

NH99'ers User Group

New Hampshire 99'ers User Group
PO Box 5991, Manchester, NH 03108

Newsletter

November 1989
Vol. 7, No. 11

LAST MEETING

During October's meeting, numerous items were brought to the attention of the club including the state of our disk library, the plans for a club money raiser, our potential joining with the Boston Computer Society, and a demonstration of a boat design program by Ed Trzesniowski. Attendance was medium and the participation in discussions was good.

One of the first items mentioned was the state of the club library. Chris Agrafiotis has loaded and run every nonutility program in the library to ensure that 1) it works and 2) it does anything when it does work. The results were disheartening, but not altogether unexpected. In Chris' own words, "If someone offered to sell me the entire library for \$5.00, I wouldn't take it."

Please rest assured that Chris was not referring to ANY of the utility programs, and that he wanted to make it clear that we do have most of the latest 'hot-shot' games such as Oh Mummy, Freddy, etc. Chris' point was that the rest of the material in the library runs from the ho-hum to dumb. Furthermore, the utilities that we do have are somewhat outdated in many cases.

The solution to both problems may be a trip to one of the BCS meetings. A quick check of the BCS catalog before the trip will give us a good idea of what's available and what we need to pick up. By updating our club library we can better serve those club members who are not able to get into Boston.

The club's money making project was discussed in some detail, and I have the ball back in my court. For those of you not at the meeting, I apologize for not mentioning any details in the newsletter. However, I believe (and I hope that I convinced the other members present) that this particular project needs to progress somewhat before we go public with it. Suffice it to say that it is something no other club has yet done. I'll give you another hint: if successful, this is something which can spread to other computers as well. If you are interested in being a part of this, come to the next meeting and help us get it off the ground.

I have not contacted the people at BCS concerning the possibility of Chapter status. A couple of members had mentioned in September that they thought there were BCS chapters of the IBM group already meeting somewhere in Manchester. I asked in October that those individuals check into that and get more details, if possible. This may all be a moot point, however, as it appears that the club is revitalizing. With a meeting coordinator (yours truly) and a separate newsletter editor(s), the once formidable job of President has become something easily manageable to anyone, regardless of work conflicts. Hopefully, someone will volunteer for this position in the near future so that we may fulfill our corporation requirements.

Ed Trzesniowski demonstrated a series of programs he wrote which design boat hulls. By modifying a handfull of parameters, the length, beam, and other distinguishing characteristics may be quickly changed to design a boat that meets your own particular requirements. Ed's output consists of a series of cut-away views showing the rib structure of the boat, along with a top-down view to help in locating the various rib sections. These plans can be used as is for building a model, or can be scaled up for building the real thing.

Ed also indicated that since the equations used are conical, a minor variation in the program could produce ellipsoids - the beginnings of an airplane fuselage! If you are interested in Ed's boat program, or would like to encourage him to produce an airplane version, he can be reached at:

Ed Trzesniowski
7 Heritage Drive, #523
Claremont, New Hampshire

FROM: HOUSTON USERS GROUP--AUG88/PS/6

BITS and BITES: CONSOLE POWER SUPPLIES:

OK, already. I keep seeing "information" on the switching power supplies for the TI console, so I will throw in my five cents worth. In the first place, there were three models of power supply produced for the TI 99/4 and 99/4A consoles, and (possibly) for the 99/8. The most common one, and the ONLY one (apparently) which ever was supplied in the consoles for domestic (USA) use, was the "hot" one with the "L-shaped" heat sink for the 78M12 (+12v regulator). Typical Board or part No.s were "4A PS"; "1049689-2 or -3". It used a 79M05 regulator for the -5 volts, derived from the "extra" wire (black, pin 2) from the transformer. The +5 volt section is a simple "series-pass" design using a TIP31 transistor. These units generated approx. 4 watts of heat on the 12 volt regulator, and approx. 8 watts on the +5 volt transistor (approx. 10 watts with Ext.Basic module operating due to 125 ma. current draw of the module. The console typically draws 550 ma, 125 ma for X-Basic, and 100 ma for speech, for a total of 3/4 amp+. With 1/2 watt inside the X-Basic module, and 14 watts cooking below it, and very little ventilation except PAST the module, temperatures of 50 F. above ambient were attainable, or 125+ F. in a 75 F. room. THIS = Lockups.

TI was possibly aware of this, and in March of 1983 a Japanese PS was started, by I. T. Kogyo Co, using the TI 7812 chip, a TIP30 xstor, and a pair of NEC UPC494c chips; one to regulate the -5 volts and one to regulate the transistor as a switching device, thus lowering the heat output of the power supply from about 14 watts to around 7 watts. These power supplies were produced in two versions: Board# 1053201 was used up to May 1983, with Serial numbers as high as approx. "A 25000", so apparently 15 to 20 thousand per month were being made. In May 1983 this circuit was "revised" to model# 1053214-2, to remove the LED pilot and resistor R-6 (300 ohms) for the pilot. Guess what also happened in May 1983? The black and silver console was replaced by the Biege console 4A, the very same motherboard was used but NO PILOT LED. It is obvious that TI commissioned this KOGYO PS for the 4A (and probably had it in mind for the 99/8 also) from the exact mounting holes

and plugs matching to the TI PS in the consoles. These power supplies are identifiable also by the large number of vertical capacitors, bright red and black, and the two vertical "w-w" shaped aluminum heat sinks. DONT short these two bare metal heat sinks together--one is grounded, and the other is at +23volts direct from the rectifier! Instant death to the diodes!!!! (and the Power Supply and Console!).

The KOGYO was manufactured through August 1983 with serial No.s as high as "A 95000+", and probably represents an initial order by TI for 100,000 units, typical in such industries. So far as I have been able to determine, NONE of these units were EVER used by TI in consoles, although it would be interesting if owners of the (few) 99/8's could check and see if THEY got this type of unit, since there have been a few which had different plugs from the 99/4A plug, and these may have been for the 99/8. These Kogyo's have shown up all over the surplus market, and are the ones which Radio Shack sold about 25,000 of during 1986 and 1987. And they are still floating around from some places like Lohr in Dallas and Computer Parts Outlet in Del Ray Beach Florida, for less than \$4.00 each now, I was told.

The THIRD model of power supply was one made by TI itself, and used virtually the same components as the original "hot" supply, but in a switching type circuit for the +5 volt section. These were manufactured ONLY in Sept, Oct, and possibly Nov 1983, no serial numbers on the boards so no idea how many were made, but the board part No. was "PWB 1053201-0002, Rev F", with TI's logo on the board, and marked "ASSY 2704130" on the top. These PS units were all made without a LED and are a simpler circuit design (read, "cheaper to make"), and use the 7812 +12v regulator chip, the TIP31 xstor, and a 7905 -5 volt regulator chip. These units (and the Kogyos also) use a transformer on the board to derive the negative voltage for the negative regulator, and therefore both types only use the 18 volt AC lines (pins 1 and 2 on the transformer plugs) and thus two wires.

This TI PS is a fairly good design, regulates better than the original but not as good as the Kogyo, and runs the heat sinks (Black "U" or "W" shape, perforated) slightly hotter than the Kogyos; also make a slight whining noise

in operation, but they are a reliable and easy "drop-in" change for the original "hot" supply. The only design fault I see on them is that the +12 volt regulator is used to control the +5 volt circuit, therefore if the +12v goes down, the 5 volt will go down with it. AND, since the over-load (or over-heat or even general-failure) mode of the 7800 series chips is to reduce voltage and current output progressively to cutoff, this would cause the whole supply to go off as a unit if part of it failed. Which really is not such a bad idea after all!

I have used these--MUG TIBBS is on one and runs such cooler, especially with 35 or so 1/8th in. holes drilled through the top of the plastic deck directly over the heat sinks so the hot air goes directly up instead of back through the console and module, and the X-Basic module runs MUCH cooler. Again, the heat sinks are Ground and Hot and you MUST NOT let them touch each other or let the outside back one touch the other-board shield or you will have a disaster. It IS a close fit. These "type 3" units have been on the surplus market also, and were sold through "All Electronics" in California with the "black brick" transformer, for less than \$5.00; also at some local places.

The change of power supplies is probably the number one modification that you should make to your console as the reduction of the heat generated inside will greatly decrease the occurrence of Ext-Basic lock-ups and also greatly increases the expected life before failure of components.

>> Now, a WARNING to you. The Kogyo supplies have a fairly sophisticated design and provide a very well stabilized and regulated +5 volt output, but they have two weaknesses: 1) the -5 volt regulators have been known to fail or at least to go to low voltage (-2 or -3 volts) after some use. This will give some very flaky problems in Basic or esp. in Ext. Basic, typically a "colorfilled" screen or lock-ups, due to not driving the SRAMs properly. NOT a permanent problem, just change the PS again to the original or another Kogyo, B U T F I R S T !, and before EVER installing ANY power supply into ANY device, check the voltages carefully, preferably under load (resistors) and with a scope, but at the very least, with a VOM, or you may discover the

(Cont'd)

Kogyo #2 problem: The FAILURE MODE OF THE KOGYO SUPPLY, on the +5 volt side, is to Short the transistor back to the -3 volt rectified supply--this places +23 VOLTS OUT THE +5 VOLT lead and INSTANTLY you have NO MORE CHIPS IN YOUR CONSOLE, period. Pull the GRON angle plug and the keyboard out and scrap the rest!!! The Kogyo's do not seem to fail in operation, but only if the output is shorted or loaded past 1.5 amps, and the resistor fries. AND, worse yet, MANY of the Kogyo's sold by Radio Shack were "returned" units (bags obviously opened and then resealed) and you know what? EVERY ONE LIKE THIS THAT I CHECKED HAD 23 VOLTS ON ITS 5 VOLT OUTPUT!, and other than one Kogyo which I blew out myself while destruction testing (into RESISTORS, of course), I have found NO OTHERS that were defective in this way, or which went bad. But I HAVE HEARD of people who put in these little jewels and soaked their consoles in other groups!!!

The obvious caution is: CHECK THE P.S. BEFORE INSTALLING IT, and PUT AN IN-LINE FUSE HOLDER IN THE +5 volt LINE FROM THE PS TO THE CONSOLE, and use a 1-amp QUICK-BLOW fuse. This will protect from PS failure, from any accidentally shorting that you do inside the console or the Speech Synthesizer, AND to some extent, from over-current due to power line surges. The 7812 chips are all current limited and shut down to approx. zero volts when they see a short to ground on their output, so there is not so much problem there.

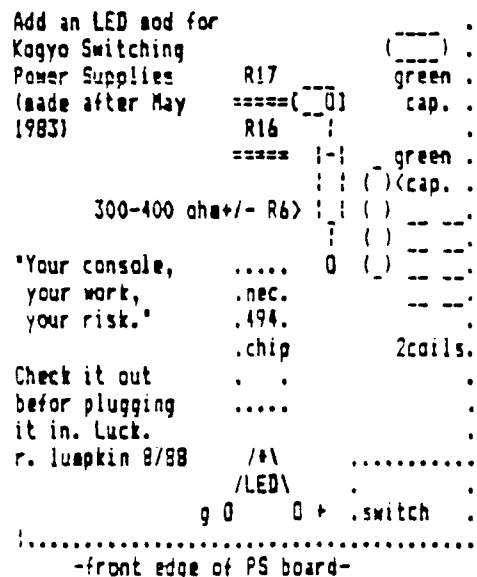
So what did I just say? Well, for all those people who are out there using these little power supplies for "disk-drive" power to external drives, GUESS WHAT! You are skating on thin ice--if you happen to pick up a large start-up surge or if you just accidentally short something down at the drives, what will follow down that line will wipe out the drives and all the way back into the controller card! Lesson is this:

- 1) ALWAYS !>ALWAYS! check out power supplies before hooking them up, even if they are brand new.
- 2) Don't use "kluge" power supplies or hook-ups for purposes not intended unless you KNOW exactly what you are setting up and how it is going to work.
- 3) FUSE all possible lines. I even put fuses into my surge protector outlet strips in place of the silly circuit breakers. Circuit breakers are too slow and imprecise and don't trip until heavy current has already passed.

anks RICHARD LUMPKIN

Just to finish this all out--about a year ago I noted that the Kogyo supplies which did NOT have an LED exhibited a tendency to pulse the +12 volt line. This corrects itself when any load is placed on the +5 volt line, even as small as a LED pilot light, therefore I advised to add the LED back onto the board: it goes into the two holes at the front beside the switch, sometimes marked A and K. The re-placed resistor R6 goes into the two holes (not marked) about 1 in. back, beside the oval green capacitor and pointing front to back, at the right-hand ends of R16 and R17, which go side-to-side. The back of R6 electrically joins the end of R17. R6 may be from 300 to 400 ohms,+/-, depending on the LED you use. The positive end of the LED goes Right, toward the switch; if it doesn't light, turn it around and it should work. If it seems too bright, increase the resistor value. I usually use a 390 ohm.

Layout drawing for LED for Kogyo power supply:

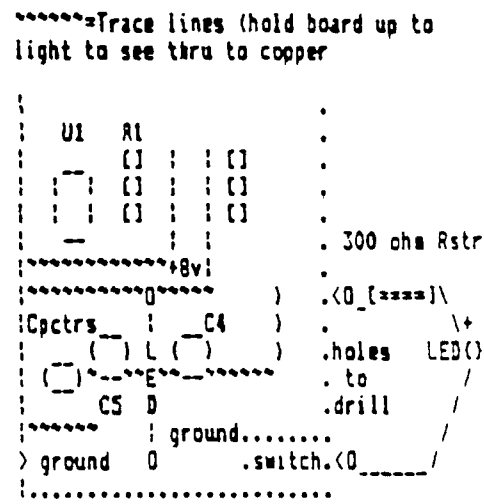


It is also possible to add an LED to the TI "type 3" PS units; not needed unless you want to retain the LED for the black and silver consoles, or wish to drill a hole beside the switch in the beige console so you can have an LED pilot there, like I did:

There are two circuit traces running across the front of the board underneath the series of capacitors; one is ground and the other one is +8 volts. You will have to drill through with a

1/16th drill bit or smaller, carefully, between the capacitors, and solder in the LED+Resistor:

Layout for LED addition to TI Type 3 power supply:



- 1) solder LED to Resistor
- 2) insulate leads w/ tape or "spaghetti"
- 3) carefully solder into holes you have drilled.
- 4) if it doesn't light, you either have the LED reversed or the resistor is too large value.

I have done a dozen of these and the Kogyo supplies, and I always "cook" them overnight with a resistor load (5 ohms on 5 volts (10 watt resistor), 30 ohms on the 12 volt (use 10 watt resistor here also), 100 ohms on -5 volt) and have had none go bad after that. The resistors get HOT!; Be careful in case it smokes, literally.

DISCLAIMER: Again!...be aware that any wiring done on ANY equipment may void the warranty. Also, with any work done on power supplies the possibility exists for total destruction of the device if you make a mistake on voltages or polarity. I am providing this as a service for information only, and I cannot be responsible for the work YOU do on YOUR equipment. POWER SUPPLYS/rtl-Aug88/5/6

Address of suppliers follow:

Lolir-Main; 13933 N. Central Expy, #212; Dallas TX 75243; 214-234-8032; (Other parts avail also) (P.S. at \$3.50 ea.)

Computer Parts Outlet; Attn: Steve Sullivan; 2275 S. Federal Hwy #2239; Del Ray Beach, FL 33483; 1-407-265-1206 ("OLD" TI type at 10 /\$12.50 + ship)

for a VERY informative article! (ESM)

isk files that can be loaded directly into the computer re in the following forms:

PROGRAM, INT/ VAR 25 4, DIS/ VAR 163, DIS/ VAR 80, DIS/ FIX 80,

any other file format represents a data file which can be loaded from within a program already in the computer. Examples are INT/ FIX 108, INT/ VAR 128, and DIS/ VAR 64.

PROGRAM. These files are the most common and the vast majority represent TI BASIC or Extended BASIC programs. Many TI BASIC programs load and run correctly from Extended BASIC (but not vice versa). However, if after loading the PROGRAM file into Extended BASIC you get a BAD VALUE INXXX error when you attempt to RUN the program, you need to reload the program into TI BASIC. The BAD VALUE error is caused by the use of chars above 143, which aren't allowed in Extended BASIC.

If you attempt to load an Extended BASIC program into TI BASIC it will seem to load properly. However, when you run the program, you will probably get a FOR-NEXT ERROR IN XXX message. Attempting to list line XXX gives a screen of nonsense. You cannot use TI BASIC to work with Extended BASIC programs.

If a program file occupies more than 45 disk sectors and won't load in either version of BASIC you have to open up extra memory. Do this by typing the following:

```
C ALL FILES(1) enter
NEW enter
OLD DSK1.FILENAME
```

enter

The program will now probably load.

Occasionally a PROGRAM file will not load from either version of BASIC, giving an I/O ERROR 50 when you attempt to do so. These files are likely to be assembly language programs that need the EDITOR/ASSEMBLER module to load. Press " 2 " for EDITOR/ASSEMBLER. Then press " 5 " for RUN PROGRAM FILE. When prompted, type DSK1.FILENAME hit enter, and the program should load and start running. Some assembly language programs of this type can also be loaded from the TI-writer option # 3, UTILITY.

Finally, some specialized PROGRAM files can only be loaded from the ADVENTURE, PERSONAL RECORD KEEPING, STATISTICS, or other specialized modules. These files are actually data bases that can only be used with their particular module.

INT/ VAR 25 4 These files are normally long Extended BASIC programs that would OLD and RUN in a normal way if the memory expansion is connected to the system. They usually exceed 45 sectors in length and

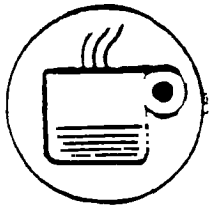
do not require CALL FILES(1) to load. Once loaded, these long programs cannot usually be saved to tape (SAVE CSI) without special techniques. You cannot OLD any INT/ VAR 25 4 programs from TI BASIC.

DIS/ VAR 163 This type of file represents an Extended BASIC subroutine in MERGE format. They can be merged into a program already in memory. To load such files, type MERGE DSK1.FILENAME and hit enter. You must do this even if there is no other program in memory. You cannot use OLD with files of this type. To save a program in MERGE format, type SAVE DSK1.FILENAME, MERGE. The MERGE option is not available from TI BASIC.

DIS/ VAR 80 These are text files which can be read from the screen, edited, and printed to a printer via TI-writer, either by using the module or one of our Extended BASIC loaders such as in FUNLWRITER. The Editor/ Assembler will also read, edit, and print these files from E/ A option # 1 " TOEDIT ". Many of our more complicated programs will have documentation files on the same disk as the program. These files usually have the program name followed by the letters DOC.

DIS/ FIX 80 These are assembly language programs which must be loaded via Editor/ Assembler or Mini Memory modules. Press # 2 to load Editor/ Assembler or # 3 to load Mini Memory. Then press the number corresponding to the prompt LOAD AND RUN. When asked for FILENAME type DSK1.FILENAME and hit enter. The DIS/ FIX 80 file will load and may start running. If it doesn't start running, press enter at the next FILENAME prompt. Then at the PROGRAMNAME prompt type the name that gets the program going, and press enter. Sometimes this name is START. The correct startup name can often be found in the program docs, which may exist on the disk as a DIS/ VAR 80 file.

FINAL NOTES Any of the above file types may also be used as a data file to be loaded only from another program. This means the file cannot be loaded directly by Extended BASIC. The computer will recognize that the data in the file is not similar to a long Extended BASIC program.



(Did you know...cont.)

MULTIPLAN TIP

If you wish to add items at top of a list in MULTIPLAN data, you may find that this addition will display on the screen, and save to disk, but will not register on the printer.

For example, you have the following list:

BOSTON
CHICAGO
DENVER
EVANSTON
FARGO

and you wish to put ATLANTA at the top of the list, by inserting a new line there. ATLANTA will be displayed on the screen, and can be saved to disk, but will not show up at the printer.

My solution is to put ATLANTA at the bottom of the list and SORT the list alphabetically. I do not know the reason for the problem...but try it yourself and let me know if you confirm my findings.

(Thanx Dick May & North County 99ers)

More MULTIPLAN HINTS

* Having problems making a backup copy of your MULTIPLAN package? "Chuck at the Computer Bug reminded me" said Audrey Bucher, "that the disk containing the MULTIPLAN files must be named 'TIMP'."

* The Decatur 99er UG newsletter reminded Audrey that "...the response time when (MULTIPLAN) is working with it's overlay files is effected by the location of the files on the disk ... on a newly initialized disk named 'TIMP', the best order seems to be:

OVERLAY, MPHELP, PCHAR, MPDATA
MPINTR, and then MPBASE."

(Hints: continued...)

* If you only have a one disk system "I found it helped to eliminate the help file for my working disk", Audrey continued, "thereby freeing up to 158 sectors for the data file". You may now put your MP file on this disk.

(These hints found in the SUNCOAST BEEPER newsletter)

un-SCRAMBLER

This short program can be used to unscramble the Jumble Puzzles found in the daily newspapers. It takes a couple minutes to enter but it could save you hours !

```
10 CALL CLEAR
20 RANDOMIZE
30 INPUT "WORD TO UNSCRAMBLE
   ":W$
40 FOR Y=1 TO 10
50 FOR I=1 TO LEN(W$)
60 R=INT(RND*LEN(W$)+1)
70 IF A(R)THEN 60
80 A(R)=I
90 X$=X$&SEG$(W$,R,1)
100 NEXT I
110 N$(Y)=X$ :: X$=""
120 PRINT N$(Y);" ";
130 FOR I=1 TO LEN(W$)
140 A(I)=0 :: NEXT I
150 NEXT Y
160 INPUT "REPEAT THAT WORD
Y/N ":AN$
170 IF AN$="Y" THEN 40
180 STOP
```

(This little gem comes from the PUNN newsletter, Portland, OR. I seem to get a lot of these little goodies from you guys!! Thanx again...)

I'm out of coffee,
See you next month

- - C H I C K - -

(tutorial)
IDIOT PROOF FORM LETTERS
by Jonn Owen, JSC UG-Aug., 1989

I always wanted to write FORM LETTERS with my TI99/4 but got tangled up in the instructions that TI provided. The following is an IDIOT PROOF PROCEDURE that I can understand and remember. KIS (Keep It Simple)-FOLLOW STEPS 1,2,3.

1. PREPARE A FORM LETTER

Write your form letter and put in *n* where you expect to take data from your VALUE file to fill in the *socket*. See Example #1. Note that this FORM LETTER is set up to FOLD, STAMP and MAIL (no envelope required). Note that anywhere the form letter has a "*n*", the Formatter will automatically get the data needed to fill this "socket" from the matching "number" in the VALUE file.

Add Formatter Codes (as shown) to your form letter. The Formatter does all the formatting. DO NOT put Formatter Codes in the VALUE file Save this letter under any filename (i.e : DSK1.FORM-LETR)

2. PREPARE A "VALUE" (NAMES/DATA)FILE

Use the *NUMBERS* generated in Example #1 FORM-LETTER to prepare a VALUE file as shown in Example #2.

This VALUE file has seven line enteries for each NAMES/DATA SET. There is one NAMES/DATA SET for each person that owes dues.

Note: There is NO "*" before line #1 for the first set of NAMES/DATA in the VALUE file. There is an "*" between and after each DATA SET in the NAMES/DATA file.

I only show three DATA SETS in this VALUE file. There could be hundreds of NAMES/DATA SETS in this file and the Formatter will print a FORM LETTER for each NAMES/DATA sets without human intervention.

Each line in the "value file" (NAMES/DATA) can be 77 columns long. Each NAMES/DATA set can be 99 lines long. Imagine the possibilities!

Save this file under any filename: (i.e DSK1.NAMES/DATA)

3. LOAD FORMATTER

You now have a FORM LETTER file (DSK1.FORM-LETR) and a VALUE file (DSK1.NAMES/DATA).

Cycle Printer OFF/ON to cancel old printer codes

Load the FORMATTER and TYPE in answers to the questions and hit ENTER (FILENAME:) DSK1.FORM-LETR

(PRINT DEVICE) PIO.LF

(USE MAILING LIST?) Y

(WHICH LETTERS?) A (all or letters # 1,2,3,etc.)

(PAUSE AT END OF PAGE?) N (assumes tractor feed, for single sheets- Y)

(MAIL LIST NAME) DSK1.NAMES/DATA

4. Now sit back and wait for a FORM LETTER to be printed for each SET OF NAMES/DATA in your VALUE FILE. See Example #3 for MAIL READY letters. Have fun sending all your friends and relatives "customized" FORM LETTERS!!

5. Now study the TI-WRITER manual and learn how to produce other FORM LETTERS. You can use .ML(Mail List Value File Variables), .DP(Define Prompts Variables) and Non-Defined Prompts (unassigned Value File variables) in the same letter. More on this later.

6. DO IT NOW! Fire up your 99/4, copy Examples #1 and #2 and learn how to produce FORM LETTERS!!

EXAMPLE #1 -FORM LETTER

.LM4;RM76;FI

.IN+54

August 8, 1989

.IN +0

Dear *1*

Our records show you are &*5* behind in your JUG dues. If this is an error, please let us know.

JUG dues are now only &\$12 a year. For a dollar a month you can keep current with the major happenings in the TI99/4 world via newsletter, monthly meetings and unlimited "help" phone calls.

Send &*6* to Phil (address below) and you will be paid up until &*7*.

Sincerely

-----FOLD-----

Phil Van Nordstrand

JUG Treasurer

430 Shadow Dr.

Seabrook TX 77586

stamp

EXAMPLE #2 -VALUE FILE

.IN +32

1 *2*

3

4

.IN +0

-----FOLD-----

- 1 John
- 2 Doe
- 3 4546 Coryell ST.
- 4 League City TX, 77573
- 5 3 months
- 6 \$12
- 7 May, 1990

- *
- 1 Jim
- 2 Smith
- 3 788 Diana
- 4 Houston TX 77572
- 5 4 months
- 6 \$12
- 7 April, 1990

- *
- 1 Jane
- 2 Jones
- 3 888 Pt Lookout Dr.
- 4 Nassau Bay, TX 77058
- 5 2 months
- 6 \$12
- 7 June 1990

SCHEDULE OF MEETINGS
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The next club meeting is scheduled for Monday November 20 starting at 6:30 PM. Meetings are held the third Monday of each month at the Science Enrichment Encounter (SEE) Center, 324 Commercial Street, Manchester, NH. Below is a list of dates for upcoming meetings.

December 18
January 15
February 19
March 19
April 16
May 21
June 18

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