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POWERJOFT
A DIVISION OF BREEZE/QSD, INC.

11500 STEMMONS FWY.
SUITE 125
DALLAS, TEXAS 75229

POWER-MAIL

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Introduction to PowerMAIL:

PowerMAIL is a highly sophisticated mass mailing system designed to run under all of the popular DOS's currently available for the Mod I or III. The program is written entirely in machine language for maximum operation speed, and occupies only 4K of the available RAM in your computer. There are no 'slow' periods when PowerMAIL is running. New features have been added to the program that others have always lacked. You now have the ability to keep track of mailings using the 24 'flags' that are incorporated into the PowerMAIL program. The PowerMAIL system will handle a file up to 8 megabytes, or 65535 names, whichever is smaller. The program will run in as little as 32K and one disk drive, although 48K and 2 drives are desirable. The program will also sort the entire maximum file size and open up to 168 files simultaneously during the process.

Getting Started with PowerMAIL:

First off, prepare a plain TRSDOS(tm) SYSTEM disk that you will use to contain the PowerMAIL system. Use the BACKUP command of TRSDOS(tm) to create the disk. Kill off ALL files except the DOS system files (files with /SYS for the extension). No other files are required on the disk, and they would just take up valuable disk space. Now insert the enclosed PowerMAIL -MASTER- diskette into Drive 0 of your system, and press the RESET button. After a short loading period, the directory will be displayed and you will be prompted for a destination drive. If you have 2 or more drives, place the SYSTEM disk that you created into drive 1, and respond 1 to the prompt. If you only have 1 drive, respond 0, and you will be prompted when to mount the proper diskettes. When the copy has completed, you will now have the entire PowerMAIL system on your SYSTEM diskette, ready to go. Label this diskette: PowerMAIL -SYSTEM- disk.

If you have 2 or more drives on your system, prepare 1 or 2 plain FORMATTED diskettes (using the TRSDOS FORMAT utility) that will be used to contain the data files. Label these diskette(s): PowerMAIL -DATA- disk. If you only have 1 drive, then drive 0 will contain the data. In this case, it is important to kill off all of the non-system files to make maximum room for data space. The only system files that are required for PowerMAIL operation are SYS0, SYS1, SYS2, SYS3, and SYS4. All others may be PURGED off the disk.

You may now boot the -SYSTEM- diskette in drive 0. When the program has come up to the DOS READY level, type in: AUTO PMAIL. This will tell TRSDOS(tm) to run the PowerMAIL program each time the disk is booted in. You have now completed the setup procedure, and have

everything needed to operate the program.

Running the Program:

Insert the SYSTEM disk into drive 0, and if you have a DATA diskette, insert it into drive 1. Press the RESET button to boot the system diskette and load the PowerMAIL program (or type PMAIL <enter>). The very first time the program is run, when an attempt is made to open the data files, you will receive "file not found" messages (for 3 files). This is NORMAL as we have not created our data files yet.

PowerMAIL is a MENU-DRIVEN program, meaning that you will be given a list of options each step of the way, and you will select the option that you would like to perform. When PowerMAIL has completed an operation, it will prompt you to <KEY>. This means to press a key to continue processing. When PowerMAIL is first loaded, it will display various information about the DATA files, and prompt you to <KEY>. Respond to the prompts until you have reached the MASTER MENU (which will appear in the lower section of the screen).

If, for any reason, your data files get corrupted, PowerMAIL does contain a RECOVERY mode. From the DOS level, type:

PMAIL,R <enter>

and PowerMAIL will execute, and recover ALL possible data. This does NOT recover damaged data because of crashed directories, damaged sectors, or other disk related problems. THAT is a job for... Super Utility Plus!

Initializing DATA diskettes:

PowerMAIL stores its information into three data files on the diskette media. DATA/ML is the file which contains the actual mail data (the information on each entry). ADDER/ML is similar to DATA/ML in structure, but contains only records which have been freshly added, and not yet 'merged' with the DATA file. This scheme will allow rapid access to the sorted file even though records are being currently added. The third file is INDEX/ML, which will contain sorted information to quickly locate a given record.

After you have mounted all the appropriate diskettes, and booted the PowerMAIL SYSTEM disk, select menu option number 1, "Initialize Files". This will display another menu. From this menu, again select option number 1, "Initialize Files". You will be prompted to enter the drive number where the data files are to reside. Enter a number from 0-7. You will then be prompted to enter the # of K to use for the

data. Respond to the prompt with the maximum space that the data files are to use. If you are using a Rigid Disk system, you will be able to get about 6000 names for each 1000K (megabyte) of disk storage used. The size that you enter will be distributed logically to all 3 of the data files, it is not the size of DATA/ML itself. A small portion of the size will be left free for use of the ADDER/ML file (for adding new names).

After you have specified the drive and file size, DATA/ML and INDEX/ML will both be created, pre-allocated to the desired size, and all sectors will be written with zeroes and verified to be sure that all areas are currently read/writeable. When done, you will be asked for the drive number to create the ADDER file. This is the file that will be used to hold new names that have been added without disturbing the DATA/ML and INDEX/ML files. If you have a three drive system, you may want to locate the ADDER/ML file on a separate diskette. The reason for this is that PowerMAIL will let you add names to the file without the DATA and INDEX files being available. This means that names may be entered on a remote computer, and 'merged' in with the DATA/ML file at any time thereafter. It may, of course, reside on any drive where space is available. The single drive user has no choice but to use drive 0.

During the file creating process, if an attempt is made to create a file that already exists, you will be notified and prompted as to whether or not the file is to be overwritten. The number of records that the files can handle will also be displayed during the creation process.

When all files have been created, you will be prompted, one at a time, to enter the 24 flag descriptions. Each may be up to 8 characters long, and may contain any characters. The flags may be edited at any time hereafter, so you are not fixed into defining each one at this stage. If you do not want to enter anything for a flag, press <ENTER> alone at the prompt. When all 24 flags have been defined, they will be written to the first sector of the INDEX/ML file (more on file definition in a later chapter).

Initialization is now complete, and you will be brought back to the initialization menu. If you wish to initialize more sets of disks, repeat the above procedure, else press 2 to return back to the main module PMAIL0/CMD.

Entering Names:

From the master menu, select number 2, "Enter Records". The adder module, PMAIL2/CMD will be loaded, and you will be presented with another sub-menu of whether to add a record or return to the menu. Press 1 (or <ENTER> alone default), to enter a record.

The cursor will move into the upper portion of the display, and a prompt will appear next to the LAST name. The length of the prompt represents the maximum size that the field contain. You will not be allowed to type outside the prompted areas. As you complete each field, press the <ENTER> key to enter the data and continue to the next field. Pressing <ENTER> alone will leave the data unchanged (during editing). If you want to clear out an area, enter a single space and press <ENTER>, and the entire field will be blanked out. The order of the input will follow logically with the screen locations. When the upper portion of the display has been entered, the cursor will move into the lower area where the FLAGS are. You will be prompted for each flag one at a time. The description field that is currently defined will also be displayed at the lower portion of the screen to aid you in deciding the flag settings (more on flags in the PRINTING section). Responding Y to a flag will turn it on, or N will turn it off. Pressing <ENTER> will leave the setting unchanged. A flag that is 'on' will appear with a graphic block next to the number for easy visual location.

When all data has been entered, a mini-prompt will appear asking if you want to EDIT the data, SAVE it to disk, or CANCEL the operation. Respond by entering the first letter of the desired operation. If CANCEL is selected, you will be returned to the sub-menu. If EDIT is selected, you will be placed back into the input stage. Again, pressing <ENTER> alone at any position will leave that entry unchanged from the way it was the first time. Enter <SPACE><ENTER> to clear an entry.

If your <BREAK> key is 'alive', it can assist you in locating the cursor to the correct area you wish to work on. Pressing <BREAK> at any time you are entering information in the top area of the record, the cursor will be relocated to the first flag. Pressing <BREAK> at any time you are entering flags, will move the cursor to the "edit, save, cancel" prompt. Pressing <BREAK> at this time will abort the operation (same as CANCEL). The <break> key is NOT active on some DOSes (TRSDOS Mod 1, for example). If <break> does NOT work on your DOS, you may substitute the <ENTER> key. When the record has been completed, you will be returned back to the sub-menu where you may select to enter another record or return to the master menu.

The <break> key is quite important in the use of PowerMAIL. Once again, if your DOS does not recognize the <break> key, use <ENTER>. At most prompts, <break> takes you to the previous or next logical menu. Some menu's contain a prompt for going to another menu, so you should not have ANY trouble going from prompt to menu, etc.

Remember that the records that you have entered have been logged into the ADDER/ML file, and not yet merged in with the DATA/ML file. Therefore, you will not be able to edit these records until the 'merge' option has been run.

Editing Records:

From the master menu, select option number 3, "edit records". Program PMAIL3/CMD will be executed, which will present you with a sub-menu of three choices, edit a record, edit the flags, or return to the main menu. Selecting 2, edit flags, will bring the flags to the screen one at a time, similar to the procedure used during initialization. You may press <ENTER> alone at any flag prompt to leave that entry unchanged.

Press 1, "edit record". A number will appear in all of the top areas of the screen, representing their relative locations, and you will be prompted to enter the "search field (0-9)". This is the field that you will use to locate the record you wish to edit. If the file has been sorted, pressing <ENTER> will default to the sorted field. Regardless of the field that has been sorted, however, you may select any of the fields to locate a record. Selecting the sorted field will provide you with much faster access to the record however.

After selecting the search field, you will be prompted to enter the "search data". This is the information that you know about the record that will be used to make 'matches' and locate the correct one. There are many ways that this information may be entered, depending on the type of search to be used.

The search field may contain 'wildcard' characters. Two special symbols, the ? and * are interpreted in your search field as follows. A ? will indicate to the record 'matcher' that any character in this position will cause a true match. It therefore represents an "I don't care" position in the field. A * will cause the parser to fill the input string starting with this character to the end with ? symbols. These symbols will cause the following types of matches:

tom	- name must match "tom" exactly, including length
t?m	- any second character matches, but the length must be 3, and the first and last chars T and M
tom*	- any name starting with tom of any length matches tom, tommy, tomorrow, etc. will all match

Any characters that follow an * will be ignored, and their position will be loaded with a ?. The case of the search is independent. That means that your search string, and ALL records that are checked are converted to upper case for the compare operation. You may enter the file data, or the search string in upper or lower or mixed case with the exact same results each time. If you wish to look through the entire file, enter a single * which will fill all characters with ?, and therefore, ALL records will match, regardless of their content.

All types of searches may contain these 'wildcard' characters for easy record location. If you have specified the sorted field as your search field, PowerMAIL will look through the INDEX/ML file, if a non-sorted field was specified, the DATA/ML file itself will be

scanned. There are 11 records per sector in the INDEX file, but only 2 per sector in the DATA file to give you an example of the relative search times involved.

Due to the 'wildcard' nature of the search for the correct name you are looking for, a scan is made from start to end of the appropriate file (DATA or INDEX) bringing up each match to the screen to see if it is the correct one. On a very large file, this may take a very long time (3000 names takes 5 seconds) to locate your record. By preceeding the search field with an exclamation point !, PowerMAIL will perform a 'binary' search through the file to quickly locate the correct record. This option ONLY works when searching through the sorted field, as it is the only file that is actually in sorted order. Using this symbol, a 3000 name file can be scanned in less than 1 second. This drastically increases the location speed, but there is one drawback. Using 'wildcard' characters in a binary search does not produce correct scanning, although PowerMAIL will allow you to place these characters into your search string. This feature is meant to quickly locate a record where the EXACT data is known. If you only know part of the data, you will probably want to use 'wildcard' characters and NOT the ! specifier.

All of the above searches are made using the data 'left justified' for the compare operations. PowerMAIL will also allow an 'instring' type compare. By preceeding the string with a greater than symbol >, the following string may be located ANYWHERE in the string. If you are looking for a company called "ABC company", but it was actually entered as "the ABC company", the above searches would not be able to locate the record. By entering >abc, a match would be found. This specifier may also be used with the ! symbol, but of course, the results may be not what you expect. If used, however, the ! must preceed the >.

The <CLEAR> key may be used to abort a search in the EDIT mode.

Search field summary:

tom	- record must match exactly, and be 3 chars long
t?m	- 3 chars long, start with t, end with m
t*m	- anything that start with t (m is ignored)
t*	- same as the above example
!tom	- use 'binary search' for the record
!tom*	- use binary search, must start with tom
>tom	- tom can be anywhere in the field
>t?m	- t and m anywhere, but 2 chars apart

Once a record has been located, its data will be displayed to the video, and a mini-prompt will be displayed at the lower portion of the display. Selecting each option will perform the following operation:

NEXT - locates the next record that matches the search string.

EDIT - allows editing of the current record. Editing is similar to entering a record, in a straightforward order. When completed, you

will be presented with another mini-prompt. EDIT will allow you to edit the record again. CONTINUE will resume back with the mini-prompt where you selected EDIT. ABORT will cancel all changes you have made, re-read the data back from the disk in it's original form, and pass control back to the current mini-menu. NOTE: the record is NOT written back to disk until you use the following WRITE command.

WRITE - writes the currently displayed record back to the disk. If you have edited the record, the data will be made permanent on the disk. (BUT NOT UNTIL!)

REWIND - restarts the command back at the beginning with the first record that caused a match. This is the same thing as selecting MENU and entering the same search field and data again. If you have passed a record, this will allow you to retrieve it.

GARBAGE - this command is very useful especially after you have converted a foreign mailing list to the PowerMAIL system. The next record that contains non-ascii data will be brought to the screen. This will allow you to easily locate those garbage records that usually clutter up a mailing list.

FIRST - positions the file to the first record in the file.

LAST - positions the file to the last record in the file.

KILL - flags the record for deletion, and writes the record back to disk. The record is flagged by moving the LAST name field one space to the right, and inserting a delete flag (FFH) into the first byte of the last name. By moving the last name over, a killed file may be restored at a maximum loss of the last character in the last name (nominal loss). When using the KILL option, the record is only FLAGGED for deletion, but its data is not actually removed from the disk. It may be restored at any time. Using the 'repack' option in the SORT utility will be the only time that killed records will actually be removed from the file and be left inaccessible. Due to the 'flagging' of killed files, the GARBAGE command can quickly locate these records for you.

UNKILL - removes the delete flag from the record, and writes the data back to disk. The last name is moved to the left one space to remove the flag and restore the name back to the original state. The last character in the name will be set to a space.

- + advances the current record number by one.
- retards the current record number by one.

Use of the above commands will allow you to easily locate any record in the file, regardless of whether or not your file is currently sorted by the field that you need to search. There is great power in these commands, and it is recommended that the user spend some time mastering these search commands.

Sorting the File:

From the main menu, select option 4 to "sort records". Program PMAIL4/CMD will be loaded and a sub-menu will be displayed to the screen. Actually, there are several routines in the sort module, as will be explained.

SORT - selecting this option will allow you to sort the file by any field. You will first be prompted to enter the "primary sort field". Select one of the numbers that now appears next to each of the fields. You will then be prompted for the "secondary sort field". If you wish a two level sort, select the relative field number. If you only wish a single level sort, which is much faster, then press <ENTER> alone at this prompt. If you have selected two sort fields, you will be issued another prompt on whether or not you wish to purge the duplicates during the sort process. If you select 'Y', then any time a record is found that has an existing EXACT MATCH (both fields are identical), then it will be flagged for deletion in the same manner as pressing the KILL option during the editing procedure. The records will still be available, and may be easily located using the GARBAGE command if you wish to review the records that were deleted. The user should be careful when using the PURGE option. If you have selected, for example, the LAST and FIRST names, then all records that have these fields BLANK will be deleted. You may have many records that have a company name, but no first and last names. Likewise, if you select COMPANY as one of the fields, then all files with a BLANK field will be deleted. It is best to use 2 fields where all records should have data, such as zip, state, or address. This will cut down on wanted files being deleted, and the time spent 'unkilling' the desired files.

Once the sort fields and purge have been specified, you will be prompted to enter the drive number to use to hold temporary files (if needed) during the sort process. If there are more files than can be held in memory (about 1000), temporary files named SORT001/ML, SORT002/ML, etc. will be created to store the temporary data. These files are not deleted after the sort has completed with the assumption that they will be needed on the next sort, and there is no use in re-allocating all the disk space from scratch each time. The DATA and INDEX files must be accessible during the sort, but the ADDER file is not needed. If you have 3 drives, and your ADDER file is on drive 2, you may remove this disk and insert a plain formatted disk for the sort. If you are using 2 drives, choose the drive that has the greatest amount of free space available. If you have only a single drive, then you probably will not need temporary files as there would probably never be room for more than the 1000 files on the diskette.

Once the sort has been completed, the data will be written out to the INDEX/ML file. This is a short file that contains the fields that you sorted by along with the record number of the associated DATA/ML record.

MERGE - this routine will take all of the data records in the ADDER/ML file, and add them to the DATA/ML file. This will then allow editing and printing access to the files. After running this option, the file will be set to a 'not sorted' condition.

CONVERT FILE - this routine will allow you to convert a foreign existing mailing list data base to be converted to a format compatible with PowerMAIL. Currently, three outside systems are supported for the conversion, POSTMAN, GALACTIC MAILFILE, and SPECIAL DELIVERY. These are the most popular systems, and will allow you to use your existing lists. Since the field sizes are different from one mail program to another, some information may be lost during the conversion process. PowerMAIL will make the best decision on how to logically relocate the data to its own fields with a minimum amount of data lost.

After specifying the type of file to convert, you will be prompted to enter the filename that contains the data. Enter the name as applies. PowerMAIL will then take the data from the foreign system, and place it into the ADDER/ML file, similar as if you had entered them in from the keyboard. Use the MERGE and SORT options to finish the merge procedure. It is also advised to look through the file using the GARBAGE option of the EDIT program to quickly locate any files that may be invalid. When using the GARBAGE command, it is best to select a search field that is NOT SORTED so that PowerMAIL will actually read the entire data record and locate the corrupt records.

RE-PACK DATA - selecting this option will force PowerMAIL to scan through the entire DATA/ML file, and reclaim any space that is assigned to deleted records. It will also completely rebuild and update the total record in file counter in case that there may have been a system shutdown without closing the data files. The re-pack routine will effectively recover lost records. Any records that are recovered during this process will be completely lost to the system (gone forever). If you have purged duplicates on the last sort, be sure to look through the file to ascertain whether or not any valid records are flagged to be deleted.

RETURN TO MENU - selecting this option will reload the main module PMAIL0/CMD and redisplay the master menu.

Printing Records:

Select option number 5 from the main menu. Program PMAIL5/CMD will be executed from the system disk, and a sub-menu will be displayed. There are three options here, setup printer, print records, and return to menu. The printer parameters MUST be initialized before any printing can be done.

Setup Printer:

LABELS ACROSS - this is the number of labels to be printed horizontally on a page. If your paper has only a single label in a continuous form, select 1. If you have 2 across, select 2, etc.

LABEL WIDTH - this is the actual width from the start of one label to the start of the next label horizontally, not the width of a single label. If you have 2 or more labels across, this number tells PowerMAIL where to start printing on the second label, etc. If you have only 1 label across, this number should be set to the maximum length of a label. Any characters attempted to be printed past the maximum width will be truncated. Thus if your label is only 30 chars across, but PowerMAIL is going to try to place 40 chars across, by setting the width to 30, the extra characters will be truncated and your platten will be spared the agony of dry printing.

LABEL LENGTH - this is the number of lines vertically from the start of one label to the start of the next label, not the actual number of lines on a label. Either 4 or 5 lines will automatically be printed on each label depending on the label format selected.

LABEL FORMAT - this allows a single option on what is actually printed on a label. Label format 1 will print all the data in a record EXCEPT the flags, and DATA1 and DATA2. Label format 2 will print everything EXCEPT the flags. The DATA fields will be printed directly above the name.

SAMPLE LABLE - selecting this option will send a sample label to the printer with all positions filled with X characters. Use this option to align your paper in the printer, or test the parameters that have been specified.

COMPLETED - select this option to return to the sub-menu where you may select to begin printing.

REPEAT COUNT - enter a number here of the number of each label that you wish printed. If you want only 1 of each label, select 1, if you want 6 of each one, select 6. The 'repeated' labels will be printed successively one after another.

Print Records:

After selecting "print records", you will be prompted to enter the "condition". This is the unique feature of the program that sets it aside from all others. This is where the power of the flags is realized. You may now specify which records are to be considered for printing. Say, for example, that you are using flag #1 to represent that the person has received your catalog #1. You could give the condition, -1, which means "only include records which DO NOT have flag #1 set". You may use multiple flags, in either the ON or OFF setting. You may enter multiple commands on a single line by separating entries with commas. You will be re-prompted to enter "condition" continually until you press <ENTER> alone at a line. If you want ALL records to be

printed, press <ENTER> alone at the FIRST "condition" prompt. Any flags that are not specified in this area are considered indeterminate, that is, they may be any setting. You may also specify a range of flags by separating the entries with a slash /. The flags you have specified will be displayed with + and - marks in the flag area of the display to let you know the current settings.

Consider the following:

-1	- consider only records with NOT flag 1
+1	- consider only records WITH flag 1
+1,-22	- only WITH flag 1, and NOT flag 22
+1/17,-22	- only WITH flags 1-17, and NOT flag 22

After you have selected all the "condition" flags, you will be prompted for an "action". This will allow you to set or reset flags on records that have been printed. Each flag may be independently set or reset. Say, for example, you are again using flag #1 to represent people who have received your catalog #1.

Now consider the following:

Condition ? -1
Action ? +1

The above will result in all people who have NOT received your catalog to be printed, then their flags will be set to indicate that they have been sent the catalog. Now say some time goes by, and you have added bunches of new names. You are now ready to send out another mailing of catalog #1, but you only want to send it to people who have not yet received it (just the new people you have added). I think that you can now see the power of the 'flags'. You have 24 flags to work with, and each one can be re-defined as needed. Mastering the 'flag' operation of the program will allow you great control over your printings.

As each matching record is located in the file, a mini-prompt will be displayed in the lower portion of the screen.

PRINT - prints the current record, and continues the scan for the next match. Note, if you have more than one label across, printing will only occur when the number of labels across have been specified. The flags will be updated to the DATA file after the record has been printed to reflect the "action" that you specified.

SKIP - skips the current record, and continues the scan for the next match. The flags are not affected on these records.

CONTINUOUS - set a mode where all records that match the "condition" will automatically be printed. This is the same thing as you pressing PRINT on each record as it is brought to the screen.

HOLD - resets the continuous mode, and reverts back to a prompt on each file that is considered for printing.

QUIT - aborts all printing. Only records that have been printed up to now will have their flags affected.

Three counters will constantly be updated to the video. The total number of records in the file, the number of records that have been sent to the printer, and the number of records that have been passed (did not meet "condition" or were SKIPPED).

Well, that about sums up the operation of the PowerMAIL program. You now should be able to run the most powerful mailing list system available on the TRS80 Mod I and III. If you have any comments, suggestions, or bug reports, please direct them to Breeze/QSD. If you are interested in other POWERful products from the most POWERful software vendor, contact Breeze/QSD and request our latest catalog.

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It is always a good idea to fully test and run a program with sample data before actually implementing it in your business.

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PowerMAIL is composed of 6 independent modules. When the program is first run, the PMAIL/CMD file is executed. It is the job of this file to display the menu options, and open up all the files for access. The number of records used and available will be loaded from the files. If any of the data files are missing, the program will still function normally, but certain options may not be accessible as noted below. The main program PMAIL/CMD will prompt the user for the type of action requested (add, edit, etc.), and execute the associated program file. When each sub-program has completed it's task, it will return control to another file PMAIL0/CMD, which is very similar to the PMAIL/CMD file; except that all files are left open for continued access. Therefore, PMAIL/CMD will only be used the very first time the program is run each occasion.

The remaining PMAIL files on the disk run the following options:
PMAIL1/CMD - initialize all data files (no data access required)
PMAIL2/CMD - add names to file (ADDER/ML required)
PMAIL3/CMD - edit names in file (DATA/ML & INDEX/ML required)
PMAIL4/CMD - sort/merge/repack (DATA/ML, INDEX/ML, ADDER/ML required)
PMAIL5/CMD - prints labels (DATA/ML & INDEX/ML required)

When each of the above modules has completed it's services, all will return control back to the PMAIL0/CMD menu driver module.

The program files have all been designed to reside on the SYSTEM diskette (drive 0). This allows quick access to the entire PowerMAIL system as it needs to execute sub-programs.

A patch program has been supplied on the diskette to allow you to make changes to the programs to allow the program files to reside on a NON-DRIVE 0 diskette.

From the DOS READY level, type: DO PMAIL/PAT <enter>

This will enter the patches to all of the program files. If your particular version of DOS does not recognize the syntax of the enclosed file, LIST it and note the changes that need to be made, and create a new file with the associated syntax of the needed patches.

The PowerMAIL system has been designed to run under all of the available DOS's available for the Mod I and III. The program will automatically detect which machine it is running in and honor the corresponding top of free memory address that the DOS has set. If you have any programs/monitors/drivers that reside in high memory, they will be protected as long as the proper TOPMEM address has been set accordingly (4049H Mod I, 4411H Mod III).

If the user is running the PowerMAIL system under LDOS, then 2 additional features will be made available during file initialization.

From DOS READY, type: DO LDOS/PAT to make the correct patches to the program files for LDOS operation. This will allow Pmail to use the @CKDRV vector in LDOS along with the ability to detect the number of free K available on a diskette to assist the user in choosing the

proper size for Pmail to allocate to it's files.

PowerMAIL will need three data files for it's complete operation. These may be created and pre-allocated using the initialization option from the main menu. The three files and their uses are as follows:

ADDER/ML - holds all the names that have been 'added' to the file, and have not yet been 'merged' with the DATA/ML file. This file will also be used to hold the records of a foreign mail system that has been converted to the PowerMAIL system.

DATA/ML - holds all the permanent records available to the system. All of the data records will need to be 'merged' into this file for editing/sorting/printing access.

INDEX/ML - holds the sorted lookup table reflecting the proper sorted order of the records in the DATA/ML file.

The physical structure of each file is as follows:

ADDER/ML - file relative sector 00000 (the first sector in the file) contains information about the size and number of records in the file. The first two bytes (+00, +01) indicate the total number of records that the file can hold. The second two (+02, +03) indicate the total number of active records that are currently present in the file. At relative byte +16 (+10H) will be an 8 byte ascii string of the date that the file was created. At relative byte +24 (+18H) will be the date that the file was last written to. Starting at relative sector 00001 will be the actual data records continuing for the number of records in the file. Each sector is identical to all sectors of the DATA/ML file.

DATA/ML - this is the largest of the three data files, and holds the actual records of all the names that are available to the system. Every sector in the file is identical, and can all hold exactly two records. Each record is exactly 128 bytes long, and the two records will start at relative bytes +00 (00H) and +128 (80H). The data records are arranged on the disk as follows:

field	data length	relative offset
-----	-----	-----
Name Last	15	00
Name First	12	15
Company	18	27
Address 1	24	45
Address 2	10	69
City	16	79
State	08	95
Zip	10	103
Data 1	06	113
Data 2	06	119
Flags	03	125

Please note that to fetch the second record in each sector, it will be necessary to add 128 to the second column of numbers to produce the actual offset of the data.

INDEX/ML - the first relative sector contains information about the specifics of the file. This information pertains not only to this file, but also to the DATA/ML file. At relative byte +00 (+00H) is a two byte entry of the total number of records available to the file (the maximum that the file can hold). At relative byte +02 (+02H) is a two byte entry of the total number of records that are currently assigned to the file. At relative byte +04 (+04H) is a two byte relative end of file sector for the INDEX/ML file. At relative byte +06 (+06H) is the two byte end of file sector for the DATA/ML file. At relative byte +08 (+08H) is a flag indicating if the INDEX/ML file currently contains accurate sorted information about the DATA/ML file. If it is sorted and accurate, this byte will be TRUE (-1, FFH). If sorted, relative byte +09 (+09H) will indicate the PRIMARY relative sort field number, and +10 (+0AH) will indicate the SECONDARY sort field number (if used). At relative byte +16 (+10H) is an 8 byte string of the date that the file was created. At +24 (+18H) is the date that the file was last written to (and closed). At +32 (+20H) is the date that the file was last sorted. Beginning at relative byte +64 (+40H) are the 24 user definitions for the flags, each being 8 bytes long, for a total of 192 bytes.

The remaining sectors in the file are arranged as follows:

The first 20 bytes is the field directly from the DATA/ML file, and will be the data selected as the PRIMARY sort field. This will be followed by a two byte binary number indicating the RELATIVE RECORD in the file. There are 11 records in each sector, and always begin at the first relative byte in the sector. The last 14 bytes in each sector are unused. This is a bit of wasted space but allows PowerMAIL very rapid access to the data records when they are needed.

Once the RELATIVE RECORD is known to PowerMAIL, it can quickly compute the PHYSICAL SECTOR and RECORD OFFSET as follows:

PHYSICAL SECTOR = RELATIVE RECORD / 2
RECORD OFFSET = 00H if RELATIVE RECORD is an EVEN number.
RECORD OFFSET = 80H if RELATIVE RECORD is an ODD number.

The above record format is simple, and allows the PowerMAIL system very rapid access to all records in the file. Using two byte record numbers will allow the system to access up to 65535 data records, which is roughly equivalent to an eight megabyte (8,000 kilobyte) DATA/ML file. This is in addition to accessing the INDEX/ML and ADDER/ML files.

When PowerMAIL is sorting the data files, and there are more records than can fit into memory, special SORT files will be created on the drive specified by the user. In general, when sorting by a single field (PRIMARY only), PowerMAIL will require approximately 20% of the size of the DATA/ML file for sorting. When sorting by two fields (PRIMARY and SECONDARY), about 40% of the DATA/ML size will be needed for sorting. When all of the data has been interpreted during the sorting phase, PowerMAIL will perform a SORT/MERGE on all of the temporary files that it created. On the maximum size file that the program can handle, PowerMAIL will open up to 175 files SIMULTANEOUSLY for the sort/merge procedure. The temporary sort files are not killed from the disk when sorting is completed, as it is assumed that at least their current size will be required on the next sorting, and it is senseless to have to re-allocated all of that disk space each time the sorting is performed.

Enjoy using PowerMAIL!