the length of the field definition in the screen table (e.g. a 2 character State field). If the field is being printed as non-stripped, pad spaces will be added to the end of the field, and the printed length of the field will correspond to the length of the field definition (and columnization will be maintained). If the field is being printed as stripped, no pad spaces will be added, and printing will resume with the first character following the field definition.

Using "Control" Codes in Your Report

Let us now take a look at the use of printer control codes in our screen table. You will remember from our sample columnized report that the third line in the header was a row of dashes, used to separate the header from the text area. Let us assume that our printer has internal underline capabilities. Rather than using the dashes, we wish to underline the second line of

the header to perform the separation. Let us also assume that to toggle underlining on/off, our printer needs to receive the 2 character control sequence of <ESCAPE><UNDERSCORE> (the decimal equivalents of these characters are 27 and 95, respectively). One way of re-vamping the second line of our header to produce underlined printing is shown below.

```
\27\\95\Rec#     Name          Phone    ...    Available\27\\95\
```

At any place within your screen table, you may incorporate a control code. To do so, \enclose\ the decimal control code value within backslashes. When entering the decimal value, you need only type the number of digits required to specify the decimal value (e.g. to send a "decimal 8" character to the printer, enter \8\). In printing control characters, Little Brother will NOT COUNT the characters used to define the control code. In the above example, Little Brother will recognize the "R" in Rec# as being printed in column 1 of the report (even though it appears in column 9 of the screen table).

Notice from the above example that there is no space separating the terminating backslash of the 27 from the beginning backslash of the 95. Once the terminating backslash of a control code has been encountered, printing will resume as normal out of the screen table. If a space would have been used to separate these control codes, Little Brother would have sent the character sequence <ESCAPE><SPACE><UNDERSCORE> to the printer, producing erroneous results.

As a final note on control codes, you may wish to build your screen table by entering the control codes after all of the printed text has been entered. This will allow you to establish all columnization in the screen table without guessing how the final results will look. Once you have everything columnized, you may use the <INSERT> character mode of the screen editor to insert your control codes without affecting your columns.

In finishing our discussion of printing a columnized report, let us look at changing the results of our report by changing the various printer parameters.

In our example of a columnized report, we established the printed lines per page to be equal to the physical page length (66 lines per page). Using this type of setup, Little Brother will NOT use a Top of Form character when printing the report. Thus, we needed to include 3 blank lines within our footer to produce the required page spacing. The results of printing our report in this manner were:

3 lines printed for the header
57 data line printed per page
6 lines printed for the footer (3 actual lines, 3 blank lines)

Total: 66 lines per page, with 63 printed lines and 3 blank lines within the footer.

In printing a report, you may wish to use a top of form character to provide the necessary page spacing (provided your printer can handle a top of form character). As noted earlier, Little Brother will print top of form characters for paging when the value for printed lines per page is less than the value for physical page length. In our example, by setting the value of printed lines per page to 63, all paging will be done by printing a top of form character after the 63rd line of each page has been printed.

However, in changing the value of printed lines per page to 63, we must also change the values in our screen table for Footer start and end to 5 and 7, respectively (as opposed to 5 and 10). If these values were not changed, Little Brother would still assume that we wanted 3 blank lines in our footer.

Since we specified that we want 63 printed lines per page, the printed results would be 3 lines for the header, 6 lines for the footer, and only 54 lines of data.

In all cases, printed lines per page along with the header and footer areas will determine the actual number of printed data lines per page. By specifying 63 printed lines per page, having a 3 line header and a 3 line footer will leave us with 57 data lines printed per page.

1 Rec Parameter

Up to this point, our discussion of the "1 Rec" parameter within the screen table has been limited. We will now see how changing this parameter can drastically effect the results of the printed report.

The 1 Rec parameter is used to determine the number of data records that are printed per page. By setting 1 Rec to <N> (no), Little Brother will print as many records as possible per page. In our example of the columnized report, since 1 Rec was <N>, 57 data records were printed per page.

If we would have set the 1 Rec parameter to <Y> (yes, print only one data record per page), our printed report would have had EACH page printed as:

A 3 line header
1 data record
56 "blank" lines
The footer

Under most circumstances, the 1 Rec parameter will be set to <N>. However, if you wish to print some type of long report (such as a series of form letters), the 1 Rec parameter can be set to <Y> and will cause Little Brother to print only 1 record per page.

Printing Multiple Across Labels

Up to this point, we have looked at printing a standard mailing label as well as printing a columnized report. We will now take a quick look at printing multiple across mailing labels with Little Brother.

It is really quite easy to print multiple across mailing labels. Essentially, you may use the same screen table and field formats that you used to print a standard mailing label. The only differences in printing multiple across labels are the settings used for the "Columns per Record" and "Records Printed Across" parameters.

In printing multiple across records, the records printed across parameter should be set to the number of labels across one line of your form (e.g. for cheshire labels, there would be 4 records printed across).

The "Columns per Record" parameter represents the number of print columns separating the 1st print position of a given label from the 1st print position of the subsequent label. In order to determine this, measure the distance between the left hand edge of the first label and the left hand edge of the second label (in the case of cheshire labels, that distance is usually 3 1/2 inches). Now, multiply this value by the number of characters that your printer will print per inch, and you will have the proper setting for the Columns per Record parameter (in the case of a 3 1/2 inch label (3.5 inches), if your printer prints 10 characters per inch, the proper setting for the Columns per Record parameter would be 35).

Depending upon your printer and the type of label form that you are using, you may have to change the value of Physical Line Length to accommodate the printing of your labels. A typical example of this would be when you are printing 4 across labels on a 132 column printer, where the columns per record is set to 35 and Physical Line Length is set to 132.

In cases where the physical line length is less than TOTAL number of columns to print per line (determined by the value of "Columns per Record" multiplied by "Records Printed Across"), a newline character will be printed on each line when the physical line length has been reached. If, for instance, you have a 132 column printer and are encountering double spacing between lines, it is more than likely due to the fact that your printer is supplying

its own newline character after the 132nd character is printed. By changing the value of Physical Line Length to 131, only the newline character supplied by Little Brother will be printed, and your spacing problems should be solved.

As a final note regarding the printing of multiple across records, ONLY the data records (i.e. the information contained in the text area of the print screen) will be printed in multiple across format. If you have specified a header or footer for your print report, it will only be printed 1 time across, according to its position in the screen table. If you have the need to print headers/footers in a multiple across printing option (e.g. if you are printing 4 records across and you want 4 headers to be printed), the appropriate header information must appear 4 times within your screen table header/footer area.

This concludes our discussion of the <S>creen option at the "Define Print Formats" scan menu. For additional information on creating print screens, see "Printing Form Letters", located at the end of this section.

<O>utput Option - Print all parameters and a Sample Report

The <O>utput option at the Define Print Formats scan menu will allow you to print out the current settings of your printer parameters and your field formats for the current in-memory print format. In addition, a sample report will be printed, based upon your current print screen table.

When the <O>utput option is selected, the status of your printer will be checked. If your printer is not ready, an error message will appear on the bottom of the screen. Pressing <RET> in response to this error message will return you to the scan menu, at which time you may establish printer ready and re-try the operation.

If the <O>utput option is selected and your printer is ready, all of the printer parameters will be printed first, followed by a table containing the current field formats. These should all be self-explanatory, according to the information which is printed.

The sample report will follow the field format table in the printout. In the sample report, the header (if any) will be printed first, followed by the text area, and finally the footer (if any).

The sample will include only one line of printed information for each line in the text area of your print screen. In the case of printing a columnized report (where there is only one line printed per data record), do not be alarmed when the footer immediately follows the text area. In the real report, ALL of the data lines will be printed properly.

The occurrence of percent sign characters <%> in the sample report will signify a printed field within the actual report. In all cases where a field is to be printed, PLEN percent signs will be printed. If the designated field is represented as stripped, the number of percent signs printed will illustrate the maximum printed field length.

Printing Form Letters

In setting up a form letter print format, the biggest consideration is the amount of text to be printed in the letter. If the textual content of your letter is small (i.e. the number of printed lines in your letter is less than the number of lines available in the print screen), the print format can be set up in a relatively straight forward manner.

Each line in the screen table will correspond to one printed line in the letter. If you wish to print the date, you must establish a header. If data fields are embedded within your text, you will probably want to use the Strip parameter for the field to eliminate any gaps. In most cases, the text will be printed in a ragged right manner and will have the same appearance as a typed letter (vs. the flush right appearance of word processing). Since you will be printing 1 record per page, you will need to set the 1 Rec parameter to Y, and should establish the Physical Page Length parameter accordingly.

In setting the Printed Lines per Page parameter, you may set this equal to the Physical Page Length parameter if you DO NOT want TOF characters to be printed. If you DO want to use TOF characters, the Printed Lines per Page should be set to a value greater than or equal to the total number of lines printed per letter (including any header/footer lines).

If the amount of textual content EXCEEDS the number of available lines in the screen table, you may still generate the form letter, provided that your printer will recognize real TOF characters. In addition, you will need to establish a longer logical line length, and incorporate your own newline characters within the text.

Basically, all that is required to generate a longer form letter is to specify a longer line length. By doing so, you will be able to type as much text as will fit on each line of the screen table. You will also need to incorporate your own newline control codes wherever you wish to break a line. This will produce the effect of having more than one physically printed line using a single logical line within the screen table (Remember, each line in the screen table can contain up to 208 characters).

Involved in this is the setting of the Physical Line Length and Columns Printed per Record parameters. You will want to establish

large values for these parameters, so that Little Brother will see the information on each line of the screen table as being on the same logical line.

If these values are NOT set to be larger than the amount of text in the line, Little Brother will still print all of the characters. However, a line wrap around will occur when the Physical Line Length has been reached. This may cause a line break to occur where one is not desired. For most cases, setting Physical Line Length to 250 and Columns per Record to 249 will be sufficient.

You will also have to rely on a real TOF character to provide for proper page spacing. This is due to the fact that Little Brother will perform its line counting based on the number of lines contained in the screen table. Since there will be more actual printed lines than signified in the screen table (due to the embedding of control codes), the only way to ensure that page spacing is accomplished correctly is to rely on the printer to perform all top of form paging.

In order to print TOF characters, you will need to set the Printed Lines per Page to a value less than the Physical Page Length. The value used for printed lines per page should correspond to the number of lines that exist in your screen table (including any header/footers).

We will conclude our discussion of form letters with an example. Suppose that you wish to print a form letter that consists of the information shown on the next page. The following screen table could be used to produce these results (where the field numbers in the screen table correspond to <First Name>, <Last Name>, <Address>, <City>, <State>, <Zip Code> <Title> and <Product>, respectively).

```
1:   ^d^\10\\10\
2:   ^1^ ^2^\10\^3^\10\^4^ ^5^, ^6^\10\\10\\10\Dear ^7^ ^2^:
3:   \10\Thank you for your recent inquiry regarding ^8^.
4:   Enclosed you will find an informative brochure ex-
5:   plaining all of the features that ^8^ will pro-
6:   vide for you.\10\
7:   We hope that in the future, we may service your
8:   needs promptly and adequately. Should you have
9:   any questions, feel free to contact me.\10\\10\Sincerely,
10:  \10\\10\\10\<Your Name>\10\<Your Company>
-------------------------------------------------------------
      Header : 1-1   Text: 2-10  Footer : None   1 Rec: Y
```

Note: The control code \10\ represents a line feed. On the IBM, this will be translated into a carriage return-line feed. TRS-80 users may wish to use a \13\ (carriage return) for the \10\.

```
Line  1:  <Date>
Line  2:
Line  3:
Line  4:  <First Name><Last Name>
Line  5:  <Address>
Line  6:  <City> <State>, <Zip Code>
Line  7:
Line  8:
Line  9:  Dear <Title> <Last Name>:
Line 10:
Line 11:  Thank you for your recent inquiry regarding <Product>.
Line 12:  Enclosed you will find an informative brochure ex-
Line 13:  plaining all of the features that <Product> will pro-
Line 14:  vide for you.
Line 15:
Line 16:  We hope that in the future, we may service your
Line 17:  needs promptly and adequately. Should you have
Line 18:  any questions, feel free to contact me.
Line 19:
Line 20:  Sincerely,
Line 21:
Line 22:
Line 23:
Line 24:  <Your Name>
Line 25:  <Your Company>
```

Although simplistic in nature, this example does illustrate how 25 printed lines can be generated from only 10 lines in the screen table. By use of embedded newline characters, you can perform line breaks and double line spacing wherever required within your print format. The important point to note is that a newline character will be provided by Little Brother at the end of EACH line in the screen table. Thus, lines 2, 3, 4, 5, 7 and 8 in the screen table do not need an embedded newline.

With respect to printing the date (in the header), 2 newline characters were used. The first one caused the paper advancement after the printing of the date, while the second newline character caused 1 blank line to be printed. The second blank line (separating the date from the heading) was supplied by Little Brother.

Finally, in the setting of your printer parameters, these points should be made. In the above example, you would want to set Printed Lines per Page to 10 (since that is the number of lines in the screen table). Although not required in this example (because the length of each line in the screen table is relatively short) you would need to set Physical Line Length and Columns per Record to larger values if your screen table lines contained more information (again, settings of 250 and 249 will work in most cases).

Main Menu Option #10 - Define File Formats

The Define File Formats option at the Main Menu will allow you to define a new data base or edit information pertaining to an existing data base. This option is the first step in establishing a new data base file.

Note: After choosing option 10 at the main menu, any currently active data base file will be closed. This includes any currently active "job" file. Upon return to the main menu, you should select option 1 to establish an active data base file.

The Define File Formats option allows you to determine the number of fields that will comprise each data base record, the types of fields that you will be using, a descriptive name that you may assign to each field, the length of each field and whether or not the field is to be protected. Once a data base file format has been defined, simply establish a screen file and you will be ready to enter data into your data base. For more information on establishing a screen file, see the Define Screen Formats section (main menu option #8).

Upon entering the Define File Formats mode, a prompt will appear on the bottom of the screen for:

Name:..... Password

If you are creating a new data base file, enter the Name that you wish to assign to the file. In entering a data base name, you may wish to choose one which represents the kind of information that will be contained in the file. The name that you pick should be a unique name so that it will not be confused with filenames used by other programs that you may be running.

Note: You should enter a filename which represents a valid filename on the system that you are using. The filename may consist of letters (A-Z) and digits (0-9). The first character in the Name should be a letter.

After the Name has been entered, you will be prompted for the data base master password. The master password can be used to restrict the entry and display of data base fields and certain data base operations. This is useful if you wish to "lock out" certain fields of information from other people that will be using the data base. If you wish to assign a password to your data base, enter it at this time. If you do NOT wish to assign a master password to your data base at this time, simply press <RET> in response to the password prompt, and no password will be used. You do not necessarily have to enter a password when creating a data base, since you can change or assign a master data base password at any time.

Note: In choosing a data base password, it is advised that you pick a "word" that is easy to remember. If you forget the master password assigned to a data base, you could LOCK YOURSELF OUT from using data base fields and performing vital data base operations. More will be said shortly concerning the uses of a master password.

If you are editing an existing data base file, enter the name of the data base that you wish to edit. After the name has been entered, you will be prompted for the master data base password if one has been assigned. You will only be allowed to edit the data base file format if the password is known. Note that if you intend on editing a data base file format and the data base corresponding to the Name does NOT exist, Little Brother will assume that you are creating a NEW data base file.

In the case of either creating a new data base or editing an existing one, if <ESC> is pressed in response to either of Name or Password prompts, the Define File Format mode will be terminated, and you will be returned to the main menu.

Once the Name/Password prompts have been entered, information will appear pertaining to the current data base file format. On the bottom of the screen, the Define File Format scan menu will appear. There are seven options available when defining a data base file format. These are Help, Quit, Define, Edit, Ins/Del, Print and Save. To select an option, simply press the key corresponding to the first letter of the desired command. An alternative method for selecting an option is to use the space bar or the arrow keys (left/right) to move the reverse video highlight over the desired command, and then press <RET>. Also, pressing <ESC> twice at the scan menu will act the same as the Quit option.

Although very similar in nature, there are some differences in defining a new data base vs. editing an existing one. In order to simplify the descriptions, the rest of our discussion of the Define File Formats option will be split into two parts. The first part will cover all available options in Define File Formats as they pertain to creating a new data base. The second part will cover all of the editing functions allowed.

Creating a New Data Base File

Before defining a data base file, you should take a few moments and consider the functions that you want Little Brother to perform for you. The most critical part in producing meaningful results with a data base manager is found in the initial set up of the data base.

There are many different types of applications that Little Brother can be applied to. However, the "GIGO" syndrome (Garbage In,

Garbage Out) IS a reality when dealing ANY type of data manager. A few extra minutes spent designing your data file formats can save you countless hours in the long run. You may even wish to set up a sample data base first, in order to get the feel for Little Brother.

Before beginning, there are two terms that need to be defined. These are "Field" and "Record". A data base field will be used to store one specific piece of information. A data base record is a group of fields used to denote an entire "chunk" of information. For example, suppose we wanted to set up a data base file for the purpose of maintaining a mailing list. Each record in our data base would supply all information for a single person in our mailing list. The fields contained in each record could correspond to the person's Name, Address, City, State and Zip Code. Using the above as an example, there would be 5 fields assigned to each record in our data base.

Probably the most important consideration in establishing a data base is the manner in which you will be using your data base fields. As general rule, each separate piece of information should be stored in a separate field. Although this may sound like a trivial statement, there are some cases in which you may inadvertantly combine two separate pieces of information into a single data base field.

A typical example of such a case might be found in defining a Name field. In many applications, you may wish to sort your data base records so that they are arranged alphabetically by last name. Additionally, you may wish to print your records in the order of <First Name> <Last Name>. By having two separate fields (one field for first name and one for last name), you may easily accomplish both tasks with Little Brother. If the entire name were crammed into one field, you would have to sacrifice one of the above to accomplish the other (i.e. you would lose either the ability to sort on last name or the ability to print as <First Name> <Last Name>).

Note: We could carry the above example one step further by incorporating another field to hold the person's title. For example, in one instance we may wish to print the name "John Smith", while in a different instance we may want to print "Mr. John Smith".

A second consideration in establishing a data base should be whether or not the data base can hold all of the potential information that you may wish to store. By this we do NOT mean the amount of available disk space (which is still another consideration). Rather we are referring to having enough data fields defined, in case you need extra data fields later.

When using Little Brother, you will NOT be able to add data fields to your records after data has been entered into the file. By

incorporating additional unused fields when you create your data base, you will be giving yourself some growing room should you ever need to add fields to your existing data.

These points are being provided here to give you some clues on how to set up a workable and flexible data base system. They are by no means the definitive answer for establishing a data base, since YOU ultimately decide the structure of your data base.

Let us now explore all of the options available at the Define File Formats scan menu.

<H>elp Command

The Help command will display help information regarding the Define File Formats mode on the top portion of the screen. The word "More" will appear on the bottom line of the screen between pages of help information. Press the <RET> key to view the next page of information, or <ESC> if you do not need any more help. When all help information has been displayed, you will be returned to the scan menu.

<Q>uit Command

The Quit command will exit the Define File Formats mode. After selecting Quit, you will be prompted to verify your decision to leave Define File Formats. Pressing <ESC> in response to the verification prompt will cause you to exit back to the main menu. If you do not wish to leave Define File Formats, press <RET> in response to the verification prompt, and you will be returned to the scan menu.

Note: If you wish to save the file format that you are creating, you must select the <S>ave option prior to quitting. Choosing the Quit option will NOT save any of the file formats that have been defined.

<D>efine Command

The define command is used to establish fields in your data base. It is in define that you establish the types of data base fields you will be using, the length of each data base field and whether or not the field is to be protected. Also, each data base field may be assigned a descriptive name, which will be displayed when referencing the field in numerous data base operations.

Upon choosing the define option, information pertaining to defining fields will appear on the bottom portion of the screen. The fol-

lowing depicts the typical display that will be shown (assuming that you are creating the data base file MYDATA and have assigned to it the password MYPW).

```
                    Define Database Format
Name:MYDATA    Password:MYPW    Remaining:1024  Used:0  Next #:1
#1 Name:..... Type:     Length:    Protect (Y,N):
<ESC> will abort, Enter all information to save
```

When defining data base fields, you will be prompted to enter four pieces of information. This information will pertain to the "Name:" of the data base field, the "Type:" of field that it will be, the "Length:" of the field, and whether or not the field is to be "Protected". During the entry of data base fields, the Little Brother input editor will be active.

One at a time (in the order displayed on the screen from left to right) you will be prompted to enter each item of information for the data base field number that is shown on the far left hand side of the screen (to the left of the Name prompt). As entries are made for each piece of information, the input dots will proceed to the right, for the entry of the next piece of information. After the Protect information has been entered, the data base field will be defined, and will appear on the top portion of the screen. At this point, the field number will advance by one, and you will be allowed to enter the next data base field (e.g. after the Protect information for field "#1" has been entered, you will be prompted to enter the Name for field "#2"). If <ESC> is pressed at any time during the entry of a data base field, you will be returned to the scan menu and any partial information entered for that field will be lost.

In setting up your data base fields, you should pay some attention to the number assigned to each data base field. Several operations within Little Brother require that a data base field number be entered. The Print command on the scan menu will allow you to produce a hardcopy listing of all data base fields (including field numbers). Use of this command will be explained in the <P>rint command section.

One additional point should be noted regarding the data base field numbers assigned to your fields. When adding records into your data base, information will be prompted for according to field number. You will be prompted to enter information for field #1, then field #2, then field #3, etc. This will also be the case in editing information. In establishing fields, you will want to define the fields in the order in which you want to enter the data into your records.

Little Brother does allow provisions for inserting and deleting fields, should your definitions become out of order. For more information, see the <I>ns/Del command.

You will be allowed to define up to 64 different fields for each record within your data base file. The maximum allowable length for any given field is 254 characters. The maximum allowable total length for ALL defined fields (i.e. the length of each record in your data base) is 1024 characters. Each record must contain as a minimum 5 characters. The maximum number of records that may be stored in your data base file is 65,534. The number of records to use in initially establishing your data base file will be determined when the file is Saved (see the scan menu option <S>ave for more details).

As data base fields are entered, the "Next #" value will be updated to indicate the data base field number that will be defined next. Also, the values for the Remaining number of characters (i.e the maximum number of characters that could still be used in each data base record) and Used number of characters (the number of characters used so far in each data base record) will be updated. Initially they will be displayed as 1024 (Remaining) and 0 (Used).

We will now discuss each of the four elements that comprise a data base field definition.

Data Base Field Name

You may assign a name to each field in your data base. The name can be used to describe the type of information that will be stored in the particular field (e.g. Zip Code). Up to 19 characters can be entered for the data base field name, and any keyboard (ASCII) character can be used in defining a name.

If you do not wish to assign a name to a data base field, simply press <RET> in response to the name prompt. Doing so will cause the default name of *Data* to be assigned to the data base field.

Data Base Field Types

The data base field type will define the type of information that is to be stored in each field. Each data base field must have a type assigned to it. There are nine different types of data base fields. In order to establish the type assigned to a field, simply enter the letter corresponding to the appropriate field type. The valid data base field type are:

A - Alphabetic. You will be allowed to enter alphabetic characters (A-Z and a-z) and spaces.

B - Upper case Alphabetic. This is the same as an alphabetic field, except that all lower case alphabetic characters (a-z) will be converted to UPPER case (A-Z) when entered.

N - Numeric. You will be allowed to enter digits (i.e. the characters 0-9), minus signs <-> and periods <.>. There is no restriction on the number of periods and/or minus signs that may be entered.

R - Right Justified Numeric. This is the same as Numeric, except that the data will be stored and displayed in a right justified manner. If the data entered for the field does not completely fill the field length, "pad" spaces will be added to the left of the data entry. For display and printing purposes, the data will be butted to the right-most position of the field.

L - Literal. Any keyboard (ASCII) character may be entered.

U - UPPER case Literal. This is the same as Literal, except that all lower case alphabetic characters (a-z) will be converted to UPPER case (A-Z) when entered.

D - Dollar. This type of field is used for the entry and storage of dollar and cent information. You will be allowed to enter digits, one minus sign and one period (decimal point). Futhermore, the data will be formatted for storage and display purposes. You will be allowed to enter 8 digits to the left of the decimal point and 2 digits to the right. When dollar values are displayed and printed, they will be aligned according to the decimal point. All dollar fields will be assigned a length of 12 characters (1 character for the minus sign, 8 characters for the digits to the left of the decimal point, 1 character for the decimal point and 2 characters for the digits to the right of the decimal point).

F - Floating Point. This is the same as Dollar, except that you will be allowed to enter 8 digits to both the left and right of the decimal point. A length of 18 characters will be assigned to all float fields.

C - Calculated. A calculated field will allow you to perform and display calculations, based on "constant" values and the values entered for any N, R, D and F fields. A calculated field will be assigned a length of zero (it will NOT take up

any disk storage space within your data base file). You will not be allowed to assign a Protect status to calculated fields. After entering a "C" for a calculated field type, that data base field will be defined, and the remaining two prompts (for Length and Protect) will be bypassed. You may define up to 16 different calculated fields within a data base file. You may perform the 4 basic operations of addition, subtraction, multiplication and division to determine the value of a calculated field. The actual calculation to use will be defined in either the display screen used to display the data, or the print format file used to print the data. You will also be allowed to establish the format to use in displaying and printing the calculated result. The allowable calculation definitions will be discussed in the Define Screen Formats section.

Data Base Field Lengths

The field length is used to determine the maximum amount of characters that can be entered and stored for each field. There will be no field length entry for Dollar, Float and Calculated fields, since these fields have a pre-defined length. For all other types of fields, you will be required to enter a length. Each field must have at least a length of 1, and cannot have a length greater than 254.

In setting up the field length, you should pick a value that will hold the longest possible entry for the field in question. In some cases, the length of a data base field will be known (such a the length of a "State" field). In other cases, you may have to estimate a reasonable length for the field. It is always better to reserve a little extra space for a field, but be judicious in your assignment. If you have a limited amount of disk space, you may wish to bear in mind that increased space taken up by each field will lessen the total number of records that can be stored in your data base.

Field Protect

Field protection will allow you to designate protected fields within your data base. The valid entries for this prompt are "Y" (Yes, this field is to be protected) or "N" (No, do not protect this field). You will be allowed to enter a protection status for all field types except calculated fields (these will appear as having a protect status of "C" and cannot be protected).

Pressing just <RET> in response to the Protect prompt will cause No protection to be assigned to the field.

When a field is protected, information in that field can only be entered, edited, viewed or printed if the data base Master Password is known. A person who does NOT know the Master Password will be locked out from any access to a protected field.

The discussion of protected fields leads us to our next topic - the purposes of defining a data base Master Password.

Explanation of Master Password Uses

The data base Master Password can be used to restrict the data base operations that a person can perform. There are two different protection functions that the Master Password can be used for. These functions are:

1) Establish Field Protect Capabilities
2) Prohibit access to several main menu functions

In the previous section, we discussed the limitations that will be imposed when a field is defined as protected. In order to attain these protection capabilities, a data base Master Password MUST be defined. If a Master Password is NOT defined, no protection will be given to any field, even if the protect status is set to Yes.

It is only by the combination of establishing a Master Password and setting field protect to Yes that a data base field is protected. When main menu option number 1 is chosen (Select Data Base Name), a prompt will appear for the data base Master Password (if one has been defined). If at this time the Password is NOT entered correctly, the user will be granted "limited" access to the data base. This limited access will allow the user to ONLY access non-protected fields.

Also included in the limited access is the restriction of available main menu selections. If a total access level has NOT been established (by knowing and entering the master password), NO access will be allowed to main menu options 8, 9, 12, and 13. In addition, only limited access will be allowed to main menu option number 11.

In conclusion, if you wish to incorporate these protection devices into your data base, you MUST have a master data base password defined. If no master password has been established, there will be no protection.

You may at any time define, change or remove a data base master password. For more details, refer to main menu option #12 (Change Password). Of course, in order to change or remove the data base master password, you must know it.

Choosing the Best Field Type

Before concluding our discussion of the <D>efine option, we will pass along a few helpful hints in choosing the best field type for different applications.

When selecting a numeric type field (N, R, D or F), there are several points that you should consider. The most important point is the manner in which Little Brother will sort numeric type fields.

Because of the nature in which dollar and float fields are aligned (according to the decimal point), they will always sort properly, and there will be no adjustment needed when entering data in these field types. However, Right Justified and Numeric fields will be sorted according to the manner in which the data is entered. In entering these types of fields, consistency must be used in order to attain proper sorted results.

In some cases, this consistency will be built into the type of data contained in the field. A typical example of such a data field is a domestic Zip Code field. Because a zip code field usually has a uniform length, your entries of zip code data will be consistent. Under normal circumstances, you will probably use a Numeric <N> field to store your zip codes. If only zip code characters are entered, they should sort out properly in all cases.

In other cases, you will have to set up a method by which numeric data is to be entered if it is to be sorted properly. Mostly, this entails incorporating your own "pad" characters into the entry of the data so that each entry is consistent in length. As an example, suppose that you have a Numeric field defined. One of the records in your data base has the entry of "9" for this field, while another record has the entry "10". In the sorting of these two fields, the "9" would be seen as greater than "10". This is because the sort is done in a left to right manner, and the digit 9 has an ASCII value greater than the digit 1. In order to sort these values according to the numbers they represent, you would need to pad the 9 with a leading zero, and in doing so would enter it as "09".

Using the previous example, if the field were defined as Right Justified, you would obtain the proper sorted results when only the "9" is entered. This is due to the fact that right justified values are padded with leading spaces. However, you would again run into problems if you were dealing with either "mixed signed" numbers (positive AND negative numbers) or "decimal" numbers. In these cases, you would once again have to perform your own padding when the data was entered.

Although defining data base field types is totally up to you, we would recommend the use of Dollar and Float fields for data repre-

senting numeric values (where the entry of this data will not always be a consistent length). Because of the alignments that Little Brother performs on these types of fields, you will always obtain properly sorted results.

Note: The Little Brother report generator allows you to perform report totaling. This totaling can only be done on dollar and float fields. If you are planning to total data base fields, they must be defined as either dollar or float.

In defining alphabetic and literal type fields, you may again wish to consider how sorting of these fields will be performed. When information is sorted, it is done so according to the ASCII value of each character, starting at the left most position in the field. In comparing two items for a sort, each character (one at a time, starting from the left) is examined. The first non-matching character dictates the sorted order. Thus, the value "Jack" is less than the value "John" (because "a" is less than "o").

Because all UPPER case characters have an ASCII value which is less than lower case characters, a true ASCII sort will always see upper case characters as being less than lower case characters. For example, the value of "ZEBRA" will be less than the value of "apple" (because "Z" is less than "a"). Although this is technically correct, it may not produce the results you may want.

In using Little Brother, there are several means by which alphabetic case problems can be rectified (without having to worry about the consistency used in entering data). One way of eliminating case problems is by using the "B" and "U" field types. In choosing these field types, all alphabetic characters will automatically be converted to UPPER case as they are entered, and will be stored on disk in such a manner. Using this method, you will always have correct sorted results, but you will not be able to enter ANY lower case characters.

An alternative method of dealing with upper and lower case is found in the sorting operations that Little Brother will perform. When sorting, you may instruct Little Brother to treat upper and lower case characters the same. Little Brother will convert the data as it is being sorted, without affecting the way in which the data is actually stored on disk. In using this approach, you may sort any kind of mixed case data, without having to worry about the results. This is very handy when you wish to print your data records using both upper and lower case (for a nicer appearance) and still have them sorted according to "true" alphabetic characters (rather than by ASCII value).

This information is being presented here so that you may better judge the types of data fields to use. In all cases regarding alphabetic characters, you should never have to worry about the case used to enter the data, as there is always a method that can be used to attain any desired result. We recommend that you try to enter alphabetic characters as consistently as possible. Remember, the results obtained by using a data base are directly proportional to the data that is input into it (i.e. GIGO).

Display of Data Base Fields

After each data field has been defined, the field definition information will be displayed on the top portion of the screen. The display area can hold 20 display lines (one line for each field). If more than 20 fields have been defined, the display area will scroll up one line after the entry of each new field.

While at the scan menu (when there are more than 20 fields defined in your data base), you may change the currently displayed fields by using one of the <+>, <->, <UP ARROW> or <DOWN ARROW> keys.

The <DOWN ARROW> key can be used to display the next higher number field. The <UP ARROW> key can be used to display the previous lower number field. Repeated use of either of these will cause a scrolling effect.

The <+> key can be used to display the next page of field definitions. The <-> key can be used to display the previous page of field definitions. Each of these will cause the next/previous 20 fields to be displayed.

Note: The <+> key is a shifted character. You may use the unshifted caption of this key to produce the same results. On the TRS-80 Model 4, this will be the <;> key. On the IBM, it will be the <=> key.

<E>dit Command

The Edit command at the Define File Formats scan menu will allow you to edit either the data base master password or any one of your defined fields. Upon selecting the edit option, you will be prompted to:

EDIT <P>assword <F>ield

If you wish to edit the data base master password, press <P> in response to this prompt. If you wish to edit a data base field, press <F>. If you do not wish to edit any information, press <ESC>, and you will be returned to the scan menu.

When editing the data base password, the Little Brother input editor will appear next to the current password information (if any), and you will be allowed to change the master password. If you wish to eliminate the current master password, simply use the input editor to backspace over the existing password. When only the input dots are present, press <RET>, and your data base will have no master password. Otherwise, make all necessary changes to the password and press <RET> to assign the new password.

When editing a data base field, you will be prompted to:

Enter field number to edit ..

If at this time you do not wish to edit a data base field, simply press <ESC>, and you will be returned to the scan menu. Otherwise, enter the number of the field that you wish to edit. The field numbers are displayed on the left hand edge of the screen.

After the field number has been specified, the Little Brother input editor will appear by the data base field Name. While the field edit mode is active, you will be prompted to edit (one at a time) each piece of information comprising the data base field (i.e. the Name, Type, Length and Protect). If you wish to retain the current setting of a particular piece of information, simply press <RET>, and you will advance to the next prompt.

After the information for Protect has been entered, you will be re-prompted to change the Name information. This type of circular input will continue until either <ESC> or <F3> is pressed.

Pressing <ESC> will cancel any edits made to the field, thus retaining the pre-edit information. Pressing <F3> will cause all edits for the field to be saved. In either case, you will be returned to the scan menu.

<I>ns/Del Command

The Ins/Del command (Insert/Delete Field) will allow you to either delete a data base field, or insert a field between two existing fields. Upon choosing this option, you will be prompted to:

Insert or Delete (I,D) ? .

If you do not wish to insert or delete a data base field, press <ESC> in response to this prompt, and you will be returned to the scan menu. Otherwise, enter <I> if you wish to insert a field, or <D> if you wish to delete one.

If you choose to insert a field, you will be prompted for the position at which the field will be inserted. Once again, pressing <ESC> in response to this prompt will return you to the scan

menu. Otherwise, you will need to enter the field number to insert. All insertions will be made BEFORE the field number that is specified. Therefore, entering "1" for the insert position will allow you to define a new Field #1. All following fields will have their field numbers incremented by one after the insertion is made (i.e. the "old" field #1 will become the "new" field #2 after an insertion at position 1).

After the insert position has been specified, you will be prompted to enter all four pieces of field information (Name, Type, Length and Protect). Pressing <ESC> for any of these will return you to the scan menu, and no insertion will be made. To complete the field insertion, simply enter all four pieces of information.

If you choose to delete a field, you will be prompted for its field number. Pressing <ESC> in response to this prompt will return you to the scan menu, and no deletion will be made. Otherwise enter the number of the field that you wish to delete.

After deleting a field, all following fields will be moved up one position. For example, if you delete field number 6, the "old" field number 7 will become the "new" field number 6, the old field number 8 will become the new field number 7, etc.

When fields are inserted or deleted, the field display area will be re-drawn, and will always indicate the current state of your data base field definitions in memory. To permanently store any changes to your field definitions, see the <S>ave command.

<P>rint Command

The Print command can be used to obtain a hardcopy (printed) listing of all currently defined data base fields. Each field number, name, type, length and protect status will be printed.

Before the printing begins, a check for "printer ready" will be performed. If your printer is not ready, an informative message will appear. At this time press <RET>, and you will be returned to the scan menu.

You will not be able to terminate the operation once the printing of the field definitions has begun. When completed, you will be returned to the scan menu.

<S>ave Command

The <S>ave command will allow you to save you data base definitions to disk. You MUST perform a save (before quitting) in order to retain any definitions that you have made.

The save command will operate differently depending upon the type of computer that you are using. We will split our discussion of the save command into two sections - one section detailing save on the TRS-80, and the other on the IBM.

Saving on a TRS-80

After choosing the save command, you will be prompted to enter the drive number on which to save the definitions. Pressing <ESC> in response to this prompt will return you to the scan menu WITHOUT saving the definitions. Otherwise, enter the drive (0-7) on which the definitions are to be saved.

After the definitions have been saved, you will be prompted to enter the drive number that will hold the data. Pressing <ESC> at this time will once again return you to the scan menu without establishing a data file. Aborting the save operation at this point will not affect the definition file. All of your field definitions will be saved. However, in order to utilize the data base file, you will need to establish the data file.

By entering a drive number, you establish the drive that is to be used to create your data file. At this time, Little Brother will check to see how much disk space is available on that drive. After this determination is made, the following prompt will appear.

nnnnn records available, use how many ? .....

The value "nnnnn" will represent the maximum number of data base records that can be stored on the drive specified. This value is determined by either the amount of disk space that you have on the drive, or by the maximum number of data base record that Little Brother can store (65534). Answer this prompt by entering the number of records that you wish to "allocate" for data base use.

Keep in mind that the number of records allocated will be a permanent value. Once records are allocated, they CANNOT be "de-allocated". You may wish to enter a value that will best fit your storage needs (i.e. do not be wasteful in establishing the size of your data base file). Depending upon your total storage capabilities, you may wish to under-estimate the number of records to allocate. Remember, you may expand your data base file at any time. For more information, see main menu option number 7.

Note: If you are working on a two drive floppy disk system, you will also need to take into account the storage of other Little Brother files (i.e. display screen files, print format files, index files and temporary work files used for sorting). Establishing a data file that is too big may limit other Little Brother operations. Of particular concern is the work file. The amount

of space needed for a work file will be based on the largest field that you will be sorting. For example, if you will be sorting a 30 character field, and have 1000 records established, you may need to have up to 32,000 bytes of disk storage available to perform the sort. The size of the work file is determined by the number of records actually containing data times the quantity of (the length of the field(s) to sort plus 2).

As your data file is being created, you will see the message "Initializing nnnnn" on the screen. This will indicate the current state of the initialization process. When initialization is completed, you will be returned to the scan menu.

Saving on an IBM

After choosing the save command, the following prompt will appear on the bottom of the screen:

<F3> saves, <ESC> quits - Enter Data Path .....

In accessing a data base file set, Little Brother will need to find a "pathfile" corresponding to the file set. The pathfile will determine the drives/paths that contain all of the Little Brother control files. It is at this prompt that you establish the pathfile for the data base file set that you are creating.

The pathfile will be denoted by the database filename, with an extension of ".PFL". It will be created on your default drive, and must always be present on your default drive when accessing a data base file set.

There are 4 different drives/paths that can be used to hold various Little Brother files. One at a time, you will be prompted to:

Enter Data Path
Enter Screen Path
Enter Index Path
Enter Temp Path

The data path will signify where the definition and data files are to be stored (along with any "auto job" files). The screen path will be used for creating and accessing the display screen and print format files. The index path will determine where index files will be placed (i.e. when you are sorting), and the temp path will be used for the placement of temporary work files (used in the sorting process).

Pressing <RET> in response to any of these will cause the default drive to be used in creating or accessing the associated files.

Otherwise, enter the drive/path that is to be used to hold the specified types of files.

Once you have entered the Temp path, you will be re-prompted for the Data path. This type of circular prompt will continue until either the <F3> or <ESC> keys are pressed at any of the prompts.

Pressing <ESC> will cancel the save command. NONE of your definitions will be saved, and you will be returned to the scan menu.

Pressing <F3> will cause the pathfile to be saved to the default drive. In addition, any field definitions that you have made will be saved to the drive/path as denoted by Data Path.

Before continuing, a few points need to be made regarding the drive/path settings that are used. We will look at the typical settings used when running on both floppy and fixed disk systems.

In most cases when you are running on a floppy drive system, you will be using drive "A" as your default drive. It will usually contain system information, and all of the Little Brother program modules. In this case you will more than likely want to use drive "B" to store your data files.

This will allow you more storage space, since a formatted data diskette can be used in drive B. In order to establish drive B as your data drive, answer the Data Path prompt by entering:

B:

Anytime Little Brother is to access the information from the newly created data file, it will do so by accessing drive B.

When running on fixed disks, the usual drive specification will be C: to access the fixed drive. If your default drive is C: and you do not want to use sub-directories to store your Little Brother data files, you may leave the path settings blank, and all information will be accessed from your default drive.

If you wish to store the Little Brother data files on sub-directories, you will need to specify the path on which to store/access each of the file types.

Note: Little Brother will NOT create a new path for you. If you wish to specify a sub-directory path, you must perform a MKDIR from DOS prior to defining your data base file formats.

Assume that on your default drive you have created a sub-directory with the name LBDATA. In order to set your data path to this sub-directory, you would need to enter the following for the data path prompt.

LBDATA\

In essence, any path specification will be tacked onto the default setting in determining where to locate Little Brother files. To use a sub-directory, simply terminate the name of the sub-directory with a backslash.

You may use a drive specification along with a path setting. For example, if your default drive is A: and you wish to establish your data files on B: using the sub-directory LBDATA, you would enter the data path as:

B:\LBDATA\

To re-iterate, the pathfile for a given Little Brother data base file set must be contained on the default drive. Once a data base file set has been established, you may (at any time) change any of the drive/path settings for the file. For more details, see main menu option number 14.

Upon establishing your path settings, the field definitions will be saved. An informative message will appear on the screen.

After the definitions have been saved, Little Brother will create the actual data file. A check of your data path will be done, to see how much disk space is available for your data on that drive. After this determination is made, the following prompt will appear.

nnnnn records available, use how many ? .....

The value "nnnnn" will represent the maximum number of data base records that can be stored on the data drive. This value is determined by either the amount of disk space that you have on the drive, or by the maximum number of data base record that Little Brother can store (65534). Answer this prompt by entering the number of records that you wish to allocate for data base use.

Keep in mind that the number of records allocated will be a permanent value. Once records are allocated, they CANNOT be deallocated. You may wish to enter a value that will best fit your storage needs (i.e. do not be wasteful in establishing the size of your data base file). Depending upon your total storage capabilities, you may wish to under-estimate the number of records to allocate. Remember, you may expand your data base file at any time. For more information, see main menu option number 7.

Note: If you are working on a two drive floppy disk system, you will also need to take into account the storage of other Little Brother files (i.e. display screen files, print format files, index files and temporary work files used for sorting).

Establishing a data file that is too big may limit other Little Brother operations. Of particular concern is the work file. The amount of space needed for a work file will be based on the largest field that you will be sorting. For example, if you will be sorting a 30 character field, and have 1000 records established, you may need to have up to 32,000 bytes of disk storage available to perform the sort. The size of the work file is determined by the number of records actually containing data times the quantity of (the length of the field(s) to sort plus 2).

As your data file is being created, you will see the message "Initializing nnnnn" on the screen. This will indicate the current state of the initialization process. When initialization is completed, you will be returned to the scan menu.

<E>diting an existing data base format file

Once you have established a data base format file, you may use main menu option number 10 to edit certain parts of your field format definitions. Depending upon the current state of your data base, you may/may not be limited in editing capabilities.

If you have a data base file in which there are NO records (i.e. you have NEVER added any records into your file), you will be allowed to perform any/all commands available at the scan menu.

Important Note

If you have created either a display screen or a print format file and have subsequently added/deleted data base fields, or have edited field lengths/types, you SHOULD edit the display screen (main menu option #8) and print format file (main menu option #9) BEFORE adding or printing records. This is to ensure that the field definitions in the display screen or print format file match your data base field definitions. Little Brother will check that field types and lengths do correspond when editing a display screen or a print format file, and will notify you when there are field mismatches. However, NO checks will be made when records are added or printed.

If your data base file DOES contain records, you will be limited in your editing capabilities. This section will cover all of the allowable editing functions that will be available.

You will NOT be allowed to Define or Ins/Del when editing an existing data base. An attempt to perform these functions will cause an informative message to be displayed.

You will be allowed to use the Edit command. For the most part, the edit command will function as it did when creating a new data base. You will be allowed to edit the data base master password and the name/protect status for any field. However, you will NOT be allowed to change any field lengths, and the prompt for that information will always be by-passed.

Futhermore, you will NOT be allowed to edit the field Type when the field is either dollar, float or calculated, nor will you be allowed to change any other type into a dollar, float or calculated field. You may perform any other changes to the field type. Be warned, however, that certain changes may produce unwanted results.

An example of such an instance might be in changing a Numeric field into an Alpha field. Changing a field type will not alter any data currently within the data base. However, any subsequent edits or additions to your data base will change the acceptable input for that field, accordingly. Thus, if a Numeric field were changed to an Alpha field, any edits or additions would allow only alphabetic characters to be entered for the field.

After you make any edits to your data base field definitions, you will need to use the Save command to save your edited definitions as current. When saving, you will only be notified that your definitions are being saved, and will NOT be prompted for any other information (such a drive number or drive/path, the number of records to allocate, etc.). If you wish to allocate more records to your data base, See main menu option number 7.

Possible Problems and Error Messages

When either creating or editing a data base file format, the following points should be noted.

For IBM Users

You will NOT be allowed to proceed with Define File Formats when a pathfile exists for a data base file that does NOT exist. This is to ensure that existing data does not (somehow) get lost. In this case, the message "Pathfile exists without data" will appear after the data base Name has been entered. From this point, pressing <RET> will return you to the main menu.

Also, after the path information has been entered (for a new data base file), a check will be done to ensure that the data base file is indeed new. If existing data is found for the data base file, you will be notified that "That File Set Already Exists". Again, this is done to make sure that no existing information is destroyed. This will usually happen when a pathfile has been inadvertantly deleted. You will NOT be allowed to save the new data base file format to the drive that contains the existing data. If this should happen, you will be returned to

the scan menu. At this point, it would be wise to exit Little Brother and check the validity of the existing data.

IMPORTANT NOTICE FOR IBM USERS

Finally, before saving information, you should check that the drive which is to contain the information is ready. Although many provisions have been taken within Little Brother, it is possible to DESTROY information on a diskette if an open drive door is closed while the drive access light is ON. YOU SHOULD NEVER close a drive door when the access light is on. If this situation should ever arise, simply WAIT for the Little Brother error message to appear before closing the door.

For ALL Users

When either creating or editing a data base file format, there are a few things that you should check prior to performing the edits or creation.

1) In all cases, make sure that the data and definition files exist on or will be created on a diskette that is NOT write protected. This rule should also be observed for ALL OTHER FACETS of Little Brother.

2) When editing an existing definition file format, be sure to have BOTH the DATA and DEFINITION files in your system. Remember, if neither of these files is found, Little Brother will assume that you are creating a NEW data base file set.

3) When creating a NEW data base file set, be sure that the name you are assigning to it is a unique one. You may wish to perform a directory of any diskettes in your system to rule out the possibility of creating a duplicate file set.

In cases where only ONE of either the definition or the data file is found, the following points should be noted.

If the specified Data file is found with NO definition file, an informative message will appear, and you will be returned to the main menu. At this time you should try to locate the corresponding definition file.

If the specified definition file is found with NO data file, the following message prompt will appear:

Def file exists without data - Continue (Y/N)? .

If you desire (and are comfortable with using your DOS copy function), you may use the information in an existing definition file as a template for a new data file. If you are NOT comfortable

using your DOS copy command, you should build all of your NEW definition files using the information in "Creating a New File", and should skip the information that follows. In such a case, answer the above prompt with <N>, and you will be returned to the main menu. (This by far is the safest means, and will NEVER lead to the inadvertant DESTRUCTION of data).

You may copy an existing definition file to a different diskette, using a different file name. If ONLY the definition file is found, you will be prompted as above. Answering the prompt with either <N> or <ESC> will abort the operation, and you will be returned to the main menu.

If you answer the prompt with <Y>, Little Brother will assume that any "control" information found in the definition file is to be DISREGARDED, and this control information will be zeroed out (i.e. Number of records allocated, used, deleted, etc). Thus, you will have a definition file IN MEMORY which corresponds to a NEW file. At this time, you may add, insert or delete fields just as if you were creating a new data base file set. DO NOT ANSWER THE PROMPT WITH <Y> IF THE DEFINITION FILE CORRESPONDS TO AN EXISTING DATA FILE. DOING SO WILL CAUSE THE DATA FILE TO BE INACCESSIBLE!

Note for IBM users: If the definition file is to be contained on a drive other than your default drive, you will need to build a pathfile before choosing option number 10 at the main menu. For more information, see main menu option number 14.

Main Menu Option #2 - Add Records

Selecting option 2 from the main menu will allow you to add new data records to your Little Brother data base. Before using option two, you must have already defined a data base and screen, and selected that data base name with option 1 at the main menu.

If you are planning on adding more records than you currently have space allocated for, you should first use option 7 at the main menu to allocate additional records.

Once you select option 2, the Add module will be loaded. If you have not set a default screen at the main menu, you will be prompted for the screen number to use. Type in the appropriate number and press <RET>. If the screen is password protected, you will have to enter its password at this time or the screen will not load. When everything is entered correctly, the screen will be loaded and the Add mode scan menu will appear on the bottom row of the screen. Several options are available from this menu.

Add mode scan menu

There are five options available in the Add mode. To select an option, simply press the key corresponding with the first letter of the command. An alternative method is to use the space bar or the left/right arrow keys to move the reverse video highlight over the desired command, and then press <RET>. Pressing <ESC> twice at the scan menu will act the same as the Quit option.

The Help option will display information about the Add mode in the top portion of the screen. The word "More" will appear on the bottom line between pages. Press the <RET> key to view another page of help information, or the <ESC> key to return to the scan menu.

The Quit option will leave the Add mode, and return you to the main Little Brother menu.

Add option

This option of the scan menu will allow you to add data records to your file. The cursor will move to the first defined field. The physical placement of a field on the screen has no effect on the order in which the data will be taken. The cursor will advance from the lowest numbered field to the highest. The scan menu will be replaced with the following message:

Press F3 to save, <ESC> to abort

You can now type in the data you want for each field you have defined. Be sure to press the <RET> key after the data is entered

in each field. For field types Dollar and Float, pressing just the <RET> key will be the same as entering a zero, even though nothing will be displayed for that field. If you wish to have a zero displayed, be sure to enter it. When all fields have been entered, the cursor will return to the first field. If you have made any mistakes in entering the data, you can use the following procedure to correct them.

Press the <RET> key to advance the cursor to the proper field. Now, use the input editor features to make the changes, pressing the <RET> key when the data is correct.

At this point you have two choices - save the record to disk or abort the data entry. Pressing the <F3> key will save the record and allow the next record to be entered. Pressing the <ESC> key will return to the scan menu, and the data record just typed in will NOT be saved to disk. You will be prompted to be sure you do not wish to save the record.

When you are finished entering data records, press the <ESC> key after the last record is saved to return to the scan menu.

Special fields on the screen

There are two special types of fields that may be on your add mode screen, depending on the way your screen format was designed. They are "calculated fields" and "protected fields".

You will not be allowed to enter data into a calculated field. The data that will appear there is based on a numerical calculation involving other fields and numbers. The value for the field will be displayed, and then the cursor will skip over the field. If the calculation would result in an overflow or a division by 0, a "-0" will be displayed in the field.

The entry of protected fields depends on several things. If there is no master password assigned to the data base, protected fields will act the same as any other normal data field. If there is a master password, and you specified it when selecting the data base name at the main menu, protected fields will also act like normal data fields.

However, if a master password is assigned but not specified when the data base name was selected, you will NOT be allowed to enter any data into a protected field. The cursor will skip over the protected field and advance to the next field.

The actual record number being used

While adding data base records, the actual record number in the data file being used will appear in the lower right corner of the screen. Initially, this number will start with Record 1, and

advance by one each time you enter a new data record. If you have deleted data records, those records will be re-used in a "last deleted, first re-used" order before additional records are added to the end of the file.

Out of data space

There is a fixed amount of disk space allocated to hold data records. When this space is full, you will see the following message appear:

No more data space. Must expand file.

At this point you must use the Quit option and return to the main menu. There, use the Expand Data File option (option 7) to increase the disk space allocated to the data file.

Screen option

The Screen option will allow you to switch between different screen format files. When this option is selected, enter the number of the screen format and press <RET>. If the screen format file is not found, you will be informed and allowed to choose another format number. Pressing <ESC> will re-use the original screen format file.

If there is a password on the screen format, you will not be prompted for it if you used the master password when the data base name was selected. If you are asked for a screen password but do not know it, press the <ESC> key and the original screen format file will be re-used.

Index option

The Index option will allow you to toggle the special Add Index file on or off, as long as it has been previously activated at the main menu. Pressing the "I" key again will reverse the current state of the index, and inform you of its status.

The main use of the Add index is to keep track of all new entries in the data file. When active, each newly added record will have its record number written to the index file. The add index can be used just like any other index to later print the new records, or view them with the update option. Creating, deleting, and activating the Add index is described under option 11 in the Maintenance Functions section of the manual.

Main Menu Option #3 - Update or Delete Records

This mode will let you make changes to existing data records, or delete the data record entirely. You can also use this mode to search for information in your data records. There are several different methods available to examine the data.

For ease of documentation, the term "Edit mode" will be used to describe the Update or Delete mode.

Entering the Edit mode

If you do not have a default screen assigned, you will be prompted for the screen number to use when entering the Edit mode. Respond with the number of the screen format you wish to use to display your data. If the screen is password protected, you will have to enter its password at this time or the screen will not load. When everything is entered correctly, the screen format will load, the first data record in the file will be displayed, and the Edit mode scan menu will appear across the bottom of the screen. The record number of the data record on the screen will appear in the lower right hand corner of the screen display.

If a value for a calculated field would cause an overflow, or if the calculation involved a divide by zero, a "-0" will appear for that field.

While at the scan menu, you can use the UP ARROW and DOWN ARROW keys to move through the data records one at a time.

Scan menu options

There are seven options available in the Edit mode. To select an option, simply press the key corresponding with the first letter of the command. An alternative method is to use the space bar or the left/right arrow keys to move the reverse video highlight over the desired command, and then press <RET>. Pressing <ESC> twice at the scan menu will act the same as the Quit option.

The Help option will display information about the Edit mode in the top portion of the screen. The word "More" will appear on the bottom line between pages. Press the <RET> key to view another page of help information, or the <ESC> key to return to the scan menu.

The Quit option will leave the Edit mode, and return you to the main Little Brother menu.

Delete option

The delete option will allow you to remove the record shown on the screen from the data file. After selecting this option, you will see the prompt:

Delete this record (Y/N) ?

To delete the record, enter the <Y> key. If you enter <N> or press <ESC>, the record will not be deleted.

Once a record is deleted it cannot be restored, and its space in the data file will be re-used when new records are added to the file. After the delete is done, the next record will be displayed on the screen. If there are no active records in the data file after the deleted record, the fields will be displayed as all dots. You may use the down arrow or the Find option to position to another record.

Edit option

Upon selecting the edit option, the cursor will move into the upper part of the screen. You will now be able to make changes to existing data records. Pressing the <RET> key will advance the cursor from field to field. Calculated fields will be displayed as the cursor passes them, but the data in those fields cannot be directly edited. Protected fields can be edited if you used the master password when you started the current session. Otherwise, they will also be skipped over, and no data will be shown in the field.

You can use the features of the Little Brother input editor to make changes to the data fields. Be sure and press the <RET> key after changing the data in a field. When all the changes are complete, press the <F3> key to save the record on disk.

If at any time you wish to abandon the edit, press the <ESC> key, and you will return to the scan menu. Any edits made will be cancelled, and the original data will re-appear.

Index option

As stated earlier, when no index is in effect, the arrow keys let you move sequentially through the data records. If you want to move in a particular order, or view only certain records, you can do so by using an appropriate index file. An index file will also change the way that the "Find" option (discussed later) functions.

Selecting the index option will give you three choices:

Use an existing index file
Create an index file
Cancel the active index file

Using an existing index

You will be prompted for the number (1 to 5 or "A" for the Add index) of the index file to use. Pressing <ESC> for this prompt will leave the index status unchanged. If the file does not exist or is empty, you will be so informed and will return to the scan menu. Otherwise, the index file will be activated, and will replace any other index you may have been using. The status line near the bottom of the screen will show the name of any active index file.

From this point on, use of the up or down arrow keys will go through the data records according to the information in the index. For example, if the index file is an ascending sort of zipcodes, the record with the lowest zipcode would be displayed on the screen. Pressing the up arrow would advance through the file in zipcode order. Pressing the down arrow key would go back towards the lower number zipcodes.

Create an index

If you need to examine your data in some particular manner but do not have an index created to do so, you can use this option to temporarily enter the Little Brother "Select and Sort" mode, create the index file, and immediately return here to the Edit mode. The index file that was created will become the active index, and the status line near the bottom of the screen will show the currently active index.

Cancel the active index

You can use this option to cancel any active index file and return to sequential access of data records. This may be useful if you wish to use the "Find" option to search for data that is in a field other than the one used to create the active index. The status line near the bottom of the screen will be updated to show that no index is currently active.

Screen option

The screen option is used to change the format of the displayed data. When you are at the scan menu, you can request another screen by choosing this option and then entering the number of the screen format to load. If that format is not found, you will

be prompted for another number. Pressing the <ESC> key will re-use the original screen format.

If there is a password on the screen format, you will not be prompted for it if you used the master password when you started the data set. If you are asked for a screen password but do not know it, press the <ESC> key and the original screen format file will be re-used.

Find option

The find option is used to locate particular data records in the file. Its use will vary depending on whether or not an index file is active.

No index file active

When choosing the find option with no index file active, the following Find prompt will appear:

Enter record #, <RET> for search, or <UP-ARROW> for next

There are three separate choices here. The first is very simple. If you know the record number you wish to view, type it in and it will be displayed on the screen. The record number will be displayed in the lower right portion of the screen. If the record is deleted, an informational message will be displayed, and the original record will be reloaded.

The second selection at the Find prompt (pressing just the <RET> key) will allow you to search through the data records for a particular piece of information. You will be asked for the field number you wish to scan, and the information you want to find. The records will be read in sequential order until one is found that matches your request. Pressing the <ESC> key during the search will return to the scan menu, and the original record will be displayed. If a match is found, that record will then be displayed on the screen. If no records match, the status line on the bottom of the screen will show an appropriate message, and the original record will be re-displayed.

NOTE

When using this search mode, the scanning will start from the record number currently displayed on the screen.

When you type in the information to search for, the type of field you are searching will cause different prompts to appear. If the field type is Dollar or Float, you will be asked for a minimum and a maximum value. Pressing just the <RET> key for the prompt will assume the smallest possible value for minimum and the largest possible for maximum. When scanning the data file, records whose

search field contains a value in the specified range will be considered a match. If you are looking for a specific value only, enter that value for both minimum and maximum.

If you are searching a right justified numeric field, your search string will be padded on the left to match the field length. The search string must exactly match the data on disk for the record to be considered a match.

For all other field types except calculated, a record will match if the characters you enter as the search string match the same number of characters at the start of the data field. For example, if you were searching a name field in your data file, and entered your search string as "JO", the names John, Joan, Jonathan, etc. would all be considered matches. Upper and lower case will be seen as identical.

Calculated fields cannot be searched. Protected fields can only be searched if the master password was used when the data base name was entered at the main menu.

The third choice at the "Find" prompt is to use the up arrow key to find the "next match". This will only be valid if you have already done a search as just previously described. Pressing the up arrow key will continue the scan through the file and display the next matching record.

The message "Search data not found" will be displayed when no further matches are found.

Finding with an index file

When an index file is active, the Find option will allow you to search the data file for information in the primary select field. That is the first field that was specified in the "Select and Sort" module when the index file was created. The method of searching will depend on whether or not the index file was sorted when it was created. Whether or not upper and lower case will be seen as matching will depend totally on how the index file was created. Refer to the Sort and Select (option 5) for more details.

If the index file was sorted, the sorted field name will be displayed and you will be asked to enter just the search data to match (pressing the down arrow key for this prompt will re-position to the first record in the index file). Once you have entered your search data, the data file will be checked, and the first matching record will be displayed. If there is not an exact match, the next highest record in sorted order will be displayed. As explained earlier, the up and down arrow keys can be used at the scan menu to move through the data file in index file order. The next and previous records can be viewed in this manner.

If the index file is not sorted, the following prompt will appear:

Enter <DN-ARROW> to rewind, <RET> for search, <UP ARROW> find next

The down arrow key will display the first record in the index file. The up arrow key will display the next matching record (assuming you have already done a search). Pressing just the <RET> key will display a prompt asking first for a field number and then for a search string for all fields except dollar and float. The data file will be searched in index file order, and the first matching record will be displayed. If there is not an exact match, the message "Search data not found" will be shown. For dollar and float fields, you will be asked to enter a range of values to search for. Searching with an unsorted index is very similar to searching with no index. The main difference is that only the record numbers in the index file will be looked at.

Note

If you are unable to find a particular record when using a sorted index file, it is most likely due to the fact that the sorted field in a record was edited. This can be cured by resorting the data.

Main Menu Option #4 - Print Records

The Print Records Option at the Main Menu will allow you to print a report consisting of your data base records, according to a specified print format. Print formats are created by using the Define Print Format option at the Main Menu. For more information on creating a print format, see the Define Print Format section (main menu option #9).

Upon choosing option 4, you will be prompted to:

Enter Print Format Number (1-10) ..

Answer this prompt by typing in the number that corresponds to the print format you wish to use. If you press <ESC> in response to this prompt, the print records mode will be terminated, and you will return to the main menu.

If you enter a number which corresponds to a print format that doesn't exist, an informative message will appear, and you will be re-prompted to enter the print format number.

If the number entered corresponds to an existing print format, it will be loaded into memory from disk, and will be used to print your data base records. While the print format file is being loaded, Little Brother will perform several checks to ensure that the file describes a valid report format. If an invalid print format file has been selected, one of these 2 messages will appear:

1) Invalid Header-Footer
2) No Fields Defined in That Print Format

In order to print a report, at least 1 text line must be defined within your report, and that text line must contain at least 1 data base field. Message number 1 will appear when your header and footer specifications do not allow for any text lines to be printed in the report (e.g. if you are printing 6 lines per page with a 3 line header and a 3 line footer). Message number 2 will appear if there are no data base fields defined in your print format file. In either case, you will be prompted to press <RET> to continue. Doing so will return you to the main menu.

If the format file that you are using is valid, the print records scan menu will appear. This will allow you to describe the manner in which records will be printed. We will now discuss the options available at the print records scan menu.

Note for TRS-80 Users: There is one case in which Little Brother will not be able to proceed in printing records. This will be signified by the error message "Not Enough Memory", and may occur

when your print format file is set up for printing multiple across records, using a data base that contains large records (e.g. when printing 4 across labels when each record in your data base contains 1000 bytes). If this happens, you can:

1) Free up more memory by temporarily removing any TRSDOS high memory features that you may have established.
2) Decrease the number of "Records Printed Across".
3) Perform the operation manually if you are using an auto job file to print the report.

If none of these suggestions solves your problem, there is simply not enough memory available to print your report in a multiple across format.

Print Records Scan Menu

Upon specifying a valid print format file, the print records scan menu will appear on the bottom of the screen. There are five options available to you at the scan menu. They are:

<H>elp - Display help information for printing records.

<R>ecord Range - Print data base records in ascending record number order. You will be prompted for Starting and Ending record numbers.

<U>se Index - Use a previously created index file to print the records in your report.

<C>reate Index - Temporarily leave print records to create an index file. After the index file has been created, you will be returned to the print records mode and may use the newly created index file to print the report.

<Q>uit - Exit print records and return to the main menu.

To select an option, simply press the key corresponding to the first letter of the desired command. An alternative method for selecting an option is to use the space bar or arrow keys (left/right) to move the reverse video highlight over the desired command, and then press <RET>. Also, pressing <ESC> ONCE at the scan menu will act the same as the Quit option.

<H>elp Command

The Help command will display help information on printing data base records. The word "More" will appear on the bottom of the

screen between pages of help information. Press the <RET> key to view the next page of information, or <ESC> if you do not need any more help. When all information has been displayed, you will be returned to the scan menu.

<Q>uit Command

Entering the quit command (or pressing <ESC> at the scan menu) will cause you to leave the print records mode. You will be returned to the main menu. You will NOT be prompted to verify your decision to quit.

<R>ecord Range, <U>se Index and <C>reate Index

Choosing one of these three options will cause records in your data base file to be printed in a report. The manner in which records are printed depends upon the option specified.

By selecting the Record Range option, your report will be printed in record number order. After choosing this option, you will be prompted to enter the:

Starting Record .....
Ending Record .....

Answer these prompts by entering the starting and ending record numbers that you want included in your report. Pressing <RET> for either of these will default to Record 1 and the highest used record number, respectively.

When printing in record number order, your report will include all records within the range of starting record and ending record. The records will be printed in ascending record number order. Any record that is found to be deleted will be skipped, and will NOT be printed.

By selecting the Use Index option, you will be allowed to print your report based on the record numbers contained in an index file. You will be prompted to enter the index file to use in printing your report. Answer the prompt by entering the number (1-5 or "A" for the Add Index) of the index file that you wish to use.

If the index file specified does not exist, an informative prompt message will appear on the bottom of the screen. By pressing <RET> in response to this prompt, you will be returned to the scan menu.

When using an index to print your report, only the records contained in the index file will be printed. These records will be printed in the order in which they are encountered in the index file. Any deleted records found in the index file will be

skipped, and will not be printed. Thus, if you created the index file so your data base records were sorted in ascending order by zip code, the records in your report will be printed in zip code order.

The Create Index option will function the same as the Use Index option when printing your records. However, prior to the report being printed, you will temporarily leave the print records mode in order to create an index file. Upon successful completion of creating an index, you will be returned to the print records mode, where printing will resume using the newly created index file. For more information on creating an index, see the main menu option #5 (Sort or Select Records).

Note: If an index file is not successfully created, you will be returned to the "Enter Print Format Number" prompt.

Before the printing begins

Before Little Brother begins to print a report, the status of your printer will be checked. If your printer is not ready for some reason, this prompt will appear:

Printer Not Ready - <RET> Continues, <ESC> Aborts .

By pressing <ESC> in response to this prompt, the print records mode will be terminated, and you will be returned to the main menu.

If you wish to proceed with the printing operation, ready your printer and press <RET> in response to this prompt. If your printer is ready at this time, the printing operation will resume. If your printer is still not ready, the above prompt will remain until printer capabilities have been established.

One final prompt will appear before your report is printed. You will be asked if you wish to:

Print <N>ewlines - <T>of? .

At this time, you may specify that either newline characters or top of form characters be printed prior to printing your report. This can be used to adjust the position of the paper in your printer, so that both Little Brother and your printer agree as to where the top of the page is.

If you wish to send a top of form character to your printer, answer this prompt with <T>. The top of form will be sent, and you will be re-prompted to print newlines/top of form.

If you wish to send newline characters to your printer (i.e. advance the paper 1 line at a time), answer the above prompt by entering <N>. After doing so, you will be further prompted to enter the number of newline characters that you wish to print. You will remain at this prompt until <ESC> is pressed, at which time you will be returned to the Newlines-TOF prompt. Each time <RET> is pressed at the "Number of Newlines" prompt, a single newline character will be sent to the printer. You may also enter a number, and that many newline characters will be sent.

When you have completed printing top of form/newline characters, press <RET> in response to this prompt, and the printing of your report will begin.

While Little Brother is printing your report

While your report is being printed, an informative message will appear on the bottom of the screen. It will show you the record number (or record numbers if you are printing a multiple across report) currently being printed, and the number of records left to print.

At any time during the printing of records, you may press the <ESC> key to abort the printing operation. After Little Brother has completed printing the record number(s) shown, you will be prompted to verify your decision to abort the printing. Pressing <ESC> again will conclude the printing operation. If you wish to continue printing, press <RET> in response to the verification prompt, and the printing of your report will resume at the point it was interrupted.

Note: When printing reports (such as form letters) on single sheet - manually fed paper, the <ESC> key can be used to pause the printing operation between records. When <ESC> is pressed, the verification prompt will not appear until the current record has been printed in its entirety. Once printing has been completed, you may reload the printer, and press <RET> to continue printing the next record.

Upon the conclusion of printing your report, you will be prompted once more to print "Newline - TOF" characters. This prompt will respond in the same manner as it did at the beginning of your report. In order to leave the print records mode and return to the main menu, answer the "Newline - TOF" prompt by pressing <RET>.

Main Menu Option #5 - Sort or Select Records

This option lets you create index files dealing with a specific data set. The index files may be unsorted, or may be sorted in ascending or descending order. A data set may be indexed on all records, or only on records containing certain information.

The select mode may be entered from three places:

From the main menu by selecting option 5.
From within Edit or Delete, if creating an index.
From within Print Records, if creating an index.

Upon completing its tasks, the select mode will return to whichever option initiated it.

Briefly, the limits of Little Brother indexing are:

Up to five index files may exist at one time.
Up to eight fields can be used for selection.
All field types except calculated may be selected.
The total "sorted length" cannot exceed 254 characters.

Select screen display

Upon entering the select mode, the first 8 data field descriptions will be displayed on the top of the screen. If you have more than 8 data fields, the up and down arrow keys can be used to scroll the display area. The middle part of the screen will be used for data entry. The bottom line on the screen will initially contain the scan menu, and will be used for status messages during some options.

Scan menu options

There are four options available in the select mode - Help, Quit, Index and Select. To select an option, simply press the key corresponding with the first letter of the command. An alternative method is to use the space bar or the left/right arrow keys to move the reverse video highlight over the desired command, and then press <RET>. Pressing <ESC> twice at the scan menu will act the same as the Quit option.

The Help option will display information about the select mode in the top portion of the screen. The word "More" will appear on the bottom line between pages. Press the <RET> key to view another page of help information, or the <ESC> key to return to the select display.

The Quit option will leave the select mode, and return you to whichever option you were in before entering select.

INDEX option

The Index option is used to create a sorted index of all active data records, sorting on a single field. Since all active records will be included, no select criteria may be entered. An example use of this option would be to create an index sorted in alphabetical order.

Depending on the field type you are indexing, there will be up to three prompts to answer to establish the field information:

1) Data field number
2) Sort direction
3) Upper and lower case treatment

Data field number

The numbers of each field are displayed along the left hand edge on the top section of the screen. If, after selecting a field, you see an error message stating that you may not select on that field, one of two things is wrong. Check the protect code for the field, which is in the right hand column on the top part of the screen. If the letter "C" appears there, the field is a calculated field. Since no data actually exists on disk for a calculated field, it may not be used to index. If the protect character is a "Y", the field is protected. To index using this field, you must use the master data set password when you select the file back at the main menu.

Sort direction

Upon entering a valid field number, the next question will be for the sort direction. There are three choices displayed, only two of which are valid in the index mode:

Sort on this field (A, D, N) ?

You must select either "A" for ascending sort direction or "D" for a descending sort. The "N" option (no sort to be done) is valid only with the Select option, and cannot be used with the Index option.

Upper and lower case treatment

For all non-numeric type fields, you will be asked if upper and lower case should be treated the same. If you answer with a "Y" for yes, fields like "JONES" and "Jones" would be treated equally. If you answer with an "N" for no, upper case characters will always sort ahead of lower case characters in ascending sorts, and vice versa for descending sorts.

Index file and drive prompts

Once the field information is complete, you will be asked which number index file you want to create. Answer with a number between 1 and 5. Pressing <ESC> for this prompt will abort the index and return to the scan menu.

For MS-DOS versions of Little Brother, no further prompts will follow, and the indexing will start. The index and any temporary work files will be placed on the path you specified when the data set was created. For TRSDOS systems, two additional prompts need to be answered. If no index file with that number already exists, you will be prompted for the drive on which to place it. Otherwise, you will be asked if it is all right to overwrite the existing file. One last prompt will be for the drive to use as a work file drive during the sort. Respond with the number of the desired drive. If there is not enough space on the drive, you will be informed and may select another drive.

SELECT option

The select option lets you specify more than one sort field and select only certain matching data fields. There are several prompts that have to be answered. The prompts will vary depending on the field type and sort specified. Refer to the following explanations.

Prompt 1 - Select field number

The numbers of each field are displayed along the left hand edge on the top section of the screen. If, after selecting a field, you see an error message stating that you may not select on that field, one of two things is wrong. Check the protect code for the field, which is the right hand column on the top part of the screen. If the letter "C" appears there, the field is a calculated field. Since no data actually exists on disk for a calculated field, it may not be used to select. If the protect character is a "Y", the field is protected. To select using this field, you must use the master data set password when you start the file back at the main menu.

Prompt 2 - Sort direction

You have three choices for the sort direction - Ascending, Descending, or No sort. Press the first letter of your choice. This prompt will appear ONLY for the first field. Any additional fields attached for sorting purposes will use this direction.

Prompt 3 - Upper and lower case treatment

For all non-numeric type fields, you will be asked if upper and lower case should be treated the same. If you answer with a "Y" for yes, fields like "JONES" and "Jones" would be treated equally. If you answer with an "N" for no, upper case characters will always sort ahead of lower case characters in ascending sorts, and vice versa for descending sorts.

This prompt will also affect the selection process (more on this later in the Select Criteria prompt). If you want upper case data to match lower case data, be sure to answer this prompt with a "Y".

Prompt 4 - Select Criteria

You will be prompted for data to be compared against the data field stored on disk. In this manner you can specify a range of data to be considered matching, data records that should never be a match, etc. There are several special characters that can be used to help "build" your select criteria string. The question mark "?" will match any character in the data field. For example, "432?0" would match 43210, 432t0, etc. The asterisk "*" can be used as a wild card character in the following ways:

string* - Matches any data field starting with your specified string.

*string - Matches any data field ending with your string.

string - Matches any data field that contains your string anywhere in it.

* - An asterisk by itself means match all records.

RET - Pressing the <RET> key with no other characters entered acts like a single asterisk, and means match all records.

Field types Float, Dollar, and Right Justified may NOT have asterisks or question marks included in the string.

As an example, let's assume you have a field in your data file called "Company name", and have a "JONES & SMITH, LTD." entered in a record. To select this record, you could use one of the following examples for the select criteria:

```
JONES*
*LTD.
*SMITH*
```

If you answered the prompt 3 with a Yes (the upper and lower case prompt), the data on disk could be in either case and still match the select string. Otherwise, both strings would have to exactly match each other for the record to be considered a match.

Prompt 5 - Attach field to sort string

This prompt will appear if you are sorting in ascending or descending order, except for the first field (the first field is automatically the main sort key field). If you want this data field to affect the order of the sort, then press "Y" for yes. Otherwise press "N" for no. For example, let's assume you were sorting on field 1, a zipcode and field 2, a last name. If you attached the name string to the zipcode string, then people with the same zipcode would also be sorted alphabetically. If not attached, they would not be in any special order.

There are times, however, when you do NOT want to attach fields to the sort string. For example, let's assume you have field 1, a zipcode. You enter 90000 as the zipcode to match. For your second field, you also choose the zipcode, entering 99999 as the match string. Obviously, nothing would be gained by attaching the zipcode field to itself during the sort.

There are two other things to keep in mind when attaching a field to the sort string. First, if attaching the field would make the total sort string length greater than 254 characters, you will not be allowed to do it. Second, the longer the sort string, the more disk space you will need for the temporary work file during the sort.

Prompt 6 - Enter the relation

The "relation" is one of the following, and determines how the select criteria string will be compared against the data records stored on disk when looking for matches:

LT - Less than	LE - Less than or equal to
GT - Greater than	GE - Greater than or equal to
EQ - Equal to	NE - Not equal to

These relations can be used to match only certain records, match ranges of records, etc. For instance, the previous example (in the prompt 5 section), used the zipcode field twice; once with 90000 as its criteria, and once with 99999. To match only those records whose zipcodes fell in this range, you could use the following (the "connective" will be explained in the next prompt):

String	Relation	Connective
90000	GE	AND
99999	LE	

Prompt 7 - Connective

The "connective" is the logical way that your different select fields will be compared to consider whether or not a data record matches. There are two available:

AND - means this field and the next field both must match
OR - means this field or the next must match

You must use a connective if you intend to specify another select field. If you do not, Little Brother will assume you are done entering select criteria.

For example, if you wanted to select all people from your data who lived in Texas or New Mexico, you could use the following:

String	Relation	Connective
TX	EQ	OR
NM	EQ	

You would NOT want to use the AND connective here, because that would mean people who lived in Texas AND in New Mexico, and would produce no matching records.

If more than two select fields are used, the logical evaluation will be straight first to last.

Prompt 8 - Select file number

After all your select fields have been entered, the top screen area will display all of the choices you have made. You will then be asked which select (index) file to write. Respond with a number between 1 and 5. If you press <ESC> at this prompt, all of the select information will be cancelled and you will return to the scan menu.

For MS-DOS users, this will be the last prompt. The path or drive for the index and temporary files have already been defined, so the selection will now start.

For TRSDOS systems, two additional prompts need to be answered. If no index file with that number already exists, you will be prompted for the drive on which to place it. Otherwise, you will be asked if it is all right to overwrite the existing file. If you are sorting, there will be one last prompt will be for the drive to use as a work file drive. Respond with the number of the desired drive. If there is not enough space on the drive, you will be informed and may select another drive.

Display during Select

As the data file is being scanned to find matching records, the bottom line on the screen will display the records searched and the matching records found. For reasons of speed, the display will only be updated every 50 records. When the entire data file has been scanned, the next step will depend on how the select module was entered and if you are sorting or not.

Not doing a sort

This description will cover the case where prompt 2 was answered with an "N". If you entered the Select mode from the main Little Brother menu, you will now see the total number of matching records displayed on the bottom line. Upon pressing a key, you will return to the Select scan menu. If you entered from the Edit or Print mode, you will be returned to that mode with the newly created index file active.

Doing a sort

If you are sorting in either ascending or descending order, the sorting module will automatically execute once the selection is finished. Where you will end up once the sort completes depends on which Little Brother module you were in when you started the select. See the following section on sorting for further information.

Displays during the sort

When the sort starts, the screen will clear and a brief status message will appear in the lower portion of the screen. It will list the field you are sorting, the total records to sort, and how many passes the sort will take. On the top section of the screen, you will see the progress of the sort. Three messages will appear:

```
Reading:
Sorting:
Writing:
```

These messages will be followed by the number of records being processed. For reasons of speed, the record count will only be updated every 50 records. If the total records to sort can fit into available memory and be processed in one pass, the sort will exit after the "Writing:" message is displayed. If not, the three message sequence will repeat until all records have been sorted. In this case, there will be a "merge" process done to put the sorted pieces together into one index file. During the merge, the display will show:

Loading buffer #

Writing:

The number displayed after the "Writing:" message is the total number of records remaining to be put into the index. The buffer number will be displayed when the pieces of sorted information are read off of disk into memory.

Exiting the sort

When the sort is complete, the return point will depend on which Little Brother module you were in when you started the selection. If you were in Edit or Print, you will return to that module with the newly created index file active. If you started the select by choosing option 5 at the Little Brother main menu, you will return back to the select mode.

Main Menu Option #6 - Run Automatically

This option will let you create or use files to automatically run the Little Brother system. The three main areas that need discussing are creating a job file, manually using a job file, and using a job file from a control language such as the MS-DOS BATCH command or the TRSDOS JCL utility.

Creating a job file

To create a job file, you must first have an active data set (option 1, main menu). Then select option 6 and you will be prompted to "<C>reate or <U>se" a job file. Entering the "C" key will allow you to create a job file. You will be prompted for the name to assign to the job file. Type in the desired name for the file, without any extension. The extension "JOB" will automatically be assigned to the file. With MS-DOS, the file will be written on the data path. TRSDOS users may use an optional drive number in the file name.

From this point on, any keys that you type will be saved to the job file. You can now do whatever procedures you wish. There are several ways to end a job file creation. When you have finished, return to the main menu and select option 6 again. This will close off the job file and stop the create mode. An alternative method to ending the job file is to type a <CTRL Z> character at any input prompt. Either of these two methods can be used to end single jobs. To end a job file that will be part of a multi-job procedure, you must return to the main menu and use the <ESC> key to exit back to DOS. This will close and save the job file.

The automatic mode was designed mainly to automate the use of options 5 and 4, selecting and printing data. The other options, except options 1 and 10, can be executed when creating a job file, but for the most part are not things that you normally would repeat. Selecting option 1 or 10 will automatically close any active job file.

Manually using a job file

To use a job file, you must first have an active data set (option 1, main menu). Then select option 6 and enter "U" to use a previously created job file. You will be prompted to enter the file name. Do so, without using any extension on the file. Little Brother always expects an extension of "JOB" on the file.

Once the file is found, the keystrokes stored in the file will be fed into Little Brother, and it will automatically run itself. When the end of the job file is reached, the auto mode

will terminate, and control of Little Brother will return to the keyboard.

If you need to stop a job file in the middle, press the ESC key, and the auto mode will terminate.

Automating Little Brother

It is possible to start Little Brother from the DOS level and have it automatically perform one or more jobs. If just a single job is desired, the start up command can be typed in at the DOS level in the following manner:

```
LB filename password *jobfile
```

The filename is the name you assigned to the data set when you created it. The use of the password in the example is optional, and it may be omitted if no password exists on the file, or if the extra access granted by the password is not needed for the job. The *jobfile is an asterisk followed by the filename of your job file - again remember NOT to include any extension in the file name.

To run Little Brother in a "multi-job" mode, you will have to use your DOS's BATCH or JCL feature. Using an editor of some sort, create an ASCII file containing the separate Little Brother command lines. For example:

```
LB filename password *job1
LB filename password *job2
LB filename password *job3
```

As described earlier, the password is optional, and the job file name should not include any extension. DOS commands may be interspersed with the LB command lines. Standard features of your DOS control language may be used, such as the "pause" feature to perhaps prompt for a disk swap, or a change from paper to mailing labels in your printer.

Successful running of multiple job files requires that they be ended properly when they were created. This was previously described in the "Creating a job file" section.

Possible problems and error handling

During either the creation or the use of a job file, Little Brother will automatically close the job file and leave the automatic mode if a disk error or other critical error is detected. Normally, the Little Brother error message is displayed on the bottom line of the screen. If the first character in the message is an asterisk (*), then any active job file has been terminated.

Main Menu Option #7 - Expand Data File

When you create a data set, one of the things you do is to allocate disk space to hold the data records. When you have filled these records, more disk space must be allocated to hold additional records. This is the purpose of this option.

To start, be sure that you have a data file set active (option 1), then choose option 7 at the Little Brother main menu. The disk containing the current data file will be examined, and the amount of free records available will be displayed, up to a maximum of 65,534. Choose as many records as needed to hold your additional data. Try not to expand the file too far past what your actual needs are. Keeping the allocated records fairly close to the amount of data you actually have entered will speed up searches, and make it easier for hard disk users to move the file onto floppies for backup purposes.

Possible problems

If there is no more room on the data drive, you will not be allowed to allocate more data records. If you have stored other files on that same drive (i.e. Index files, screen format files, etc.), you can move those files to another drive, thereby freeing up the space to hold additional data records.

If the size of your data file becomes very large, sorting or selecting on large data fields may become a problem. If the data for all the selected records will not fit in memory at one time, a temporary work file will be written to disk. Be sure that you have enough room on some drive in your system to hold the work file if necessary.

Main Menu Option #11 - Set Screen/Add Index

This option lets you set two default conditions. These conditions will be re-established anytime the data set is used. They are:

The default screen format.
The Add Index option.

Upon selecting this option, you will be prompted to:

Give screen number, <RET> to Cancel, or <A> for Add Index

If you answer this prompt with a number, that display screen will be established as the default screen. Pressing just <RET> will cancel the current default screen. Entering <A> will allow you to change the status of the Add Index.

The default screen is the screen you most commonly use for adding or updating data. It is not initially established when a new data set is created. Normally, the Add and Edit options will prompt you for the screen number you wish to use. However, this option lets you set a default screen number so no additional prompting will be done. If the data set has a master password, you must know the password to set the default screen.

The Add index is a special index file that will keep track of all new records added to the data set. There are three status levels for the add index file. They are: ON, OFF and NONE. The initial setting is None (i.e. no add index file exists).

If the status of the add index is none, selecting this option will create the add index file and establish the setting as on. When on, all newly added records will have their record numbers written to the add index file.

If the status is on, choosing this option will turn the add index off. In the off state, the index file will still exist, but no new record numbers will be written to it when records are added.

If you choose this option when the status is off, you will be prompted to either <U>se (and extend) the existing index or <D>elete it. Using the index will retain the current file and turn the status on. If <D>elete is selected, the index file will be removed from disk, and the status will be reset to none.

The add index file can be used just as a normal index file would be to view and print records. Please note that when you are adding records, the status of the index file can be changed in the add mode (to either on or off), but must be created via this option.

Main Menu Option #12 - Change Password

When a data set is first created with the Define File option, the name and optional password are assigned. To change or establish a new password, use one of the following procedures.

A password already exists

To change an existing password, that password had to be used when the data set was called up with Option 1. If the password was not used, you will not be allowed to change it. If the password was used, it will be displayed, and you can use the input editor features to change it. Once the new password is entered, press the <RET> key to save it permanently to disk. If you wish to abort the edit, press the <ESC> key. To remove the password entirely, use the backspace key to erase the password so that only the input field dots are displayed. Then press the <RET> key to store this change on disk.

No password currently exists

To establish a master password, simply type in the new password in response to the prompt, then press <RET>. To abort without entering any password, press <ESC>.

Possible problems

If you see the message "Unauthorized to change password" appear, you either forgot to enter the password, or perhaps misspelled the password. Use Option 1 again to restart the session, this time specifying the correct password.

Main Menu Option #13 - View Field Definitions

In most cases, selecting option 13 will clear the screen and display the data field definitions for the current file (selected with option 1). The field name, type, length and protection will be shown. If there are more fields than can be displayed at one time, pressing the <RET> key will bring up the next screen.

If you need a printout of the field information, you can use Option 10 to load the current definitions and send them to the printer.

Possible problems

There are two cases where field information will not be displayed. If you haven't selected a data set with Option 1, the message "Must have database name first" will appear.

If you have selected a data set but did not use the master password, the message "Cannot do without database password" will be shown. If you know the password, use Option 1 to re-specify the database name and then the password.

Main Menu Option #14 - View/Modify Path Settings

This option is designed to let MS-DOS users change the path name or drive where certain Little Brother files will be searched for. It should ONLY be used after a data file set has been created. Its main purpose is to adjust the search path when the hardware configuration is changed (i.e. going from a floppy drive system to a fixed disk, etc.).

Selecting option 14 will prompt you for one of two things. If you have already activated a data set with option 1, you can press the <RET> key, and can modify the paths for the active data set. Otherwise, you can type in the name of the data set you wish to change. In this case, the path file for the data set you wish to change must be on the default drive. Pressing ESC at any time will cancel all changes and exit the option.

There are four paths that may be specified:

Data file path
Screen and Print format path
Index file path
Temp file path

If you do have a data set active, you will not be allowed to change the data file path, since Little Brother has already opened that file and knows the path and drive it is on.

Each path choice will be highlighted, and you can type in the desired drive or path name for each. Pressing just the RET key for a path will assume the current default drive and path. Following are some examples of proper drive and path name formats:

```
C:
WORKDIR\
B:\TEMP\
```

As you can see, a path name must be terminated with the back-slash "\" character. Drives are entered as the drive letter followed by a colon. This option will not create new sub-directories. The DOS command MKDIR should be used for that purpose. When the last choice has been entered, the highlight will wrap back to the first one. Press the <F3> key to save the new paths to disk.

You should be sure that the new drive or path has enough room to hold the files you will put there. The index files and the temp file will vary in size, depending on the amount of records in your data set. An index file will take two bytes for every record. Each record of the temp file will take 2 bytes plus the length of the field(s) that were sorted.

Example

Suppose on a floppy drive system, you have normally been keeping your data file and screen files on drive B:. You now decide you need more room for data on that drive, and copy your screen format files to the A: drive. When using that data set the next time, you should use option 14 to change the Screen path to A:.

Description of Program Files

There are several program files that are needed to run the Little Brother program. Other files are created by these programs to hold information such as screen and print formats, your data and definitions, indexes, etc. The following sections will describe these files, and also document the temporary files that the system may create from time to time.

Program file descriptions

The following files will have different extensions, depending upon which operating system you are using. However, the filenames will be the same.

LB The start up code file. Loads and executes the menu when the Little Brother system is started. It must be present to use Little Brother.

LB0 The main menu module. It selects the data set, and calls the other program options you choose. It must be present to use Little Brother.

LB3 The Define File option code. It needs to be present only if you are using option 10, define files.

LB4 The Define Screen option code. It needs to be present only if you wish to define a new screen format or modify an existing one (main menu option 8).

LB5 The Add Records option code. It needs to be present to add new records to the data file (main menu option 2).

LB6 The Define Print Format option code. It needs to be present if you wish to define a new print format or modify an existing one (main menu option 9). Note: TRSDOS users will also see LB6A and LB6B.

LB7 The Sort and Select option code. It must be present to use option 5 from the main menu, or if you wish to create an index from the Edit or Print record module. If the index to be created will be sorted, then LBSORT must also be present.

LB8 The Edit Records option code. It needs to be present if you wish to edit, update or delete records (main menu option 3).

LB9 The Print Records option code. It needs to be present to print records (main menu option 4).

LBSORT This is the code that sorts an index file. It is called automatically by LB7 whenever it is needed. It must be present if you are going to create a sorted index.

LBHELP.HLB This is the file containing the Help message text.

Description of Data and Definition Files

The files for all Little Brother data sets all follow the same naming conventions. This section will describe the standard files that may be associated with a data set. Hopefully, this will give you the information necessary to keep your backup data copies up to date whenever files change.

For purposes of explanation, let us assume that the term "filename" used in the following examples represents the name you have picked for your data set. The files will be shown in the format:

filename.ext

The ".ext" will be the automatic extension that Little Brother adds to the filename. (Note: for TRSDOS users the files will actually be "filename/ext".)

File	Purpose

filename.DEF This file holds the data field definitions, the deleted record chain, and other important information about your data set.

filename.LB This is the file that holds the actual data you enter. All information is stored in ASCII.

filename.VDn The screen format file(s). The "n" in the extension will actually be a number from 0 to 9, representing the ten possible screen formats.

filename.PRn The print format files(s). The "n" in the extension will actually be a number from 0 to 9, representing the ten possible print formats.

filename.SLn The index or select file(s). The "n" in the extension will usually be a number from 0 to 4, representing the five allowable index files. One special case is the index file "filename/SLA". This will be the index created with the "Add Index" option, as described in options 11 and 2.

filename.JOB A file created with option 6, the Run Automatically option. The filename here will be the actual name you type in when the job file is created. Each job should have a separate filename.

filename.PFL For MS-DOS systems only. This is the file that holds the drives and path names for accessing all of the above named files, as well as any temporary files. This file must always be on the default drive.

There are two temporary files created by Little Brother. Normally, these files are created when needed and then killed when the operation is complete.

File	Description

filename.ENV This file is created whenever Little Brother is started, and contains information such as the data set name, password, etc. It is used to pass information between the different option modules. It is deleted anytime the Exit option is used at the main menu.

filename.TMP This file is created by the Select option, and is used when creating a sorted index file. It is deleted as soon as the sort is completed. The disk space needed for this file can be calculated by using the following formula:

(length of sort field(s) + 2) * (number of records to sort)

DATA FILE STRUCTURE

The data stored in the Little Brother data file, filename.LB, will always be stored in ASCII format. This should make it possible for other programs to interface to the data file.

Every defined field will always be the same length in each record, regardless of the amount of data that was entered into the field. If the field is not full, any empty places will be filled with binary zeros. There is no special terminator or field separation character used between fields or records.

If a data record is deleted, the first four bytes in that record will be changed as follows. The first byte will have 128 added to its value. The second byte will be unchanged. The third and fourth bytes will be the record number of any previously deleted record. If there were no previous deletes, the third and fourth bytes will contain the hexadecimal word FFFF.

IMPORTANT NOTICE

This package is sold on an "as-is" basis. Logical Systems, Inc. makes no expressed or implied warranty of any kind with regard to the software or documentation. Under no circumstances will Logical Systems, Inc. assume any liability for actual, incidental or consequential damages resulting from the use of this package.

From time to time, updates to this product may become available for a nominal charge. Customer Service information on this product and any available updates may be acquired by contacting Logical Systems, Inc. at the regular customer service address.

Customer service information for your version of the Little Brother program can be received from the address listed in the installation guide.

LIMITED WARRANTY

NOTES

Problem Report Form - Page 1

==========

Date ___/___/___ Product _____ Version _____

Serial # _____ Last README entry _____

Computer Make/Model _____/_____ DOS _____

==========

Name _____

Address _____

City _____ St _____ ZIP _____

Country _____ Phone # (day) _____

==========

Please describe the problem you are experiencing with our product in detail sufficient for us to duplicate your results. If more than a ten-line program is necessary to illustrate the problem, please provide the pertinent file (or files) on floppy disk. It may be necessary to fully describe the configuration of your system including memory resident modules, available memory capacity, hardware peripherals, and other software packages used in connection with our product.

==========

_____

_____

_____

_____

_____

_____

_____

Problem Report Form - Page 1

==========

Date ___/___/___ Product _____ Version _____

Serial # _____ Last README entry _____

Computer Make/Model _____/_____ DOS _____

==========

Name _____

Address _____

City _____ St _____ ZIP _____

Country _____ Phone # (day) _____

==========

Please describe the problem you are experiencing with our product in detail sufficient for us to duplicate your results. If more than a ten-line program is necessary to illustrate the problem, please provide the pertinent file (or files) on floppy disk. It may be necessary to fully describe the configuration of your system including memory resident modules, available memory capacity, hardware peripherals, and other software packages used in connection with our product.

==========

_____

_____

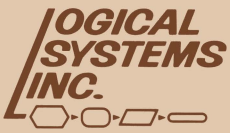
_____

_____

_____

_____

_____


OGICAL
SYSTEMS
INC.