BITS, BYTES&PIXELS

LIMA 99/4A USERS GROUP



NOVEMBER 1990 Volume 6,#9

1TS ALMOST MERE FOR 40 COLUMN FUNNELMEB USERS reported by Charles Good Lina Ohio User Group

I have a beta testing version of Funnelweb v4.31 which includes an enhanced 40 column DISK REVIEW with almost all the enhancements currently available to 80 column Funnelweb users. The v4.31 40 column DISK REVIEW will include all of the features already in the v4.21 and v4.30 40 column DISK REVIEW plus the following:

--A tull set of disk management functions including FORMAT, VALIDATE, RENAME, and SWEEP.

--A tuil set of tile management functions including PROTECT. UNPROTECT. DELETE, and RECOVER FILE.

--File by file disk copying, with the capability of copying a single master disk automatically to multiple drives. Single drive copying with disk swaping between the master and copy disk is not supported.

--A complete disk sector editor including the ability to do a string search of a specific file or a whole disk.

--Special menu items to help configure MYARC ramdisks, HORIZON ramdisks with ROS 8.14, and QUEST ramdisks.

In a letter accompanying my beta testing FWB v4.31, Tony McGovern says, "Apart from the superior file Viewing, there isn't much the 80 column DR (Disk Review) does that the 40 column DR can't do." Features of file 80 column Disk Review file viewing not found in my beta 40 column DR include the ability to view two files simultaneously, and the ability to view on screen a MYAKT picture by moving the cursor next to a MYAKT tile name and pressing "V".

When FWB v4.31 is available for release, 1 will send it out with a mailing of the Lima Ohio UG's newsletter. Hang in there 40 column FWB users, its almost here!

DONE

ITS ALREADY HERE FOR 80 COLUMN FUNNELMED USERS: FUNNELMEB 80 NOW INCLUDES A MYART PICTURE VIEWER

lony Mcbovern says in a recent letter, "I have often thought it would be neat to move the cursor next to the name of a picture file, press V (for View), and actually see the picture. Well, with about 10 sectors of additional code I have done just that." In the latest update (dated Sept. 23/90) of Funnelweb v4.30 you can view MYART pictures this way from within the 80 column version of DISK REVIEW. The Funnelweb MYART viewer has no trouble distinguishing between 66 and 67 MYART picture formats and can be used to view the upper half of a 256 color YAPP picture. If you try to view a

bif picture (D/Fi28 file as are MYART pictures), Funnelweb informs you that it cannot display such pictures. Trying to view a MAC picture (also D/Fi28) immediately shows you the file data as if viewing any other data file.

The revised FWB v4.30 80 column DISK REVIEW also has some new options that relate to formatting MYARC and QUEST ramdisks, and configuring Horizon ramdisks that have ROS 8.14. Problems with DSSD disk formatting have been corrected, and a RECOVER FILE feature has been added to the disk management part of 80 column DISK REVIEW.

The Sept 23/90 update of Funnelweb v4.30 is available immediately to ANYONE who sends a disk and paid return mailer to the Lima Ohio User Broup, P.O. Box 64/, Venedocia Ohio 45894. USA.

DONE

A USER GROUP FOR CC40 OWNERS

There is a user group that specifically supports, among other devices, the CC40. The TI PERSONAL PROGRAMMABLE CALCULATOR CLUB supports the following devices manufactured by Ti in addition to the CC40: TI58, TI59, TI74, TI81, and TI95. These are mostly programmable scientific calculators. They publish a quarterly newsletter and have been in existence since the late 1970's. Back issues of all their newsletters are still available.

For those specifically interested in the CC40, the club offers, instead of complete newsletter back issues, compliations from past newsletters that contain only material dealing specifically with the CC40 and TI74. Both these devices have a similar programming language and set of software cartridges. Programs written for one usually work on the other.

The current 4 issue volume of their newsletter, TI PCC NOTES costs \$17. Each issue has 24 to 32 typewritten pages. To subscribe or to receive detailed price information and contents listings of back issue CC40/TI74 cumpilations, write the group at P.U. Box 1421, Largo Florida 34649. You will receive a prompt reply from Palmer O. Hanson Jr., the TI PCC NOTES editor.

BONN IN SENIE

Someone finally took our long standing offer of "DV80 files of almost everything published in BB&P" seriously. Starting with this issue, all BB&P articles will be available to binize subscribers for downloading. Also, selected articles from back issues of BB&P will also be available on offnic.

THE MECHATHONIC "GUICK DISK" BRIVE FOR THE CC40 described by Charles Good

Lima Ohio User Group

To CC40 owners this is a VERY important piece of equipment, since it is the only readily available magnetic media mass storage device that can be used directly by the CC40. Alternatives to the GUICK DISK include II's WAFERTAPE DRIVE (yery rare and not supported by II because it was never officially released), the BK constant RAM cartridge (can store the RAM contents of a CC40 if the CC40's internal man is no *more than 6K), and dumping text (but not programs) to another computer via the HexBus RS232.

The BUICK DISK drive measures about 7 x 5.75 x 2.75 inches, and weighs 2.6 lbs. 2.8 inch disks are inserted, via a transparent plastic lid on the TOP of the drive. You can stack the BUICK DISK on top of a stack of other herbus peripherals (except for the two kinds of HexBus printers which need unobstructed top surfaces for paper feeding), but the drive will overhang the others a bit laterally. You can't put devices on top of the BUICK DISK since this will block access to the disk door. There is only one HexBus pert on the back of the BUICK DISK, unlike other HexBus peripherals which have two HexBus ports. This means that the BUICK DISK must be the last in a chain of peripherals.

My new BUICK DISK, as delivered by T.A.P.E., came without an AC adapter. Unlike most other HexBus peripherals, the BUICK DISK isn't battery powered, so you must purchase an adapter separately. Be careful! The required vultage is 6, but the BUICK DISK draws 600mA average current. You shouldn't use the 300mA model AC9201 adaptor that TI recommends for the CC40 and several of its NexBus peripherals. Likewise, you shouldn't use the selectable voltage adaptors found in many stores. These are rated at 360mA. You need the TI's AC9401 adapter, rated at 1 amp. This is the adaptor that comes with the HeXbus Printer 80, and you may be able to purchase it separately from TI. Radio Shack sells a selectable 6 or 7.5 volt adaptor (catalog 0273 1635) for \$15 that is rated at 700mA. I use the Radio Shack adaptor to power my GUICK DISK.

The GUICK DISK uses 2.0 inch disks which come in a relatively hard plastic enclosure. Once formatted, each side of a disk can store 64K byte of data. The GUICK DISK is a single sided drive, but the 2.8 inch disks are designed to be used as flippies. These are not the same as the 3.5 inch disks used in many modern computers, but they are readily available. This is the same sort of disk that is used in Smith Corona Personal Word Processor models 3 and 5. The disks can be purchased from most stores that sell electronic typowriters. My nearby SEARS, K-MART, and WALMART stores sell the disks for % or %7 per package of two. Radio Smack stores sell the same thing for the TANDY PNP1000 personal word processor. They charge \$17 for the 2 disk package.

In some respects the QUICK DISK stores data in a manner similar to TI's never officially releases WAFERTAPE DRIVE. The GUICK DISK is not a random access device. Each disk is formatted with only one track, spiral, like a phonograph record. Each time disk access is required, the drive's read/write head sets down at the beginning of the track and serrals around and around the disk until the necessary file is found. In spite of this limitation all types of file access are supported, including PROGRAM, DISPLAY and INTERNAL. Data files can be SEBUENTIAL or RELATIVE and can be opened in INPUT, OUTPUT, UPDATE, and APPEND modes. (The WAFERTAPE DRIVE does not support RELATIVE files or APPEND mode.) Files are placed on the disk's one track in a sequential manner. When manipulating both SEQUENTIAL and MELATIVE data files, the entire data file is read into the CC40's memory, manipulated by the controlling program, and then read back to the disk as the last file on the disk. This means that file size is limited. Only one file can be open at a time. With the CC40's basic language, it domen't make any difference whether you use uppercase, lowercase, ar a combination of the two when specifying a file name. CANVE "B.FILENAME"] and [save "8.filename"] would both be interpreted by the BUICKDISK (device 8) in an identical way. saving a basic program to disk under exactly the same file

One aspect of the QUICK DISK's operating system does take some getting used to. The DOS cannot split files to fill small empty areas on the disk. Each file must occupy maly ame continuous block of space on the disk's single track. There is no provision for tractured files. The only file or program that can be overwritten or altered (in the case of a data file) is the last file on the single track, the file most recently created. In BASIC, if you save a program or data file with the same name as a file already on the disk. the old file will only be replace if it is the last file. If the old file isn't the last file, the old file will be deleted from the disk directory and a new file will be added to the disk at the end of the track. Although you can me longer access the previous file (which has the same name as the newly created file), the old file still occupies disk space. In practice, this means that you should only have DME data file that will ever be opened in OUTPUT, APPEND, or WPATE mode on each disk side, and this should be the last file. Hemo Processor will not permit you to APPEND or OUTPUT to anything except the last file. You are forced by Meso Processor to use a different file name if you attempt to overwrite any file on the disk except the last file.

The state of available software for the CC40 is similar to what software was like for the 99/4a in its infancy, back in 1980/81. This includes disk management software. Management functions we are all used to on the 99/4a are not available for the QUICK DISK. Whole disk copy programs do not exist. You must OLD each file one at a time into the CC40 and then SAME to another disk, after disk swaping, like we used to have to do with cassette tape programs. There are

NEXT PAGE

no sector editors for the QUICK DISK. Multiple drive use is not easy, since all QUICK DISK drives are considered to be device "8", and there seems to be no way to alter this device number.

In spite of these limitations the QUICK DISK gives the CC40 capabilities of a "real" computer. You can save to permanent magnetic media, and you can access large data files, reading only necessary data into the CC40's RAM. The QUICK DISK is probably essential to anyone who wants to seriously use the CC40.

Available new for \$110 plus shipping from T.A.P.E. 1439 Solano Place Ontario UA 91764 Phone 714-989-9906

EXDUNE **

BITS, BYTES & PIXELS Published by Lima OH 99/4A User Group Material contained herein # may be copied by any user group as long as credit # is diven. DV80 files of most articles in BB&P can # * be obtained by sending a disk and return postage. ADDRESS-P.O. Box 647 Venedocia Ohio 45894 Published monthly except July and August GROUP OFFICERS President-Joann Szippl 419-228-7109 Vice Pres-Susan Cummings 419-738-3770 * Treasurer-Leonard Cummings# 419-738-3770 **New**sletter editor and Librarian-Charles Good 419-667-3131 ********************

LETTER TO THE EDITOR

20 Sept. 1990 Dear Charlie,

Would much appreciate it if you could send me a copy of that "T199/4A Home Computer third Party suppliers Revised April 26 1990".

Conversation today with 1-800-TI-CARES

"Can you tell me where I can get programs for my

"Yes, you can call Triton at 1-800-227-6900."

"Anyone else?"

"Yes, you can call Tenex at..."

"No, I talked to them last month. They don't have anything left. Anyone else?"

"Yes, but they don't have toll-free numbers."

"I don't care about that. Do you have a list you can mail me?"

"No, but what state are you in?"

"I'm interested in suppliers anywhere. I know that your Consumer Relations recently sent someone a list."

"I don't know about that. I guess you would have to write them."

"OK, what suppliers do you have in Ohio?"

"I don't have anyone recorded in Ohio."

"That's strange. I'm Tigercub software, in Ohio. I wrote to your Consumer Relations a month ago, for the third time, and asked to be put on your list."

"You are a TI supplier?"

"I have been a H supplier longer than Friton or almost anyone else you might have, and I offer more software than anyone at lower prices than anyone."

"Well, let me register your call..."

So, how about giving them a call? I'll bet they still wom't know about me!

Why is the II world hiding?? There are people still buying second hand II's, inheriting them, digging them out of closets. They are looking for support, for information. They are finding my little classified ad buried in Computer Shapper and in Vulcan's. There are even II user groups so out of touch that they have no idea of the wealth of haroware and software now available. And Texas Instruments seems to be more out of touch than anyone.

The User groups complain about losing members, but only 42 out of maybe 250 of them take advantage of the free FOG listing in computer shopper and Vulcan's!

And the dealers - little old Tigercub is one of two or three that advertise in a newsstand publication! Most of them don't even advertise in MicroPendium, although John and Lawra give them free publicity in product announcements and reviews. I have a one page list of TI suppliers that I mail to anyone who asks but some major suppliers are not on it -

because I can't find their addresses anywhere! | Best wishes,

Jim Peterson (Tigercub Software) 156 Callinguood Ave Columbus ON 43215

DONE

A DEFINITION OF "OFFICIAL NEVER RELEASED" TI PRODUCT by Charles Good Lima Ohio User Group

A product is "official TI" if it has the TI name engraved on it (hardware), or has a "copyright TI" statement (software). To find out if the product was ever released call TI's consumer service at 806-747-1882 and ask if the product in question is on any of their lists. This ran be important to you if you own TI products, because TI will still repair and honor "original purchaser" warranties on all officially released products. Even today, you can purchase NEW TI99/4a products, including the 99/4A computer, from dealers such as L.L. Conner, TexComp, and Tenex. TI still honors warranties, and still offers for a flat fee product exchange or repair on ALL its products that are out of warranty.

You might be surprised what IS on the officially released list. Many of the HexBus peripherals ARE on the official list. I am told that recently someone purchased a HexBus printer plotter for the CC40, never used, from a dealer. The printer was defective. Although it is now 1990 and this product was withdrawn from the market by TI in 1984, the company honored its warranty sent a replacement printer plotter at no charge.

On the other hand, products that were developed by TI but never officially marketed will not be repaired or supported by the company, even if the product has "Texas Instruments" written all over the thing. If you have one of these products and rall TI about the thing, they will tell you that what you have does not exist! Here is a partial lost of "efficial never released" II hardware that relates to heme computers. These products officially do not exist.

99/2 computer.

99/8 computer.

Nexbus disk drive for 99/8 and CC40

Wexbus interface (PHP1300) to let 99/4A use Hexbus peripherals.

Wafertape drive and wafertapes (HX2000) for CC40. IEEE card for the PE box.

HexBus 80 column video interface.

TI DSDD controller for PE box

I checked through back issues of Micropendium and found these products advertised used, as follows:

DATE	PRODUCT	ASKING PRICE
January 1987	HexBus interface	\$ 175
	99/8 with HexBus drive	\$1000
Marc8 1987	99/8 with HexBus drive	\$ 800
July 1987	IEEE/488 card for PE box	\$ 250
ш и	TI DSDD controller	\$ 175
January 1989	MexBus video interface	\$ 150
	Wafertape drive	\$ 150

The MBX system is a special case. The software, including those modules that only work on the MBX system, were officially released by TI and can still be purchased new. The actual MBX system was marketed by Milton Bradley and not by TI. I don't know if the MBX system is "officially" released or not. Milton Bradley does not offer to fix our of warranty products. It was manufactured for a few weeks in November of 1983 before production was halted due to the TI Black Friday. Asking prices vary considerably.

DATE ASKING PRICE SQURGE OF INFO

June 18	94 and	Unisource	nas 200	Enthusiast 99
O ctober	1984	units for 9	100 each	and Micropendium
March	1986	\$40	(Texcomp)	Micropendium
Hay	1985	\$49		Micropendium
August	1986	\$40	Chicago UG newsletter	
Oc tober	1987	\$200		Micropendium
April	1989	\$30		Micropendium
May	1990	\$75 With	4 modules	Lima faire

##DONE##

COMMETICAL

In the previous issue of DD&P it was repurted that a Lima D6 member had sent Asgard an advance payment for the met yet available Asgard 80 column card. This is not ture. No money was sent. Asgard is not collecting cash in advance for products that do not yet exist. The Lima U6 member did place an order for this product and agreed to foreward the money when the 80 column card from Asgard is ready to be shipped.

##DONE##

BROOKS' MAN

Adding management to a late software project submarit

CANADA BILL JONES'S NOTTO

Its morally wrong to allow naive end users to keep their want.

ESIMINE, & TWA

No matter how large and standardized the nurbstplace is, ISM can redefine it. #SDONE**

THE WATERTAPE DIGITAL TI PERIPHERALS:

a hands on description by Charles Good Lima Ohio User Group

The WAFERTAPE DIGITAL TAPE DRIVE was supposed to be a step up from cassette data storage. The device is totally under the control of the computer (no manual rewinding or keeping track of cassette counter numbers). A directory on the tape allows the computer to automatically advance the tage to the beginning of any desired file. Recording data digitally (as 1 or 0, on or off) rather than as part of a continuous spectrum of sound frequencies as is done on a requiar sound cassette recorder such as T.I.'s Data Recorder. was supposed to be a more reliable way of recording and retrieving data. Had this device been released in 1983 after its debut in January of that year, it and the also never released HexBus interface would have formed an inexpensive mass storage upgrade (compared to using a cassette recorder) for the 99/4A at a time when a new full PE box (SSSD) drive. 32K, disk controller) cost anywhere from \$550-\$1200. The last 99/4A catalog published by TI in the fall of 1983 lists the Wafertape drive for \$139.95 and the HexBus interface for \$59.95.

The watertape drive was shown at the Consumer Electronics Show in January 1983 together with the first showing of the CC40. It was to be the major mass storage device for the CC40, and is described and pictured in the user guides that come with most CC40 software and peripherales. Unfortunately these user guides now also come with an addendum sheet that states "The Wafertape Digital Tape Drive is not available." The non release of the Nafertape Drive left the CC40 totally without a mass storage device until the 1986/1987 introduction of the Mechatronic HexBus Quickdisk drive. This lack of a mass storage device probably killed most consumer interest in the CC40.

I recently purchased for \$100 a working Wafertape Drive, serial number 0000007, ATA3883. It is my understanding that the ATA number is a date code, indicating in this case manufacture in the 38th week of 1983. Most 99/4A hardware and software modules have an ATA number. If my understanding of ATA numbers is correct, my Wafertape Drive was not one of those shown at the January 1983 exhibit. I personally know of one other working Wafertape drive, serial number 00000973. I have been told that there are about 10 or 11 working Wafertape Drives in private hands and others that don't work.

The Wafertape Drive is comparable in size to other TI MexBus peripherals, measuring about 11.5cm wide, 14.5cm deep and 3.5cm tall. It is designed to be stacked with the HexBus RS232, modes, and Printer/Plotter. It is battery powered with 4 nn cells. You can also use an AC adapter. The front has an on/off switch and a slot for inserting the wafertape. On the back are two MexBus ports, an AC adapter jack, and a rotary switch for setting the device number. The switch on

corresponding to devices 1-8. By accessing each HexBus peripheral individually by number, a single CC40 could control up to 8 Wafertape Drives, if one could somehow gather that many working drives together in one place.

Wafertapes come in a cartridge measuring 68x40x5 mm. about as big as the miniature cassettes sold these days for small tape recorders. The top is clear plastic and the bottom is black plastic. T.I. calls these cartridges "wafers". They fit easily and snugly into the slot in the front of the Wafertape Drive. Inside the wafer a dark colored magnetic tape 1.7mm wide (very thin) is wound im a continuous loop, in the same manner as the tape of am ** track" music cartridge. The tape moves only in one direction and its ends are attached to each other with a piece of reflective silver tape. T.I.'s last 99/4A catalog lists 50 feet (\$7.95), 25 foot (\$6.95), and 10 foot (\$5.95) mafertapes. Five foot wafertapes are also mentioned in the Mafertape User's Guide. Long tages store more, but it takes langer to find the beginning of a specific file. Official T.I. wafers have a little sliding panel that covers the exposed part of the tape at the edge of the wafer. This slides open as the wafer is inserted into the slot on the Mafertage Drive. I have one such T.I. wafer and I also have some waters without a T.I. label and without the sliding panel. I wonder who made these "generic" wafers? I do know that other watertape drives were planned or actually sold for other devices. A wafertape drive for the Tandy 100 laster computer is described in the March 1984 issue of Creative Computing. Also, see the comments below from Tony McGovern about another watertape device. Maybe my "generic" wafertages were not made specifically for the II Wafertage Brive.

The method of write protecting wafers is unusual. When I first oot my Wafertage Drive I thought it was defective bocause I always got a "write protected" error sessage whenever I tried to initialize a wafer. I could find nothing resembling a write protect tab on my wafers, and looking immide the Wafertape Drive slot revealed no evidence of a sechanical pin associated with the "remove the tab and it is write protected" system of protection typically found on most audio and video tape cartridges. It turns out that you have to put a "write enable" paper sticker at a specific location on the top of the wafer in order to write to the wafer. Anything white will do. This "write enable" piece of masor is \$PTICALLY sensed from above by the Wafertape Drive. In the absence of the sticker, the optical sensor sees through the transparent wafer upper surface and does not get a reflection off of the black wafer bottom. A second optical somsor detects the silver end/beginning of tape marker. This marker is the only reference point the wafertage drive has to tell the relative position of everything else on the tape. On "8 track" continuous loop music cartridges, the end/beginning of tape marker is detected electromically. This silver marker on a wafertage is detected through a

window in the center of the water's transparent upper swrface. If the "write enable" sticker you are using is too big and covers this window, then the water will not be usable as I finally figured out after lots of frustration.

When you initialize a wafer with the FORMAT command of the CC40, the tape is advanced until the marker is optically detected, and then the Wafertape Drive prepares a new tape directory area at the beginning of the tape. The entire tape is not magnetically encoded with FORMAT, just the directory area. Software designed to directly read the contents of a wafertape directory reveals that if a previously used wafer is reformated, the old file names are retained in the directory area, but all file lengths are set to zero. The time required for a FORMAT depends on how close the tape is to its beginning when FORMAT begins. Even a 50 foot tape formats very rapidly if it is already almost at its beginning.

A directory has room for 16 files irrespective of tape iongth. Of course short tapes may not have enough room for 16 files if they are of significant length. Files are written to the tape sequentially, with the directory keeping track of the file name, number (0-15), and length. Apparently the Wafertape Drive locates specific files by file sumbor, counting the End-Of-File indicators that pass by the read/write head as the tape is advanced to the start of the desired tile. Only the last file can be overwritten, by another file of the same name. If you write a file with the Same mame as a file already on the wafer that is not the last file om the wafer, the old file's directory reference is deleted and the new file of the same is written to fresh space after all the other files currently on the tape, (I hope you understood that.) File types supported include PROGRAM, and INTERNAL or DISPLAY data files. RELATIVE files are not supported, and you can't open data tiles as APPEND. Although this is not made clear in available documentation. I think that when data files are read from wafertape, the emtire file is read into computer memory for manipulation by the controlling program and then later if necessary written back to mafertape. This limits the size of data files. Only one watertape file can be opened at a time.

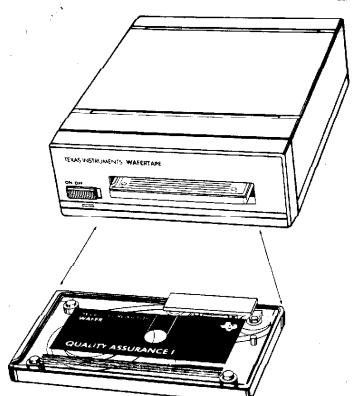
To compare the speeds of the Quickdisk and Mafertape drives, I timed the SAVE and OLD of a 15300 byte text file from Memo Processor using a newly FORMATED wafer and disk. Mafertape: SAVE, 4 min 25 sec; OLD; 3 min, 10 occ. Quickdisk: SAVE, 2 min 15 sec; OLD, only 3B seconds.

Why wasn't the Wafertape Digital Tape Drive ever officially released? It just did not meet T.I.'s standards for reliability. It does not work well on battery power. Even with four newly installed, fresh alkaline AA batteries, you almost always get an I/O error 25 (low batteries in peripheral) when you try to load something, and you often get the same error when you try to SAVE while on battery power. The Mafertape Drive only works with much reliability when

operated with the AC adapter. Apparently the speed at which the tape crosses the Wafertape Brive's read/write head is critical, and variations in this speed are not tolerated. with any battery, continuous power drain results in a voltage decrease compared to the initial voltage put out by the battery. Such a voltage decrease slows down the drive moter. Also, as the Wafertape Drive operates it turns itself on and off several times as it loads or stores data. Starting an electric motor requires an immediate surge of extra current compared to the current needed to keep the motor operating at constant speed once it has started. It is possible that the Mafertage Drive's AA batteries are not able to maintain constant voltage with all the required on/off cycles. addition to the battery problem, it is sometimes possible to write data beyond the end of the wafertage and wice out the directory on the other side of the reflective end/beginning of tape marker. This renders all files on the tage useless. I have managed to overwrite the end of a wafertape on two occasions. At other times, when I deliberately tried to do this, the CC40 would not let me write past the end of a wefertape. I sometimes get 1/0 error & (device error, try again) with the Wafertape drive for no reason I can determine. Sometimes trying again doesn't work. I never get these error messages when using my Amirkdisk drive. Finally, I suspect that wafertapes are not as durable as disks. The tape is very tiny and is subject to a lot of physical sovement and twisting as it moves within the wafer. I suspect that with time the tape may break. I know for example that I have had a higher percentage of my "8 track" music tapes break compared to my reel to reel cassette music tapes. Let me quote from a letter received recently from Tony McGovern of Australia, senior author of FUNNELNEB. "Mafer-tapes were always a disaster area! I think they appeared in one of Sinclair's UK machines. The other place they appeared, also in the UK, was in an abomination produced by ICL sold here, a computer phone -a combination of low end PC with modem/phone all built in- but no disk drive, only the wretched unreliable wafertape. Telecom Australia probably has a warehouse full of these things that they would rather not be reminded of. They had a great marketing campaign to sell these several years ago and no one wanted the turkeys."

I do use my Waertape drive. It isn't that unreliable. I have a little briefcase in which I can keep my CC40, the Mefertape Drive, my HexBus printer/plotter, a power strip, and all the necessary AC adapters all pluged in and ready to go. I can open the briefcase and plug in the power strip and use the peripherals as they sit in the briefcase. I can also use the printer/plotter and CC40 while still in the briefcase using battery power, but I have given up trying to use the Mafertape Drive with battery power. I keep my HexBus MS232 and Quickdisk drive pluged in (these two devices both REMDIME AC gower) next to my 99/4A. If possible, anything saved to wafertape ALSO eventually gets save to disk with the Smickdisk drive, which I find to be quite reliable.

next page



TI's Wafertape digital tape drive and wafer. Wafer is shown natural size with "write enable don't have graphics or key assignments and there really isn't paper immediately above end-of-tape window in a casy way to give them either.) the middle of the label.

DONE

Atl About Character Sets by: Andy Fruch, Lina U6

I had written about using CTRL and FCTN keys as a form of "macre" since practicaly every CTRL keypress represents a bound. All of this got me thinking about the TI's character set, and a lot of the information pertaining to it. that follows is a lot of miscellaneous data on the mail characters.

Most people don't take much interest in character sets. You hat a key, a symbol shows up on the screen. A code is assisted to every character. These codes are numerical values from 0 to 255. A space for more appropriately called a blank) is code 32, a capital D is 48, etc. The computer tnows at least two things about each character. Its graphic (what it looks like) and its assignment (what knys you press

to get that character). You can use both. For example, when you type in a program and use PRINT, DISPLAY, DISPLAY AT, or IMPUT/LINPUT with a prompt, you are using the graphic representation. When you use an HCHAR or VCHAR, you must use the actual numerical ASCII code. You also do this with the CALLS KEY subprogram. The function ASC and CHR\$ also were **mumorical** representations.

This information is all in the manual. There is more deta that is not in the manuals, or is covered in technical

When you use VCHAR, HCHAR, and CHR\$, you can actually use waluum up to 327A7. 256 is continually subtracted until you got a value in the 0-255 range. Not all codes have graphic representations. These are usually "empty" and appear as the blank/mpace character.

0 - Undefined (se key assignment/graphic)

1 to 15 - Function keys (see chart 1). Nest of those can be account in programs using CALL KEY, but not as remember to ACCEPT AT/INPUT statements. They have no graphic (unless a program gives it one. In that case, typing the character gives the pattern it was assigned.)

16 to 29 - Undefined (these are the same as 0 since they

30 - This is the cursor, usually a black square. 🔈 assembly routine is usually needed to redefine its graphic.

31 - This is the screen border. It is a blank and the color of the border around the screen, not the color of the screen itself. It has no key assignment.

32 to 126 - The "standard" characters (see chart 2). These are such things as letters, numbers, and symbols wood im everyday typing. They can be redefined in a program.

127 to 159 - These are called "user-defined" characters (and chart 3). They originally have no graphic. The sensel is incorrect in that it says when a program ends, the characters blank out. This is not true. Also, these bews have key assignments and are used to represent BASIC kewmards. at first. All but one requies you press CTRL and amother key. Character 127 used the FCTN key.

100 to 1/5 - Undefined (see above)

176 to 198 - These characters have key assignments (see chart 4), but no graphic, and no easy way to give any. They can be used with CALL KEY, but can not be displayed.

199 to 255 - Undefined (see above)

Reat

Even: those which I labeled as undefined have a use. You can access them through CHRS and ASC functions. They are useful as markers when manipulating strings. If you are transmitting data from the TI to another computer, the other computer may have representations for these characters.

Finally, each character string has a code between 0 and 235, accessable through CHR\$ and ASC. The SE6\$ function will let you address individual characters in strings, and the apersand operator (SHIFT 7) called concatenation will allow you to compose a string out of individual characters. If you have a program that keeps track of thousands of small integers and you can't fit them in available memory, strings are probably the answer.

Chart 1 - Function Key Codes

CODE KEY

1 FCTN 7 (AID)

2 Not useable in BASIC. It is associated with FCTM 4, but you can't really use this in BASIC. In Extended BASIC, am GW BREAK will work.

- 3 FCTN 1 (DELETE)
- 4 FCTN 2 (INSERT)

5 Used with QUIT. In Extended BASIC, a CALL Lens disables this key. I am not sure whether you can use FCTM = and a key code of 5 in a program.

- & FCTN 8 (REDO)
- 7 FCTN 3 (ERASE)
- # FCTN S (left)
- 7 FCTN D (right)
- 10 FCTN X (down)
- 11 FCTN E (up)
- 12 FCTN 6 (PROCEED)
- 13 ENTER
- 14 FCTN 5 (BEGIN)
- 15 FCTN 9 (BACK)

Chart 2 - Standard ASCII Characters

These are in the User's Guide, Extended BASIC manual, and both BASIC's Quick Reference Card. Refer to these. Note that character 127 shouldn't really be in this group. Characters in this group include 32 to 126.

Tonas Instruments - No Holp with Last Software By: Andy Frush, Line US.

I have praised II before in their sending me much material on the II recently, even after it ceased production. To their credit, they were very friendly and sent me several of the addendums and other similar information. However, I sent them a list of "lost" titles and their publishers. All or most of these have II copyrights. However, they "no nothing about these." Huk? If a product was copyrighted at ANY time by a company, shouldn't they no someTHYME about the thing? S.K., that's when I wrote, what happens when I call?

```
Chart 3 - User Defined Characters
 CHAF REY
 127 FETH V
 128 CTRL .
 129 CTRL A
 130 CTRL B
 131 CTRL C
 132 CTRL D
 133 CTRL E
                          Chart 4 - Key Assigned/No Graphic
 134 CTRL F
                          These characters aren't discussed
 135 CTRL 6
                          such in TI documentation.
 136 CTRL H
                          CENE KEY
 137 CTRL I
                         176 CTRL 0
 138 CTRL J
                         177 CTRL 1
139 CTRL K
                         178 ETRI 2
140 CTRL L
                         179 CTRL 3
141 CTRL M
                         180 CYRL 4
1472 ETRI N
                         101 CTRL 5
143 CTRL 0
                         162 CTRL 6
144 CTRL P
                         145 CTRL 7
145 CTRL 0
                         184 FCTN .
146 CTRL R
                         185 FCTN .
147 CTRL S
                         186 FCTN /
MI CTRL T
                         187 CTRL /
149 CTRL U
                        100 FCTN 0
MO CTRL V
                        189 FCTN :
151 CTRL W
                        190 FETN B
152 CTRL X
                        191 FETH H
153 CTRL Y
                        192 FETH J
154 CTRL 2
                        173 FOTH K
136 CTRL .
                        894 FEIN L
156 CTRL :
                        195 PETN N
137 CTRL =
                        PETN N
198 CTAL R
                        197 FETH B
159 CTM 1
                        198 FCTN Y
                                            ##BCHEAA
```

First I tried their very old Software conher. Nothing. They must have pulled that years ago. Next, I tried II-RESPUNSE and II-CARES. I called at various hours two separate days of the week to be sure I got different uparators. They all said about the same thing. The 40 had been pulled for about 6 years... Here's Tritons phone number. Triton does NOT have these lost titles in their catalog. As I see it, there is only one route left...wite to the publishers of this lost software. They WROTE those things, so they should most definately know something, right? We'll see.

(BBAP EDITOR'S NOTE: At the suggestion of T.I.'s consumer relations department, on August 15, 1990 I wrote T.I.'s legal department listing specific titles and stated copyright detuces the "never released official II software". I asked, "Book T.I. claim copyright on those titles?" As of October & I have received on reply. —Charles Seed;

##DONE##