

# 99'er Online

June 1985

P. C. Box 11983 Edmonton, Alberta Canada TSJ 311

99 or Ok LINE is the news letter of the Edmonton 497 or Communicar User's Society published ter times a year. All material contained in this news letter say be published in other news letters provided that source and author are identified unless otherwise stated. We velcome correspondence from all II User Eroups and will extend source credit courtesy in 99°er ONLINE.

CLEGGESPONDENCE: News latter aditor: 80B PASS, 59 LABELLE CR. ST. ALBERT, ALBERTA, CANADA 75N-286. All other correspondence: EDMONTON 797 er COMPUTER USER'S SOCIETY, P/O 80X 11983, EDMONTON, ALBERTA, CANADA 753-3L1

OFFICERS: PRESIDENT-GILL CANNON. VICE PRES-PAUL HELVIG. TREASURER-EVAN GALTH, GECRETARY-GUSAN LIVINGSTON

DISTIATED All information ounlished in this news latter for the most part, the fruits of the lagors of measures: therefore, we cannot quarantee that the information presented is always correct.

Group, are held on the second juesday or each south on the 3'th floor of the Seneral Services building of the University of Alberta from 7:00 till 10:00 PM and are open to all senoers in good standing. Mon-senbers may attend their first secting free of charge. The Executive Committee wasts nonthly. Memoers may attend these sectings as observers or to address a particular issue. Arrange with one of the officers listed soove if you also to attend.

ADVERTISING: Conserctal advertising space is available in this news letter at the following rates: FULL PAGE—920.00. MALE PAGE—915.00. 1/4 PAGE—910.00. Discuss /our insertial needs with Paul Helwig at the next neeting or write to the PAGE. Sox above. Members say advertise their personal computer related the end itses for free but are saked to limit their ads to about 20 andre. Mail your ads to the EDITOR'S ADDRESS or hand it to his at the general meeting; neweletter feadline 15'th of the month.

\*\*MEMBERSHIP FEESS FAMILY—12 MONTHS, \$20.00, a MONTHS, \$15.00. STUDENTS—12MONTHS, \$18.00.

#### WHAT'S HAPPENING?

MEIT MEETING - The next meeting will be held on the second Tuesday in September; ie, Sept. 10'th, 1985 at 7:00 PM in room 849 of the General Services building on the U of A campus. This is building number 16 on the campus map and is located on the east side of 116 St about 2 blocks north of the Jubilee Auditorium.

MAY MEETING - Mr. Martin Kratz presented an informative lecture to the membership on the subject of law as it affects the computing field in Canada and what changes are expected to be made in the existing laws. Under civil law, Martin spoke on copy rights, license agreements, and trade secrets. Martin explained that theft, telecommunications, mischief, and fraud is covered under criminal law thus making offenses in this area rather dangerous. Our sincere thanks to Martin for taking time the transfer of the country of the taking time to spend an evening with us and pass along some very important realities of the law as it relates to computing.

TIBBS - Tom Hall informs that the bulletin board system is alive and well. He has got his Cor-Comp controller working thus allowing him to increase unline disk storage to almost 700K. This means there come to add an upload capability and Tom is presently working on this. If you have not tried this new service we are affective and the control of the country and the offering and you have the equipment, be sure to have a look; you will be pleasantly surprised! I Watch for the upload feature too. You can reach the board at 424-3258 almost any time.

FLOPPIES - Bob Pass will not be taking diskette orders again untill the September meeting. Unfortunately, he was unable to attend the last meeting. and take orders as promised. Sorry folks.

NEWS LETTER FILES - For those who signed out a news

letter file
at the last meeting, please remember to return them
to Greg Sears so that circulation is maintained to

ELECTIONS - This item will be reported in the next news letter.

THIS NEWS LETTER - This month by thanks once again to John Harbour who continues his tutorial on Ti-Writer. Any ideas for a new column out there? I am looking for a few more people who can contribute articles on a more or less regular basis. This of course does not prevent any one from submitting single articles. I'll take any thing! Remember, this news letter goes all over the world. Your may feel that what you have to share will not appeal to many people in our group but there is a big audience out there and I'll bet there are quite a few who would like know what you do! So, some time this summer, get out your pencil and paper, II-Writer, or what ever and write a column or two. Don't worry about grammer or spelling, I'll make sure you won't look

If any of you would like to take an active part in creating this news letter, please get in touch with me; I think that more than one person should be involved with this in order to insure regular publication. What would happen if I got sick or was transfered out of town?

CONTESTS - Deadline extended! Due to listing errors in the April "LABELER" program, the deadline is extended to the September meeting. A correct listing appears 10 this news letter.

We have still not received an entry for LETTERHEAD contest. The objective is to use any of the II programming languages to create our logo (as it appears on the face sheet of the newsletter), society name, and mailing address at the top of a blank page. The only other requirements are that the output device must be a dot matrix printer and the programer must be an active member of the society.

At the April meeting, Bob Pass challenged the group to improve the label program that was printed in the April newsletter. Please refer to that copy for a listing and the associated challenges. Deadline for

this contest is the September meeting.

Prizes will be awarded in September to the best entry(s) in each contest provided that the entry age minimum criteria. Bill Cannon assured the group that the prizes will not be imported from Disney Land! Your articles will not be imported from Disney Land! entry should be self documented if possible or at least have written documentation. The entry must be on tabe or 9990 disk. If on tape, provide a backup on the filp side. Make sure your entry is clearly labeled with your name and phone number. We will also expect the winner(s) to allow publication of their entry in the newsletter. Naturally, this means that your entry must be original with you else we could all be sued for copyright violation; remember, this newsletter goes to over sixty other groups and word gets around!

ADVERTISING - Jim Mulligan has kindly volunteered to look after all the commercial advertising for the newsletter. Please see Jim for your advertising needs; he is at every meeting.

DISK LIBRARY - Another volunteer! Ken Godbeer has assumed responsibility for organizing our software library which is no small task! I am sure that once Ken has things organized, he will be pleased to accept your creations and make them available to us all.

**HARDMARE DEPT. - This** user's group now has a printer to complete the basic hardware system purchased several months ago. This will be of real benefit to those of you who do not own this very usefull piece of equipment.

THANCS - To Greg Sears for spotting in an Australian newsletter and passing along to me a program listing program. This provided the seed I needed to solve a news letter production problem. See SUPER LISTER else where in this issue.

- And to all of you in the past year who have passed along information and articles for this newsletter.

MEXT MEMSLETTER - Look for your next issue some time in late August. Hope you all have a pleasant summer and that you spend the rainy days writing articles for se!

#### TI WRITER TUTUR: LETS WRITE A LETTER PART 2

bv: John

After great demand I have been brought back for a repeat performance; at the last meeting I managed to find at least two people who acknowledged my efforts. In that case it must be worth while.

I would like to change some of the things I stated in the last bulletin; I called the given "Template" a personal letter. This statement was not quite correct as with a personal letter one does not usually include the address to whom one is writing, as stated. These lines can be omitted, or ".CO" (explained later) inserted at the beginning of lines 20, 21, & 22. I usually print in this address as it fills out the first page, making it look more attractive.

Let us now look at a business letter. You can still use the same template as before; just adjust it as follows. First, it is handy to have a file number included with your letter. I always use the format YI/XX/XX, filling in the X's with my save file option; I then know on receiving my reply how to access the required file, eg. TI/5/P/L, etc.. In our template this will fit in after line 17, just below the date. To insert a line, position cursor on line 18, press FCTN 8, then add, from the left, File \$ XXXXXXX. Note, line 0004, is the tab for the address, starting \$2 columns from the left margin. As your new inserted line is within this tab, it will be printed to the right under your address header.

Next we add the reference. This of course refers to the contents of the letter. Usually if you receive a business letter, it will already have a reference; eg, "Ref: Jutstanding Debt ". You should use the same reference when replying; eg, "Ref: Your Letter Re Outstanding Debt ". This is already there; all you need to do is delete the comment command (.CD) in line 36. Using the ".CO" enables you to add a comment, which is not printed by the TI Writer Text Formatter.

Mow, how did I get that under lining that you see above? Like I used in the template, the ampersand "t" symbol causes the reference to be underlined. If the reference has several words and you want a continuous under line, the words must be juined by the caret symbol (SHIFT 6). For example: MUNDER^LINE^FOUR^WORDS would cause all four words to be under lined. Otherwise the underline will terminate at the first space character between words. If you want individual words under lined, simply prefix each word with an ampersand. If you want to print a ampersand instead of under lining, you must type them in pairs; eq. "t". All of these rules also apply to the "at" symbol (a) except that this character will cause the following text to be BOLD/INDERINED, simply prefix with one of each! In the template, the caret signs are used to denote spaces that are to be underlined; eg, see line 44. This leaves a line for your signature, but the same symbol is not necessary when you write in a reference. I hope I am making myself clear.

If you have a secretary, who should know all this anymay... yes some GG...you can out the initial block (ie, something like JH/sl) at the bottom, which states who composed the letter and who typed it, making the letter more official looking; remove the .CO on line 49. As a matter of interest, line 48, resets to a normal left margin after the indent .IN +20 on line 40. The "+20" represents the number of spaces to be added to the current left margin setting for indentation. (If you are adventurous, try a negative indent!)

You should now have enough info to write your own personal and business letters, plus print your own envelopes. Bon't forget, if your printer is only tractor feed, you can buy envelopes with tear off sprocket holes down the sides.

OK, let us now discuss how we can format our letters. To change the "FONT" (print style) of the letters from PICA to ITALIC, we have a choice of two methods, the first one being the TRANSLITERATE (no, nothing to do with your birth right) command, ".TL". Notice on lines 5-12 inclusive explanations 5-8. In the first column are the ASCII codes of characters which are to be "TRANSLITERATED": 33(!), 42(\$\frac{1}{2}\), 37(\$\frac{1}{2}\), 43(\$\frac{1}{2}\). (I have indicated the normal character that is represented by each ASCII code; refer to any ASCII code index.) In the second column we have the ASCII codes for control characters that cannot be typed from the keyboard: 14(sets enlarged print), 15(sets condensed print), 18(cancels condensed), 20(cancels enlarged). In other words, from this point on, when ever you type, say an exclamation point, the text formatter will send ASCII code if to the printer instead of ASCII 33. This causes the printer to switch to enlarged printing mode. Virtually, you can send any control codes that your printer will recognize. Refer to your printer's reference manual for the special ASCII code sequences that switch your machine into various modes. Of course, when you have finished your special print task, you should restore the printer to normal mode (see ASCII 18) & 20 above) and return transliterated characters to normal as in line 44 which returns symbol 33 back to normal as in line 44 which returns symbol 33 back to normal as in line 44 which returns symbol 33 back to normal. While these characters are used during the transliteration, they cannot be used for any other function, it is best to choose symbols not requiarly used. With II Writer you cannot use the "%" or the at "3" symbols as these have special functions as described earlier.

The other method is a little more complicated. For you who have the TI Writer manual handy, refer to pages 78, and 146. These would have been better had they been written together. To try to explain, this is called the special character mode. What makes it more difficult is that you can only see half of it on the screen, and nothing at all on the line print. Let's say we would like to change our characters to the ITALIC (alternate character set) format, Page H-4 of the Epson Printer manual gives us a list of numbers and letters, under DEC, HEX and SYMBOL. If you look down the line under SYMBOL, opposite 4, it states, "selects alternate character set". DONT MORRY ABOUT THE 34,52 AND DONT ASK ME MHY!!! I'M AN ELECTRICIAN MOT A MAGICIAM! But voila, look in the first column and notice that it is (ESC) 4. Now turn to the page 146 in the aforementioned manual, look up ESC it says FCTN R. Then it shows you the little critter we cannot print, which is actually on lines 29, 31, 47, and 63. Then return to page 98, where it tells you to use CTRL U, Sacre Bleu!! Now this is now you have to apply this mystical formula, that apparently baffles everybody... including me! Place the cursor on the required line in the text, press CTRL U, then FCTN R, then again CTRL U, type in 4, and voila it works. You don't need to do this in your template; I've already put it in for you. Observe how it has been used in the text. Line 29 sets ITALIC, line 31 sets (E)mphasized print, line 47 cancels ITALIC, line 68 cancels (F)emphasized. Phew!! This thing only works for me with single letters or numbers; perhaps one of the more astute computer fans will be good enough to instruct me how to make it work with sultiple characters, thankyou. Let's try this out. Put your cursor on line 54 press FCTN 9. Use special character mode and insert 8. This sets "ignore end of paper over the micro switch now. Insert 9 at the very last line."

By the way, .PL resets the page length from the default 56 lines while .BP sets a page break. I used it on line 50 to enable you to remove your paper and put in your envelope. .LS n (where n is a number) specifies line spacing. We are now set up to type a letter, change the format of the print, and I am still waiting for a letter. I would like to see some results! Ferhaps I can help you, or better still perhaps you can help me......

Will all Francophones please submit an extra 25 francs towards the 99'er ONLINE fue to the attempt at the bi-lingualize earlier! MERCI. John ...er, Jean

#### **NEW-PRODUCTS**

by: Cav Emptorski

Four programs featuring pull down menus from ASGard: schedule maker, stamp manager, music synthesizer, and a game called Balloon Wars. Write to ....

ASGARD SOFTWARE P/O BOX 10304 ROCKVILLE, AD 20850 USA

Chilton's manuals are famous in the auto industry. Now they are into the computer market with a book entitled "Financial Analysis on TI computers" featuring 18 chapters on various financial topics and analysis of techniques. Includes listings of programs written in TI Basic.

CHILTON BOOK CO. RADNOR, PA USA 1-800-345-1214

A game written in WYCDYE FORTH for the TI-99/4A by fourteen year old Tad Woods. Called TENAGERS IN SPACE, it features 80 different playing screens plus the ability for you to custom design your own screens. High scores that can be permanently saved, flexible playing speeds, and selectable starting points are other features included for the \$14.95 (MS) price.

T and T SOFTWARE 109 TEE CIRCLE SALEM, VA 24153 USA

The popular MODN PATROL arcade game is now available in cartridge for the TI. HCM magazine (Vol. 5, \$3, page 82) rates it good to excellent in all areas evaluated. Should become available through local dealers or from...

ATARISOFT 1265 BORREGUS AVE SUNNYVALE, CA 94066

Surplus TI-99/AA parts have been appearing in some US Radio Shack stores and catalog according to the latest HCM issue. Video modulator and cable (\$4.95), power supply board (\$4.95), keybords (\$2.95). You can replace half your computer for thirteen bucks US! Has any one noticed these bargains in local Trash 80 stores or catalogs?

Rumors about the TI-99/8 clone are still circulating. Latest peop has the machine being "Beta-Tested" (whateverthatmeans) and that it will be shown at the Chicago Electronics Show this summer. It is supposed to feature 128K RAM (expands to 512K) plus 16K VDP RAM expanding to 64K, 80 column composite or RBB wonitor support, runs all existing TI software, and compatible with the expansion box and it's current cards. Price range is \$300. Pass the salt please!

II wiring diagrams are available for the II-99/4A from SAMS and CO. Product #8901 for \$19.95 (US) includes diagnostic procedures, parts lists, and other into dear to the hearts of hardware junkies. Write (quoting above product number) to...

HOWARD W. SAMS AND CO. INC. 4000 HEST 62'ND STREET 9/0 BOX 7092 INDIANAPOLIS, IN 46206 USA

DISK MANAGER II upgrade is still available from TI for \$14.95 plus 2 bucks shipping and handling. Call TI first befor sending in your cash. The only contact I can find is 1-200-842-2737. You could also try the TI-CARES line.

New products from Navarone include:

Data Base Management Systems allows up to 35 fields in 32,000 records. Organizes files and even fora letters. Requires disk drive. \$69.00.

Homework Helper; for students 8 years and up. Built in 20,500 word spelling checker and word processor. Standard formats for book reports and class projects. \$49.95.

Speed Reading: module based, rnmps complete with workbook. Increases reading speed and comprehension in versions for children and adults. Needs no other equipment. \$49.95.

Consule Writer; module based word processor that requires nothing other than the console and a printer (&R\$232?). Includes lower-case characters and full screen editor. \$49.95.

All the above prices are in \$US. I would advise that you confirm hardware requirements before plunking down the hard-earned green. Write to:

NAVARONE INDUSTRIES INC. 510 LAWRENCE EXPRESSWAY #800 SUNNYVALE, CA 94086 U.S.A. 1-408-966-9579 By the way. Pt resets the page length from the default on line 50 to enable you to remove your paper and put in your envelope. IS a (where a is a number) specifies line spacing. We are now set up to type a letter, change the format of the print, and I am still waiting for a letter. I would like to see some results! Perhaps I can help you, or better still perhaps you can help me.....

Will all Francophones please submit an extra 25 francs towards the 79'er ONLINE fue to the attempt at the bi-lingualizm earlier! MERCI. John ...er, Jean

#### NEW-PRODUCTS

by: Cav Emptorski

Four programs featuring pull down menus from ASGard: schedule maker, stamp manager, music synthesizer, and a game called Balloon Wars. Write to ....

ASSARD SOFTWARE 8/O BOX 10306 ROCKVILLE, MD 20850 USA

Chilton's manuals are famous in the auto industry. Now they are into the computer market with a book entitled "Financial Analysis on FI computers" featuring 18 chapters on various financial topics and analysis of techniques. Includes listings of programs written in TI Basic.

CHILTON BOOK CO. RADNOR, PA: USA 1-800-345-1214

A game written in MYCOVE FORTH for the TI-79/4A by fourteen year old Tad Woods. Called TENAGERS IN SPACE, it features 80 different playing screens plue the ability for you to custom design your own screens. High scores that can be permanently saved, flexible playing speeds, and selectable starting points are other features included for the \$14.95 (US) price.

T and T SOFTWARE 109 TEE CIRCLE SALEM, VA 24153

The popular MOON PATROL arcade game is now available in cartridge for the TI. HCM magazine (Vol. 5, \$3, page 82) rates it good to excellent in all areas evaluated. Should become available through local dealers or from...

ATARISOFT 1245 BORREGUS AVE BUNNYVALE, CA 94066

Surplus TI-99/4A parts have been appearing in some US Radio Shack stores and catalog according to the latest HCM issue. Video modulator and cable (\$4.95), power supply board (\$4.95), keybords (\$2.95). You can replace half your computer for thirteen bucks US! Has any one noticed these bargains in local Trash 30 stores or catalogs?

Rumors about the TI-99/8 cione are still circulating. Latest poop has the machine being "Beta-Tested" (whateverthatmeans) and that it will be shown at the Chicago Electronics Show this summer. It is supposed to feature 129K RAM (expands to 512K) plus 16K VDP RAM expanding to 64K, 80 column composite or RGB monitor support, runs all existing TI software, and compatible with the expansion box and it's current cards. Price range is \$300. Pass the salt please!

TI wiring diagrams are available for the TI-99/4A from SAMS and CO. Product #8901 for \$19.95 (US) includes diagnostic procedures, parts lists, and other info dear to the hearts of hardware junkies. Write (quoting above product number) to...

HOWARD W. SAMS AND CO. INC. 4300 WEST 62'ND STREET P/O BOX 7092 INDIANAPOLIS, IN 46206 USA

DISK MANAGER II upgrade is still available from TI for \$14.95 plus 2 bucks shipping and handling. Call TI first befor sending in your cash. The only contact I can find is 1-800-842-2737. You could also try the TI-CARES line.

New products from Navarone include:

Data Base Management System; allows up to 35 fields in 32,000 records. Organizes tiles and even form letters. Requires disk drive. \$69.00.

Homework Helper; for students 3 years and up. Built in 20,500 word spelling checker and word processor. Standard formats for book reports and class projects. \$49.75.

Speed Reading; module based, comes complete with workbook. Increases reading speed and comprehension in versions for children and adults. Needs no other equipment. \$49.95.

Console Writer; module based word processor that requires nothing other than the console and a printer (4R5232?). Includes lower-case characters and full screen editor. \$49.95.

All the above prices are in \$US. I would advise that you confirm hardware requirements before plunking down the hard-earned green. Write to:

NAVARONE INDUSTRIES INC. 510 LAWRENCE EXPRESSWAY #800 SUNNYVALE, CA 94085 U.S.A. 1-408-866-8579

#### SUPER LISTER

by: Bob Pass

As many of you have no doubt noticed in past issues of this newsletter, there have been many (all right, a lot!) errors in the program listings. This was due to some problems inherent in the nature of the II-99/4A and the way files and programs are written on disk, the fact that I use II-Writer to prepare the newsletter, and that II-Writer cannot handle BASIC program files directly. Also, it was my desire to provide for you, dear readers, suftware that I had personally tested and found worthy of publication and, further more, in a format that made it easy for you to debug your own "typo" errors. I tried several methods of converting program files into II-Writer files which met with varying degrees of success as most of you are aware. Not being satisfied with anything but the best for my readers and hating to eat crow month after month every time I published corrections, the search continued for the perfect method which would satisfy the needs stated above and the physical restrictions required by the newsletter.

Then Greg Sears showed as a copy of a program from the Australian newsletter "TISHUG". This program, in X-Basic, allowed one to read a file from disk which is created by loading a Basic program and then listing it to the disk using the command LIST "DSK1.FILENAME". The program then processed the listing and grinted it in two columns, each column being 28 CHARACTERS MIDE! This meant that I could enter a program, run and debug it, and prepare a printed listing that was self editing. "Oh goody!" you say. "Where has it been for the last six months?" you sak. Well, the battle was half won. You see, the resulting listing used about 40% more newsletter space than a Plain-Jane listing. This would mean an increase in the cost of distributing the newsletter or I would have to refrain from publishing programs in the new format. Also, each instruction tended to blend in with the next; wouldn't it be nice if the instruction lines could be clearly defined?

Well, after such toil and tearing apart of the original program, I have developed:

#### SUPER LISTER

This program solves all of the problems addressed above and it has some features which I believe will make it a very handy utility for you to keep in your "Tool Box". Why? Read on. How many disks are you using to back up Basic programs? How many of these and other programs still have documentation or even simple notes on how to run them? How many binders full of printout do you have now for program listings? This program can help you get things under control.

First of all, using SUPER LISTER, you can list your back up disks to paper in a format that is accurate and easier to read than conventional listings; each command line is separated from the next by a dotted line and the command lines are in 28 column format, exactly as they appear on screen. This will provide you with a secondary back up system or, if you don't mind a lot of typing if you lunch a disk, a primary back up of all your Basic programs thus freeing precious disk space. Secondiy, I have included a rudimentary "Mord Processor" which allows you to add UNLIMITED documentation to your program listing without having to resort to clumsy REM statements imbedded in the program which may have to be weeded out later. And thirdly, I have developed optional formats for your listings. If you don't mind using 40% more paper than a regular listing, use the "MORMAL" format. This produces a listing in two columns

of 20 normal sized characters and spaced at six lines per inch. The "COMPRESSED" option will result in four columns of 20 compressed print characters spaced at 8 lines per inch. Again, each instruction is separated from the next one for easier reading. Also, the columns are separated by vertical dotted lines. This format uses about 60% of the space required by a regular listing and only 35% of the space used by the "NORMAL" option. Additionally, you can specify columns of "even" or "ragged" length which is of importance to me in preparing the newsletter. With any of the format options, there are adequate margins all around to allow binding in any type of binder.

The program listing (accurate, of course, as I used SUPER LISTER to prepare a listing of itself!) follows this article. Unfortunately, this program must be in X-Basic only. The reason for this is in line number 630. The "LINPUT" command must be used and this is not available in console Basic. (By the way, lines 620 to 720 are really the heart of the program as it is here that the Basic statements are reconstructed from the disk file; the subroutine reads the ASCII file prepared when you listed your program to disk.) This is all that remains, though slightly modified, of the original program from "Down Under". Sadly, I don't know who figured out that routine. It is the key to everything else and he/she deserves credit for the insight. If the original author should ever read this, thankyou.

#### PROGRAM DESCRIPTION

LINES 100-380: User Input Section.

LINES 100-220: Opening remarks.

LIMES 230-320: Initialize variables and input array. Present first input screen: default disk file name, printer file name, and listing format; allow user to change defaults as required and go back to correct. Note: in line 240 change FIL3 to the default you want for the file name you will use to list the source program to disk. Change PRTR3 to the correct filename to open your printer port.

LINES 330-380: Open disk and printer files; note that printer file is a display variable 132 output file! Second input screen: select column style and check for leading commentary transfering to "Word Processor" if required.

LIMES 390-360: Main Program Loop with option to repeat program run from start.

LINES 570-100: Subroutine Section.

LINES 620-720: BASICLINE; Subroutine to read disk file in chunks upto 80 characters long and assemble a Basic Program Line in ASCII character format. Passes assembled line back to PAGEBUILD subroutine.

LIMES 740-810: PAGEBUILD; subroutine to check for an end of disk file condition or a "null" character string returned from BASICLINE subroutine, displays Basic Program lines on screen, limits number of program lines read to what will fit on the page format specified, and passes program line to WRITECOL subroutine. PAGEBUILD calls BASICLINE and WRITECOL alternately untill the page array is full or an end of file occurs. Then control passes back to main program.

LINES 830-870: WRITECUL; subroutine to chop program line into segments of 28 characters each and load into page array. Inserts a full column width dotted line at the end of each program line. Maintains pointer to next empty line in page array which is passed back to

PACEBUILD to control page size.

LIMES 910-1020: PRINTPAGE; subroutine to print assembled page in correct format. The program line segments are stored in the single dimension array Ps. I indicates if the printout is condensed (L-296). X is a constant calculated in subroutine ADJUST and is used to read the correct array elements for columns 2, 3, and 4. Loop counter I is used to index the page array to find the elements for column one. Line 930 handles the complete printing task for the two column format. Line 940 sets the printer into compressed character mode and 3 print lines per inch. Line 950 sets up the horizontal tan stops on the printer to columns 6, 8, 37, 39, 48, 70, 99, and 101. (Line 980 prints CHR\$(9) to cause the print head to tab to the next tab stop.) Line 1010 clears the printer to it's defaults and executes a form feed. The codes in these lines are for an Epson MX30 printer; consult your printer manual for the correct codes on your machine and adjust the above lines as required. Lines 960-1000 print the page in four column format.

LINES 1060-1080: WIPER; subroutine to re-initialize the page array.

LIMES 1120-1150: FIXNAME; subroutine to allow user to over ride default input/output file mases.

LINES 1190-1280: COMMENT: subroutine to allow insertion of comments or documentation shead of your listing. The ACCEST AT statement in line 1220 has a validate clause that allows upper case, numeric, and the indicated punctuation. This can be modified to allow any character except the quotation mark. This "Word Processor" could be enhanced fairly easilly; see page 73 of the latest HOME COMPUTER MAGAZINE (Vol. 5, #3). The comments are inserted directly into the page array as they are already in the correct format. Variable 1 is the pointer to the next empty element of the page array while L is the total available elements. The value in X must be passed back to the main program. Line 1200 displays the exit instruction and the number of 29 character lines currently available for comments before the page is filled. Lines 1210-1250 are the entry loop. Upto 18 lines are displayed on the screen at a time. When the 18'th line is entered, the entry field is scrolled up untill only the 18'th line is left. Now another 18 lines can be entered. Line 1230 tests for the exit condition (first two characters of an input line = "QQ") and inserts a dotted line at end of comment section. line 1240 displays the number of lines left before the page is full. If the page is full, the page format, printing, and array re-initialize routines are called in. The array pointer is reset and control is returned to the user to enter more comment lines. Thus, user commentary is unlimited.

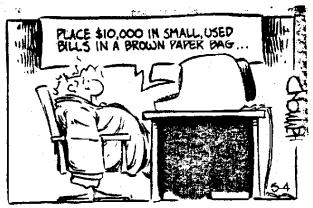
LIMES 1320-1390: ADJUST; subroutine to calculate the constant needed by the printing program to index the page array and assemble print lines. The value of the constant depends on the number of elements in the array, wether normal or condensed format was chosen, and wether the user wants even or uneven column lengths. The array pointer "%" is redefined as the constant and passed back to the calling programs where it will be used in the PRINTPAGE subroutine.

#### HON TO USE SUPER LISTER

Using this program is very easy as it is self prompting. How ever, you must first prepare a display variable 80 disk file that contains your Basic or X-Basic program in ASCII format. This is very simple to

- 1. Load the program you want to list into the consol.
- 2. Remove the program disk and load the disk with SUPER LISTER. I suggest that you keep only SUPER LISTER on this disk as you will require space for one or agre additional files on it. Also, it would be wise to protect the SUPER LISTER program using the Disk Manager module in case you accidently type in the wrong file name in the next step.
- Now type in LIST "DSK1.PRGM/LIST" and press ENTER.
- 4. When the cursor returns to the screen, the disk will contain a display variable 80-ASCII text file of your program in file name PROM/LIST. (You can use any file name you wish in step 3 EXCEPT the program name for SUPER LISTER.)
- Load and run the SUPER LISTER program. Remember, it needs the X-Basic module.
- 5. From this point on, the program is self guided; and you should have no problems. If things don't work properly, check that you have entered BUPER LISTER correctly from the newsletter listing. Then, following the program description above, make sure you have made the changes required for your printer and that these changes are correct.
- I have enjoyed creating this program and have found it to be a useful tool in writing the news letter. I hope that you too will see the potental benefits and add this freebie to your collection as is or perhaps enhanced even further. My thanks to the unknown Aussia programmer who started the ball rolling.





YOU CAN PLACE UNLIMITED COMMENTS AND/OR DOCUMENTA- TION HERE AT THE START OF YOUR LISTING. THIS PRINTOUT AND THESE COMMENTS WERE PRE- PARED BY THE PROGRAM LISTING BELOW. SEE THE SUPER LISTER ARTICLE ELSEWHERE IN THIS NEWS LETTER FOR FURTHER DETAILS.  *-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-
100 1 *********************************
44
110 11 PROGRAM LISTER 11
120 : ## FRON DISK FILE ##
130 1 11 TO PRINTER IN 11
140   ## NULTIPLE FORMATS ##
150 ! ** BASED ON AN IDEA **
160 ! ## FROM TI-SHUG ##
170 ! ## USER'S GROUP IN ##
180 1 11 AUSTRALIA. II
190 : ## ENHANCED BY BOB ##
200 ! ## PASS MAY 08,1985 ##
210 : ******************
220 !
230 OPTION BASE ( :: DIM P\$( 320)
240 CALL CLEAR :: CALL SCREE N(4):: FIL*="DSK1.PRGM/LIST"
:: PRTR\$="RS232.8A=4800" ::
CALL WIPER(P\$()):: X=1 :: E FL=0
250 DISPLAY AT(2,7): "PROGRAM LISTER": "
260 DISPLAY AT(6,1): "Program is Listed to Disk as": : "Fi
LISTER": " " " " " " " " " " " " " " " " " "
270 ACCEPT AT(10,9) BEEP SIZE
#):: GDTO 260
280 DISPLAY AT(14.1):"Correct thronton Device Name": :"is

SUPER LISTER BY BOB PASS

: ";PRTR\$: :"Y or N? Y"	490 IF A\$="Y" THEN 240	CALL BASIC PRINT NEWS:
290 ACCEPT AT(18,9)8EEP SIZE   (-1)VALIDATE("YN"):A\$ :: [F	500 !	790 IF NEW#:
A≱="N" THEN CALL FIXNAME(PRT   R\$):: 80TO 280	   519	: CALL WRÎTE }:: I≠X
	520 !	   TX3M 00B
or Condensed Format?": :"(N or C) C"	530   1111111111111111111111	810 SUBEND
   310 ACCEPT AT(22.10)BEEP SIZ		820 !
E(-1)VALIDATE("NC"):F\$ :: IF   F\$-"N" THEN L-110 ELSE L=29 :	550   18888888888888888888	830 :*****
6	560 !	840 !
320 DISPLAY AT(24,1): "ALL IN PUTS CORRECT, Y/N? Y"	570 !	950 SUB WRIT
; 330 ACCEPT AT(24,27)BEEP SIZ ;	580   11111111111111111111111111111111111	)
E(-1)VALIDATE("YN"):A\$ :: IF  - A\$="N" THEN 240	590 !# SUBROUTINE SECTION #	840 IF LENG =SEG\$(N\$,1,2
340 OPEN #1:FIL# :: OPEN #2:	400 11111111111111111111111111	29,LEN(N)- 10 860 ELSE
PRTR\$,DISPLAY ,OUTPUT,VARIÃB LE 132	610 !	" :: X=X+1
350 DISPLAY AT(12,1) ERASE AL 1	620 SUB BASICLINE(NS.E)	X+1
L: Even Column Length or Rag ged": :"(E or R)? E"	630 N\$="" :: IF NX\$="" THEN	a70 SUBEND
350 ACCEPT AT(14,11)8EEP 51/	LINPUT #1:NX#	880 !
E(-1)VALIDATE(*ER*):E\$ :: CA	( 540 N\$=N\$&NX\$ :: IF LEN(N\$)( 80 OR EOF(1)THEN NX\$="" :: E !	890 (111111
370 DISPLAY AT(12,1) ERASE AL	: =EOF(1):: SUBEXIT ELSE LINPU T #1:NX#	900 !
L:"Do you wish to include an		910 SUB PRI
y comments at the start of ! thelisting? (Y or N) N°	650 PX=PUS(NX\$," ",1):: IF P 1 X(2 OR PX)6 THEN 640	920 IF L=29
380 ACCEPT AT(14,17)BEEP SIZ E(-1)VALIDATE("YN"):A\$ :: IF	660 P=P05(NX\$," ",1):: IF PX	930 FOR [=1 :TAB(9):P\$()
A\$="Y" THEN CALL COMMENT(P\$ (),X,L,E\$)ELSE CALL CLEAR		):: NEXT I
:	:: C=ASC(SEG\$(NX\$,I,1)):: N   R=NR AND C>47 AND C\58 :: NE	740 PRINT #: 7):"0" :: Ri
	XT I :: IF NOT (NR) THEN 640	pressed pri
410 ! ## PROGRAM LISTING ##	580 IF SEB\$(N\$,LEN(N\$),1)="	950 PRINT #: 8);CHR\$(6);
420 ! 11 [NTO COLUMNS 11 ]	;	: CHR\$(39);CHR HR\$(99);CHR
430 !	(VAL(SE6\$(N\$,1,P-1))THEN 640	REM ## Sets
¦   440 CALL PAGEBUILD(P\$(),EFL, :	700 ND,I=0	: 960 PRINT #: : ,123):: F\$='
: X,L)	: 710	· 
450 CALL ADJUST(L, X, E\$)	IF I THEN NG=NG+1 :: GOTO 7     10 ELSE IF NG(>2#INT(NG/2)TH   EN 640	! 970 FOR I=1 !: 8\$=P\$(I+)
! 460 CALL CLEAR :: DISPLAY AT   (3.1):"Assembling and out-pu !   tting": :"print lines to dev	720 SUBEND	
i ice name:": : :PRIR\$ :: CALL :	   730 !	980 PRINT #:
FRINTPAGE(P\$(),X,L)	740   1111111111111111111111111	\$(9);A\$;CHR:   B\$;CHR\$(9);
470 X=1 :: CALL CLEAR :: IF   EFL=0 THEN CALL WIPER(P\$()):	7 <b>5</b> 0 !	R\$(9);*!*;C
: GOTO 440	: 760 SUB PAGEBUILD(F\$(),EFL,X :	990 NEXT I tabs the pr
480 CLOSE #1 :: CLOSE #2 ::   DISPLAY AT(J,1):"Another lis	,L)	b stop ##
ting? (Y or N) N" :: ACCEPT   AT(3.27)BEEP SIZE(-1)VALIDAT	770 FOR [=X TO L	CONTIN
E(*YN*):A\$	780 IF EFL THEN SUBEXIT ELSE	NEX

CALL BASICLINE (NEWS, EFL):: PRINT NEWS:"
790 IF NEW\$="" THEN 780 ELSE CALL WRITECOL(P\$(),I,X,NEW\$
800 NEXT I 810 SUBEND 820 !
820 !
940 !
! 950 SUB WRITECOL(P\$(), I, X, N\$
840 IF LEN(N\$) >28 THEN P\$(X)
=SES\$(N\$,1,28):: N\$=SEG\$(N\$, 29,LEN(N\$)-28):: X=X+1:: SO
TO 860 ELSE P\$(X)=N\$ :: N\$=" ":: X=X+1 :: P\$(X)="
; x+i
: a70 subend
890 : 890 : 900 : 910 SUB PRINTPAGE(P\$(), I, L) 920 IF L=295 THEN 940 930 FOR I=1 TO X :: ?RINT #2
870 (************************************
900 !
910 SUB PRINTPAGE(P\$(),X,L)
920 IF L=295 THEN 940
930 FOR I=1 TO X :: PRINT #2
:TAB(9);P\$(1);TAB(45);F\$(I+X }):: NEXT I :: 50T0 1010
940 PRINT #2:CHR*(15);CHR*(2
7);"0" :: REM ** Set for com pressed printing **
950 PRINT #2:CHR\$(27);CHR\$(6 8);CHR\$(6);CHR\$(8);CHR\$(37);
: CHR\$(39):CHR\$(68):CHR\$(70):C
REM ## Sets horiz. tabs ##
1 960 PRINT #2:TAB(8);RPT\$("-" 1,123):: F\$="
970 FOR I=1 TO X :: A\$=P\$(I)
:: 3\$=P\$(I+X):: C\$=P\$(I+(2\$X :)):: 0\$=P\$(I+(3\$X))&SEG\$(F\$,
LEN(P\$(I+(3‡X))),S)
980 FRINT #2:CHR\$(9);"!";CHR   \$(9);A\$;CHR\$(9);"!";CHR\$(9);   B\$;CHR\$(9);"!";CHR\$(9);E\$;CH
B\$;CHR\$(9);"1";CHR\$(9);C\$;CH   R\$(9);"1";CHR\$(9);D\$
990 NEXT I :: REN \$\$ CHR\$(9)
tabs the printer to next tall b stop ##
960 PRINT #2:TAB(8);RPT\$("-"  ,123):: F\$="
NEXT PAGE

1000 PRINT #2:TAB(8);RPT\$("- ",123)	1 1120 SUB FIXNAME(N\$)	1220 ACCEPT AT(I,1) BEEP SIZE (28) VALIDATE (UALPHA.NUMERIC.	1300 (*******************
1010 PRINT #2:CHR\$(18);CHR\$(	1 1130 CALL HCHAR (22.1.32.96)	(28) VALIDATE (UALPHA, NUMERIC,   ",::!?() %&\$#@/='%^"):P\$(X)::   X=X+1	1310 !
27); "2"; CHR\$(27); CHR\$(68); CH R\$(0); CHR\$(12):: REM IX Clea	1140 DISPLAY AT(22,1): "CORRE	1230 IF SEG\$(P\$(X-1),1,2)="Q	1320 SUB ADJUST(L,X,E\$)
r Tab Stops And Form Feed ##	CCEP  A!(24,1)8EEP:N# :: CAL	CCEPT AT(24,1) BEEP: N\$ :: CAL !" :: GOTG !	1330 IF L=296 THEN 1370
1020 SUBEND	L HCHAR(22,1,32,96)	; 270 ;	1340 [F INT(X/2)=X/2 THEN 13 50 ELSE X=X+1
1030	1150 SUBEND	1240 DISPLAY AT(1,24)STZE(3) ( ::STR\$(L-X+1):: IF X=L THEN C	
1040 411111111111111111111111	1140 !	ALL ADJUST(L,X,E\$):: CALL PR     INTPAGE(P\$(),X,L):: CALL WIP     ER(P\$()):: X=1 :: GDTO 1240	=X/2 ELSE X=55
1050 !	1170   111111111111111111111111111111111		1360 SUBEXIT
1060 SUB WIPER(P\$())	1180 !	1250 NEXT I	1370 IF INT(X/4)=X/4 THEN 13
1070 FOR I=1 TO 320 :: P\$(I) = " :: NEXT I	1190 SUB COMMENT (P\$(), X, L, E\$	1260 CALL HCHAR(4,1,32,640):	80 ELSE X=X+1 :: 6010 1370
1080 SUBEND	1 1900 CALL CLEAD BECBLAY N	) : DISPLAY AT(4,1):P\$(X-1):: GOTO 1210	1390 IF X>L OR E4="E" THEN X =X/4 ELSE X=74
1090 !	: 1200 CALL CLEAR :: DISPLAY A T(1,1): "ENTER QQ TO QUIT. L :	1270 CALL CLEAR	1390 SUBEND
1100   11111111111111111111111111111111	INES=":STR\$(L-X+1):"	1230 SUBEND	
	1210 FOR I=5 TO 23	1290 !	•
1110 !			

## Race on to build million-bit chip

ROSTONS (Renter): — Several, Japanese companies are favored to be the first on the markets with the world's largest computes memosychips.

U.S. elegationics giants American Telephone and Telegraph Co. and International Business Machine have also disclosed plans to build a one-million-bit chip, with four times greater storages capacity them the largest devices now availables.

Bus its is the languages who are expected to end up with the lines share of a market for one-million-bit chips that Dataquest, a computer consulting firm; estimates will reach \$1.5 billions in 1988 and about \$10 billions in the early 1990s.

The one-million-bit chip has been the holy grail of the electronics industry for some time; part of computer designers unending efforts to put more power into a smaller package.

A memory chip is a fingernal-sized slice of silicon. Small discs covered with these chips form the brains of a computer, reading and executing the software that make up the

operating systems and applications programs. The larger as computer's memory, the more complex the software it can understand.

Memory is measured in bits, with each bits representing a one or a zero. A string of eight bits forms a byte, and each byte represents a letter, number or other character.

Atypical personal computer can store 64,000 bytes of data in its main memory, equal to about 250 typewritten pages. A computer using one million-bit memory chips could store 4,000 pages in the same amount of space.

Million-bit chips set visions of miniaturization dancing in computer designers heads and inspire projections that desktop computers could soon have the power of the huge, multimillion-dollar machines.

Thomas Thomsers presidents of AT and T Technology Systems Group, predicted that the "megachip," as it is called in the industry, "could help put a super mini-omputer in business, industrial or other special environments where space is at a premium — or for that matter, on your lap."

Fujitsu, Hitachi, NEC, Mitsubishi, and Tushiba are all working on megachips of a typeknown as Dynamic Random Access Memory, or DRAM, the fastest growing segment of the chip market.

THIS IS A REPEAT LISTING OF THE DISK LABELER PROGRAM WHICH WAS IN THE NEWS LETTER A FEW MONTHS AGO. THERE IS A CONTEST IN EFFECT RIGHT NOW TO SEE IF ANY OF OUR MEMBERS CAN INPROVE IT (LIKE CONVERTING TO CONSOLE BASIC) OR ANY OTHER BELLS/WHISTLES THEY CAN THINK UP. UNFORT-UNATELY, I DID NOT HAVE MY LISTER PROGRAM DEVELOPED UNFORT-(SEE OTHER ARTICLE) AT THAT TIME & SOME BUGS SLIPPED INTO THE ORIGINAL LISTING. THE FOLLOWING LISTING IS SUG FREE AND THE CONTEST CLOSING DATE WILL BE AS OF THE FIRST MEETING IN SEPTEMBER/85.

#### 6000 LUCK TO YOU!

100 REM -CONDENSE CATALOG-

110 REM FEB.07,1985

120 DIM A\$(12):: FOR A=1 TO 12 :: READ A\$(A):: NEXT A :: CALL CLEAR :: CALL SCREEN(4

130 DATA JAN, FEB, MAR, APR, MAY, JUN, JLY, AUG, SEP, OCT, NOV, DEC

140 DISPLAY AT(12,9)ERASE AL L: "DISK LABELER": :" ER TODAY'S DATE: ": :

MM/DD/YY" :: ACCEPT AT(16 11) BEEP SIZE(-2):B\$ :: IF V AL(B\$)(1 OR VAL(B\$))12 THEN

150 ACCEPT AT(16,14)BEEP SIZ E(-2):C\$ :: IF VAL(C\$)<I OR VAL(C\$)>31 THEN 150 ELSE ACC EFT AT(16,17)BEEP SIZE(-2)VA LIDATE(DIGIT):D\$ :: GOSUB 48 150 E#=A#(VAL(B#))&" "&C#&", 19\*%D\$ :: F\$(1)="DIS/FIX" F\$(2)="DIS/VAR" :: F\$(3)="I NT/FIX" :: F\$(4)="INT/VAR" : : F\$(5)="PROBRAH"

170 IMAGE ": DRIVE: # ..... ######### DISKNAME :#
ATE PRINTED :"

180 IMAGE "! SECTORS AVAILAB LE: #### ..... SECTORS USE
D: #### ..... #
############ | "

190 IMAGE \*######### #### # \*\*\*\*\*\*\*\* \* \*\*\*\*\*\*\*\* \* \*\*\* \*\*\*\* \*\*\*\*\*\*\*\*

200 IMAGE \*\*\*\*\*\*\*\*\* \*\*\*\* \* \*\*\*\*\*\*\*\* \* \*\*\*\*\*\*\* \*\*\*\* \*\*\*

210 IMAGE \*######### #### # \*\*\*\*\*\*\*\*\*

220 OPEN #1:"RS232.8A=4800", VARIABLE 100 :: PRINT #1:CHR \$(15):CHR\$(27):CHR\$(48)

230 UPEN #2: "DSK"&STR\$(B)&". , INPUT RELATIVE, INTERNAL : INPUT #2:6\*,C,C,D

240 PRINT #1:RPT#("=",86):: PRINT #1, USING 170:8, G\$

250 PRINT #1.USING 180:D.C-D ;E\$ :: PRINT #1:RPT\$("=",86)

240 PRINT #1,USING 190: "-Fil ename-" "Size", "--Type--",
"P", "-Filename-", "Size", "-Type---", "P", "-Filename-", "S
ize", "--Type---", "P".

270 PRINT #1:RPT#("=",86)

280 FOR E=1 TO 3 :: INPUT #2 :

:H\$(E),F(E),G(E),H(E):: NEXT E:: IF LEN(H\$(1))=0 THEN 3 20 ELSE IF LEN(H\$(2))=0 THEN SOSUB 340 ELSE 300

290 PRINT #1.USING 210:H\$(1),S(1),I\$(1),J\$(1):: SOTO 280

300 (F 1 FN (H\$(3)) = 0 THEN 909UB 360 :: 6D9UB 400 :: PRINT #1,USING 200:H\$(1),6(1),1\$(1),J\$(1),H\$(2),B(2),I\$(2),J\$ (2):: GOTO 230

310 S0SUB 360 :: G0SUB 400 : : G0SUB 440 :: PRINT #1.USIN \$ 190:H\$(1),\$(1),\$(1),\$(1), H\$(2),\$(2),\$(2),\$(2),H\$(3) },\$(3),\$(3),\$\$(3):: \$000 28

320 PRINT \$1: :: PRINT \$1:CH R\$(18);CHR\$(27);CHR\$(50!:: C LOSE #2 :: CLOSE #1 :: DISPL AY AT(20,1): "Mant another Co py or Disk? /": :""

330 ACCEPT AT(20.28) BEEP SIZ E(-1)VALIDATE("YN"):K\$ :: IF K\$="Y" THEN GOSUB 480 :: 60 TO 340 ELSE CALL CLEAR :: EN

340 DISPLAY AT(20,1)BEEP:"
INSERT DISK INTO DRIVE "&STR #(8)::" PRESS ANY KEY TO BERTN "

350 CALL KEY(0,I,J):: IF J<1 THEN 350 ELSE 220

360 IF F(L)>0 THEN J\$(1)=\* " ELSE J\$(1)="Y"

370 IF ABS(F(1))=5 THEN I#(1 )=F\$(5):: RETURN ELSE A=LEN( STR\$(H(1)))

380 IF A=1 THEN I\$(1)=F\$(ABS (F(1)))&" "&STR\$(H(1)):: RE

390 IF A=2 THEN I\$(1)=F\$(ABS (F(1)))%" %%STR\$(H(1)):: RET URN ELSE I\$(1)=F\$(ABS(F(1))) &STR#(H(1)):: RETURN

400 IF F(2)>0 THEN J\$(2)=" " ELSE J\$(2)="Y"

410 IF AB5(F(2))=5 THEN I\$(2)=F\$(5):: RETURN ELSE A=LEN( STR\$(H(2)))

420 IF A=1 THEN I%(Z)=F%(A85 (F(2)))%" "%STR%(H(2)):: RE TURN

430 IF A=2 THEN 14(2)=F\$(A8S (F(2)))&\* "&STR\$(H(2)):: RET URN ELSE IF A=3 THEN I\$(2)=F \$(A8S(F(2)))&STR\$(H(2)):: RE TURN

440 IF F(3)>0 THEN J\$(3)=" \* ELSE J\$(3)="Y"

450 IF ABS(F(3))=5 THEN 1\$(3)=F\$(5):: RETURN ELSE A=LEN( STR#(H(3)))

460 IF A=1 THEN I\$(3)=F\$(ABS (F(3)))&" \*\STR\\$(H(3)):: RE

470 IF A=2 THEN I\$(3)=F\$(ABS (F(3)))&\* "%STR\*(H(3)):: RET URN ELSE IF A=3 THEN I\$(3)=F \$(ABS(F(3)))&STR\*(H(3)):: RE TURN

480 DISPLAY AT(24,7): "CATALO. 6 DRIVE# 1" :: ACCEPT AT(24, 22)BEEP SIZE(-1)VALIDATE("12 34"): 8 :: RETURN

490 STOP

### nova · COMPUTERWARE

52 Airport Road Edmonton, Alberta TSG OW7 (403) 452-0372

TI-99/4A Computer Sale -Consoles Silver or Beige \$125.00

-TI Software 10 - 50% Discounts
Educ.,Games,Home & Business
-MBX modules 30% Off \$28.00

-Speech Synthesizer \$120.00 -Editor/Assembler \$57.95 -Terminal Emulator II \$49.95 -Disk Manager II (module) \$75.00

(on order)

-Disk Manager III (disk) \$50.00 -Advanced Diagnostics \$25.00

(on order)

-TI Forti Music Synthesizer\$500.00

-Teac Half-Height Package \$625.00 (Trade-In Allowance \$100-\$125)

\*\* June 4 - 28 \*\*

Open 12:00 - 5:00 Tuesday -- Saturday Mail Orders Welcome First Line Auto Body LTD.

5% DISCOUNT

for Society Members



4825. - 76 Avenue

465-4225

### broadmoor stationers sta.

- ◆Office Supplies
- Office Furniture
- Typewriter Rentals
- Typewriter Repairs
- **Business Machines** 
  - Typewriters:
  - Calculators
  - Cash Registers
- Photo Copy Service:
- Rubber Stamps

SALES, SERVICE & LEASING

### broadmoor stationers

165 Athabarcan Avenue Sherwood Park

Mon. - Fri. 9:00 - 5:30 pm Sat. 10:00 - 4 p.m.

SHARP

464-4343

SEM BMITH-CORONA