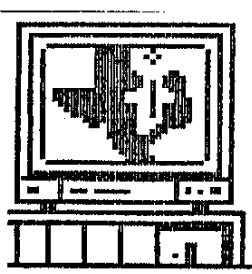

QB-MONITOR

QB-99'ERS U.G. NEWSLETTER

January 1989

The QB MONITOR is the Newsletter of the QB-99'ers User Group, is printed Sept. thru June and sent in exchange for other User Group Newsletters. Send Exchange Newsletter to Frank Cotty, Queensborough Community College, Bayside, NY 11364. Credit original sources.

The QB 99'ers meets the second Saturday of each month September through May, at Queensborough Community College, Bayside New York, room S225, at 2 P.M. Calendar at right shows dates

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Dues are payable January 1989 for all QB 99'er User Group members. The Dues are still only $10.00 Per year. Please enclose your check payable to the QB 99'ers User Group in the preaddressed, postage paid envelope provided with this newsletter.

This month's QB Monitor features a design change for the Masthead. The new design is the courtesy of Benjamin Griffin. As he mentioned the need for a more modern look, he handed me this design. Benjamin used TI ARTIST. I hope everyone else likes the work as much as we do.

This month's issue of the QB Monitor continues with hardware topics. Disk Drives are essential to most of us using the 99/4A. When the price of drives dropped into the affordable category many of us were tempted to purchase more than one. When you are setting up the drives there are things you should pay attention to. Ed starts this issue letting us know how not to go about adding drives. Although all that Ed says in this article is true, we still have to chuckle along with him. We should have fewer problems installing external dirves after reading of his adventure.

The HOW TO article for disk drive addition follows Ed's article. Ken Chandler wrote for the Manners Newsletter the article entitled "ADDING DISK DRIVES". This comprehensive instruction on external drive addition should be understood and followed by anyone wishing to expand to external drives.

I enjoy puzzles. So I included the "Call Commands You Should Know" by Paul Scheidemantle. I hope you find it interesting.

The trials of running a User Group include keeping track of who is paying dues. When tracking down the non-dues paying "members" we sometimes overlook the obvious. With apologies to Jeff Asenas and his U.G., which will remain annonomous, I am including the "Membership News". Please draw your own conclusions...Have a laugh. But, please pay your dues. (I have)

A chart of information is often necessary to let us see what options we have available. Lutz Winkler provides us with such a chart of the TI Disk File Formats. I hope this will be helpful for you in understanding how the TI handles your files.

The program this month, written by Ed Machonis is for printer functions. "Style Label" is a continuation of last month's article "Flexi Label". I'm still amazed at what Ed can do with a tiny gram.

At this time I would also like to mention that The QB 99'ers User Group will be a sponsor at the T.I.C.O.F.F. this MARCH 18th 1989 at Roselle Park High School, Roselle Park New Jersey. We will have a table there, and are paying our members entry to the Fun Fest. So if you are interested, and a fully paid up member, you only have to contact me for the information.

FRANK COTTY
QUEENSBOROUGH COMMUNITY COLLEGE
BAYSIDE, NY 11364

A TALE OF THREE DRIVES

By Ed Machonis

Elsewhere in this issue is an article on how to add additional drives. My own article is more in the nature of how not to do the same thing.

Browsing amateur radio flea markets, I had recently aquired 4 used MPI double sided full height drives at very reasonable prices. All were tested and worked fine although I have heard chain saws that sounded better. Two replaced my single sided full height Shugarts and the other two were place on the shelf along with the Shugarts as spares.

When Tony McGovern forwarded FWB 4.10 he stated, "The 4.10 FWB will make any set of drives you have seem too small after a while." How right he was, particularly since I use the TI controller which limits one to single density disk storage. There were 4 drives sitting on the shelf and I was feeling cramped for disk space. Why not install one of the MPI drives as DSK3?

Originally the Shugart connected as DSK2 had been connected to the Disk Controller card through one of TI's printed circuit adapter boards supplied with the card. The shunt pack on the Shugart was set up as DSK1 (Shunts one and two closed and the rest open) and the adapter card switched the DSK2 line to the DSK1 terminal on the drive. The shunt pack on the MPI drive had the shunt at each end of the pack closed and all intermediate ones open. When installed in place of the Shugart (connected through the adapter card) it worked fine as DSK2.

To install one of the MPI drives as DSK3 would evidently require resetting the drive's shunt pack. I obtained a DIP switch and a disk drive connecting cable with a connector at each end and one in the middle. Since the adapter card was keyed to the middle connector, this was used to feed DSK2 as in my original set up. The connectors at the ends were connected to the controller and DSK3. The DIP switch was installed in place of the shunt pack on DSK3. The DIP switch was configured as a Shugart would be for DSK3, 1st and 4th shunts closed. (Mistake #1. As the shunts were set differently on both drives for DSK1, why should they be the same for DSK3?)

Connected this way, the drive would not respond as DSK3 and DSK2 would not work unless DSK3 was disconnected from the cable. Obviously I had connected it wrong. Well the DIP switch would fix that. Since I knew nothing about how the shunt pack for the MPI drives should be set, I tried all combinations on the DIP switch trying to find one that would work. (Mistake #2. Never close a switch unless you know what will happen!)

Recalling that when replacing Drives 1 and 2, it was necessary to switch the two drives in order to get them to work properly, (and forgetting that I was working with one MPI drive and a borrowed Tandon at the time,) I decided to try the other MPI drive to see if I could make that one work. (Mistake #3. Why should things be any different? Both drives had worked fine before!)

The second MPI drive gave the same results as the first one. Again the handy dandy DIP switch made running through all possible combination a snap. (Mistake #2 Compounded!)

After some head scratching, it was decided to try one of the Shugarts (we had run out of MPI's). After all we knew how the shunt pack worked on the Shugart! But for some reason which eludes me to this day, the Shugart gave the same results. Again the DIP switch was put through its paces. (Mistake #2 Compounded Again!) Still DSK3 would not come on. Surely all three drives couldn't be bad? Or could they???

Easy enough to find out, substitute them for DSK2 with the original shunt packs installed. (IF YOU HAVE TEARS, PREPARE TO SHED THEM NOW!) None of the drives would work in any position. Swapping each defective MPI drive's circuit board with one from a good MPI drive, pinned the problem down to said boards. Swapping the Shugart circuit boards gave the same results. I had managed to destroy them all within an hour and a half. This was some sort of a record for me. In a lifetime as an electronic hobbyist, I had never before caused so much damage in so short a time.

Calling my son, more for sympathy than information, elicited the response, "What does the book say?" "Nothing much", I said. But his question made me go back to the book and look again. I had originally consulted the manuals for the Disk Memory System, PHP 1240, and the Disk Memory Drive, PHP 1250. They did not seem to make much sense to me at the time. Now I went back to them and discovered I had been trying to understand the Section titled: "Connecting the Controller Card to External Disk Drives." What I should have been reading was the Section titled: "Connecting the Controller Card to BOTH INTERNAL DRIVE AND External Drives."

Of course TI never mentions shunt packs, it depends entirely on the adapter board for all drives. Starting to see the light, I decided to try it their way. I had one spare drive left, a Shugart single sided drive. Considering my track record to date, I agonized a whole hour before deciding to go ahead. I hooked up the cables as outlined in the manual, turned on the power, summoned DSK3 and Viola! Success.

Another trip to a Ham Flea Market produced another double sided drive, (Tandon) which replaced the Shugart. I find having the third drive much handier than I ever though it would be. FWB 4.12 is seldom removed from DSK1. All copying is done from DSK2 to DSK3. If you need multiple copies of the same disk, as for Disks of the Month, etc., Turbo Copy will copy from DSK1 to DSK2 & 3 with one read. DSK2 and DSK3 are also used alternatively to save files when using the Editor. Most of my use of the Formatter is to print to disk. Now we read from DSK2 and print to DSK3 with a lot less wear and tear on the drives.

If you have an spare drive not doing anything and have only two drives connected to the controller card, you may want to think about hooking up DSK3. If you do, be sure you know, beyond any doubt, how to proceed or find someone that does. I have presented this sob story to help you avoid my mistakes. I never thought a drive could be damaged by improper setting of the shunt pack but evidently it can. Adapter boards can be obtained free from TI Cares.

If anyone out there has a schematic for the MPI Model 52 SA, I sure would appreciate a copy.

ADDING DISK DRIVES

By Ken Chandler

Remember how great it felt when you got your first disk drive? It worked so fast! No more spending hours trying to load cassettes. No more waiting and waiting and waiting, while the computer decided of it was going to let you off easy and accept your program or let you guess levels one more time. Little did you know at that time that you were just embarking down a road that would have you:

1. Lusting after a second and third disk drive almost immediately.
2. Trying to satisfy a ravenous appetite for blank diskettes.
3. Looking at new types of software opened up by the disk format.
4. Making two and sometimes three copies of important programs.
5. Watch the computer tell you that a diskette is bad that looks perfectly good to you.
6. Trying to explain to your wife (who didn't understand why you needed the first drive) why you need to spend another $300 on a second disk drive.

Well, take my word for it-- you will someday want a second disk drive. Some advantages of two disk drives are:

1. Infinitely easier to make backup copies of disks. A double sided disk could take 20 minutes with one drive (with lots of disk swapping), but only about 5 minutes with 2 drives.
2. Some software requires 2 drives. One drive contains the source disk which may be frequently accessed. The other contains the data disk to store the information generated by the program.
3. If you have only a single sided drive, you can add a second, double sided drive and have the ability to read software in both formats.

Okay, so you've decided to add a second, external drive (the first one is in your P-box). What do you look for? Well, you can use any good quality 40 track, single or double sided disk drive. To be compatible with the disk controller, it should have a track-to-track access time of 20 milliseconds(ms.) or less. Drives with only 35 tracks will work, since you specify this value when you initialize a diskette. However, you won't be able to store as much data as a 40 track diskette. You may mix single and double sided drives in the same system, but remember:

1. Double sided drives can read/write single or double sided diskettes.
2. Single sided drives cannot read/write double sided diskettes.
3. You cannot back-up a double sided diskette on a single sided drive. You will have to break up the data into two single sided diskettes.

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If your first drive in the P-box is a full height model, then the second drive must be mounted externally in its own enclosure with its own power supply. Expect to pay $50-100 extra for this. The external connecting cable will cost another $25-35.

If your initial drive is half-height, you can physically mount 2 of these drives in the P-box. However, the P-box power supply may not handle the load. You can buy installation kits that also supplement the power supply or you can have someone modify the P-box for you.

Now, let's say you are going to add an external drive. How do you hook it up? Most disk drives have one large main circuit board inside. You need to locate 3 areas of this board (see Figure 1):

1. The connector strip
2. The shunt pack
3. The termination resistor pack

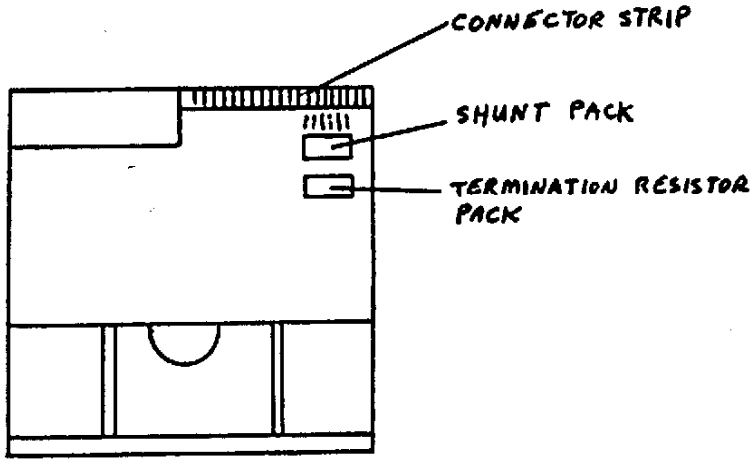

FIGURE 1

The connector strip is where you connect one end of the disk drive connecting cable. The other end goes to the disk controller card. The shunt pack is used to configure the disk drive and the resistor pack is used to terminate the last disk drive in a string.

Let's discuss the easiest item first. The termination resistor pack is a 14 pin package that looks like an integrated circuit. It must be plugged in the last drive in a string. If you have 2 drives, Drive #1 will have no resistor pack and Drive #2 will have one. Therefore, when you add your second, external drive, you must pull Drive #1 and remove the resistor pack.

To do this, carefully pry up on each end slightly with a small screwdriver until you can lift it out. Be careful not to bend the leads. Now, reinstall it on Drive #2. There will be a notch

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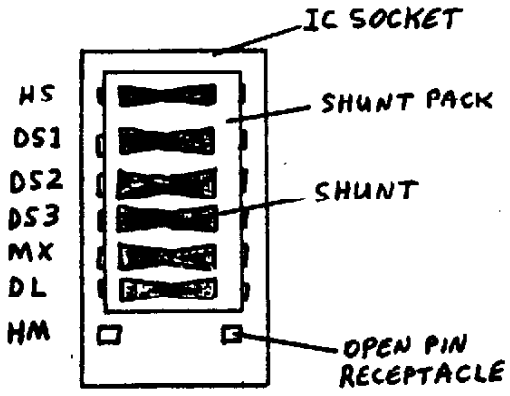
or dot on one end of the resistor pack that matches up with something similar on the socket on the circuit board. If the socket has more than 14 holes, install the resistor pack in the holes toward the outside of the circuit board. It won't hurt anything to leave the bare holes to the inside of the circuit board.

Now, the rest of this article explains how to add a second or third non-TI disk drive. If you are adding a TI drive, follow the instructions that came with the disk controller card. The procedure is different because all TI drives are configured at the factory as DSK1 or disk drive number one. This is possible because of the special connecting cables they use. Three pins on the disk controller card connector designate which disk drive is accessed. Pin 10 selects DSK1, Pin 12 selects DSK2 and Pin 14 selects DSK3. If every TI drive is configured as DSK1, how does a signal from Pin 12 get to Drive #2? Well, TI supplies a small printed circuit jumper block that you use to connect their cables together. The signal comes out on Pin 12 at the disk controller, but is jumped over to Pin 10 at the cable connector. From there it goes to Drive #2, but on the DSK1 Pin! The controler thinks it is accessing DSK2 and Drive #2 thinks it is DSK1 and everybody's happy.

Okay, for non-TI drives, we want to hook Pin 10 to Drive #1 (in the P-box), Pin 12 to Drive #2 and pin 14 to drive #3. Actually, these pins (wires) appear at each drive, but the appropriate ones are actually connected to the drive with the shunt pack. This way, we can use straight cables with no special jumper blocks.



HS:HEAD SELECT.Head is loaded by drive select signal.
DS1:DRIVE SELECT 1
DS2:DRIVE SELECT 2
DS3:DRIVE SELECT 3
MX:MULTIPLEX.Must be cut for multiple drive configuration.
DL:IN USE/DOOR LOCK
HM:HEAD MOTOR.Head is loaded by motor signal.

FIGURE 2
SHUNT PACK

Figure 2 shows a shunt pack. Note the pins marked DS1, DS2 and DS3 (these markings will be on the circuit board right next to the socket). Some boards may say DS0, DS1 and DS2, but that's okay (DS0=DS1, etc.). The HS shunt should always remain closed (unbroken). The next three shunts should have two of them open (broken) with the one left closed designating which drive this

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is. For example, Drive #1 would have DS1 unbroken and DS2, DS3 shunts broken. Drive #2 would have DS2 unbroken and DS1, DS3 broken. MX should be open (broken), since we are using more than one disk drive. You don't have to worry about the other two shunts (DL, HM). They can be left broken. To configure the shunt, remove it from its socket and turn it upside down (legs up) on some newspaper. Use a small screwdriver or pointed object to punch through and break the shunt. Of course, once you break one of the shunts, it's hard to reverse the procedure, so be sure before you do this.

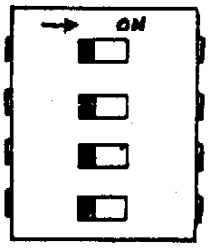

FIGURE 3
8-PIN DIP SWITCH
(4 SWITCHES)

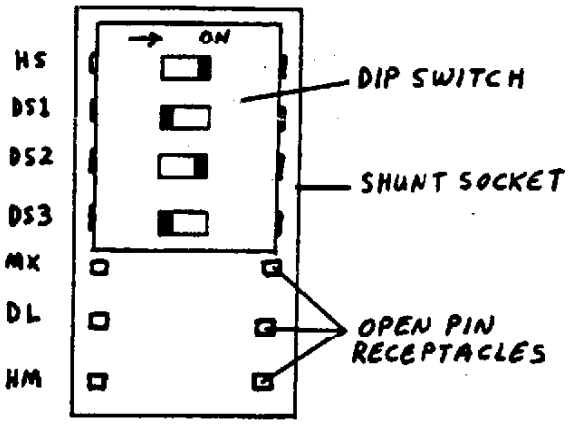

FIGURE 4
DRIVE CONGIGURED
AS "DSK2"

An alternate way of programming the shunt is shown in Figures 3 and 4. You can buy an 8-pin mini DIP switch (4 switches) at electronics stores for about a dollar. It contains 4 tiny slide switches and plugs into any IC socket. You can remove the shunt pack and plug the DIP switch in its place. Place it as shown in Figure 4, since we only need to program the first 4 shunts. This method works better because you can easily reprogram the drive by resetting the switches.

Using the above procedure, you can use standard 34 conductor ribbon cable to connect the external drive(s) to the external drive connector on the disk controller card. You can buy the cables ready-made or you can make them yourself. By the way, if you're using TI cables on somebody else's drive, you may have to slightly modify the connector before you can plug it onto the drive connector strip. The TI connectors have a rib in among the contacts that mates with a slot on the TI drive connector strip. This is there to prevent you from plugging in upside down. However, other drives don't have this slot, so the connector won't fit. Take an exacto knife or razor blade and carefully shave off the plastic rib. Of course now you have a 50-50 chance of plugging in upside down, but if it doesn't work properly one

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way, reverse it.

The external drive has its own power supply, on-off switch and power line cord. This brings up another problem. If you turn on your console and P-box (but forget to turn on your external drive) and try to use Drive #1, you will get an I/O error. Both drives must be turned on for the system to work properly. The easiest way to solve this problem is to buy a 6-outlet power strip. It plugs into the wall, has 6 outlets, an on-off switch, pilot light and a circuit breaker. You can buy them on sale for less than $15. Now you can plug everything into the power strip. When you flip its switch on, everything comes on (you should still turn the console on manually with its switch).

Well, now that you know all about adding drives to your system, get out there and beat the bushes for those bargain drives! Disk drive prices have been constantly falling and I've read that they will fall even more over the next year. This is because places like Hong Kong and Taiwan are planning on producing huge quantities of drives. I don't necessarily suggest buying these, but they will influence the price of all drives.

I think you should stick to well-known brand names like Tandon, Siemans, Teac, Shugart, Qume, MPI, etc. Make sure you get a guarantee, since disk drives are mechanically complicated and require maintenance. There are some good buys around on used or refurbished drives. I bought my second, double sided drive from Salmagundi LTD, a small company run by Dan Hartfield, a fellow club member. It is a remanufactured MPI unit with a 90-day guarantee. I paid $145 for the drive, $45 for the enclosure with power supply and the connecting cables cost $25. That's $215 complete for a double sided drive! So far it has worked fine and it was considerably cheaper than a brand new one.

>>>> Call commands you should know! <<<<

By: Paul E. Scheidemantle

The words can be in the puzzle backward, forward, up, down, & diagonally. Circle them as you find them. This is a tuffy this month but you should still able to complete this puzzle in 30 mintues.

WORD LIST

CALL CHAR
CALL CHARPAT
CALL CHARSET
CALL COINC
CALL COLOR
CALL DELSPRITE
CALL GCHAR
CALL HCHAR
CALL INIT
CALL JOYST
CALL KEY
CALL LOAD
CALL LOCATE
CALL MAGNIFY
CALL MOTION
CALL PATTERN
CALL SCREEN
CALL SOUND
CALL SPRITE
CALL VCHAR

G O M L A T J S G W D S T J X I R W N X
Q S B U D Y B F F N D E N E T R R U P G
H Q C H E K W J E S E K H E A A N W Z O
G P Y O H N N E Y T R T S H H O D K P E
O W Y K X C R E A O R R C C I N I X C A
D O Y W G C K C L D A G V T U Q A X R O
I N J M S L O O A H L L O O O E S Y Q O
K K Q L L L C O C L L M S V N P F Q C S
K P L A L L L L A A L L B R R I F N U W
W A C L L L L C C L L C E A N Y I Z R Y
C M A A L A S M A A T T H G L O I A J G
K C C A C X A C C S T C A A C U H X W Z
T E C V H O M T Y A H M Y L R C Y A H B
Z Z L E J J I O P L L C L R L P V Z P L
Y Y R L D N J L L L O A N L F K A Y B H
M W I B I L L A A P C P A H S Q M T R L
Q L P L L A C C T T V C G I I Z G E T Y
I A L A C N C A L L D E L S P R I T E C
O A C S F T R D W F J N W G N K N I E Y
C H P R C A L L S P R I T E M A M W X F

REPRINTED FROM THE NOVEMBER 1988 ISSUE OF AN EXCHANGE NEWSLETTER

MEMBERSHIP NEWS
BY: JEFF ASENAS

In order to cut costs of the club, I have been reviewing the membership and newsletter exchange lists with editor, Charles McDonald. We have sorted out the newsletter part, but not the membership part. So here is the deal. If your name is on this listing you owe dues. If they are not paid at the next meeting (or at least contact Charles if you can't make the meeting) then the name will be dropped from the roster. It's that simple. We do hope though that all members will renew their memberships and continue with the club. We all need to stick together to survive.

Here is the list:
Since 1987: James C. Parker, William Coveny Jr., Dick Wolover

Since January '88: Deni Dinsmore, W.S. McPherson

Since February '88: Danny and Rhonda Cerda, Richard Parsons

Since May '88: Ray Wolff

Since June '88: Harley Harlingten, George Holod, Bob Martyn, Steve Mehr, Derek Wheeler

Since August '88: Goldie Illk

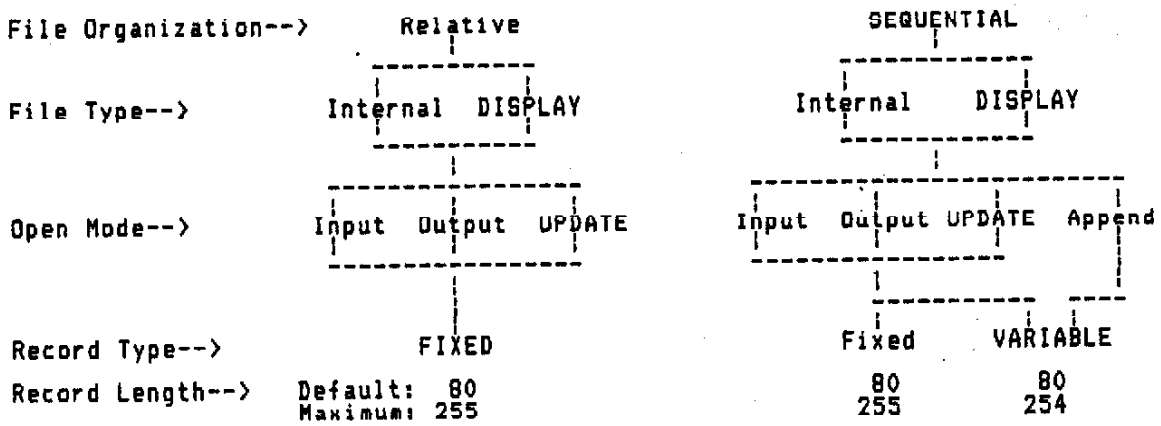
Since September '88: Gabriel and Jeff Asenas, John Caudell

Since October '88: Shirlee Smith

Dues may be mailed to the Treasurer: Richard Parsons [redacted]

or may be brought to the meeting. Thank you... Secretary, Jeff Asenas

TI DISK FILE FORMATS



[DEFAULTS ARE SHOWN IN CAPITALS]

By Lutz Winkler [Extracted From Nov 88 Newletter of TI-SIG San Diego Comp. Soc.]

STYLE LABEL

A TIny Gram

By Ed Machonis

This is really a continuation of last month's Label article which described FLEXI LABEL. You were warned that there was more to come and this is it. The two programs were written at the same time to serve the same need.

FLEXI LABEL will provide labels with up to 10 lines of text all in Expanded Compressed type style. (I know the type style sounds like a contradiction in terms but it looks a lot better than it sounds.) STYLE LABEL, on the other hand, provides a choice of three type styles but you are limited to 5 lines of text.

The type styles available are:

1. Expanded Pica allowing 16 characters per line.
2. Expanded Elite with 20 characters per line.
3. Expanded Compressed which allows 28 characters per line.

The larger type styles are a boon for those of us who need glasses to consult a telephone directory. When you first RUN the program, you can chose your type style from a menu. If you want to change the type style at any time during text entry, just enter FUNCTION C(hange) and you will be returned to the menu for a new selection.

All fonts are printed double strike; a little slower perhaps but a lot more readable, especially with weak ribbons. Expanded Pica is printed Emphasized as well.

Don't worry about keeping count of the number of characters on a line. The program automatically limits you to the number of characters permitted by the selected type style.

When entering text for a new label, the lines entered for the previous label will appear as defaults and can be used "as is" by just pressing <ENTER> or edited as required. All editing keys are functional when entering text. Entering a blank line will result in a blank line on the label.

The type styles and printer codes are those available on the Epson RX-80 and should work with most Epson Compatibles. The print codes are contained in P$(1), P$(2) and P$(3) in line 2 and can be readily changed as required. G$ contains the print codes for Master reset, double strike and expanded printing. The code for Expanded (E$"W1") may need to be changed for some Epson "compatibles".

Due to sales of public domain software by certain distributers, a copyright notice has been placed on this program. It may be freely distributed provided no fee of any kind is charged. This article and/or the program listing may be published in newsletters of non profit User Groups.

```
1 ! ***** STYLE LABEL ******
    *     A TIny Gram      *
    *   Copyright 1988     *
    *   By Ed Machonis     *
    **QB-99ers, Bayside NY**


2 E$=CHR$(27):: G$=E$&"@"&E$
&"G"&E$&"W1" :: P$(1)=G$&E$&
"E" :: P$(2)=G$&E$&"M" :: P$
(3)=G$&CHR$(15):: C(1)=16 ::
 C(2)=20 :: OPEN #1:"PIO.LF"


3 DISPLAY AT(3,1)ERASE ALL:"
# OF CHARACTERS PER LINE:";;
:"1=EXP PICA-16";;:"2=EXP EL
ITE-20";;:"3=EXP COMP-28";;:
"CHOICE? 3" :: ACCEPT AT(11,
9)VALIDATE("123")SIZE(-1):W


4 C(3)=28 :: DISPLAY AT(1,1)
ERASE ALL:"ENTER ""`"" TO CH
ANGE FONT" :: FOR J=1 TO 5 :
: DISPLAY AT(J*3,3):"ENTER L
INE";J:L$(J):: ACCEPT AT(J*3
+1,1)SIZE(-C(W)):L$(J):: IF
POS(L$(J),"`",1)THEN 3


5 NEXT J :: DISPLAY AT(20,1)
:"HOW MANY LABELS?" :: ACCEP
T AT(20,18):Q :: FOR K=1 TO
Q :: FOR L=1 TO 6 :: PRINT #
1:P$(W);" ";L$(L);CHR$(10)::
 NEXT L :: NEXT K :: GOTO 4
```