for TRS-80* MOD I

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of

BREEZE COMPUTING
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FOREWARD

First, I would like to express my deepest appreciation to Jim Frank who has worked many long days and nights writing the documention for this program.

I have been programming for some time, both on professional and hobbiest levels, and in the course of programming, there have been many occasions where it was necessary to write different programs that enabled me to perform various tasks on disks, such as "FIXING" or "MODIFYING" them.

In addition, I was asked on many other occasions, to assist other TRS-80 owners to repair different disk problems that they were experiencing.

It occured to me that there were very few programs available that were NOVICE ORIENTED and I then decided to write a program that would allow the NOVICE PROGRAMMER do many of the things that it normally took a PRO to accomplish.

QUICK FIX is the result and it is my hope that it will be of assistance to you in your programming endeavors.

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DOCUMENTATION FOR TRS-80
Q U I C K F I X
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1.0 INTRODUCTION:

The following documentation is written in layman terms in an effort to assist novice as well as professional programmers in completely understanding the full potential of this extremely powerful utility program. However, this documentation is not written with the intention of teaching you how disk storage systems are organized and stored. If in depth information on this subject is desired, I would recommend reading some of the many great books on rom, disks, and other mysteries.

BREEZE COMPUTING offers this program for sale "AS IS" and assumes no liability whatsoever in the event of damages of any kind as a result of the use of this program.

1.1 REGISTRATION:

Upon receiving your "Q U I C K F I X" program, please fill out the attached registration form and mail it to BREEZE COMPUTING, P.O. BOX 1013, BERKLEY, MICHIGAN 48072. BREEZE COMPUTING will notify all registered owners regarding updates, enhancements, fixes, and new releases of coming programs. BREEZE COMPUTING will only support REGISTERED OWERS of QUICK FIX. Be sure to copy your serial number from the diskette label onto the registration form.

1.2 MINIMUM HARDWARE REQUIREMENTS:

This utility requires a minimum of 32K RAM and one disk drive to operate.

1.3 WHAT IS "Q U I C K F I X"?:

QUICK FIX was written by KIM WATT of BREEZE COMPUTING and is a machine language, stand alone program that has its own I/O routines and does not use any ROM or DOS calls. As a result, it will also operate on "CPM" machines and does not require that the disk be in any drive after initalization of the program. Lower case will automatically be displayed if a lower case mod is installed. During initialization, QUICK FIX uses all memory from 4000H to A7FFH and after loading, it resides from 4000H TO 97FFH

The ZAP UTILITY is a program that does everything Apparats "SUPERZAP" does, plus many additional enhancements that Superzap does not have. The ZAP utility allows the user to go to the heart of the disk and read and/or modify data on all standard disks. The screen printout on ZAP is similar to Superzap (one sector at a time in HEX and ASCII), but it also allows you to single step track to track or sector to sector and even allows you to output the video display to the printer.

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ZAP has dual cursors (one for ASCII and one for HEX) that move simultaneously and allow you to modify data using HEX, DECIMAL, BINARY, or ASCII, and any changes are automatically updated to both sides of the display. In addition, ZAP also allows you to DISPLAY DISK SECTORS, DISPLAY FILES SECTORS, COMPARE DISK SECTORS, VERIFY DISK SECTORS, ZERO DISK SECTORS, COPY DISK SECTORS, OR DISPLAY/MODIFY MAIN MEMORY. ALSO, QUICK FIX has AUTOMATIC DISPLAY PAGING either forward or backward and it even has a STRING SEARCH capability that allows you to search MEMORY or the DISK for a specified string, numbers, or sector of your choice, and have it's location returned to you.

PURGE is a utility that allows the user to kill files by filespec or have the computer list them one at a time for deletion. PURGE also has several sub-utilities that allow you to zero out unused directory entries or zero out unused disk granules. In addition, user may kill files by naming the common category of the files (EXAMPLE: /CMD /BAS /TXT <I>nvisible, <V>isible, etc.), and also may compute existing passwords, change the disk name, date, passwords, auto command, or even file parameters (name, passwords, protection levels). Lastly, PURGE contains a complete disk directory that indicates all active and non-active files on the disk and advises you of the exact location of each. In addition it will indicate the granule allocation status of all tracks on the disk.

FORMAT is a utility that allows the user to format a disk with STANDARD FORMAT or FORMAT WITHOUT ERASING EXISTING DATA (great for fixing locked out tracks or sectors). This utility will also allow you to add tracks to any disk (EXAMPLE: change a 35 track disk to a 40 track disk).

The DISK COPY UTILITY will copy any standard disk, with or without formatting.

The DISK REPAIR UTILITY allows you to automatically repair the HIT and GAT sectors, and will automatically repair a BOOT. This utility also does a complete directory check and will advise you of errors that exist. In addition, this utility allows the user to RECOVER KILLED files (if the file was killed by this utility or by NEWDOS), and you may read protect the directory. Lastly, this utility advises you of all inactive files that are on the disk.

The MEMORY UTILITY supplies the ability to MOVE memory, TEST memory, COMPARE memory, ZERO memory, EXCHANGE memory, LOAD memory to/from disk, and INPUT or OUTPUT a byte to any port.

1.4 LOADING AND INITIALIZATION INSTRUCTIONS:

To initialize "QUICK FIX", insert disk into drive 0 and press the RESET BUTTON. There will be a short delay while the program loads and the main menu will then be displayed to the screen. You may hold down several keys while the program is loading. 0-3 will set the speed byte in memory (overriding the speed byte on track 0, sector 0). You may also enter any of the following keys: Z,P,F,C,R,M to immediately enter the sub-menu's for Zap, Purge, Format, Copy, Repair, or Memstuff.

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1.5 TRANSFER "QUICK FIX" TO DOS:

If you have a 48K system, "QUICK FIX" may be transfered to DOS by using the following procedure.

STEP 1 - Insert your "QUICK FIX" original in drive #0 and HOLD DOWN any LETTER KEY while pressing the reset button.

STEP 2 - Write down the command line that is displayed on the screen. Remove "QUICK FIX", insert a DOS DISK into drive #0 and press <ENTER>.

STEP 3 - Type the following line exactly as it appeared on the screen. Press <ENTER> and the program will be written to your disk.

If you have a 32K system, you will not be able to use "QUICKFIX" on DOS due to the fact that it is a 22K program and starts loading at 7000H to avoid interfering with the operating system.

1.6 COMPATABILITY:

QUICK FIX will operate with all MODEL I TRS-80 MACHINES, equipped with any TRS-80 compatable drives (up to 96 track), and will also support most parallel lineprinters for screen printing.

1.7 BACKING UP "QUICK FIX":

If a BACKUP COPY of this disk is desired, simply use the BACKUP utility (10 tracks) or your existing operating system.

1.8 GENERAL PROGRAM INFORMATION:

Throughout this program, all the following notations will apply:

Any time numerical input is required from the user, it may enter in either HEX or DECIMAL. All numbers are assumed to be decimal unless appended with an "H" on the numbers end, in which case it will be interpreted as hex.

Any time you are requested to enter several numbers on the same line, you must separate the numbers with one or more commas or spaces.

The keyboard driver used is similar to that used by ROM, in that unshifted keys are returned as upper case, and shifted keys are returned as lower case.

If you have a lower case hardware mod installed, lower case will be displayed as such, otherwise all lowercase letters will be displayed as upper case. The only exception is that keyboard input will not be adjusted.

Throughout the program, the <BREAK> key may be used to interrupt ANY routine in progress. This includes all Disk I/O operations. The <BREAK> key will immediately return you to the last menu that was displayed. If you wish to return to the MAIN MENU, press <SHIFT><BREAK>. In some routines, such as the screen printer and password computing, the <SPACEBAR> will interrupt the routine and return you to the immediate mode that you left.

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If any Disk I/O errors are detected, you will be notified and given the opportunity to either <R>etry, <S>kip this sector, or <C>ancel the routine in progress. This applies to both Read AND Write operations.

The screen printer may be activated anytime the keyboard is being scanned by pressing <SHIFT><CLEAR>. All values less than 20H and greater than 7FH will be displayed as periods. If your printer will display graphic characters, you may press <SHIFT><CLEAR><ENTER>, and only values under 20H will be converted to periods. All values of 80H and up will be printed normally.

This program comes to you set with 40ms ACCESS SPEED and if you wish to change it to a faster speed, (if your drive will handle it) use the following procedure.

Expose the WRITE PROTECT notch and initialize QUICK FIX in drive #0. Select the DISK SECTORS option and answer the questions with "0,0,0" and press <ENTER>. Upon viewing said sector, press "A" to allow ASCII modifications and then press "M" to enter the MODIFY MODE. Next, position the cursor on top of relative byte # 9F (this byte is the last one to the right of the row that starts with #90 and now contains a 3. The display will also have "==>>" immediately to the left of the byte to be changed. To change the byte, press either the number 1, 2 or 3 and you will then be asked if the change is to be <U>pdated back to the disk. Press "U" and the modification will completed. Note: Pressing 1 will result in an access time of 12ms and pressing 2 will result in an access time of 20ms.

It is our understanding that the following drives will operate at the associated STEP RATES.

OLder Shugarts	= 40ms.
Newer Shugarts	= 20ms.
Micropolis	= 40ms.
Pertec	= 20ms.
MPI	= 12ms.

If any disk I/O errors are detected, you will be notified and given the opportunity to either <R>etry, <S>kip, or <C>ancel the routine in progress. This applies to both READ and WRITE operations.

NOTE: Prior to putting QUICK FIX to DOS, make sure that the SPEED BYTE is what you want it to be.

In order for QUICK FIX to work with files, the following THREE CONDITIONS must be met on the disk being read.

<1>. The first three bytes on the disk (Track 0, Sector 0) must be 00, FE, and the track number where the directory resides. If these conditions are not met, the message "Diskette NON-STANDARD" will be displayed. You will then be given the option of entering the directory track or pressing <BREAK>.

<2>. The first 192 bytes of sector 0 on the directory must have the HIGH SIX BITS SET. In other words, each byte must contain FCH or higher. If this codition is not met, the message "Cannot verify directory track, Bad GAT table bytes" will be dispayed.

<3>. All ten sectors of the directory track must be READ PROTECTED. If this condition is not met, the message "Cannot verify directory track, Sector X not read protected" will be displayed. (X = the first NON READ PROTECTED sector).

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2.0 QUICK FIX

OPERATIONS MANUAL:

Upon initialization of "QUICK FIX", the following MAIN MENU consisting of the SIX MAJOR UTILITIES will be displayed.

- "QUICK FIX" by Kim Watt - Version X.X -

>1< Quick Zap	>2< Quick Purge
>3< Quick Format	>4< Quick Backup
>5< Quick Repair	>6< Quick Memstuff
>7< Quick Quit	

Your Choice ?

2.1 QUICK ZAP:

Upon selecting the ZAP UTILITY, a menu consisting of the following ten possibile options will be shown on the screen.

<1> Display Disk Sector	<2> Display Files Sector
<3> Display Main Memory	<4> Compare Disk Sectors
<5> Copy Disk Sectors	<6> Verify Disk Sectors
<7> Zero Disk Sectors	<8> String Search
<9> Sector Search	<0> Examine Address Marks

Your Choice ?

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2.1A DISPLAY DISK SECTOR:

Upon selection of option #1, press <ENTER> at which time you will be prompted to input the DRIVE, TRACK, and SECTOR number that you wish to examine (NOTE: user may input selections in HEX or DECIMAL). If selection is to be in hex, follow the numbers with a "H". If selection is to be in decimal, merely type in the numbers. (NOTE: Throughout this program, data inputs may be seperated with either COMMAS or SPACES). At this time, the selected sector will be displayed on the screen (see following example printout).

```
FIELD #1
FIELD #2                    FIELD #3                                FIELD #4

     00 00FE 11F3 31FC 4121 E242 CD9A 423E 0132 .▌ ▐1▐A! ▐B▌▐B).2
HEX  10 E137 3A02 4257 1E04 0100 4DCD AA42 2070 ▐7:.BW....M▌▐B p
DRV  20 3A00 4DE6 1021 E542 2869 D92A 164D 557C ▐.M▐.!▌▐B(▌▐*.MU▌
  0  30 0707 07E6 0767 0707 845F 01FF 4DD9 CD75 ...▐.▐.g..▐..▐▐▐▐▐▐▐u
TRK  40 423D 2017 CD75 4247 CD75 426F 05CD 7542 B= .▌uBG▌uBo.▌uB
 00  50 6705 28EA CD75 4277 2318 F63D 280B CD75 g.(▐▌uBw#.▐▐=(.▌u
TRU  60 4247 CD75 4210 FB18 D5CD 7542 CD75 426F BG▌uB.▐▐▌uB▌uBo
 00  70 CD75 4267 E9D9 0C20 14C5 3E01 32E1 37CD ▌uBg▐▐▐ .▐).2"7▌
SEC  80 AA42 200C C11C 7BD6 0A20 025F 140A D9C9 ▐B .▐.{▐. ._..▐▐▐
I00  90 21F1 42CD 9A42 CD40 0076 E57E FE03 2808 !▐B▌▐B▌@.v▌▐▐.(.
LEN  A0 CD33 0023 FE0D 20F3 E1C9 C5CD B242 E1C8 ▌3.#▐▐. ▐▐▐▐▐▐B▐.▐
 01  B0 444D ED53 EE37 21EC 3736 18F5 F1F5 F17E DM▌S▐7!▐76.▌▐▌▐▐
STD  C0 0F38 FC36 88D5 11EF 37C5 C118 0B0F 300A .8▐6▐▐.▐7▌"...0.
     D0 7ECB 4F28 F81A 0203 18F6 7EE6 5CD1 C836 ▐▐▐O(▐.▐...▐▐▐▐▐▐.6
     E0 D0C9 1C1F 0317 E84E 4F20 5359 5354 454D ▐▐.... NO SYSTEM
     F0 0D17 E844 4953 4B20 4552 524F 520D EB5F ▐. DISK ERROR.▐▐
```

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FIELD #1: To the left of relative byte 10H (upper left hand corner of the screen) you will see the word "HEX", "ASC", "BIN", or "DEC". These words indicate whether the program is presently capable of modifying in HEXIDECIMAL, ASCII, BINARY, or DECIMAL (NOTE: See MODIFY MODE Instructions). The user may change modes by pressing the letters "H", "A", "B", or "D" at any time PRIOR TO ENTERING THE MODIFY MODE. (To change modes when in the modify mode, press <SHIFT><ENTER> followed by "H", "A", "B", OR "D"). To the left of relative byte 20H the word "DRV" appears, and it stands for drive. To the left of relative byte 30H, a number between 0 and 3 appears and it indicates the drive # that is being read. To the left of relative byte 40H, the word "TRK" will appear and it stands for track. To the left of relative byte 50H a number appears that tells the relative track # (in DEC) that is being read. To the left of relative byte 60H, The word "TRU" will appear and it stands for true. (Below it the true track number as it is read from the disk is given. NOTE: (The explainations on relative bytes 40H, 50H, 60H, AND 70H may seem strange because the TRUE and RELATIVE track numbers are usually the same. However, on certain protected disks there are differences). To the left of relative byte 80H, the word "SEC" is shown and it stands for sector. To the left of relative byte 90H, the letter "I" will appear and will be followed by two numbers. The "I" tells that the sector is in <I>BM format and the two numbers next to it indicate the sector # that is being read. To the left of relative byte A0H, the word "LEN" is shown and it stands for sector length. Below "LEN", a number appears that tells you the length of the sector that is being shown. (NOTE: the ACTUAL LENGTH is 256 times the number that appears). To the left of relative byte C0H, the word "STD", "RPT", "DDT", or "UDF" appears and these tell whether the data stored on the sector is STANDARD, READ PROTECTED, DELETED, or USER DEFINED.

FIELD #2: This contains the RELATIVE BYTE NUMBERS in the sector (in HEX). NOTE: A relative byte is it's offset from the beginning of the sector.

FIELD #3: This consists of 8 pairs of columns that contain the sector data (in HEX), and any byte may be modified by entering the MODIFY MODE and typing over the existing code that is presently highlighted by the flashing cursors (See MODIFY MODE instructions).

FIELD #4: this is an ASCII representation of the printable ASCII bytes contained in FIELD #3.

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2.1B MODIFY MODE INSTRUCTIONS:

The MODIFY MODE has several options available and ahould be throughly understood prior to any "ZAPPING". Once your chosen sector has been displayed on the screen, any data byte shown may be modified using HEX, DECIMAL,BINARY, or ASCII input. To enter MODIFY MODE check the word located to the left of relative byte 10H to determine which mode the program is presently in and then make your mode selection by entering "H", "D", "B", or "A". After selecting the desired mode, press "M" and you will observe the dual cursors on the screen. Said cursors may be moved to any data byte on the screen by using the UP, DOWN, RIGHT, and LEFT ARROWS. <SHIFT><ARROWS> will move the cursor to extreme column or row ends. Holding down a ARROW key will cause the cursors to automatically move in the direction desired (auto repeating). Once the cursor is on the byte that is to be modified, type over the existing byte and the changes are automatically updated to both FIELD #3 and FIELD #4. When modifying in HEX, upon entering the FIRST NYBBLE CHANGE, (Each byte is represented by two letters on the screen and each letter is a NYBBLE) the cursors will stop flashing and won't flash again until the SECOND NYBBLE is changed). When modifying in DECIMAL, three digit input is required, and the cursor does not flash again until the third digit is entered. NOTE: (On two digit DECIMAL entries, precede the first digit with a 0). When making changes in BINARY, the cursors will stop flashing until all eight bits have been entered.

Upon completion of the desired changes push <ENTER> and you are then given the options of being able to <U>PDATE data, <C>ANCEL changes, <R>ETURN to modify mode, or <Q>UIT and return to menu. NOTE: (All changes are kept in a buffer and are not written back to the disk unless the <U>PDATE option is selected, and you may return to the menu at any time by pressing <BREAK>). If you select the <C>ANCEL option then all changes are cancelled and you are returned to the same sector/memory location as it was prior to entering the MODIFY MODE. If you choose the <R>ETURN to modify mode option, you are returned to the same sector/memory location as it existed prior to pressing <ENTER>, and you will still be in the MODIFY MODE. If user selects the <Q>UIT option, all changes are cancelled and you are returned to the ZAP MENU.

Normally you will use the right or left arrow keys to page forward or backward to sectors. When sector #9 is reached, the program will automatically go to the next higher track, sector 0. However, if the disk sectors are NOT continuously numbered, you may encounter a number of non-assigned sector numbers prior to reaching a readable one. The <SHIFT><F> and <SHIFT><B> options (see ZAP COMMAND LIST) will "FORCE" the program to search <F>orward or <B>ackward to locate the next READABLE sector on a disk. This option may take some time to locate a "READABLE" sector as there may be many non-assigned sectors between two valid ones and this option attempts to read every possible sector number.

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2.1C ZAP COMMAND LIST:

1 - Right arrow	Pages one sector higher
2 - Left arrow	Pages one sector lower
3 - Up arrow	Psges one track higher
4 - Down arrow	Pages one track lower
5 - <SH>Right arrow	Pages one sector higher and will force beyond sector #9.
6 - <SH>Left arrow	Pages one sector lower (forced)
7 - <SH>Up arrow	Pages to highest track on disk
8 - <SH>Down arrow	Pages the lowest track on disk
9 - <Break>	Returns to the menu
10 - <R>	Pages to Track 0, Sector 0
11 - <M>	Activates modify mode
12 - 0 to 9	Select sector to be viewed
13 - <SH><Break>	Returns program to main menu
14 - <SH><Clear>	Activates screen printer (Char from 20H to 7FH)
15 - <SH><Clear><EN>	Activates screen printer (lowercase and graphics)
16 - <SH><EN>	Allows change of modify type (Hex, Decimal, Ascii)
17 - <SH><F>	Automatic page to next sector forward
18 - <SH><B>	Automatic page to next sector backward

NOTE: There are some command differences when you are using the DISPLAY FILES SECTOR option that are explained in that section.

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2.1D DISPLAY FILE SECTOR:

Upon selection of this option you are prompted to input a complete filename (don't forget the extension and drive). Press <ENTER> and you will be told the end of allocation (EOA) and the end of file (EOF) relative sectors (in HEX) of the selected file, and then be prompted to input your choice. NOTE: Operating systems allocate space for data storage in granules (2 granules = 1 track, 5 sectors = 1 granule) and as a result, the (EOF) may be located anywhere in the LAST GRANULE ALLOCATION. To display the first sector of the selected file, input 0 and then press <ENTER>. To automatically locate and display the (EOF) sector, (after having already viewed one or more sectors), type "E" and you will paged to the the last sector of the file if it is allocated. There is a SPECIAL CASE to this option, if the last byte of the file is the last byte in the sector, the (EOF) will be given as the next sector. To RESELECT a particular sector, press <CLEAR> and then enter the sector number desired.

The user may SINGLE STEP through the entire file by using the right and left or up and down arrow keys (as they both perform the same function in this option) and as always, may return to menu by pressing <BREAK>. As an added feature in this utility, the filename that is being examined is shown in the column to the left of FIELD #2.

The printout of this utility also gives you additional information on what relative sector in the file you are viewing (in DEC), and advises you if you are viewing a sector that is located before the (EOF), after the (EOF), or at the (EOF) sector, and lastly, the next available byte # of the file.

EXAMPLE: In the following printout of DISPLAY FILES SECTOR, to the left of relative bytes C0H and F0H, you will notice that each has an "*" to the left of it. To the left of relative bytes D0H and E0H, please note that the numbers 9 and 1 appear. The two "*" characters mean that you are viewing the EOF sector of the file, and the 9 and 1 means that the next available byte is located at relative byte 92H in the sector. If you are viewing a sector that is located prior to the (EOF), instead of seeing the two "*" characters, you will see a "-" sign to the left of relative byte F0H and nothing appears to the left of relative bytes C0H, D0H, or E0H. If you are past the (EOF), a "+" is shown instead of the "-" character.

To determine the relative sector # of the file, look to the left of relative byte D0H and you will see the word "RSC" (relative sector), and under it, the relative sector # you are viewing (in DEC) is shown. The last information given on this printout is whether the file sector is a FILE PRIMARY DIRECTORY ENTRY (PDE) or if it is a FILE EXTENSION DIRECTORY ENTRY (XDE). This information is stored to the left of relative byte F0H.

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2.1D DISPLAY FILE SECTOR:

```
     S00 C9E5 60E9 2929 2929 4485 4FE1 2318 DB21 ▚▗'))))D▙O▝#.▜!
DEC  Y10 D206 1100 4001 3600 EDB0 AF0E 2712 1310 ▗...▗▗.6.▙▗▗▝'...
DRV  S20 FCF3 C375 00CD A051 210F 43F3 2819 CBFE ▗▜▜u.▙▗Q!.C▜(.▜▙
  0  130 210F 403E C322 1E43 3215 433E CD22 3140 !.@)▜▜".C2.C)▙"1@
TRK  /40 FB32 3040 C31F 4ECB BEAF 3215 433E 3E21 ▜200▜.N▜▜▜2.C))!
 10  S50 A3EF 18E9 CDA0 5111 D94C 3E0B CA13 44C3 ▜▗▗▗ ▗Q.▗L). ▗.D▜
TRU  Y60 1044 237E FE20 28FA FE28 C023 CDDF 5078 .D#▗ ▗(▗▗(.#▙▜Px
 10  S70 B7C9 0119 B551 434D 440A 444F 5320 5245 ▗▗..▗QCMD.DOS RE
SEC   80 4144 590D 5748 4154 3F0D 434D 4402 0200 ADY.WHAT?.CMD...
I04   90 4E23 CD1F 5128 D818 CCCD 0451 18D1 0100 N#▙.Q(▗▗▙Q.▗...
LEN   A0 007E FE59 2810 FE4E 280F FE4F C023 7EFE .~▗Y(.▗N(.▗O #~▗
 01   B0 4628 06FE 4EC0 01FF FF01 B7FA 5023 7EFE F(.▗N.▗▜▗▗▗P#~▗
STD  *C0 29C8 FE2C C818 F601 0000 7ED6 30D8 FE0A ) ▗▗.▗,▗..▗▗~0▗▗
RSC  9D0 D0E5 6069 2929 0929 0600 4F09 444D E123 ▗▗`))).)..O.DM▜#
004  1E0 18E8 0100 007E FE27 C023 7ED6 3038 0AFE ▗▗...~▗▗ #~▗08.▗
PDE  *F0 0A38 0ED6 07FE 1038 087E FE27 23C8 2BAF .8.▗▗.▗8.~▗▗ # .+▗
```

2.1E DISPLAY MAIN MEMORY:

Opon selection of option #3, you are prompted to input a memory address and upon doing so and pressing <ENTER>, the requested address and the following 255 bytes will be displayed to the screen for examination or modification. The screen format of the MEMORY DISPLAY utility is in standard "ZAP" format and all modify options are in effect (with the exception of the following <ARROW> commands).

<1>.	Right arrow	Pages forward 256 bytes
<2>.	Left arrow	Pages backward 256 bytes
<3>.	Up arrow	Same as right arrow
<4>.	Down arrow	Same as left arrow
<5>.	<SH> Right arrow	Pages to highest memory
<6>.	<SH> Left arrow	Pages to lowest memory

2.1F COMPARE DISK SECTORS:

Choosing option #4 requires input of the the drive, track, and sector numbers that you wish to compare. Push <ENTER> and then enter the the information on the drive, track, and sector numbers that you want to compare it with.

SINGLE DRIVE SYSTEM: If your source and destination drives are the same, you will be asked "same diskette?". If you answer no, you will be prompted when to swap disks. NOTE: (All remaining memory is used as a buffer and the number of swaps is determined by how much RAM is available). Push <ENTER> and you are then told if the compared sectors are IDENTICAL. If the compared sectors are NOT IDENTICAL, the location of the FIRST NON-IDENTICAL BYTE will be given.

TWO DRIVE SYSTEM: If your using a two drive system, press <ENTER> and the compare will be done automatically. You will then be told if the compare was IDENTICAL or not.

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2.1G COPY DISK SECTORS:

Selection of this option will require you to input the drive, track, and sector numbers that are to be copied. Push <ENTER> and you will be prompted to input the destination drive, track, and sector numbers. NOTE: (If the source and destination DRIVES are equal, you will then be asked if the source and destination DISKS are the same. If they are different, you will be told when to swap the disks. If the source and destination drives are not the same, user is prompted to input the number of sectors to be copied). You will then be prompted to input the number of sectors that are to be copied. THIS UTILITY ALSO USES ALL AVAILABLE MEMORY ON SINGLE DRIVE COPIES.

2.1H VERIFY DISK SECTORS:

Selection of option #6 requires input of the drive, track, and sector number to be verified. Push <ENTER> and then input the number of sectors to be verified. This utility notifies you if any bad sectors exist and the location the the bad sector. This option merely advises you if a sector is READABLE or not.

2.1I ZERO DISK SECTORS:

Upon selection of option #7, you are prompted to input the drive, track, and sector where you want to begin zeroing and the number of sectors that are to be ZEROED. WARNING!!! UPON PRESSING <ENTER> THE SELECTED SECTORS ARE IMMEDIATELY ZEROED AND THERE IS NO CHANCE OF DATA RECOVERY FROM THE SELECTED SECTORS. NOTE: (all selected sectors are read and rewritten in their original form but will contain all zero's when this routine is completed.)

2.1J STRING SEARCH:

Selection of this option will require input of the drive and sector where you wish to begin the search. Following this you are prompted to input the number of sectors to be searched and lastly, input the string to be searched for. The locations of the desired string will then be displayed to the screen. NOTE: The entire string MUST be contained in a single sector to be found, so if it doesn't find the string, try entering a portion of the string. You may also use this utility search for 2 bytes of NUMBERS contained in memory or on disk by typing a "#" PRIOR to the numbers.

2.1K SECTOR SEARCH:

Use of this option will need the input of the drive, track, and sector to obtain a SOURCE SECTOR and upon doing so, you will then be asked to input the drive, track, and sector where you wish to begin the search and the number of sectors to searched. Upon completing this, the requested disk sectors will be searched and any matches will be returned to you.

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2.1L EXAMINE ADDRESS MARKS:

Upon selection of this option, you will be asked to supply the drive number and the number of tracks that you wish to examine. This utility is used to inform you in what manner a disk has been formatted. On some PROTECTED DISKS, you will notice a great variation from the standard formatting of tracks (Instead of the tracks starting at 00 and numbering up, you will see totally random track and sector numbering). This utility starts reading at relative track #0, sector #0 and will remain there until it is paged higher or lower by use of the UP or DOWN ARROWS, or The readout may be paused by holding down the SPACEBAR.

The following information is supplied by this utility.

TRUE	=	Relative track # on disk
TRACK	=	Actual track # as read from disk
HEAD	=	Head # as formatted
SECTOR	=	Actual sector # as read from disk
CRC	=	The two CRC bytes as formatted (CRC = CYCLIC REDUNDANCY CHECK)

While reading a track, the output display of the sector numbers will not be in order as the computer is periodically scanning the track and picking up the sectors randomly. To move the reading head to the HIGHEST or LOWEST track, use SHIFTED ARROWS. When an UNFORMATTED track is incountered, the display will scroll very slowly.

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2.0 QUICK PURGE OPERATIONS MANUAL:

Upon selection of the PURGE UTILITY, the nine following options will be displayed to the screen.

<1> Selective Kill <2> Disk Directory
<3> Zero Unused Entries <4> Compare Disk Sectors
<5> Remove All System Files <6> Kill Files By Category
<7> Change Diskette Name, Date, Password, Auto Command
<8> Change File Parameters <9> Remove All Passwords
Your Choice ?

2.2A SELECTIVE KILL:

Upon selecting this utility, you are asked to choose from two options (<L>ist files or <S>elect from list). If the "L" option is chosen, you will then be prompted to input the complete filename that you wish killed. Press <ENTER> and if the filename was valid, it will immediately be killed. If the "S" option is chosen, you will be prompted to input the drive #, at which time all active files on it will be listed one at a time, and you are asked on each file whether it is to be killed or not. (Answer "Y" or "N"). These kills are not immediate and upon reaching the end of the files, you have the options of <W>riting the changes back to the disk or <C>ancelling and returning to the menu.

2.2B DISK DIRECTORY:

Selection of this option requires input of the drive #, at which time you have the choice of being able to "TOGGLE" between two separate pages of data by simply pressing <ENTER>.

The first data page will contain a complete listing of all the files on the disk (active and non-active). (See example DISK DIRECTORY PAGE #1.)

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DIRECTORY PAGE #1

S=2	BOOT/SYS	SYS6/SYS	FORMAT/CMD	(SAMPLE01/BAS)
S=2	(U/CMD	BASIC/CMD	(LV1DSKSL/CMD)	( )
S=3	DIR/SYS	( )	( )	( )
S=3	(U/CMD	(U/CMD	COPY/CMD	(U/CMD)
S=4	SYS0/SYS	( )	( )	U/CMD
S=4	(TEST/CMD	(U/CMD	( )	( )
S=5	SYS1/SYS	( )	( )	( )
S=5	DC/CMD	( )	( )	P/CMD
S=6	SYS2/SYS	( )	( )	EA/CMD
S=6	(EDTASM/CMD	DA/CMD	( )	( )
S=7	SYS3/SYS	SYS11/SYS	(U/CMD	( )
S=7	(BOOT/TXT	LM/CMD	LC/CMD	FMT/CMD
S=8	SYS4/SYS	SYS12/SYS	( )	( )
S=8	(TEST	(TEST/TXT	( )	(BLUE)
S=9	SYS5/SYS	SYS13/SYS	RSM/CMD	( )
S=9	(U/CMD	(EDTASM/CMD	(FMT/CMD	(BOOT/CMD)

DIRECTORY PAGE #2

00/**-!!	01/!!-!!	02/!!-!!	03/!!-!!	04/**-**	05/**-**
06/**-**	07/**-**	08/**-!!	09/!!-!!	10/!!-!!	11/!!-!!
12/!!-!!	13/!!-!!	14/!!-!!	15/!!-!!	16/**-**	17/**-**
18/**-**	19/**-**	20/**-**	21/**-**	22/**-!!	23/!!-!!
24/!!-!!	25/!!-!!	26/!!-!!	27/!!-!!	28/!!-!!	29/!!-!!
30/!!-!!	31/!!-!!	32/!!-!!	33/!!-!!	34/!!-!!	35/!!-!!
36/!!-!!	37/!!-!!	38/!!-!!	39/!!-!!	40/XX-XX	41/XX-XX
42/XX-XX	43/XX-XX	44/XX-XX	45/XX-XX	46/XX-XX	47/XX-XX
48/XX-XX	49/XX-XX	50/XX-XX	51/XX-XX	52/XX-XX	53/XX-XX
54/XX-XX	55/XX-XX	56/XX-XX	57/XX-XX	58/XX-XX	59/XX-XX
60/XX-XX	61/XX-XX	62/XX-XX	63/XX-XX	64/XX-XX	65/XX-XX
66/XX-XX	67/XX-XX	68/XX-XX	69/XX-XX	70/XX-XX	71/XX-XX
72/XX-XX	73/XX-XX	74/XX-XX	75/XX-XX	76/XX-XX	77/XX-XX
78/XX-XX	79/XX-XX	80/XX-XX	81/XX-XX	82/XX-XX	83/XX-XX
84/XX-XX	85/XX-XX	86/XX-XX	87/XX-XX	88/XX-XX	89/XX-XX
90/XX-XX	91/XX-XX	92/XX-XX	93/XX-XX	94/XX-XX	95/XX-XX

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Disk directory page 1 consists of five separate columns. Column #1 contains the RELATIVE SECTOR NUMBER on the directory track that each file resides on, and columns #2 thru #5 contain the ENTIRE DIRECTORY of all 64 possibile entries that are on the disk. (EXAMPLES: In column #1, in the upper left hand corner is "S=2", followed by BOOT/SYS. This means that file BOOT/SYS resides at relative sector #2, relative byte 00H. To the right of BOOT/SYS is the file SYS6/SYS and this means that SYS6/SYS resides at relative sector #2, relative byte 20H. In column #3 at the bottom of the display, is the file FMT/CMD. This file is located at relative byte #C0 on relative sector #9. NOTE: (all ACTIVE files are contained within GRAPHIC BLOCKS that are located before and after the filename and all INACTIVE FILES are contained in PARENTHESES). If a file is very large and contains a FILE EXTENDED DIRECTORY ENTRY (XDE), you will notice an "*" in the directory, followed by "S=", and a one digit number. This will be followed by "B=", and a two digit number in HEX. The "S" indicates the relative directory sector of the backward chain and "B" is the relative byte within that sector.

DISK DIRECTORY page 2 consists of six columns of information that advise the user of the allocation condition of each individual granule. You will note that the screen contains the characters "**", "!!", and "XX" along with a series of numbers. As was previously mentioned earlier in this documentation, space for file storage is allocated in granules. (Each track consists of two granules and each granule consists of five sectors) and therefore, each track has ten sectors (0 thru 4, and 5 thru 9).

Each entry on this directory is contained between graphic blocks and begins with a 2 digit number that is the DECIMAL TRACK # on the disk. To the right of the track #, two pairs of the three graphic characters will be shown, and are separated by a "-" character. ("**" indicates that the granule is presently allocated, "!!" tells you that the granule is free, and "XX" says that the granule is locked out).

EXAMPLES: The upper right hand corner of the display contains the entry (05/**-**) and this means that track #5 presently has both granules allocated. The lower left corner contains the entry (90/XX-XX) and that indicates that track 90 has both granules locked out.

2.2C ZERO UNUSED ENTRIES:

This utility is excellent for "cleaning up" the directory and only requires input of the drive #. Having done so, press <ENTER> and all non active files are immediately ZEROED out. WARNING !!!! Once this done, you will not be able to recover non active files without engaging in the wonderful pastime called "mucking thru the disk".

2.2D ZERO OUT USUSED SECTORS:

This utility is also an excellent for "cleaning up" a disk, and it too only requires input of the drive #. Press <ENTER> and all non allocated granules are immediately ZEROED out. Once it has been used, there is absoulutely no chance of data recovery from the affected disk sectors. NOTE: (all sectors are written as standard data regardless of their original typs).

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2.2E REMOVE SYSTEM FILES:

The only input needed for this utility is the drive #. Press <ENTER> and all system files (except BOOT and DIRECTORY) are instantly "killed". NOTE: Any files that are killed with "QUICK FIX" may be reinstated at any time by using the disk repair option as long as the sectors or unused directory entries haven't been "zeroed".

2.2F KILL FILES BY CATEGORY:

Use of this utility requires input of the drive # and after doing so, you then have to supply the "COMMON CATEGORY" of the files that are to be killed. Common category refers to the filename EXTENSION (/BAS, /CMD, /TXT, /, etc). NOTE: (Don't forget the "/" separater). The "/," command will kill all files that DO NOT have an extension and <V>isible and <I>nvisible files may also be purged by entering "V" or "I".

This utility holds all changes in a "buffer area" and you are given an opportunity to <W>rite the directory back or <C>ancel all changes and return to menu. NOTE: (if you specify /SYS as the common category, all files INCLUDING BOOT and DIRECTORY will be killed !! This could be fatal to your disk. Use option 5 to safely remove the system files.)

2.2G CHANGE NAME, DATE, PASSWORD, AUTO COMMAND:

To perform these functions, it is necessary that the drive # be supplied at which time you will be told the existing NAME of the disk and asked to supply a new one. Press <ENTER> to leave the name unchanged. The existing DATE is then given to you and you are then required to enter a DATE. (The date can be ANY 8 character string). At this time the AUTO COMMAND (if any) that is presently on the disk is supplied and you may enter a new one or press <ENTER> and the AUTO COMMAND function will be disabled. You are then asked if you want the PASSWORD computed (Answer "Y" or "N"). If you answer "Y", a usable password will be computed and displayed (not necessarily the original). NOTE: (computing a password may take up to several minutes to complete, and may be interrupted at any time by pressing <SPACEBAR> or <BREAK>).

You will then be requested to input a new PASSWORD or press <ENTER> to assign the default value of "PASSWORD". All changes will now be written to the disk.

2.2H CHANGE FILE PARAMETERS:

Use of this option requires the user to input a complete filename, and upon completing the input, you will be told the filename, if it is a marked as a system file, whether it is visible or invisible, the present protection level of the file, and you are then asked if you wish to compute the existing password. If <Y>es, it will compute and display the update and access passwords. If <N>o, you are then asked if the file is to be renamed (answer "Y" or "N"). Next you are asked if it the file is to be made <V>isible or <I>nvisible (answer "I" or "V"). Finally, you are requested to input a PROTECTION LEVEL to the file, (answer 0 to 7). Press <ENTER> and all changes are now written to to disk.

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2.2I REMOVE PASSWORDS ALL FILES:

This option simply asks for the drive # and then immediately removes the passwords from all active files on the disk. The disk will now have a new MASTER PASSWORD of "PASSWORD" and the protection levels on all files will be "NO RESTRICTIONS".

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2.3 DISK FORMAT UTILITY OPERATIONS MANUAL:

Selection of the QUICK FORMAT utility will result in the following two options being displayed to the screen.

<1> Standard Format <2> Format Without Erase
Your Choice ?

2.3A STANDARD FORMAT:

Upon selecting this utility, you are first asked, one at a time, which drives are to be formatted. (Answer "Y" or "N"). Next, you are requested to supply the DISK NAME, CREATION DATE, MASTER PASSWORD, and the TRACK COUNT (in DEC or HEX) of your choice. You are then asked if you wish to lock out any tracks (answer "Y" or "N"), what track the DIRECTORY is to go on, and finally, what FILL BYTE is to be placed in the unused directory entries. NOTE: The following DEFAULT VALUES are used when you press <ENTER> instead of making a valid entry.

<A>.	NAME	=	(Name)
<B>.	CREATION DATE	=	(Date)
<C>.	MASTER PASSWORD	=	PASSWORD
<D>.	TRACK COUNT	=	40
<E>.	LOCKOUT	=	NO
<F>.	DIRECTORY	=	17
<G>.	FILL BYTE	=	EEH

Upon completing your answers, the program will FORMAT and then VERIFY the disk(s) and you will then be asked if you want to FORMAT again. If you answer "Y", the program will allow you to use the previous specifications without having to re-enter them or you may enter new specifications. NOTE: This utility is NOT a "STANDARD" formatting program and you will find that disks that have been formatted with it will load VERY RAPIDLY.

2.3B FORMAT WITHOUT ERASE:

This utility requires an answers of "Y" or "N" as to which drives are to be RE-FORMATTED, just as in the STANDARD FORMATTING utility. However, in this routine, you may RE-FORMAT a disk that contains existing data and leave the existing data INTACT. You will also be asked to input the number of tracks that you want on the disk, and you may ADD tracks at this time by specifying a number that is greater than is presently formatted on the disk.

If you increase the number of tracks, the utility will automatically make the necessary corrections and update the disk directory (if there is one).

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This program reads each track, one sector at a time, and then re-formats the track and re-writes the same sectors back to the track. If it finds a track that is NOT formatted, it merely formats said track and then updates the directory. If it is NOT able to read a sector, you will be advised. When it is NOT able to read a sector, the message "forget that one" will be displayed and that merely means that the ORIGINAL DATA wasn't copiable, however, the sector is still valid for recieving data.

Other very handy uses for this utility are to RE-VITALIZE those disks that have been recorded some time ago, or to RE-FORMAT disks that won't BOOT because of defective sectors. NOTE: It is always a good idea to do a DIRECTORY CHECK (See Disk Repair Utility) if you are DECREASING the number of tracks on a disk.

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2.4 DISK BACKUP OPERATIONS MANUAL:

Selection of this utility results in the following two options being displayed to the screen.

<1>. Format First <2> DO NOT Format First

2.4A FORMAT FIRST:

This routine will BACKUP any standard disk and said disks will actually run considerably faster than disks that have been backed up by most DOS systems do to the VERY EFFICIENT formatting routine that is used. Use of this utility requires you to input the source and destination drives.

ONE DRIVE SYSTEM: If the source and destination drives are the same, you are prompted when to make the necessary disk SWAPS to complete the disk copy. NOTE: The entire unused memory is used as a buffer during this routine and therefore, machines with 48K will require fewer disk swaps than machines with 32K.

TWO DRIVE SYSTEM: When source and desination drives are different, simply place a blank disk in the destination drive and the disk to be copied in the source drive. Press <ENTER> and the copy will be automatically completed. NOTE: This routine does a one track at a time transfer from source to destination disks. Prior to any copying, the destination disk is formatted with the number of tracks specified.

2.4B DO NOT FORMAT FIRST:

This utility operates identically as the FORMAT FIRST but it requires that the destination disk be FORMATTED prior to being inserted into the destination drive.

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2.5 QUICK REPAIR OPERATIONS MANUAL:

Selection of this utility will result in the following six options being displayed to the screen.

<1> Repair GAT table	<2> Repair HIT table
<3> Repair BOOT	<4> Read Protect Directory
<5> Recover Killed Files	<6> Check Directory

Your Choice ?

2.5A REPAIR GAT TABLE:

If you find that an error exists in the "GAT" (GRANULE ALLOCATION TABLE), select this option and input the drive #. Press <ENTER> and you will then be given the options of fixing the <E>ntire sector or just the <A>llocation table.

If you repair only the allocation table, all available tracks will be set to AVAILABLE, then all active files will be re-allocated. NOTE: (when files are re-allocated, the computer will read all active files in the directory, and re-assigns the granules that belong to each file.)

If you repair the entire sector, you will be asked for the diskettes track count. All tracks (up to the track count you specified) will be set to AVAILABLE, and NOT LOCKED OUT. NOTE: (If any tracks were locked out previously, they will now be set to available.) The diskette name will be set to "(NAME)" and the diskette date will be set to "(DATE)". The master password will be "PASSWORD", and the auto command will be set to null. NOTE: (in all routines involving the GAT table, including FORMAT, the diskettes track count will be placed into the directory at relative sector 0, byte C0H.)

2.5B REPAIR HIT TABLE:

If it is found that an error exists in the "HIT" (HASH INDEX TABLE), select this option and input the drive #. Press <ENTER> and the directory will be read and the "HIT" table will be completely reconstructed.

2.5C REPAIR BOOT:

If you have a disk that will not BOOT, insert the disk into a drive, after making sure that the first 5 sectors on the disk are formatted. After doing so, select this option, input the drive #, and press <ENTER>. At this point, a new BOOT will be re-written to the disk. NOTE: (the BOOT that is written to the disk will be a standard DOS-type BOOT, and it is not logged into the directory, however most standard DOS-type disks will already have the BOOT logged in the directory.)

2.5D READ PROTECT DIRECTORY TRACK

If you try to boot in a diskette, and the drive seems to be making a lot of passes and finding nothing, there is a possibility that some or all of the directory track is not read-protected. This does not mean that it cannot be read, but is a type of marking that sets it apart from the remainder of the disk which contains data. Whenever DOS tries to read a directory, and cannot verify that all sectors are read-protected, it will search the disk trying to find a track that is

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read protected. You may repair this condition by simply entering the drive #.

2.5E RECOVER KILLED FILES:

Selecton of this utility allows you to reinstate previously killed files that have been killed by QUICK FIX or NEWDOS. NOTE: (you cannot recover files with this utility killed under TRS-DOS, as the entire directory entry is ZEROED out when the file is killed.)

You are first asked to input the drive # and are then presented (one at a time) with all the files on the disk that are currently inactive.

Answer "Y" or "N" to each file as they are presented, and after the last file is listed, you are told the number of files that are chosen for reinstatement, and given the options of <W>riting the directory back (restoring the files), or <C>ancelling and returning to the menu.

NOTE: You may not be able to restore a killed file if you have SAVED other programs on the disk after killing it, as the file may have been WRITTEN OVER.

2.5F CHECK DIRECTORY

This utility was designed to thoroughly examine the directory for errors and then report them (if any) to the user.

Use of this utility requires you to input the drive #. Press <ENTER> and you will be told the number of TRACKS on the disk, the number of FREE GRANULES, the number of FREE FILES, and you are told if there are any ERRORS in the directory. NOTE: If any errors are found to exist in the HIT or GAT sectors on the directory, use the DISK REPAIR utility to automatically repair them.

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2.6 MEMSTUFF OPERATIONS MANUAL:

Selection of this utility will result in the following ten options being displayed to the screen.

>1< Move Memory	>2< Exchange Memory
>3< Compare Memory	>4< Zero Memory
>5< Test Memory	>6< Input Byte From Port
>7< Output Byte to Port	>8< Memory to Disk Sectors
>9< Disk Sectors to Memory	>0< Disk Track to Memory

Your Choice ?

2.6A MOVE MEMORY:

If this option is chosen, you will be required to input the "BLOCK" starting and ending addresses. (A block is the memory locations between two addresses and is inclusive of the start and ending address.) REMINDER: (All addresses entered in HEX must be followed with a "H").

You are then requested to supply the NEW beginning address where the block is to be moved, and upon doing so and pressing <ENTER>, the memory is moved and you are returned to the menu. To view memory, return to ZAP and select the DISPLAY MAIN MEMORY option.

2.6B EXCHANGE MEMORY:

This utility requires that you input the start and end of the FIRST block address to be exchanged. Press <ENTER> and you will then be asked to input the starting address of the block that will be exchanged with your first block. Press <ENTER> and the program will compute the number of bytes in the first block and exchange that number of bytes with the second block.

2.6C COMPARE MEMORY:

Selection of this utility requires you to input the start and end address of the first block to be COMPARED. Next, you must input the beginning address of where you wish the compare to start.

This program will then advise you if it locates a difference in the two blocks and tells you the location of the first byte in each block that does not compare. NOTE: (this routine stops searching upon finding a non-compare byte.)

2.6D ZERO MEMORY:

To zero out a block of memory, input the start and end addresses of the block and press <ENTER>. Memory locations are ZEROED inclusive of the start and ending addresses.

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2.6E TEST MEMORY:

This utility tests every byte of memory between the inputed addresses by loading each byte with 00H to FFH and then verifies each change.

To use this routine, input the starting and ending addresses, and you will then be asked if you want a screen display of the byte address being tested while it is in progress. (answer "Y" or "N".) If "Y" is chosen, the address being tested, and the testing bytes will be displayed. NOTE: (the test will run MUCH slower if you display the address.)

Upon completion of the test, you are notified of the number of BAD memory cells that exist in your machine (if any) and their addresses. DO NOT test memory between the warning address displayed on the screen, as this is the location of the test routine itself, so if you test memory between these locations, QUICK FIX may "GO OUT TO LUNCH".

2.6F INPUT A BYTE FROM PORT:

Selection of this option will merely allow you to input and display a byte of data from any port.

2.6G OUTPUT A BYTE TO PORT:

Selection of this option will merely allow you to output any byte to any port.

2.6H MEMORY TO DISK:

This program requires input of the block start address that is to be DUMPED from memory to the disk. You will then be asked for the Drive, Track, Sector of where to begin the dump, and the number of sectors to be saved.

Upon completing the data input, press <ENTER>, at which time the specified block of memory will be saved to the disk at your selected locations. NOTE: (Memory saved to the disk with this utility is not updated to the directory, and as a result, will be invisible without ZAP. Data stored to the disk with this utility may be loaded back to memory by using the DISK SECTORS TO MEMORY UTILTITY.)

2.6I DISK SECTORS TO MEMORY:

This option asks you to input the drive, track, and beginning sector # that is to be loaded from the disk to memory. You are then requested to input the BLOCK START ADDRESS (this is the FIRST memory location where the block will reside in memory). Press <ENTER>, and then input the number of sectors you want to be loaded into memory. Press <ENTER> again and the chosen number of sectors is immediately loaded into memory starting at your specified block address. To view memory, return to ZAP and use the DISPLAY MAIN MEMORY option.

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3.0 ENHANCEMENTS:

3.1 QUICK FIX ENHANCEMENT DISTRIBUTION:

BREEZE COMPUTING will notify all registered owners of "QUICK FIX", of any enhancements or updates pertaining to this program as they become available. Registered owners will also be placed on our mailing list, so as to be kept informed of any NEW programs as soon as they go on the market.

3.2 REPORTING OF INCOMPATABILITIES:

QUICK FIX, to the best of our knowledge, contains no "BUGS", but with a program of this size (21K of machine language) it is possible that some minor bugs may be found.

Prior to sending notice of any problems you encounter, please make sure that the "ERROR" is in the program and not located between the "keyboard and the chair", or a hardware problem. Although every effort has been made to make this program "goofproof", the possibility of human error exists. If you find a problem, please send a thorough discription of the problem along with the disk that you are having the problem with to BREEZE COMPUTING P.O. BOX 1013 BERKLEY, MICHIGAN 48072.

We will do our best to assist and support all REGISTERED OWNERS, so be sure and include your SERIAL and PHONE numbers. Upon receiving your disk, we will attempt to locate and isolate the problem (within reason) to your satisfaction.

BREEZE regrets that it will not be able to return the disk to you, but rest assured that when we have finished examining your problem, any programs contained on the disk will be promptly destroyed to protect your interests.

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