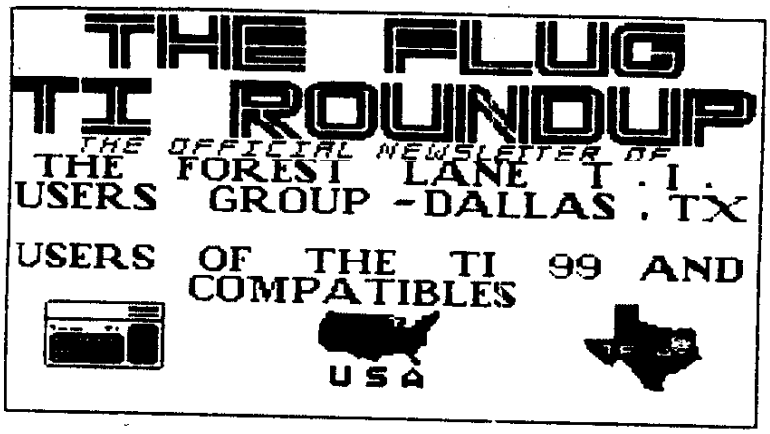

JANUARY AND FEBRUARY 1988
VOLUME 2, ISSUE 04
EDITORS: Oscar Smith/Richard Fleetwood

OFFICERS FOR 1988:

PRESIDENT	Oscar Smith
VICE PRESIDENT	Roy Willis
SECT.	Marc Jensen
Assistant	Al Herring
TREASURER	Ron Kuhlman
MEETING PROGRAM CHAIRMAN	James Carson

Committee Chairman for 1988:

TIBBS Committee	Richard Fleetwood
NEWSLETTER Librarian	Dino Fiorenenti
MEMBERSHIP Committee	Lee Dellenbaugh
HEAD SOFTWARE LIBRARIAN	Ron Schvab
Assistant	Douglas Bieghtol

Next meeting of the Forest Lane Users Group is:

FEBRUARY 7, 1988-- PROGRAM : SECTOR EDITORS ; MYARC 9640 (OR PROX REPAIR)

IN THIS ISSUE:

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FEBRUARY MEETING INFORMATION

By - Oscar Smith

Below are the planned activities for the February 7, 1988 meeting of the Forest Lane TI Users Group.

THE FLUG TI ROUNDUP-VOL.2,NO.04-Forest Lane TI Users Group-JAN./FEB.1988

2:00 - 2:45-BUSINESS MEETING
- Reading of the last Minutes
- Officers reports
- Committee reports
- Library report
- TIBBS report
- TI FAIRE news and update

ANY NEW BUSINESS
- Newsletter mailing
- Newsletter inputs/articles written
- Membership Renewal

2:45 END OF BUSINESS SECTION

2:45 - 3:15-QUESTION AND ANSWER SESSION

3:15 - 3:25 BREAK

3:30 - 4:00 SECTOR EDITORS FOR SOFTWARE AND MYARC UPDATE FOR HARDWARE.

4:00 - 5:00 LIBRARY SWAP--SOFTWARE DEMOS, QUESTIONS, HELP, DISK TRADING;ETC.

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PRESIDENTIAL ROUNDUP

BY Oscar Smith

As the Vice President of this operation for the year of 87 I must say that it has been one heck of an experience but also exciting. It was a obligation that took time and efforts to do and was not as easy as I had previously thought. I learned many things from Newsletters to Meeting procedures. My only concern is that the group continues to grow and prefers to the peak of it ability and that the members learn as much as possible about the little orphan that we have. The majority of us have only just begun to uncover the surface of what the little machine will and can do for us. It is not only a helpful tool in business, work, playing, and education but a tool which widens your horizon into a field that is dominant in our lives. My problem as I am sure yours is too, is that I just don't have enough time to play with all of the software that I own. We live all of our lives wanting a little more time, don't we? When we put our little children to bed we usually hear the request, "Can't I stay up just a little longer?" Bankers and mortgage people often hear the request from those having a hard time making their payments. Teachers know that when an assignment is due that there will be some students who ask for more time.

How can we make the most of the time we have? One way is to have some worthwhile goals we are striving to reach. When we have something to shoot for we will be more likely to put our useful energies to good purposes. If you aim for nothing you will probably reach it. If you aim for lofty goals you may not reach them but it's better to fall short of great goals than to fall short of mediocre ones. Sometimes it helps if we can learn to enjoy what we have rather than always looking to the future. The child who doesn't want to go to bed is really saying "I haven't had enough fun yet, so let me stay up until I do."

To change the subject a bit or two, I would like to take the time out here to thank each one of you who thought enough of me to vote me in as your President for the year of 88. I will try to do my best and not let any of you down, if there is any issue that any of want to know or have discussed at our meetings please don't hesitate to let me know.

Let's make 88 a good year for our group. Don't forget the faire in April and if it looks like you might have the time to help, please step forward and let it be known. Thanks....President Smith.

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WELCOME TO
TI CHAT

Date 01/14/88
Entered by Roy Willis
MC 69230

HELLO READERS,

With the first column of the New Year, I would like to welcome one and all back to the regular grind of the cruel world of reality. The period of time until the next holiday, July 4th sure seems along way off. I know, there is EASTER in between, but that falls on Sunday and most of us don't get off for that significant ocassion. Oh well....

-=>FYI

Well... the December issue of MICROpendium arrived in my mail box on Jan 2, 1988. It seems not so long ago that we used to get the upcoming months issue approx. the middle of the preceeding month. Am not aware there is a problem, but hope that they can get back to a somewhat regular schedule, so that we don't have to read last months news this month. Sort of reminds you of the situation with Smart Programmer, doesn't it? Must admit that it is not quite that bad however.

There is some information in this issue that I will pass along to those that as of yet do not receive the publication. The December issue is the first to be shipped under the new format, Second Class, to cut down on postage. (Second Class is faster that Third, but slower than First. I got my Second class on the same day that a quantity of issues were received Fourth Class.) Really make sense, doesn't it!!

MICROpendium is asking for our help. They are requesting what kind of information and material that we as the reading public would like to see in the coming year. If you have a preference, jot it down on a note and forward it to them. The address is MICROpendium, P.O. Box 1343, Round Rock TX. 78680. Here is your chance to get what you want in a magazine, let them know.

The final versions of MDOS and Multiplan have been released, Ver.1.0. If you own a 9640, you should have or will receive shortly, your copies of the software. Multiplan will now load everything except the help files into memory. This is most noticable when you try to run a directory out of Multiplan. It creates spreadsheets up to 41K in size and is very fast out of GPL speed 85. Version 1.0 of MDOS is sent along with ver .98 of GPL interpreter. There are only six MODIFICATIONS from the original MDOS documentation that was shipped with the 9640 according to an Addendum sent with the software. All changes are minor. The docs note that the Geneve will format 80 track disk drives for those who have them.

Of interest is the note that production of the Floppy/Hard Disk controller has begun, along with a completed version of Myarc's disk manager program that will operate with the hard disk controller. Pascal run-time apparently won't be ready until early 1988, however this should not be a big deal, as there aren't any programs written in Pascal for the Geneve.

In the Feedback column is month is an article describing the the services of another commerical data service, i.e. Compuserve, GEnie. This service, People/Link has a TI section that evidently, not too many people are aware of. There is a $15.00 sign up fee and then the rates are $3.95/hour 300 Baud, evening hours and weekends from 8a.m. to 8p.m., to $4.95/hour 300 Baud nights and all 1200 Baud usage, except for higher prime time rates, weekdays 7:00a.m. to 6:00p.m. There is a 25% discount for Frequent PLinkers on connect time. Included in the Feedback column are tips for solving a couple of problems with some programs.

The BASIC column by Regena for this issue deals with the DEF statement. The "c99" article deals with Functions and strings. This article is called Trials of a c99 beginner, and is written by Charles E. Kirkwood Jr. This issue also has an article, wherein a 99/4A user has transfered the cartridge Music Maker to disk. The solution was quite lengthy and requires a RamDisk, it is quite interesting. If you have music on tapes and wish to convert to disk, you need to read this article. (If there is sufficient interest, I will be happy to see about putting the article online.) Though late, there is a labeler program included in this issue from Ed Machonis that lets you express your thoughts, nifty...

For the real adventureous, there is a firm in Washington state, that is working on a couple of cards for the 9640. One, the Videoflex, and the other Frame Grabber, will enable the user to superimpose or overlay graphics or text over a signal from a VCR or television(an NTSC video composite). The frame grabber samples a signal at 30 times a second. Any time the user wants to

"grab an image" off the TV or VCR he can push a button, and it digitezes it in a form the Geneve can read. This can be brought back to the VCR and used. The anticipated cost of the videoflex card is between $700 and $1,000 and the frame grabber, between $900 and $1,500. If you think this is high, other systems use equipment that cost approx. $25,000.

The Forth tip for Dec is Converting Forth screens to D/V 80. The product or software reviews this issue are "Remind Me!" A computerized desk calendar, and Certificate 99. The other item of interest might be the instructions to install Extended BASIC in the console.

-=>FYI

To get off the beaten path for a moment, I wish to take a few minutes of your time and advise those interested, how the TEXAS TI FAIRE is progressing. Well...as you may know the location has been established as the Holiday Inn on Central Expressway North in Richardson. The date is April 30th, a Saturday, from 9:00 AM to 5:00 PM. So far we have commitments from CompuServe, Genie, Delphi and Startext for Data Base Services. Home Banking of First Republic will also be in attendance. Disk Only Software, Asgard, Textaments, Mechatronics, Myarc and the above mentioned person working on the Videoflex card, Millers Communications and several others that I don't have at hand at this time. MICROpendium will be in attendance and hopefully Richard Mitchell of Smart Programmer. We are in contact with TI to see if we can arrange for a tour of their facilities and possible speaker. As it stands now admission fees will be $3.00 advance purchase, and $4.00 at the door. We will have multi-colors of Tee shirts with the Faire Logo silk screened on them. As of yet we don't have firm price on this item, but can expect to be in range of $6.00 to $10.00. These will not be cheap shirts, they will be of good quality heavy cotton. There will be caps also, and again we haven't gotton a firm price on this item. Will not even give range at this time. We plan on having 4 different activities going on at most all times. There will be the Vendors, Data Base Services, Hardware and software and Demo's. There will also be a Game Arcade for those interested.

Now for the part you have been looking or wondering where it was. We need your help. There will be lots of things that will have to be done before, during and after the Faire and we need all of the Help we can get. There will be people to watch the equipment, the doors, take tickets, draw for prizes, and general GO-FHERS. This is just a hint of the myarid of people we will need in order to try and make the Faire a SUCCESS. There is also a need for various and sundry people of expertise to give, or help give demonstrations of hardware and/or software. THE ONLY THING WE CAN OFFER IN REMUNERATION WILL BE HARD WORK, GOOD TIMES AND A TEE SHIRT. If you are interested in such a task, I would be willing to take your name for the list we are assembling. Leave message to me on any of the TI User Group BBS's, DTIHUB's 99er CONNECTION, 272-2786, FLUG TIBBS, 328-4880, or Startext MC 69250 or Telephone 214-231-2168. Many Thanks.

-=>FYI

Here I would like to call attention to a column on Startext, that I have uploaded. This article appeared in the LA Topics newsletter and when I read it I thought it should be made available for all to read. The column is under xxxxx, and is 124 sectors in length. If you intend to D/L be sure and set your columns to 80 and lines to 0. It concerns High Resolution Graphics on the 4A. Another column I would like to push is IIIII, it concerns some of the things that IBM has done and where they might be headed. You might D/L and give a copy to some of your aquaintances that have IBM's.

-=>FYI

Have heard some rumors recently about something going on with TI and possible re-entry into Home Computer market in some capacity, but will hold until more information is available. Look for some additional word in the future. Could be sooner that we think.... Stay tuned to this channal.

-=>FYI

The next piece of information is from the December 1987 issue of TI Users Group of Will County, 99'er News, by Robert Neal.

RANDOM BITS OF DATA....

With everyone else giving their viewpoints of the faire, I felt that maybe I should talk about something else. This article may not be the most popular thing I've written, or then again it may well be.

If there is one negative side to the 4A community, it is the announcement of the 9640 computer from Myarc. Yes, I know that they have put out products for the 4A, and that is all well and fine. What I think is the down side of the whole thing is the new 9640 computer relies on the PE Box, therefore is designed for the 4A user ONLY. I've yet to see what truly outstanding feats this new computer can do that the 4A doesn't already. Yes, I am well aware of the improved graphics, but other than one program, nothing makes use of this.

Almost every piece of software available for this new marvelous computer is nothing more than a modified version of the programs we now run on our 4A, only real change is that the program now operates in 80 column. And the real joke is they promote the MY WORD program like it was something truly remarkable, when in fact it is nothing more than TI-Writer with patches made to it for a couple of minor improvements. Interesting thing is most of these patches have been incorporated into the latest version of Funnelweb Writer, with the exception of 80 column mode, but more about that in another article.

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JANUARY MEETING

MEETING MINUTES January 3, 1988

by Al Herring

Meeting called to order at 2:15PM by Oscar Smith, new President, with 11 members present. Oscar announced the new roster of officers and advised that the Officer's Meeting would be held on a regular basis each third saturday at Ron Schvab's house at 7:00 PM. Since the new secretary was not present Al Herring was asked to take minutes.

Roy Wilis, Fair Co-ordinator, reported the Fair was taking shape. An attendance of 500 should yield approx. $3000 profit and 1000 attending would yield about $7000. This would be before all bills and rental. Notable vendors signed up include StarText, Genie, and Compuserve. Also he said StarText is working toward providing Home Banking in the Dallas area, details soon. He needs to hear from people who can provide their system for the fair as well as those who can move tables, gofer, etc. on fair day and before. WE NEED YOUR SUPPORT TO MAKE IT WORK!!

Ron Schvab, Librarian, revealed the Lib has several new disks: Creative Filing System catalogs disks, programs, mailing lists, etc.; Picasso Publisher formats and prints with fonts and pictures such as TI-Artist; XBGames has Cross Country Racing, Chess over a Modem, Blackjack to play or to learn - teaches strategies, when to hit, stay, etc.

Richard Fleetwood, Sysop, reported several new down loads available on the FLUG BB: FUNNELWEB (rec'd Dec.22); DISK UTILITIES 4.0a (better than DM1000); Archiver 2.3 (compression after archiving to save more disk space); SQUEEZE (compression written in Fortran); and FASTTERM (new version). He pointed out te need for someone to update the TI Computer Corner on the TI Mainframe. It contains old info and the Fair should benefit also if we can get the info entered.

Ron Schvab gave a demo of the disk of the month, available for $3.00.

NEW BUSINESS:

Sam Lee has seen a "GRANULATOR" - similar to the GramKracker(now out of production. The maker is see if there is enough interest to start procuction.

Richard Fleetwood has copies of documentation, from Australian U.G., to make an Eprommer compatible with 99/4A.

GrandRam....Richard Fleetwood has talked to the President of Data Biotics who said they will honor our mass buy order if we can provide a list of the

kits/parts ordered (We provided the list). GrandRam final testing is in progress and shipping is projected for late February.

Sam Lee reported a problem he is having with FUNNELWEB: when using copy or save on anXBasic program, somewhere around line 70 or 80 of the first file it overwrites the last 2/3 of the line with hyphens.

BREAK

Acting Secretary Al Herring will take membership dues since Treasurer is not present today. Raffle tickets will be sold after the meeting.

Richard Fleetwood demonstrated Disk Manager 4.0a, and Disk Utilities, both very powerful. He also discussed Archiver II(includes compression of up to 60% in te case of text files), Disk Manager III on disk(from TI but never released), Sleeve-It, RAFLabel, and RAFDialer(works with Hayes compatible modems) which does the dial and connection in basic and then loads FastTerm, Omega, Etc.

Meeting adjourned about 5:30PM.

* * * * * * * * * * *

LIBRARY NOTES

by Ron Schvab Sr.

Let me begin by passing on to you a new set up for our library system. As of this meeting(Feburary), for every disk you get from the library at the regular price of three dollars each, you will also be able to get a disk for half price, or $1.50 each. This is to help our library get rolling and to raise some more funds for the upcoming faire. This was decided upon at the last FLUG officers meeting. Please help us out and get some great software!

This is the first of a series or notes/articles from the librarian. First, let me thank my president, Mr. Oscar Smith, for giving me this opportunity to write an article. The first time he asked me for an article I just chuckled and went but the next time he demanded and here it is. Thank you Mr. Smith. I have spent numerous hours updating the library, inserting new MLE pictures and etc. into the catalog. The new "updated catalog" is a hot item on the press at the present time and I will do my best to have a D.O.M. every month. If any of you have a request that you would like to see in the D.O.M. call me or leave me a message on the BBS. So.....as long as my fearless leader continues to crack the whip I WILL perform.

Thank you Ron Schvab

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CONTEST

Richard Fleetwood

PROGRAMMING CONTEST!!

FIRST ANNUAL TI NET PROGRAMMING CONTEST

Official Rules and Information

1) This programming contest is being sponsored by the TEXAS INSTRUMENTS INTERNATIONAL USERS NETWORK (TI NET) on the DELPHI network, provided by General Videotex Corporation, of Cambridge, Ma. This contest is for ALL users of TI produced hardware, including the TI 99/4A, the TI Professional Computer (TIPC), and the MYARC produced Model 9640 Geneve Computer.

2) All entries must be sent to the TI NET Programming Contest, 1125 Easton Road, Dallas, Texas 75218. All TI 99/4A programs, or sets of programs, plus documentation files must be on a single sided/single density formatted disk, and may be on Flippies if you wish. Geneve or TI PRO programs may be on double sided/double density disks. Contest entries cannot be returned. However, you may provide a stamped self addressed mailer for the return of your entries after the close of the contest.

3) All programs must be an original work. Modified programs of software currently available will not be accepted. Please have your name and address imbedded in the program, either in the opening screen or elsewhere. Xbasic programs may have this info in program code in REM statements.

4) Assembly Language programs and all other compiled programs MUST have source code with the program, so that we can verify authorship. This includes the following languages: FORTH, C, PILOT, LOGO, PASCAL, COMPILED BASIC PROGRAMS (9900 BASIC, XB, and others).

5) There is no limit to the amount of programs you may enter in this contest, but PLEASE limit your entries to 2 (TWO) per category.

6) Definitions of the different categories for the TI 99/4A, TI PRO or 9640:

BEST BASIC PROGRAM
BEST EXTENDED BASIC PROGRAM
BEST ASSEMBLY LANGUAGE PROGRAM (9900 machine code)
BEST COMPILED PROGRAM - FORTH, C, PILOT, PASCAL, LOGO
BEST MUSIC PROGRAM
BEST USE OF GRAPHICS IN A PROGRAM
BEST PICTURE - Using TI-Artist, MYART, RLE, GIF, Joy Paint, Font Writer
BEST UTILITY PROGRAM
BEST COMMUNICATIONS PROGRAM
BEST GAME
BEST HOW-TO ARTICLE (HARDWARE, SOFTWARE, ETC, A TEXT FILE)
BEST OVERALL PROGRAM

The category you enter will depend on your individual system. All categories will not be available on all systems.

7) All Categories will have First and Second place winners provided enough entries are received. All other entrants will receive honorable mention in all post contest publicity.

8) PRIZES—The prizes will included hardware (new and used) from Disk Only Software, Myarc and other companies, software, from Disk Only Software, Asgard, Databiotics, Genial Computerware, Delphi, and others, and other computer related items. A winning entry may be marketed commercially by Disk Only Software and other possible companies, if the winner so desires.

9) SYSTEM REQUIREMENTS

TI 99/4A ENTRIES:

All programs submitted must use at the minimum a 99/4A and cassette, and at the maximum, 512K of memory, RS232, two Disk Drives, and any currently available language.

MYARC MODEL 9640 GENEVE ENTRIES:

All programs submitted must use at the minimum a 9640 and disk system, and at the maximum, 512K of memory, two drives, and any currently available language.

TI PC ENTRIES:

All programs submitted must use at the minimum a basic TIPC with 64K and monochrome graphics, and at the maximum, 512K of memory, one drive, and color graphics. Any currently available language may be used.

10) JUDGING—The judges at this time will consist the following individuals:

Richard Fleetwood	- Member of Professional Counsel of 99ers on TI NET
Jerry Coffey	- Member of Professional Counsel of 99ers on TI NET
Walt Howe	- TI NET Librarian
Dick Evans	- Member of Professional Counsel of TIPC users on TI NET
Art Byers	- TI NET Sysop
Paul Gray	- Member of Professional Counsel of 99ers on TI NET
Jeff Guide	- TI NET System Manager, Oversight

We will be basing our decisions on the following criteria, in order of importance:

A) ORIGINALITY
B) USE OF THE TI MYARC CAPABILITIES - (SOUND, COLOR, GRAPHICS, MUSIC)
C) DEBUGGING - make sure you have all the bugs out of it
D) DOCUMENTATION - what the program does, and how it's done
E) ACCURACY - both numeric and use of screens dimensions
F) SPEED - how fast the program seems to work, compared to another program of the same type, speed should not be used for the sake

of speed. Speed should be meaningful.

11) DEADLINE / ANNOUNCEMENT OF WINNERS—All entries must be postmarked by April 1, 1988. Winners will be announced on the TI NET MAY 1ST, 1988 and in post contest publicity.

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BBSLST

UPDATED: 12/19/87 09:20:00 p.s.t. by Jim Thomas, CAPRICORN BBS 415/359-7555

ALL NUMBERS ARE FOR TI-99/4A BULLETIN BOARDS TOTAL:192

?=ITEM IN QUESTION
N=AREA CODE NOT AVAILABLE THROUGH PCP
*=AREA CODE ACCESSABLE THROUGH PCP
+12=300/1200 BAUD
+24=300/1200/2400 BAUD
+96=300/1200/2400/4800/9600 BAUD
T=TEMPORARILY DOWN

CITY	STATE	A.C. PH.#	BBS NAME /or INFO USER#		SYSOP
Queensland, Australia		N 07/284-8493	Techie	#	B. Barnardt
Sayreville, N.J.		*.201/257-2607	Turbo BBS	+12#	Bill Wright
Sayreville, N.J.		*.201/238-8170	BeaverBoardTechie	+12#	Dan Ginzy
Passaic, N.J.		*.201/472-1799	MULTIBBS	300/TN #	Ed Platlow
Old Bridge, N.J.		*.201/679-0549	O.B.T. Techie	+12#	Jim Reiss
Monroe, N.J.		*.201/972-9322	Pushandler TI-Net	+12#	Matt Stora
Tom's River, N.J.		*.201/929-8161	Dragon's Lair (U.G.)	#	Jeanette Schader
Elmwood Park, N.J.		*.201/794-3175	TI-World	#	Scott Moeller
Howell, N.J.		*.201/370-4756	TI-NET	#	Rick Dickens
? , N.J.		*.201/584-5373	Ranger 99	300 bd#	
Lakeshore, N.J.		*.201/370-0855	Jersey Shore TI	+12#	John Herbert
Clinton, Md.		*.202/292-1482	80BBS	+12#	Bob Fowler
Dulles, Va.		*.202/631-0772	Bull Board	+12#	
?, Ct.		N.203/563-2596	?	#	
Florence, Al.		N.205/767-5490	?	#	
Birmingham, Al.		N.205/836-7600	TI-Bugs	300bd#	Gene Burchfield
Bellevue, Wa.		*.206/641-5884	N.W. Tibbs	+12#	Ed Durffee
Bremerton, Wa.		*.206/377-1845	J.R. Exchange ?	#	
Lynnwood, Wa.		*.206/784-4142	Puget Sound 99ers	+12#	Keith Johnson
Seattle, Wa.		*.206/361-0895	Queen Anne Comp.	+12#	Barbara Wiederhold
Des Moines, Wa.		*.206/824-6757	Trotheard	+12#	John Brittingham
Portland, Maine		N.207/797-5690	Down East Connection	#	Mark Rideout
New York, N.Y.		*.212/547-4210	After Hours	#	Ed Kitty
Whittier, Ca.		*.213/947-7777	99 BBS	#	Roger Davis
? , Ca.		*.213/923-8433	TI-World of S.Calif.	#	John Stephens
Los Angeles, Ca.?		*.213/755-7239	L.A. 99ers	#	Danny Nelson
Los Angeles, Ca.?		*.213/864-2488	TI-Club BBS	#	Steve Chalcra
Dallas, Tx.		*.214/272-2786	99er Connection	+12#	Dan Johnsen
Dallas, Texas		*.214/328-4880	F.L.U.G. Tibbs	+12#	Richard Fleetwood
Plano, Tx.		*.214/964-0603	The Flip Side 300/GW#		Mike Mapurano
Philadelphia, Pa.		*.215/927-6432	Philly Tibbs	#	Tom Burke
Easton, Pa.		*.215/258-5255	?	#	John Stover
Easton, Pa.		*.215/252-8867	Techie	#	Mike Mattes
Leesport, Pa.		*.215/926-1661	TI-Line	#	
Philadelphia, Pa.		*.215/745-9774	Philly Tibbs 2	#	Dan McCloskey
? , Pa.		*.215/672-4051	TI D Bits	+24#	Bob Rowe
? , Pa.		*.215/365-2967	Bullwinkle's Corner	#	
? , Pa.		*.215/785-2268	Resurrection Comm.	#	Buddy
Strethers, Oh.		*.216/755-8220	Penn-Ohio U.G.	+12#	Ed Luptak
Urbana, Il.		N.217/384-8173	Techie	#	Dale Creekmur
Champaign, Il.		N.217/359-3431	Techie	#	Jim Lewis
Whiting, In.		N.219/659-1245	?	#	
Rome City, In.		NT219/854-4787	?	#	
Baltimore, Md.		N.301/477-1624	?	#	
Washington, D.C.		N?301/434-0117	?	#	
Clinton, Md.		N.301/292-1482	80BBS	+12#	Phil
Newark, Delaware		N.302/322-3999	Delaware Valley U.G.	#	2nd# for Bob Fowler
Colorado Springs, Co.		*.303/574-2567	Villa-TI Techie	#	no PCP Joe Nuvolini
?, Co.		*.303/288-3692	Rocky Mntn 99ers	+12#	

Golden, Co.	*.303/277-1447	MiteLine Pbbs	+120	
West Palm, Fl.	*?305/793-8050	?	8	Dave Sholdar
Ocoee, Fl.	*?305/877-6546	?	8	Dennis Neubauer
Orlando, Fl.	*.305/894-9641	Lone Wolf	8	William Byrd
Orlando, Fl.	*?305/851-8384	?	8	
Miami, Fl.	*?305/327-3629	Kracker BBS	8	
Alta Springs, Fla.	*?305/682-1526	Comm-Link 99	+120	Rick Gregory
Alta Springs, Fla.	*?305/682-3701	Cheers	+120	Eric Hindock
Miami, Fla.	*?305/255-6307	M.U.G.	+120	
Miami?, Fla.	*.305/951-7681	Pro 99er	+120	Gary Blydenburgh
? , Fla.	* 305/969-3134	TI-99/4A World	+120	
Saskatoon,Sas,Canada	N.306/384-2844	?	8	
Pekin, Il.	N.309/353-9161	Techie	8	Mike Christianson
Chicago, Il.	*.312/395-4618	TI-North	+240	Gary
, Il.	*.312/455-3256	Westdale	8	Alan
Sauk Village, Il.	*.312/757-3135	TI-SOUTH	8	Bob
Melrose Park, Il.	*.312/345-4127	TI-WEST H-1	8	Nick Iacovelli Jr.
Chicago, Il.	*?312/848-3689	?	8	
Chicago, Il.	*?312/598-5955	?	8	
Chicago, Il.	*.312/966-2342	Chicago User Group	8	
Chicago, Il.	*.312/725-0652	Captain Video	+120	Ed Lee
Chicago, Il.	*?312/453-7851	Chicago Connection	8	+12 Hank Ellerman
Detroit, Mich.	* 313/775-6430	Zyolog M-F 4P-12 Mid	8	SS-24 Alan Jacob
Warren, Mich.	* 313/751-1119	Sun Disk	8	Craig Barton
Troy, Mich.	* 313/524-0204	L.M.U.G.	8	
Royal Oaks, Mich.	* 313/296-9436	?	8	
Garden City, Mich.	* 313/422-7124	?	8	
Taylor, Mich.	*.313/291-4415	Down River	+120	Kenny English
Flint, Mich.	* 313/787-8284	TI Port-All	+120	Techie Jim Herron
Warren, Mich.	*.313/757-6157	Genesis Techie	+120	Joseph Lehn
St Louis, Missouri	N 314/878-4289	?	8	
Witchita, Kan.	N.316/681-3167	WWPB Tibbs	+120	Jerry
Indianapolis, In.	N 317/631-994A	Caltex H-?	8	
Lafayette, In.	N 317/423-4879	Techie	8	L. L. Conner
Lake Charles, La.	N 318/474-6144	Bayou Tibbs	8	
, R.I.	N 401/461-6837	?	8	
Cranston, R.I.	N 401/785-0697	Techie	8	Bob Brown
? , R.I.	N 401/724-2446	N. E. 99ers	8	
Alberta, Canada	N 403/457-2203	Techie	8	Wolf Gerhardt
Atlanta, Ga.	*.404/363-1640	Ham Radio Tibbs	8	Larry Lee
Atlanta, Ga.	*.404/366-1914	Atlanta T.I.U.G. 8868		+12 Charles Dupree
Atlanta, Ga.	*.404/991-6250	Atlanta 99 UG 8859-28		+12 Jimmy Fairchild
, Ga.	* 404/768-0990	Micro 99	8	
Marrietta, Ga.	* 404/955-2731	Rock Line	8	
Oklahoma City, Ok.	N 405/672-8270	OK Sooner Techie	8	300bdJerry Robertson
San Jose, Ca.	*.408/578-6264	Caltex8-12 SBTUG	8	Frank Continel
San Jose, Ca.	*.408/258-3679	SBTUG BBS	8	Keith Feli.:
Pittsburg, Pa.	N 412/882-0717	Computer Bug	8	
Pittsburg, Pa.	N 412/242-5342	Techie	8	Andy Szuch
Fond DuLac, Wi.	* 414/922-5747	?	8	
Appleton, Wi.	* 414/739-5380	?	8	Marc Schmidt
? , Wi.	* 414/923-5514	?	8	
Green Bay, Wi.	* 414/437-6930	?	8	D. Pfotenhauer
Sturgeon Bay, Wi.	*.414/743-8654	Techie	8	Wayne Fisher
Pacifica, Ca.	*.415/359-7555	Capricorn BBS Techie	8	+12 24hrs.Jim Thomas
Ontario, Canada	N 416/265-8956	?	8	
Toronto, Canada	N 416/288-9412	9T9 BBS	8	Gil Tennant
Republic, Mo.	N 417/732-7636	?	8	Jerry Campbell
Waldridge, Oh.	N 419/385-7484	Techie	+120	John Clulow
Clinton, Ark.	N.501/745-2362	Hillbilly Holler	8	+2400 Fred DuVall
Portland, Ore.	*.503/233-6804	P.U.N.N.	+120	Ron Mayer
Tualatin, Ore.	*.503/692-7024	Opus 99	+120	Rick Hill
Gresham, Ore.	*.503/667-4992	Net-Work 99 BBS	+120	Chris George
Houma, La.	N 504/851-5190	Techie	8	Joe Zorn
Spokane, Wa.	N 509/484-6163	?	8	
Spokane, Wa.	N 509/328-0553	Caltex H-?	8	
San Antonio, Tx.	N 512/828-1871	T.I.N.E. BBS 300bd	8	Pete Phillips
San Antonio, Tx.	N 512/647-7160	Ran BBS	8	
? , Tx.	N 512/623-2074	99er BBS	8	
Montreal, Canada	N 514/684-6375?	?	8	Tony Hackett
Knoxville, Iowa	N 515/842-2104	?	8	Keith Jamison
Des Moines, Iowa	N 515/263-0796	4A Forum 300 bd	8	Madonna Mordaker
Patchogue, N.Y.	N 516/475-6463	TI-Source Texasmts	8	Steve Lamberti
? , N.Y.	N 518/765-4993	?	8	Dick Ferrigan
Saratoga Springs, NY	N.518/583-2193	Saratoga 99 9p-12mid	8	+12 Phillis Maiorella
Jackson, Miss.	N 601/373-2269	Jackson Tibbs?	8	David Dent

Biloxi, Miss.	N 601/392-8717	?	8	Larry Levy
Phoenix, Az.	* 602/848-6200	TI-85033	8	Stu Olson
White Rock, Canada	N 604/531-6423	White Rock Tibbs	8	Sonny Saelieng
?, S.D.	N 605/336-3578	Dakota Infonet	8	
Voorhees, N.J.	N 609/429-7792	SNJ/DVUG	+120	Brian Beckett
Moorestown, N.J.	N 609/435-7301	D.V.U.G. 300bd	8	Mike Baker
Smithville, N.J.	N 609/652-1965	The Shore Line Tibbs	8	300bdWilliam Schwoer
ST.BONIFACIUS, MINN.	* 612/446-1419	O.O.P.S. BBS	+120	Ralph Johnson
Ottowa, Canada	N 613/738-0617	TI Ottowa 99ers	8	Bob Boone
Chattanooga, Tenn.	N 615/267-1721	Mines of Moria	8	
Nashville, Tenn.	N 615/459-0216	?	8	Nicky Hance
Knoxville, Tenn.	N 615/691-9558	?	8	Dick Tracey
Knoxville, Tenn.	N 615/573-2136	?	8	
Weymouth, Mass.	*.617/331-4181	Boston C.S. H-1	+120	Peter Haddie
Weymouth, Mass.	*.617/331-9549	99 is Alive	+120	Michael
Weymouth, Mass.	*.617/335-8475	Boston C.S. H-2	+120	Peter Haddie
Malden, Mass.	*.617/321-8214	National 99er's	+120	Russ Medeiros
N. Attleboro, Mass.	* 617/699-2099	Techie	8	Bob Brower
San Diego, Ca.	N 619/282-3525	S.C.C.G. Tibbs	8	
Las Vegas, Nv.	N 702/648-1247	S.N.U.G. BBS	8	
Charlotte, N.C.	N.704/541-3776	Queen City Tibbs	+120	300/7,E Jack Foy
Houston, Tx.	*.713/537-0741	Phoenix Tibbs	+120	Bill Rister
Houston, Tx.	*.713/475-8909	N.U.G. Tibbs	+120	Bill Knecht
Houston, Tx.	*.713/479-0466	USS Starship Exodus	8	+12ChrisSchneider
Houston, Tx.	*.713/955-6049	U.S.S. Net	+120	300/7,E Doug Hood
Fontana, Ca.	N 714/350-8583	?	8	Peter Ewert
Lockport, N.Y.	N 716/433-6607	?	8	
Tonawanda, N.Y.	N 716/837-6635	?	8	Peter Testa
N. Tonawanda, N.Y.	N.716/837-2818	The 39 Steps	+120	Robert Coffey
Harrisburg, Pa.	N 717/657-4992	WIZ/TIB 10 meg.	8	
Harrisburg, Pa.	N 717/657-4997	WIZ/TIB dual line?	8	
Columbia, S.C.	N.803/754-4996	Orphanage Pbbs	8	Mike Kimble
? , Va.	N 804/898-9473	?	8	
Virginia Beach, Va.	N 804/486-1484	T.U.G. Tibbs	8	
Newbury Park, Ca.	N.805/499-5415	TI-KEEP	+240	Greg McGill
Lubbock, Tx.	N 806/792-5851	Panhandler BBS	8	
Lubbock, Tx.	N 806/574-2567	Villa-TI TI-Net	8	
Amarillo, Tx.	N 806/373-2270	Golden Spread 300bd	8	Herman Green
Honolulu, Hawaii	N.808/536-0998	Flagship System	8	
Honolulu, Hawaii	N.808/732-2302	Zylog	8	Haine Kazai
? , Hawaii	N.808/521-3306	Sirius Cybernetics	8	+24
St. Petersburg, Fl.	* 813/526-1265	? 10 meg	+120	Ken Hunt
Tampa, Fl.	*.813/677-0718	Tampa Tibbs	+120	Mike Carroll
Tampa, Fl.	*.813/237-1503	Starfleet Techie	+120	Duayne Josephson
Tampa, Fl.	*.813/633-1723	TI-HEAVEN	+240	Henry Neuberger
Safety Harbor, Fl.	*.813/725-4568	Cy's Soup Shop	+240	No PCP Cy Leonard
N. Pt. Richey, Fl.	* 813/849-5940	Dangling Bay	8	
Girard, Pa.	N 814/774-4620	?	8	
Roseoville, Il.	N.815/741-2135	The Clinic Techie	8	Doug Redmond
Seneca, Il.	N 815/357-6971	?	8	
Ft. Worth, Tx.	N 817/795-2322	U.S.S. Enterprise	8	
Germantown, Tenn.	N 901/757-5425	Mid-South U. G.	+120	Pierre La Montagne
? , Tenn.	N 901/726-5623	Risky Business	+120	Beary Miller
Sackville, N.S.Canada	N 902/864-2582	Techie	8	Paul Meadors
Dartmouth, N.S.Canada	N 902/434-3121	Dartmouth Tibbs	8	Terry Atkinson
Pensacola, Fl.	N 904/453-4667	TI-Unlimited Tibbs	8	Dave Johnson
Daytona Beach, Fl.	N 904/253-2993	?	8	
Orange Park, Fl.	N 904/272-8067	?	8	Art Pugh
Merriam, Kansas	N 913/831-4111	TI-Midwest	8	John Floyd
Topeka, Kansas	N 913/357-5334	Topeka Tibbs	+120	
Middleton, N.Y.	N 914/343-5076	?	8	Ted DeLaware
Sacramento, Ca.	N.916/927-3012	Sac-Tibbs	+120	Woody Large
Sacramento, Ca.	N.916/338-1571	River City Tibbs	+120	John Riley
Sacramento, Ca.	N 916/929-0692	Knight's Castle	+120	David Knight
Durham, N.C.	*.919/383-8707	Bull City Tibbs	+120	Roy Shirley Gurley
Raleigh, N.C.	*.919/851-8460	N.C.Central TTIBBS	8	+9600! Amnon Nissan
Raleigh, N.C.	*.919/833-3412	TI-Raleigh	+120	Walter Tietjen Jr.

Thanks to Bill Wright for the original file of 75 numbers, also Bill Rister, Charles Peterson, and all others for their help!

If you find any info missing here or updates (up or down B's), changes, etc., please leave me feedback with the changes or additions.

Thankyou, Jim Thomas sysop CAPRICORN BBS 415/359-7555, 24 hrs. 300/7E 1200/8N available through PC Pursuit, even though it's usually busy, right?

CURRENT PCP AREA CODE ACCESS:

201 NEWARK, N.J.	408 SAN JOSE, CALIF.
202 WASHINGTON, D.C.	414 MILWAUKEE, WIS.
206 TACOMA, WA.	415 SAN FRANCISCO, CALIF.
212 NEW YORK CITY, N.Y.	503 PORTLAND, ORE.
213 LOS ANGELES, CA.	602 PHOENIX, ARIZ.
214 DALLAS, TX.	612 MINNEAPOLIS, MINN.
215 PHILADELPHIA, PA.	617 BOSTON, MASS.
216 CLEVELAND, OH.	713 HOUSTON, TEX.
303 COLORADO, ALL LOCATIONS	801 SALT LAKE CITY, UTAH
305 MIAMI, FL.	813 TAMPA, FLA.
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313 DETROIT, MI.	919 RESEARCH TRIANGLE PARK,(RALEIGH)N.C.
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P.C.P. INFO BBS 800/835-3001	T.P.C.P. Net Exchange 2/689-3361

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GRAMULAT

THE GRAMULATOR FOR THE TI-99/4A

(The following is a slightly edited news release from Mark Van Coppenole)

At last! A direct equivalent for the popular but out-of-production Gram Kracker has been designed by an engineer in Massachusetts. It's called the Gramulator.

A wire-wrapped prototype was demonstrated to the MAGNETIC User Group in Andover, MA at their September meeting and to the Boston Computer Society TI-99 User Group at their November meeting. It performed flawlessly at both meetings. The Gramulator offers virtually all of the features of the Gram Kracker, but it is targeted to cost less.

No production Gramulators have been built yet. To go from a prototype to a production model requires an investment of about $1000. As with anything else, the more that can be made on one batch, the cheaper they will be.

You are invited to respond to this offer if you would consider purchasing this product. Technical questions are welcome. Please write to:

Mark Van Coppenole

52 Audobon Road

Haverhill, MA 01830

(617) 372-0336

Features:

The Gramulator simulates 64k of GRAM and 16k of RAM (in two 8k banks at >6000 - >7FFF).

1) You can customize the built-in TI operating system in GROM 0 and TI BASIC in GROM's 1 and 2.

2) You can backup your GROM and ROM cartridges to disk to protect your investment and reduce wear on the cartridge port. All TI, Atarisoft and Parker Brothers cartridges can be backed up. (Does not work with MBX.)

3) Acts as a "Super Space" cartridge allowing you to run programs requiring RAM at >6000->7FFF (including MYARC's XBII).

4) Allows you to use a customized GROM 0, 1, or 2, while a cartridge is in the slot. One application is that you can use your own character set with a cartridge like TI-Writer.

5) Capable of loading user written GPL code.

6) A total of 80k of memory with lithium battery backup.

The software needed to load and save GRAM and GROM will be built-in for instant access. A memory editor, which will be supplied on disk, will allow you to alter and save any program loaded into the built-in GRAM or RAM. User documentation and technical information will be included.

Memory expansion and a disk drive are required to take full advantage fo the Gramulator.

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Added notes by Walt Howe:

1. I saw the demonstration at the Boston meeting and was very impressed. Mark has designed the Gramulator to take advantage of inexpensive, readily available components that should help keep the price down.

2. One improvement over the Gram Kracker will be an external, easily accessed battery for quick replacement.

3. If you are at all interested in this, drop Mark a note. Without good evidence of user support, it will never be built. Make copies of this and pass it around on bulletin boards and hand it out at user group meetings. This project should really be supported!

Hardware

For those people that were left out in the cold when Craig Miller announced that he would not produce any more of the Gram Krackers, there is something that has come along to take its place, and maybe even better than the original. An engineer from Haverhill, Mass. has come up with a model that emulates the Gram Kracker and does a few things that it didn't do. He demonstrated it to the users group of Andover, and it worked flawlessly as reported. He says in order to go into production and make these available to everybody he has to know how many would be interested in buying one if he does decide to produce them. In order to tool up it would take roughly a thousand dollars just to get order to go into production and make these available to everybody he has to know how many would be interested in buying one if he does decide to produce them. In order to tool up it would take roughly a thousand dollars just to get started, but he can't afford to do this if it won't sell. So heres your big chance to have a Gramulator that you've been waiting for. If you think that you would be interested in purchasing one, just write to Mark Van Coppenole, 52 Audobon road, Haverhill,Ma 01830 or call (617) 372-0336.

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ARCHIVER/1

Downloaded from CompuServe by Ken Young

07-Nov-1987
by: Alan L. Beard
BIX: abeard
Compuserve: 71370,2723

TI-99/GENEVE Archiver Format

1 General

This is a text file describing the archiver format popularized by Barry Traver. It is further extended by Huffman encoding techniques, into a squeezing archiver.

An archiver is a program, which reads a collection of (usually related) other programs, and combines them into a single file called an archive. Sometime later, the programs can be recovered from this single file in

the original file formats.

The advantage of an archiver is that only a single file need be posted on a network instead of multiple files. A user need only be concerned that the single file was downloaded, and be assured that this single file contains all necessary elements to run a program (e.g. source, objects, executables, documentation files, readme files, etc.).

A second advantage of an archiver is that the archiver can be made "smart", i.e. it can take advantage of repitition of characters in files to "squeeze" or "crunch" the files into an archive, making the resulting archive usually some 30 to 60% smaller than the original files contained. This is done without loss of information. The "squeezed" archive is shorter to upload/download, saving the user 30 to 60% on his downloading fees. Also, moderators on networks and bulletin board systems encourage file compression as immediately 30 to 60% more mass storage becomes available, with no increase in costs!

A squeezing archiver also makes sense to a user interested in archiving a number of infrequently used files (such as the source for a program after it has been compiled).

As a matter of fact, the only disadvantage to archiving is that the archive/dearchiving process tends to be time-consuming (2 to 15 minutes to unpack an archive). But, since this is done offline, on an essentially free (your) system, this usually isn't very significant.

2 The TRAVER Algorithm/Format

Barry Traver introduced the most popular archiver for the TI-99 and Geneve. It is written in Extended BASIC, is quite a professional program, and demonstrates the capabilities of Extended BASIC. A single assembly language subroutine was used, which allowed sector reads and writes by accessing a Device Service Routine (DSR) in the TI Disk controller card.

The TRAVER archiver is FAIRWARE, for those people who subscribe to the TRAVELER, the program is free.

Barry picked a simple approach to the archiving algorithm, one that shows an indepth knowledge of the internal TI-99 disk file structure, and uses that structure to the archiver's advantage. Files are packed in a archive very close to the same way they are on the TI-99 disk. The archive itself consists of a fixed/display/128 file (probably since BASIC can't open a fixed/display/256 byte file).

2.1 File Packing Algorithm

The basic algorithm for the archiver works something like this:

a. The file descriptor index record is read which points to all of the one sector file header records.

b. The user is prompted for which files on the disk are to be compressed.

c. Each desired file header record is read, the unused bytes are stripped (including the reserved expansion bytes, and the data chain pointer blocks) leaving a "mini" file descriptor record which consists of the following:

- o 10 character file name
- o File Status Flags
- o Maximum Number Records/Sector or All
- o Total Number of Sectors Used
- o End of File Offset
- o Logical Record Length
- o Number of Fixed Records or Number Sectors Used

These 18 byte mini file headers are packed fourteen to two 128 byte records (for a total of 252 bytes). The remaining unused four bytes per sector contain either zeroes (meaning this is NOT the last header sector) or the characters END! (meaning this is the last header sector).

d. Following the header section of the archive is the data section. Each 256 byte sector of the file is packed as two 128 byte records.

2.2 File Unpacking Algorithm

The file unpacking algorithm is quite straightforward. The user is solicited for the file or the files to be "unpacked". These are read from the archive file headers, and:

a. The data section for each file is located using the "total number of sectors used" field in the mini-file descriptor records.

b. The file is read from the archive, and written to the disk as a DISPLAY/FIXED/128 file.

c. After the file has been successfully written to the disk, the disk is searched for the file header and the file header is overwritten by the information contained in mini-file descriptor.

3 The BLARP Huffman Squeezing FORMAT

An extension to the TRAVER archiver format was released by myself in September 1987. This extension provides capability for squeezing the archive using HUFFMAN encoding techniques originally developed by R.Greenlaw under CP/M. This CP/M method was ported from CP/M to the IBM PC, and then to the Amiga, and finally to the TI-99. Software sources were obtained in the public domain from BYTE INFORMATION EXCHANGE.

Thanks should be offered at this point for the inputs provided by Dr. Jerry Coffey, who helped me work out the final bugs in the squeezing archiver, especially for helping me make it backwards compatible to the Traver Archive.

The program is written in FORTRAN, so to use it you need to either own a copy of FORTRAN, or get a copy of the public domain module 99STAND.MAC (for version 2.0) or FORTSA (for version 3.1 and above).

The program maintains backwards compatibility to the TRAVER format, it can unpacked either squeezed or unsqueezed archives, or a combination of them. The basic format of the archive is the same, a header section consisting of "Traver-like" mini file headers, followed by a data section of squeezed and (possibly) unsqueezed data files.

3.1 File Analysis

Before a file can be squeezed, it must be analyzed. This is performed automatically by the squeezing archiver as a first pass on the file.

The analysis portion basically consists of reading every sector in the file to be compressed, and counting the occurances of each of the possible 256 data byte values. Once all of the file has been read, and all of the occurance counts have been collected, then a sort and binary tree is created containing the optimal Huffman codes for the file.

3.1 File Squeezing Algorithm

Once the file has been analyzed, and a binary tree created, then the squeezing part of the archiver is executed. This portion first writes a prologue to the data file consisting of the archival type, the sector length of the original file, the number of binary tree nodes, and the binary tree, followed by variable length bit strings representing the Huffman encoded data.

Following the squeeze operation, the reduction in the file size is tested. If the resulting file is larger than the original file, then the file is "re-packed", using the normal unsqueezed TRAVER format.

If a reduction is detected in the file size, then the file header is modified. First, the file status flag is OR'd with a '20'X,

indicating an archived file. The Total Number of Sectors used field is changed to the Total Number of 128 byte records used.

The actual data file contains the following information:

- o One word representing the archiving method. This is currently set to a 1, since this is the first squeezing method to be implemented. Future methods should set this to a different unique number representing the different squeezing technique.
- o One word representing the original value for the Total Number of Sectors. Note that this was changed in the mini-file header to be the number of 128 byte records.
- o One word representing the number of nodes in the binary huffman tree (this word starts the particular encoding scheme, whereas the first two words must be understood by all archivers).
- o The nodes of the binary tree, first the left child, and then the right child, repeated for the NUMNODES.
- o The squeezed archive data, terminated by a special "end-of-file" character.

3.2 File Unsqueezing Algorithm

The file unsqueezing algorithm is similar to the "non-squeezing" file unpacking algorithm. The only key is to recognize that this is a squeezed file (by the special file status bit OR'd '20'X), and to recognize that the total sectors used is actually the total records used if this is a squeezed file.

If this is not a squeezed file, than the unpacking algorithm is identical to the TRAVER format.

One small difference can occur between an unpacked file (via the Traver method) and a squeezed file (via the Heard method). The final sector of a file is usually only partially used, and the squeezing archiver takes advantage of this fact to only save the in use partial amount of the final sector. The archiver "zero-fills" the remainder of the sector. The inconsistency is that the final sector can be different (in its unused portion) than the original file. This should not cause any problems in using the file (unless some tricks have been played with the DSR), but would show as a difference on a sector by sector compare.

4 Improvements

Many improvements to the implemented squeezing archiver are possible and encouraged. The following is a list of possible improvement areas:

a. The TI-99 disk format is quite wasteful in that it does not split a record (either fixed or variable) over a sector boundry. Therefore, a DISPLAY/FIXED/129 file will have 127 bytes/sector of unused space! Variable files are similar, if the next record to be stored cannot fit in the current sector, then the record is terminated and the next record is started. Since the squeezing archive is actually a stream of bits, this unused space could easily be skipped in the archive.

b. The bit manipulation routines in this program are in FORTRAN, therefore are slower than what is achievable with Assembly. A good deal of the lower level stuff could be streamlined.

c. It would be useful if the archiver would recognize that a file could not be squeezed at the "analysis" stage rather than after it has been squeezed and written.

d. Different, and better squeezing algorithms are available. It might be possible to borrow from the IBM PC archiver, and do the analysis in various formats, and pick the compression method that yielded the best result.

e. There is currently no support for hard disks, or reading/

writing sectors to/from a RAM disk. (the reason being that I don't have a hard disk, and I haven't figured out the RAM disk yet).

5. Archive FORMAT Recap

a. Archive consists of two sections packed into a 128 byte fixed length record file:

- o Header Section
- o Data Section

b. The header section consists of "mini-file headers" packed 14 to a record. Each "mini-file header" is a stripped version of a standard TI-99 file header, and contains the following:

byte nos	Contents
0-9	10 Character (MAX) file name. Unused characters are space characters.
10	File Status Flags:

	Bit No	ON=1	OFF=0
>00 Dis/Fix	0	Program File	Data File
>01 Program	1	Internal	Display
>02 Int/Fix	2	Reserved	
>80 Dis/Var	3	Write Prot	No Write Prot
>82 Int/Var	4	Reserved	
	*5	Squeezed	Unsqueezed
*Non-standard meaning	6	Reserved	
	7	Variable Len	Fixed Len

11	Maximum Number of Records/Sector or AU
12-13	Total Number of Sectors Used (unsqueezed archive) or Total Number of 128 byte Records Used (squeezed archive)
14	End of File Offset
15	Logical Record Length
16-17	Number of Fixed Length Records or Number of Sectors Used by Variable Length Records

The last 128 byte header record contains the characters "END!" in the last four bytes. Unused header record slots (to fill out a 128 byte record) contain zeroes.

c. The data section follows the header section, and contains a number of data files pointed to by the header section. There is no special seperation between the data sections in the data section itself, it is merely a collection of 128 byte records.

The unsqueezed data section contains an even number of 128 byte records for each sector in the input file.

The squeezed data section has a more complex format, but still consists of 128 byte records. Actually, the data section can be thought of as a continuous "stream" of data, organized as follows:

word 0 - Set to a "1", to indicate the compression method.
word 1 - The original value for the Total Number of Sectors
word 2 - The number of nodes in the binary tree
words 3 to numnodes*2+2 - The binary tree
remaining - Variable bit data for the Huffman Encoding.

****

FLUG/CONST

CLUB CONSTITUTION

ARTICLE I:

The name of this users group shall be "THE FOREST TI LANE USERS GROUP"

ARTICLE II:

The FOREST LANE USERS GROUP is a NON PROFIT Computer users group dedicated to the proliferation and support of all TEXAS INSTRUMENTS personal-type computers (including, but not limited to the TI 99/4A family, the TI 99/2, TI 99/8, CC40, TI PEGASUS, and 990 board systems, and all compatibles.

ARTICLE III:

Membership shall be open to any person with an interest in the purpose and objectives of this users group.

ARTICLE IV:

The annual dues shall be fifteen dollars per family for all members per year.

ARTICLE V:

The officers of the group shall consist of a PRESIDENT, a VICE PRESIDENT, a SECRETARY, a TREASURER, and a PROGRAM MEETING CHAIRMAN. The officers as a whole will be known as the EXECUTIVE COMMITTEE.

ARTICLE VI:

The standing committees shall be:

1) HARDWARE PROJECTS COMMITTEE
2) SOFTWARE ACTIVITIES COMMITTEE
3) PROGRAM COMMITTEE
4) MEMBERSHIP COMMITTEE
5) TIBBS COMMITTEE
6) NEWSLETTER COMMITTEE
7) LIBRARY COMMITTEE

Ad Hoc committees may be created at the discretion of the EXECUTIVE COMMITTEE.

ARTICLE VII:

A. The annual meeting for the election of officers shall be the LAST meeting of the calendar year.
B. Meetings of this users group shall be held at the discretion of the active membership. A quorum for the transaction of business shall be two-thirds of the average attendence of members at the previous three meetings.
C. Meetings of the officers shall be called by the president as necessary, or upon the written request of two other officers. A quorum for the transaction of business shall consist of three of the five officers.

ARTICLE VIII:

This constitution may be amended by a two-thirds vote of the membership present at any regular business meeting, but no amendment shall be voted upon without two weeks notice, by mail or prior meeting, to the active members.

OPERATING PROCEDURES

ARTICLE I:

DUTIES OF OFFICERS:

A. PRESIDENT — The President shall preside at all meetings of the user's group; and shall perform all such duties

as are incidental to the office of and are properly required of the President.

B. VICE PRESIDENT — The Vice Presidsit shall exercise the office of the President in his absence.

C. SECRETARY — The Secretary shall have charge of all papers pertaining to this user's group, and perform such duties that are properly required of the Secretay by the organization.

D. PROGRAM MEETING CHAIRMAN— The Program Meeting Chairman shall be responsible for the set up and take down of the meeting room and direction signs for finding the meeting room. He also is responsible for helping schedule events and helpful programs for every regular meeting, and will provide support for other meetings. He is responsible for the transportation and upkeep of the clubs traveling system. He shall maintain order and flow of all meetings, and shall be responsible for timely control of each meeting.

E. TREASURER — The Treasurer shall have charge of all the funds of the User's Group, shall conduct its banking business and audit all accounts. Any disbursement of funds must be signed by either the President or the Treasurer, and shall be countersigned by an additional officer. No funds shall be disbursed without authorization from the majority of the executive committee, or a majority vote of members at any meeting of the users group.

ARTICLE II:

COMMITTEES:

A. The Program Committee shall schedule events and helpful programs for every regular meeting, and shall provide support for any other meeting. The Program Meeting chairman shall chair this committee.

B. The Equipment and Software Library Committee shall be responsible for the maintenance of all equipment and software owned by the User's Group. It shall be responsible for the safeguarding of all equipment and software.

C. The Membership Committee shall direct the work of securing new members, and maintain an up-to-date listing of active members.

D. The TIBBS committee shall be responsible for the upkeep and control of the clubs 24 hour BBS system. It shall provide updates, programming changes, and all software as needed to make the BBS system useful to members, and will provide a source of information to non-members providing information about membership in the club.

E. The Newsletter Committee shall provide a monthly newsletter to all paying members, and will do so in a timely manner to keep the membership abreast of the clubs activities. The editor(s) of the newsletter will be responsible for providing useful articles, information, programs, and anything deemed USEFUL to the membership and their enjoyment of the TI Home computer.

F. The Library Committee shall be responsible for providing a source of programs and public domain and fairware software, and shall actively seek same for the benefit of the membership. The committee shall provide an updated list of disks and programs on a timely basis, and shall notify the membership of any changes in the catalog.

G. The Hardware Projects Committee shall be responsible for defining,designing, and building all hardware projects.

In addition, this committee shall identify group buying potentials and will coordinate all such buys.

H. The Software Activities Committee shall be responsible for developing programs of general interest to the membership, and the evaluation of all new software.

I. The Executive Committee shall appoint the Chairman of all committees, except as provided in the Constitution and Operating Procedures.

J. The Membership of each committee shall be appointed by the executive committee council in conjunction with the Committee Chairman.

K. A Quorum of one-half of the Committee Membership must be present at a Committee meeting for business to be transacted. The majority vote of a Committee shall be considered the vote of the Committee as a whole.

L. Any Committee member who is absent from three consecutive meetings without good cause, shall be removed from that Committee.

M. All Committee meetings shall be open to all active members.

ARTICLE III:

ELECTION OF OFFICERS:

A. Only active members shall be eligible to hold office. A member may place his own name in nomination.

B. Voting shall take place at the annual election meeting by secret ballot, unless voice vote is unanimously approved. The nominee receiving the greatest number of votes for an office shall be installed at the next meeting. In case of a tie the president shall have the deciding vote.

C. In case of resignation of an officer, or a vacancy in any of the offices, the executive committee will have the option to appoint a member to fill the vacancy for the remainder of the term.

ARTICLE IV:

MEMBERSHIP

A. A membership shall become active upon payment of the proper dues. A membership shall be suspended when dues are ONE months in arrears. A member may be dropped at the discretion of the executive committee, for cause. If a membership is suspended for cause, a pro-rata share of his/her dues shall be refunded.

ARTICLE V:

"ROBERT'S RULES OF ORDER" shall govern in all matters not covered by the constitution and operating procedures.

ARTICLE VI:

LIABILITY OF MEMBERS:

A. No officer or member shall be personally liable for any bills or obligations of the users group, past or present, except for the payment of his personal membership dues.

b. No person shall use the name or mailing list of the users group without written authorization from the executive committee.

** OPERATING PROCEDURE CHANGES APPROVED BY A UNANIMOUS VOTE OF THE ACTIVE MEMBERSHIP PRESENT AT THE JUNE 1986 MEETING.

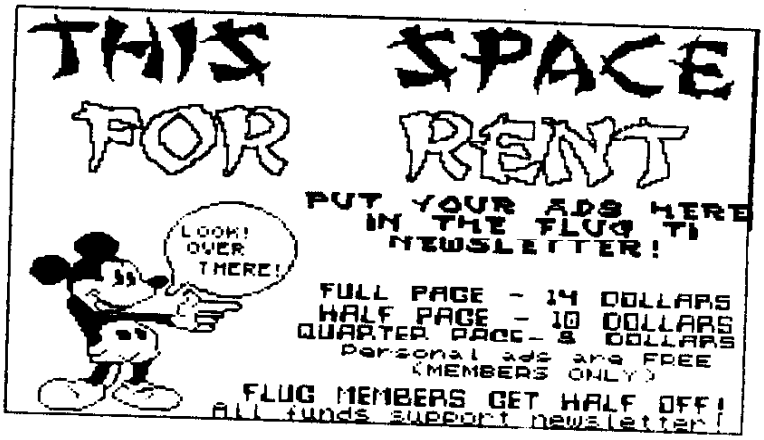
****

EXTRA HELP WANTED EXTRA

NEWSLETTER EDITOR

THE FLUG GROUP NEEDS A NEWSLETTER EDITOR STARTING WITH THIS NEXT ISSUE OF THIS MONTHLY CLUB NEWS SOURCE. YOU MUST BE WILLING TO MAINTAIN THE QUALITY AND PRODUCTION OF THIS IMPORTANT POSITION. ALL HELP AND SOFTWARE WILL BE PROVIDED TO YOU. FOR FURTHER INFORMATION OR TO APPLY, PLEASE CALL RICHARD FLEETWOOD AT 214-328-9257. We Need YOU NOW !!

NO NEWSLETTER EDITOR- THEN NO NEWSLETTER



ONE(+) LINERS FOR GRAPHING

by Tony Falco

Graphing is an important topic in mathematics education today. Computers and computer graphics will make it an even more important topic in the future. The following one and two (sorry!) liners can hopefully help out some middle school or high school students with some of the more basic concepts.

The first program gives practice with the process of plotting points. At the "X=,Y=" prompt the user enters two numbers separated by commas. The program will show that point if its coordinates will fit on the screen. Bear in mind the all the programs here are low resolution and plot only integer points.

The second one graphs the function Y=10*SIN(PI*X/14). Users can experiment with other functions by simply changing that expression. Try Y=ABS(5-ABS(X)) for example.

The third and fourth programs are very similar. The third one allows the user to experiment with sine waves. At the prompt you enter values for A and B, again separated by commas, and see how these numbers change the period and amplitude of the wave. The last one graphs shapes known as parabolas. At the prompt enter values of A,H, and K, once again separated by commas, and see how these values effect the shape, position and orientation. Values of A between -2 and 2 (decimal fractions are fine) work best. Again bear in mind that with low resolution many points do not get plotted, but this is exactly what one does with paper and pencil. We plot a few points and infer the position of the rest.

For a neat display run using CALL CLEAR :: RUN.

```
1 FOR D=1 TO 2000 :: NEXT D :: CALL CLEA
R :: INPUT "X=,Y=":X,Y :: IF ABS(X)>15 O
R ABS(Y)>11 THEN 1 ELSE CALL HCHAR(12,1,
43,32):: CALL VCHAR(1,16,43,24):: CALL H
CHAR(12-Y,16+X,30):: GOTO 1
```

```
1 CALL HCHAR(12,1,43,32):: CALL VCHAR(1,
16,43,24):: FOR X=-15 TO 16 :: Y=10*SIN(
PI*X/14):: CALL HCHAR(12+Y*(ABS(Y)<=11),
16+X,42-(ABS(Y)>11)):: NEXT X :: GOTO 1
```

```
1 CALL CLEAR :: INPUT A,B :: CALL CLEAR
:: DISPLAY AT(1,7):"Y="&STR$(A)&"*SIN(2*
PI/"&STR$(B)&")"
2 CALL HCHAR(12,1,43,32):: CALL VCHAR(2,
16,43,23):: FOR X=-15 TO 16 :: Y=A*SIN(P
I*X/B):: CALL HCHAR(12+Y*(ABS(Y)<=11),16
+X,42-(ABS(Y)>11)):: NEXT X :: GOTO 2
```

```
1 CALL CLEAR :: INPUT A,H,K :: CALL CLEA
R :: DISPLAY AT(1,7):"Y="&STR$(A)&"(X-";
STR$(H);")^2+";STR$(K);
2 CALL HCHAR(12,1,43,32):: CALL VCHAR(2,
16,43,23):: FOR X=-15 TO 16 :: Y=A*(X-H)
^2+K :: CALL HCHAR(12+Y*(ABS(Y)<=11),16+
X,42-(ABS(Y)>11)):: NEXT X :: GOTO 2
```

From the MUNCH TI-dings

HIGH RES GRAPHICS AND THE 99/4A, PART II

by Anne Dhein

Section One: The Preliminaries

Part one of this article defines a drawing package as a program or group of programs that will allow the user to create graphics by turning on (or off) the smallest addresable unit of the screen - a single pixel. All of the currently available drawing programs for the 99/4A allow individual pixels to be placed anywhere on the screen and removed as desired, to create very detailed pictures. Drawings can be saved on disk (or in some cases tape) and later be reloaded for editing or printing.

As you know, all the 99/4A paint packages do much more than just this minimum. But the features present in a particular package, and how they are implemented vary widely. Section one of part two provides a chart to allow a feature-for-feature comparison of ten main drawing packages for the 99/4A.

The chart lists the name of each drawing package (in capitals) across the top. The drawing packages are on the chart roughly in reverse order of how they were introduced on the market - that is, the later ones are listed first. You can quickly tell whether a program has a particular function or characteristic by locating that function in the first column and then checking across the row to the column in which the program is listed. Over the next few issues, detailed information will be given for each of these functions.

If you are planning to purchase graphics software the first thing to ask yourself is, "What do I want to do with the program?" Looking at the chart, Program Focus refers to the primary purpose of a package. Three main uses for paint programs are for entertainment (E); as a production tool for producing letterheads, newsletters, flyers, etc. (T); or as a programming utility (U). Some of the programs do all three; others concentrate on just one aspect.

Norton Graphics, for example, is strictly a programming utility, and Paint 'N Print is pure entertainment. TI Artist is the best general purpose program by far, but nothing can beat Graphx for enhancing an artist's creativity. Joy Paint also excels in this area, and although lacking in color has production capabilities not found in Graphx. Draw 'N Plot can be used quite comfortably as a simple drawing board, but its real merit lies in its ability to interface with your own programs.

System Requirements

Before you purchase any program, check to make sure that you have all the hardware necessary to run that particular software. Two of the programs - Paint 'N Print and Super Sketch - can be used with only a console. Norton Graphics Package can also be run on just the console, using Extended Basic. The others require a disk system and 32K memory expansion.

Paint 'N Print, Super Sketch and three of the disk programs also each have an additional disk, sold separately, but which adds substantially to the program's capabilities. These disks are listed in lower case on the chart, under the main Program. The functions they support are starred (*). When Paint 'N Print and Super Sketch are used with their supplemental disks, they also need the expanded system. A cassette version of Extended Graphics is available for Paint 'N Print, but it still requires a 32K memory expansion unit. Paint 'N Print, by the way, won't work properly on my system with the widget. Plug Paint N' Print directly into the console and it works fine.

A few programs may not work with the Myarc and/or CorComp peripherals. Joy Paint, TI Artist and Graphx, along with most new software do work with any of the three controllers. The version of BitMac that I have does not work with a Myarc disk controller, but works with CorComp's. TI Artist works beautifully with the Myarc RAM disk but Joy Paint does not. Since most software companies are working constantly to keep their products updated to work with the newer hardware, peripheral compatibility is not covered on the chart. If you happen to have any of the newer peripherals, consideration to this should be given when buying software.

Printer compatibility is covered further down the chart but should be mentioned here as something to watch out for when buying software. It is very disappointing to get a new drawing package home, only to find the screen dump won't work with your printer!

Loading Requirements - With the exception of the Norton Graphics Package which is programmed in (and requires) Extended Basic, the software listed here is written in assembly language; therefore a module which can access assembly language is necessary. The three "loader" modules are Extended Basic, Editor/Assembler and Mini Memory. TI Writer's Option 3 can also be used instead of Editor/Assembler's Option 5. Some software can use any loader; other packages require a particular module which is listed on the chart.

Ease of Use and Method of Operation

Just as people are different, so, too, does each program seem to have its own "personality", or flavor. This rating should be looked upon as subjective and is given here only to provide one person's idea of how easy the program is for an average user to learn and to use comfortably on a day-to-day basis. The Norton Graphics package rates the lowest because it is slow and takes some patience. It is meant for Basic programmers.

Super Sketch is on the other end of the scale. It is so easy to use that a child who doesn't read well could comfortably use it with a minimum of instruction and supervision. Joy Paint, even though it does a lot more, is also very easy to use. Main drawing functions such as draw, erase, fill, using circles and lines, lettering, paintbrush, etc., are all easily selectable from the drawing board by a representative picture (known as an "icon"). More complex features and file management are immediately selectable by menu.

The other programs fall somewhere in the middle. Draw A Bit and Master Painter require the memorization of a number of function keys to use them properly, or else you had better have a list handy. The manuals for these two are also hard to read. Bitmac requires some key memorization combined with the use of icons, but Bitmac's manual is much better.

Draw 'N Plot uses a simple menu and a few function keys. It doesn't have as many features as the others, but what it has is easy enough to use. The instructions are adequate, especially if you are a programmer.

Paint 'N Print is easy to use on a regular basis but there are a number of keys that need to be memorized which makes it harder to get started.

TI Artist and Graphx are not perfect, but both are comfortable to use on a regular basis, and very easy to begin using. TI Artist makes extensive use of icons for users who prefer them but also allows the faster method of pressing function keys for the various commands for those who want to memorize them. TI Artist does requires switching between two main programs and several auxilliary ones which can get tiresome even though it is all done within the main program. Graphx, like Bitmac, uses some function keys but provides an identifying strip for the top of the keyboard which makes them quite easy to follow. Graphx also uses menu selection for the less used features. Of all the paint programs Graphx has the best manual, which can be used as a tutor as well as a reference.

A final word on two more items which are not covered on our check list: availability and price. Most of the programs listed on the chart are readily available and can be purchased at any number of places, including Dhein's. Prices given are those charged at Dhein's, and may vary from place to place: Joypaint, $39.95; Joy Paint's Pal, $9.95; Bitmac, $19.95; TI Artist, $19.95; Artist Extras, $6.95; Graphx, 39.95; Draw 'N Plot, $14.95; Norton Graphics Package, $7.95.

Paint 'N Print, produced by Navarone Industries, is also readily available. I occasionally see Master Painter 99 by Asgrisoft still advertised, and I believe you can still get Draw-A-Bit and Print-A-Bit from Data Force in Illinois. Since these addresses are easily obtainable from your user's group officers (or from me), I won't repeat them here.

Super Sketch, alas, is no longer made. It is included in the chart because there are still a lot of them in use, and you just never know when one might pop up for sale. Super Sketch is unique in that it has been the only pad and pencil type software released for the 99/4A.

Section Two: Getting Down to Details

Let's talk about drawing tools. In these packages the cursor is your "pencil" as well as your "eraser". The pencil can be moved around either by using the keyboard's arrow keys or by using a remote controlled "joystick". Some software requires joystick control. Then the fire button is usually used to turn the drawing tool on or off. To make truly curved lines with just the keyboard is practically impossible - you need the better control that a joystick has. On the other hand, it's harder to draw straight lines with a joystick; the keyboard does a better job there. Luckily, drawing programs can create lines, boxes and circles automatically.

Anywhere a joystick is required, a trackball can be used instead. The phenolic ball offers 360 degree movement for such fine control of the pencil that you can easily write your name in script. (I won't promise how it will look!) However, it is almost impossible to draw a straight line with a trackball. This is where the automatic line function in drawing programs becomes invaluable. If you are using a joystick or trackball be sure the alpha lock is in the UP position.

Cursor Speed Control - In many of the programs the speed of the cursor can be controlled. This is handy because if you are drawing large areas freehand, you can go much faster. When you want to work on painstaking detail then use a slower cursor for more accuracy.

Brush Styles - Instead of leaving a fine line like the single-pixel pencil, a brush applies "paint" for wider or fancier lines. Draw A Bit lets you paint in wide or narrow swatches of color. TI Artist includes angle brushes and brushes that make parallel lines like you would get from painting with a fork. Paint 'N Print, which has 32 brush styles includes circles, squares, and even triangles in a number of sizes.

Automatic Draw Functions - As mentioned earlier, all paint programs listed here will draw lines for you automatically. Select the beginning and end of your line, press a button, and presto - you have a perfectly straight line right where you wanted it. Some programs will also draw circles, ovals, rectangles and rays. A ray is like a line except that you can keep moving the cursor (pencil) around the drawing board, and wherever you choose to press the button, you can have a perfect line between the current cursor position and your original starting point.

Some programs will also draw ellipses and rectangles. For chart purposes, an ellipse includes circles and ovals, and rectangles include squares. Draw A Bit and the Graphics Package draw 90 degree arcs - four

arcs make a circle. The various programs handle this function in different manners, but the principal is the same; select the center position and the size, and the figure is drawn automatically.

Filling, Shading, and Adding Depth - In all but two of the programs, closed shapes can be "filled", or "painted", with a specified color or pattern. The Paint 'N Print cartridge limits the filling to a rectangle only. But with the companion disk, any closed shape may be filled with any texture or solid color.

A manual fill requires the cursor to be moved around the shape as it is being filled, in order to get every little part of it. A semi-automatic fill does most of the shape in one pass; the occasional spots missed must be done manually. A fully automatic fill checks to see that every little corner has been filled - even in convex shapes. Sometimes this is called a "smart" fill.

Some programs provide patterns for shading and depth. Super Sketch has one texture pattern. TI Artist has 10 and Joy Paint has 24 from which to choose. Joy Paint also has an airbrush which works like a can of spray paint. It give a misty, sprayed effect in whatever pattern you are using. Because you can control the amount of "paint" that goes on the drawing, it makes an excellent tool for adding shadows and depth. Almost the same effect can be achieved with Paint 'N Print by using one of the larger brush sizes and switching to the texture mode. Bitmac has a feature called "Life" which can be used for getting a shaded effect.

Joy Paint and Paint 'N Print both have routines on their companion disks for creating new texture patterns. Once you have saved these patterns on disk, they can be used over and over.

Reflections - The chief application of this function is to draw symetrical figures rapidly and easily. The screen is divided into sections and whatever is drawn in one section will be reflected in all the others. In TI Artist this is called the MIRROR function, and the screen is divided into four parts. Other functions such as circle, frame, line, and zoom can be used while the mirror function is in effect. Paint 'N Print calls this function KALEIDESCOPE and gives you a choice of 2 to 8 reflections. Functions such as square, circle or fill may be used but result in only one image.

Picture Manipulation

Move, Copy, Flip, Rotate, Invert, Magnify and Reduce - When you have your picture underway, and more of an idea of what you want, you will appreciate features that let you alter the look of the drawing. Some programs let you copy one part of a picture to another part, move sections of picture around the screen, rotate, invert, or flip them; magnify or reduce parts. Invert means to turn all the "on" pixels off, and all the "off" pixels on - thus swapping black for white and white for black. Flipping a picture gives you a mirror image, either left to right (horizontal) or up side down (vertical) depending on which way you flip.

The only programs that have functions to enlarge or reduce drawings are Bitmac and Joy Paint, which can each double or halve the size of the selected image. For reducing a Joy Paint image, the companion disk, Joy Paint's Pal must be loaded. It can also be used for reducing parts of TI Artist or Graphx pictures. These pictures can then be resaved in the original format or switched to Joy Paint's file structure.

TI Artist drawings can also have parts saved to disk in an enlarged format by saving the screen when the zoom mode is in effect. This will give you a new picture that is four times the size of the original. For both reducing and enlarging, Joy Paint does the smoothest job.

Text Handling and Special Fonts - The more recent programs all have provisions for text to be used right along with the graphics. The nicest of these are Joy Paint and Bitmac, each with what almost amounts to a mini word processer built right in to the drawing board. With TI Artist, variable sized letters can be easily typed on the screen from the keyboard in 81 different heights and widths, but some of the letters are rather blocky looking. Four of the programs additionally contain special provisions for fancy lettering to be added to the drawings. Paint 'N Print contains a font editor which makes it easy to change the resident lettering. TI Artist provides an alpha numeric load function in the enhancement section of the program. Pre-designed fonts that are stored on the disk may be loaded into the program for an endless variety of lettering. Graphx stores fonts on the clipboard, and again there is an endless variety to choose from among the support disks. The letters to be used are laid out in the clipboard and then transported to the picture where you want them. Joy Paint 99 works much the same way; alphabets are stored in a regular picture file, and the Cut and Paste option is used to add them to your drawing.

Zoom Mode - Four of the programs have the ability to magnify a small part of the picture you are working on so that it temporarily fills the screen. This allows you to work on small details with a high degree of accuracy. Joy Paint calls this mode "fatpixel", Paint 'N Print calls it "magnify". TI Artist and Graphx call it "zoom". Joy Paint also displays a normal sized version of the graphics in the upper right corner of the screen so that you can see what your changes are going to look like as you make them. TI Artist lets you use other drawing functions while in the zoom mode - even to making a zoomed hard copy or saving to disk. While in the zoom mode Graphx provides a marker to show where color boundaries begin and end. If you happen to be using the grey checker board pattern used for marking color boundaries in Graphx, it will still be present in your zoomed in copy.

Paint N Print has a high degree of magnification. Each pixel is shown as a square eight times its original size. Each square is outlined in a fine black line and each block of 64 are outlined in a bold black line. The bold line marks the color boundary for each character

block.

When the zoom function is chosen Joy Paint, TI Artist and Graphx all let the user choose which part of the screen will be zoomed by showing a box with which to enclose the desired area. In the Paint 'N Print environment, the place where the cursor is sitting when zoom is chosen becomes the central point of the screen, with the screen then acting as your "window" to a small but highly magnified part of the drawing. All of the drawing is accessible by scrolling it by this point, but the cursor never moves.

Section Three: Picture Storage, Color, and Unique Features

Scratchpad Memory - Most drawing packages have provisions for setting aside part of a picture and later adding it to another picture. This "scratchpad" memory can be handled in two ways: by saving a permanent version of the clipped picture onto a disk which you can reload as needed; or by storing the picture-part in intermediate memory where you can recall it when you need it, even though you have loaded new picture files in and out of the program since the picture part was saved.

When this type of picture-part is saved to a disk it should not be confused with a regular picture file. When a picture file is loaded into your program, whatever you had on the screen before is erased and gone, and the new picture takes its place. Picture-parts, however, are loaded IN ADDITION to whatever else is already there. These small pictures have become very popular with the drawing community so that they have their own special term - clipart.

Each program is unique in its handling of this additional storage. Joy Paint uses internal storage for a Cut and Paste method much like the paint programs for other popular computers do. All screens are saved in the same format. When something is wanted from another picture, save the current picture first, then load in the picture to be borrowed from. "Cut" out the piece you wish to use. Reload the original picture and "Paste" the new part any where on the drawing.

Bitmac uses the "Store" function for internal temporary storage. Current screen graphics can be overlaid with graphics stored on a disk, using what is called "Boolean Input". This allows special graphics effects which are unique to Bitmac.

TI Artist also has unique storage methods. Besides the normal full screen picture files, parts of pictures can be saved as "instances" or "slides". Slides are a collection of up to 24 miniture designs that can be independently designed, rotated, and moved around on your drawing. Instances are images that can be added to your drawings or combined together in whatever manner you wish. They can become a permanent, editable part of your drawing. The nice thing about instances is that they are saved in a DISPLAY VARIABLE 80 format which can easily be transported to Extended Basic programs or TI Writer files as well as being used for clipart.

Graphx has a very powerful "Clipboard" feature. With it you can create and store clipart permanently on a disk and it is also possible to copy a portion of one picture into another, much like Cut and Paste. A portion of a picture, or even several pictures, can be stored, then decided on later as to which ones to keep and which ones to erase.

Use of Color

In the high resolution mode each graphic position available to be used on our electronic drawing board is called a pixel. You may remember being told that the screen is like a grid with 256 pixels across and 192 pixel rows; and that each individual pixel on the screen can be turned off or on separately while you are drawing - all 49,152 of them! Right? Wrong, if you are using color!

Color resolution for the 99/4A is not the same as drawing resolution. We still have the same 192 rows of pixels, but instead of 256 pixels across, we have only 32 graphic positions across each row. Each row of pixels is grouped in eights, starting from the left of the screen, and each set must be the same two colors - a foreground and a background.

The foreground is the color assigned to the brush or pencil line in each eight-pixel group. The background is the color assigned to those same eight pixels when the pencil is not used. When you first begin using the drawing board, all of the eight-pixel groups have been assigned the same two colors. The color you see before you begin drawing is your background, and, of course, the pencil line is your foreground color. You may also see a third color in the form of a border around the perimeter of the screen. This is the screen color. If you don't see it, that means the screen has been assigned the same color as the background.

Now you can see why color resolution is 64 X 192 instead of the drawing resolution of 256 X 192. Any given group of eight horizontal pixels MUST be the same two colors. The groups on either side can carry entirely different colors, but each group is limited to two colors. Knowing this, and arranging your drawings according to the color boundaries is important when working with color.

Most programs make full use of the 99/4A's 15 brilliant colors, allowing control over the foreground and background colors, and in many programs over the screen color as well. Sometimes the screen color is called the "backdrop".

All programs using color allow the swapping of one color in a drawing for any other. When the exchange takes place, every incidence of that color on the screen is swapped for the new one. Additionally, some programs like TI Artist and Graphx allow selective repainting of a chosen area.

Some of the programs provide special helps for working with color. TI Artist provides a function that lets a special color cursor move on color boundaries. Graphx does the same; also providing a "Grey and White Checkerboard" function which is handy for planning drawings which will use a lot of different colors. This makes it much easier to plan the various colors in your picture so that they don't bump into each other. When you no longer need the grid simply choose the "Remove Grey Boxes" option.

For special color effects, two programs that shine are Draw-A-Bit with its Redraw feature described elsewhere, and Paint 'N Print which includes five extra rainbow colors in varying widths of horizontal and vertical stripes. Draw 'N Plot makes limited use of color. Only two are used at any one time - foreground and background. These colors can be easily switched so you can see how the various combinations of color look together.

Besides the Graphic Package, which doesn't use color either, Joy Paint is the only major paint program not using color.. Here the emphasis is on the manipulating of picture components, and color is used only as a background, with the pencil line always being your choice of either black or white. Painting refers to filling shapes with the many patterns available, or using the air brush to "spray paint" an area with a chosen pattern.

A Slide Show is a method of presenting pictures in a selected order. Bitmac is the only program with this feature built in; Draw A Bit and Draw 'N Plot have disk demos that you can adapt for your own pictures. TI Artist has an excellent companion disk called Display Master that gives you many options in designing your own slide display. Asgard Software puts out a slide show program for Graphx files.

The Undo command lets you "take back" the last step of a drawing. If something was moved or erased that shouldn't have been, no harm done, just "undo" it. Joy Paint is the 99/4A's only program with this feature but it is quite common in paint programs for other computers.

Like Undo, each program has special features not shared by the others. If you are in the market for a new paint program, one of these might be just the feature you were wishing you could find. For instance, Joy Paint has a drawing area that is actually 92% larger than the screen. To see the rest of the drawing board, the screen is used as a window, and can be moved from side to side or up and down. When the screen dump program is used the whole area, not just what is visible on the screen, is printed.

Do you have a second computer that you have wished you could tie in to your 99/4A? The Bitmac software will let you do just this. When the coprocessor function is in effect, the other computer (not necessarily a TI) can manipulate data while the 99/4A is processing elaborate graphics from that data.

Bitmac has a Cursor Report feature which can be turned on or off as desired. It keeps track of the actual pixel location of the cursor. The program also lets you scroll your picture one pixel at a time to the right or left, up or down on the screen. This is handy for getting a drawing onto color boundaries, and also for special effects using the Boolean inputs AND, OR, and XOR.

The TI Artist instance file was already mentioned above as being excellent additional storage for clipart, because these files can be added so easily to any picture you are currently working on. The instance file is invaluable for using as a vehicle to transport your artwork to other mediums. Many support programs have been built around the ability of these instances to be so easily used, including Font Writer (Asgard), Art Convert (Trio+) and Character Sets and Graphic Design III (Texaments).

Besides being used for planning color in drawings, the unique grey box function in Graphx can be used for designing schematics and other precision drawings which require precise measuring.

The Graphx clipboard also lets you experiment with computer animation. If you store the appropriate images on the clipboard you can create short, animated sequences which you can display against a background of your normal Graphx pictures.

Like the Norton Graphics Package, Draw N Plot is primarily a programmer's tool. Unlike the Graphics package however, Draw 'N Plot has a very nice, full-featured drawing board. Also, the routines in Draw 'N Plot are in assembly language which considerably speeds up operations. Draw 'N Plot makes an excellent program to design your own Extended Basic programs around; however, memory can be a problem.

Draw A Bit is really a full-scale programmer's tool too, but the programmer must be somewhat conversant in assembly language as well as Extended Basic to use it with his own programs.

As you work in the Draw A Bit environment, your picture is automatically saved for you in intermediate memory. Any time you wish you may clear the screen and with the push of the right keys, redraw the picture, line for line. This is a fascinating procedure to watch. Pictures may also be saved in this Draw mode if desired. Also interesting to use is the Connect-Dots option. This is like a line function except that you plot all your dots first; then the lines appear when you are ready for them.

Built right into Paint 'N Print is a font editor that will let you easily change the shape of the resident alphabet. The companion disk additionally allows editing of the texture character for all sorts of special textural effects.

Paint 'N Print is the only drawing package which

allows a screen dump to be in color, providing you have the right printer (the Axiom GP 700).

Super Sketch is the only program that includes a touch tablet. This graphics tablet, although deceptively simple looking, is a precision tool that accepts commands through a control arm which determines screen position. The control arm moves the pointer (your pen) around the tablet, and the computer keeps track of where this pointer is at all times. In this manner, any picture placed on the tablet can be traced onto the screen. The device is so simple that even a child can use it easily.

The Artist Extras package from Inscmhot allows the use of the Super Sketch touch tablet with TI Artist. When used this way, the tablet becomes an integral part of the TI Artist program and the is used in place of a joystick or trackball to allow designed traced with the tablet to appear on the screen.

Section Four: Hard Copy, File Management and Extra Support

Except for Super Sketch and Draw A Bit, which both have supporting disks that contain screen dumps, the drawing packages listed here all include built-in printer routines. The printer and the software package you use must be compatible. All of the programs listed are compatible with the TI Impact Printer which was made by Epson, so any printer that uses the same formats and codes as an Epson is also compatible. Paint 'N Print comes in a choice of three cartridges depending on which printer you have. Cartridge A works with the Axiom GP-100 and GP-700 printers. The GP-700 will give color printouts. Cartridge B is set up to work with the Axiom GP-550 and Okidata printers, and C is for the Epson compatibles, which include Star and IBM. The Extended Graphics Package which supports Paint 'N Print contains the routines from all three cartridges. Other printers that can be used with a particular drawing program are listed on the chart.

Screen dumps vary widely in several important respects, including size, density, and placement on the page. All details given here were gotten from screen dumps using the TI Impact printer. They should more or less apply to all screen dumps but there could be differences. A small size screen dump occurs when the screen image is copied exactly as shown, pixel for pixel. A larger dump has more printer dots per pixel - usually either 4 or 16 dots for each pixel, which can give a blockier effect from up close but looks great when the viewing distance is further away.

The size of the printout is also affected by density. On the TI Impact printer there are normally 60 dots printed horizontally per inch. This would make 480 dots per each 8 inch row. Double density prints 120 dots horizontally per inch, and some printers have an even higher dot resolution than that. Since the graphic image has the same number of pixels no matter what density is used, it will be only half as wide when printed double density as when printed in normal density mode. Most of the packages listed here handle this factor for you by adjusting the line spacing when double density is used. Because of the difference in printers, and because screen graphics don't match up exactly pixel for dot with printer graphics you may still find some distortion in your printouts. On the whole, though, most paint packages produce a reasonable hard copy of your screen graphics.

Joy Paint gives you a choice of two dump sizes and either size can be single or double density. The small dump is centered on the page, and because Joy Paint uses 92% more area for graphics than other packages, it pretty well extends from one side of the page to the other (5 1/2 inches wide times 3 1/2 inches high). Three of these dumps will nicely center on a page, which, using three screens consectively, will produce a very good flyer. The large dump produces a horizontal picture 8" X 9" in size.

Bitmac also gives you a choice of large or small dump. The small dump places exactly one dot on the paper fo each dot in the screen to give a single density printout 4 1/4 inches wide X 2 5/8 inches high. You have a choice of centering the graphics, or placing them over to the right or left margin. The large dump is centered and is double density. On the TI Impact printer it is distorted quite badly, however, as it is the same heighth as the smaller picture, but 6 3/8 inches wide.

TI Artist gives you the most control over the final output for your hard copy. You have a choice of up to three magnifications and four densities depending on what your printer is capable of doing.You can also control line spacing when the printing is being set up. Using the TI Impact printer you can have a double density printout as small as 1 3/8 X 2 1/8 using a magnification of 1 and a line spacing of 4; or a printout which will fill an 11" X 15" large size paper with a magnification of 3, a line spacing of 8, and single density. And all this from the same screen image! Printing can also be done from the zoom mode.

All TI Artist printouts are centered no matter what the size. A single density printing that has been magnified twice exactly fills one-half of a standard page; two consecutive printings make a very nice flyer.

Graphx gives you a choice of two sizes, single or double density. The smaller (4 1/4 X 2 5/8) is printed at the left margin. The larger is half of a standard page - again, two screens make a nice flyer. Draw 'N Plot has one size, 4 1/4 X 2 5/8, single density. Paint 'N Print also has one large size single density printout. Paint 'N Print gives a choice of which part of the drawing will be printed - from a very small section up to the whole screen. The drawing will be printed horizontally and in the upper left corner of the paper.

Sketch Mate, the Super Sketch companion disk, and the Master Painter program, both by Micrisoft International, have virtually identical printouts. Each

is 7 3/4 inches wide and 4 5/8 inches high, single density. Each uses a technique whereby colors are assigned a texture (light, medium or dark) to simulate color. This gives pictures a very nice printed appearance. Each color is assigned a default setting which can be changed by the user if desired. The Paint 'N Print program also uses the technique of assigning a different print character for each color. The Draw A Bit companion disk also allows two printout sizes; single or double size, and each can be normal or double density.

The Norton Graphics Package doesn't actually contain a screen dump. Rather, it allows you to print out data that is needed to rebuild your graphics in your own program, either as Sprites or as Call Characters. This graphic data may also be saved in merge format on a disk.

File Management

Disk Catalog - It's handy to have a catalog available if you need to find out just what you did name a certain file, or even if it's on that disk. Only two programs perform this service - TI Artist and Joy Paint. Joy Paint also provides for deleting files.

Conversion Features and Compatibility - If you are intending to use pre-designed graphics either instead of or in addition to creating your own, file compatibility among the various programs becomes important because you will need a ready supply of artwork and clipart. The core program here is TI Artist. Not only is more ready-made artwork available for TI Artist than for the other paint programs, but TI Artist allows picture files from Draw 'N Plot, Graphx and Draw-A-Bit to be loaded in and permanently converted to the TI Artist format. Or, TI Artist files can be converted with TI Artist and loaded from any one of those programs. Instances, which are a very popular form for clipart, can be converted by first saving as a picture, then converting to an instance. CSGD graphics, which are another popular form of clipart, can be converted using any of several available programs including the Artist Extras companion disk. CSGD fonts can also be converted to TI Artist fonts using the same disk.

Joy Paint's Pal allows the conversion of Graphx, TI Artist, and Draw 'N Plot picture files to the Joy Paint format and visa versa. Joy Paint will also load the first of the two output files for Sketch Mate. It will not, however, load Bitmac files, even though Bitmac has the same Internal/fixed/128 format that Joy Paint does. This leaves Bitmac as the only major paint program to lack compatibility with the others.

Graphx does not have a file conversion feature, but it will load TI Artist files that end with _P. If you transfer the picture file this way you do lose the color. If the color is important the file must be converted to Graphx format within the TI Artist program first, then loaded into Graphx. Graphx will also load Joy Paint files that have been through the conversion program on Joy Paint's Pal.

If you are primarily interested in screen graphics than file portability is important. This is the ability to move picture files into another environment without a great deal of programming; for example being able to move a picture you have drawn in TI Artist into your Basic program. This ability is built in to TI Artist's instances, slides and font files, which has caused a great many support programs to be written, both commericial and as shareware.

Draw 'N Plot and the Norton Graphics Package can easily be used by the average Extended Basic programmer. In the same way, Draw A Bit and Graphx adapt easily for assembly language programmers. Portability for the rest of the programs is limited.

Additional Support

In many cases the manufacturers themselves are doing a good job of supporting their paint programs. Great Lakes Software puts out clipart disks for Joy Paint, as well as Joy Paint's Pal, which has routines to allow file conversion, creation of new patterns, and a reduction feature. Great Lakes also supports a user-drawn base of Joypaint clipart. Their Extended Business Graphs II, while a stand alone package, has file compatibility with Joy Paint.

Besides Artist Extras, Inscebot has released Display Master for the TI Artist which lets you add captions to your drawings and show them in any sequence. Quality 99 Software has some disks of very good artwork out for Draw 'N Plot. A volume of artwork was also released for Bitmac.

Other software producers have also done their share. Asgard Software has released several Graphx Companion sets that contain clipart, full pictures, fonts and animated sequences for the Graphx environment. They are a veritable gold mine of art and ideas for your own creations. Asgard has also released a disk for TI Artist that contains some of the same artwork imported to the Artist environment, but you can still use the Graphx Companions with TI Artist or JoyPaint if you don't mind making the conversions. Asgard has also released Graphx Pictures which contains more of their outstanding artwork - 24 pictures - and a Slide Show program with which to show them.

Triot Software has released some excellent artwork for use with TI Artist. Each 2 disk package includes pictures, clipart, fonts and slides.

Texaments handles the Artist Companions authored by Dave Rose as well as the whole CSGD series. One of the best and most prolific sources of instances and fonts for TI Artist actually started out as clipart for another program - Character Sets and Graphic Design by David Rose. But that's a whole new story so it'll be saved for Part three.

Otherwise, the chart has been covered and you should now have a much better understanding not only of what can be expected of paint programs in general but the strengths and limitations of any particular package.

TI 99/4A DRAWING PACKAGES - COMPARISON CHART

FUNCTION	JOYPAINT JoyPaint Pal	BITMAC	TIARTIST Artist Extras	GRAPHX	DRAW 'N PLOT	PAINT'N PRINT + disk	SUPER SKETCH Skmate	MASTER PAINTER	DRAW A BIT Prnt-Bit	NORTON GRAPHIC PACK	
Program Focus	E,T	E,T	T,E,U	E,T	U,T,E	E	E,T	E	E,U	U	
Requirements	Any	XB EA MM	Any	XB EA MM	XB	StndAl++	StndAl++	XB EX MM	XB	XB	
Ease of Use	6	3	5	5	4	4	6	2	2	1	
Method of Operation	Icons, Menus	Icons FcnKeys	Menus Icons	Menus Keys	Menu Keys	Keys	Menus	Icons Fnc Keys	Menu Fnc Keys	Menu/ Keys	
Joystk Control	Required	Required	Optional	Required	Optional	Required	No	No	Optional	No	
Cursr Speed Cnt	No	5 speeds	2 speeds	5 speeds	2 speeds	No	No	No	No		
Brush Styles	7	9	8	1	1	32	9	4	1-pixel	3	
Automatic Draw Functions	Lines, rectngls ellipses	Lines, Circles, Rectngls	Line,Ray Circles, Rectngls	Lines, Ellipses	Lines	Line,Ray Circles Squares	Line,Ray Rectngls	Lines, Rays	Lines, Rays,Arc	Lines, Parabola ellipses	
Fill Shade, Depth	AutoFill 24 Patrn AirBrush	Manual Color Life	AutoFill Col/Pat Yes	SemiAuto Color No	SemiAuto Solid No	SemiAuto Yes*	AutoFill Col/Pat Yes	No No	Manual No	No No	
Reflections	No	No	Yes	No	No	Yes	No	No	No	No	
Move, Copy	Yes	Yes	Yes	Yes	No	Yes	No	No	No	No	
Flip, Hor/vert	Yes	H only	Yes	No	No	Yes*	No	No	No	No	
Rotate	90 deg.	90 deg.	Slides	No	No	No**	No	No	No	No	
Invert	Swapbits	Yes	Yes	No	No	Yes*	No	No	No	No	
Magnify, Reduce	Yes	Yes	Magnify**	No	No	No	No	No	No	No	
Text handling Special fonts	Yes Yes	Yes No	Yes Yes	Yes Yes	Yes No	Yes Yes	No No	No No	No	No No	
"Zoom" Mode	Fatpixel	No	Yes	Yes	No	Magnify	No	No	No	No	
Scratchpad Mem ("Clipboard")	Cut and Paste	Store B. input	Instance Slides	Clipbrd	No	Yes	No	Symbols, Store	Palette	No	
Use of Color	No	Full Use	Full Use	Full Use	Limited	28 colrs	Full Use	Full Use	Full Use	No	
Slide Show	No	Yes	No**	No**	Yes	No	No	No	Yes	No	
Undo	Yes	No	No	No	No	No	No	No	No	No	
Spec. Features	Larger Wrk Spce Pat Edt*	CoProcsr CrsrRprt Pic.Scrl	Instance customize	Aniaate frm Clpb GridTool	9 Addl Commands for XB	PatrnEd Rainbow Colors	Touch Tablet		Redraw Connect-Dots	Cassette version too!	
Printer	Epson Axion	Epson, TI 850/5	Most Printers	Epson	Epson	++Most Printers	Epson	Epson	Epson	++ Most Printers	
Screen Dumps	2 sizes 2 dnsty	Small SD Med. DD	Wide Ch Size,Dan	2 Sizes 2 Dnsty	1 Med	1 Large NormDnst	1 Large NormDnst	1 large NormDnst	2 sizes 2 dnst	No	
Disk Catalog	Yes	No	Yes	No	No	No	No	No	No	No	
File Convrs Ftr	Yes*	No	Yes	No**	No**	No**	No**	No	No**	—	
E/Portability	Not at Present	Limited	Easily	Prog Skl in Assem	Prog Skl in XB	No	No	No	Prog Skl in Assem	Easily to XB	
Addl Support	Some	No	Lots	Lots	Some	No	No	No	No	No	

* Starred features are found on the companion disk listed under the main package ** See chart notes

TI 99/4A DRAWING PACKAGES - COMPARISON CHART

FUNCTION	JOYPAINT JoyPaint Pal	BITMAC	TIARTIST Artist Extras	GRAPHX	DRAW 'N PLOT	PAINT'N PRINT + disk	SUPER SKETCH Skmate	MASTER PAINTER	DRAW A BIT Prnt-Bit	NORTON GRAPHIC PACK	
Progrm Focus	E,T	E,T	T,E,U	E,T	U,T,E	E	E,T	E	E,U	U	
Requirements	Any	XB EA MM	Any	XB EA MM	XB	StndAl**	StndAl**	XB EX MM	XB	XB	
Ease of Use	6	3	5	5	4	4	6	2	2	1	
Method of Operation	Icons, Menus	Icons FcnKeys	Menus Icons	Menus Keys	Menu Keys	Keys	Menus	Icons Fnc Keys	Menu Fnc Keys	Menu/ Keys	
Joystk Control	Required	Required	Optional	Required	Optional	Required	No	No	Optional	No	
Cursr Speed Cnt	No	5 speeds	2 speeds	5 speeds	2 speeds	No	No	No	No		
Brush Styles	7	9	8	1	1	32	9	4	1-pixel	3	
Automatic Draw Functions	Lines, rectngls ellipses	Lines, Circles, Rectngls	Line,Ray Circles, Rectngls	Lines, Ellipses	Lines	Line,Ray Circles Squares	Line,Ray Rectngls	Lines, Rays	Lines, Rays,Arc	Lines, Parabola ellipses	
Fill	AutoFill 24 Patrn AirBrush	Manual Color Life	AutoFill Col/Pat Yes	SemiAuto Color No	SemiAuto Solid No	SemiAuto Yes*	AutoFill Col/Pat Yes	No No	Manual No	No No	
Reflections	No	No	Yes	No	No	Yes	No	No	No	No	
Move, Copy	Yes	Yes	Yes	Yes	No	Yes	No	No	No	No	
Flip, Hor/vert	Yes	H only	Yes	No	No	Yes*	No	No	No	No	
Rotate	90 deg.	90 deg.	Slides	No	No	No**	No	No	No	No	
Invert	Swapbits	Yes	Yes	No	No	Yes*	No	No	No	No	
Magnify, Reduce	Yes	Yes	Magnify**	No	No	No	No	No	No	No	
Text handling Special fonts	Yes Yes	Yes No	Yes Yes	Yes Yes	Yes No	Yes Yes	No No	No No	No	No No	
"Zoom" Mode	Fatpixel	No	Yes	Yes	No	Magnify	No	No	No	No	
Scratchpad Mem ("Clipboard")	Cut and Paste	Store B. input	Instance Slides	Clipbrd	No	Yes	No	Symbols, Store	Palette	No	
Use of Color	No	Full Use	Full Use	Full Use	Limited	28 colrs	Full Use	Full Use	Full Use	No	
Slide Show	No	Yes	No**	No**	Yes	No	No	No	Yes	No	
Undo	Yes	No	No	No	No	No	No	No	No	No	
Spec. Features	Larger Wrk Spce Pat Edt*	CoProcsr CrsrRprt Pic.Scrl	Instance custmize	Animate fre Clpb GridTool	9 Addl Commands for XB	PatrnEd Rainbow Colors	Touch Tablet		Redraw Connect-Dots	Cassette version too!	
Printer	Epson Axiom	Epson, TI 850/5	Most Printers	Epson	Epson	**Most Printers	Epson	Epson	Epson	** Most Printers	
Screen Dumps	2 sizes 2 dnsty	Small SD Med. DD	Wide Ch Size,Den	2 Sizes 2 Dnsty	1 Med	1 Large NormDnst	1 Large NormDnst	1 large NormDnst	2 sizes 2 dnst	No	
Disk Catalog	Yes	No	Yes	No	No	No	No	No	No	No	
File Convrs Ftr	Yes*	No	Yes	No**	No**	No**	No**	No	No**	--	
F/Portability	Not at Present	Limited	Easily	Prog Skl in Assem	Prog Skl in XB	No	No	No	Prog Skl in Assem	Easily to XB	
Addl Support	Some	No	Lots	Lots	Some	No	No	No	No	No	

* Starred features are found on the companion disk listed under the main package ** See chart notes

- - - - - FROM THE LIBRARY CORNER - - - - -

The following information may help you figure out how to read some of the files and programs that are on the Library disks. There are several disks in the Library now that will read most of the files such as (2087) FILE READER (2118) FILE PRINT. The following type of files can be loaded directly into the computer and RUN.

PROGRAMS
DIS/VAR 80
DIS/VAR 163
DIS/FIX 80
DIS/FIX 128
INT/VAR 254

Let take each file one at a time.

1. **PROGRAMS** (PR) There are several options for running these most common used files.

A. TI EXTENDED BASIC will load and run automatically when you select XB and the disk is in drive #1, or can be run by typing **OLD DISx.LOAD** then **RUN** or typing **RUN "DSKx.FILENAME"**. If program loads correctly but you get a BAD VALUE error when it runs you need to load the program into TI BASIC (no CHARS above 143 is allowed in EXTEXDED BASIC). If the program file is more than 45 sectors and won't load you have to open up more memory in the computer you do this by typing the following:

CALL FILES(1) (enter)
NEW (enter)
OLD DSK1.FILENAME (enter)
RUN (enter)

B. TI BASIC Programs needs to be loaded by typing **OLD DSKx.FILENAME** and then **RUN.** Most TI BASIC programs will load and run in Extended Basic but not visa versa. If you get a FOR-NEXT ERROR in line XXX and when you edit the line and get a lot of nonsense then the progran is written in EXTENDED BASIC. The same is true if the sectors is greater than 45 more space is needed in the computer see CALL files above. If you still get a memory full and tried X/B then most likely it can only be run on tape (OLD CS1) without the "P" box turned on.

C. EDITOR/ASSEMBLER If a program file will not load and run in Basic or Extended Basic and gives an I/O ERROR 50 it likely to be an Assembly Language program and needs the EDITOR/ASSEMBLER module to run. Such programs as the Funlwriter or TI-WRITER can also be used. To run load the EDITOR-ASSEMBLER press **#2** for Editor Assembler then **#5** for RUN PROGRAM FILE then for type **DSK1.FILENAME** (enter) the program should load and run. Programs files listed in consecutive order such as MASS, MAST, MASU, or UTIL1, UTIL2, UTIL3 try E/A OPTION #5 enter the first file name of the sequence then (enter), the rest will automatically run. Programs files of 33 sectors are most likely an Assembly language program

D. OTHERS PROGRAMS FILES Some specialized program files can only be loaded from the special module such as ADVENTURE (54 sectors), PERSONAL RECORD KEEPING, STATISTICS, TUNNELS OF DOOM (52 sectors)

2. DIS/VAR 80 FILES (DV 80)

These are text or documenation files. When ever you have these files (DOCS, READ-ME, ETC) on the disk it is a good idea to print them out on a printer by useing the TI-Witer. The instructions on how to use the disk are in these files. These files can be read from the screen, edited, and printed. FUNLWRITER, E/A Option #1 (TO EDIT) DM1000 among many others can read these files.

3. DIS/VAR 163 FILES (DV 163)

This type of file is an EXTENDED BASIC subroutine in MERGE format. They can be merged into a program already in the computer memory. Type **MERGE DSK1.FILENAME** (enter). You must do this even if no program is in the computer memory. Do not use OLD with files such as these. To save a file in MERGE format type **SAVE DSK1.FILENAME,MERGE** in EXTENDED BASIC only, BASIC can not be used.

4. DIS/FIX 80 FILES (D/F 80) These files are ASSEMBLY LANGUAGE programs and can be loaded and run in several ways.

A. Need the EDITOR ASSEMBLY MODULE or any simular program such as FUNLWRITER use LOAD AND RUN option #3. Enter the disk drive and the file name (**DSKx.filename**) enter. When it ask for a second file name just press enter again with no entry. If the program does not run from that point, it will ask for a Program name. If you do not know the program name try some of these START, BEGIN, GAME, LOAD, RUN, FIRST, ETC. If still you can't find the program name search the last few sectors of the file with a sector editor such as DISCO and try a name that seams likely or read the documentation sometime the startup name is given.

B. If there are consecutive DIS/FIX 80 files on the disk such as FILE, FILE1, FILE2 FILF, FILG, ETC. load them into E/A OPTION #3. Load them in sequence. When all are loaded press ENTER to get them running. or the program name prompt as above.

5. DIS/FIX 128 FILES (D/F 128)

These are usally ARCHIVED files. They must be DE-ARCHIVED before you can identify the kinds of files they contain. Use a new disk for every DIS/FIX 128 file you intend to UNPACK. This will make sure there are not two files on the disk with the same name. There is an Excellent ARCHIVED Disk in the library number 2156 by Barry Boone.

6. INT/VAR 254 FILES (I/V 254) These files usually has greater than 45 sectors, and are EXTENDED BASIC programs requiring MEMORY EXPENSION. They do not require CALL FILES(1) to load and run. TI BASIC can not be used. The same commands are used such as RUN or OLD DSK1.FILEMAME. The programs are usually so long that they can not be saved to TAPE (SAVE CS1)

7. DATA FILES

File such as INT/FIX 108, INT/VAR 128, INT/VAR 64 are usually DATA files that is used by a program on the disk. They will not RUN and should be left on the disk with the others programs.

I hope these tips will be of some help to you in running the various files that may be on your disks that you obtained from the Library. If I can be of any help to you please feel free to call your.

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THE "ULTIMATE" TIBBS--Possibly the most advanced and useful bulletin board in the country for the serious TI 99/4A user. We support QUAD DENSITY with two quad density/doublesided drives and two double sided/double density drives, based around our own designed disk controller card. We also have one HORIZON RAMDISK card, and the MPB Clock Card. The program itself is possibly the most advanced, most changed TIBBS around, and it makes use of all TI features-Graphics, Sound, and Color. We also support XMODEM transfers, with over 130 files to download at this time, with many more to come. To log on, just call the above number with your modem, hit 'N' and press <ENTER> then follow the prompts. After you have gotten your user number, you will be upgraded to regular user level within 24 hours.

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A Forest Lane Users Group membership includes a monthly newsletter mailed to your home, full access to the FLUG TIBBS, access to the FLUG software library of public domain and FAIRWARE programs, and several other benefits. Annual membership is $15 a year. For more information Please contact the members below whose phone numbers are listed.

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Please send all newsletter input, articles, copy, pictures, files, or news to **RICHARD FLEETWOOD** at the FLUG PO BOX. Disk files are appreciated , or files may be uploaded to the TIBBS. NOTICE-- all input must be recieved no later then TWO weeks before the meeting in order to make that months issue.

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-- FLUG MEETINGS --

FLUG meetings are held on the FIRST SUNDAY of every month at the main TI plant on CENTRAL EXPRESSWAY and LBJ Freeway in North Dallas. To get to the Plant, take LBJ EAST from Central Expy, and take the first exit, which will be FLOYD ROAD. Follow FLOYD ROAD around to the STOPLIGHT at WALNUT and FLOYD. Go NORTH thru this light, and then take the FIRST ENTRANCE to the LEFT into TI. You will pass the TEXINS ACTIVITY CENTER on your right AFTER you have turned off or FLOYD. After about 100 FEET you will come to a STOP SIGN. Go straigt ahead (DUE WEST) and you will see a covered walkway on your immediate RIGHT. A sign hanging off the END of the covered walkway will say EMPLOYMENT CENTER. Just park across the street from the covered walkway, and then follow the walkway back into the trees. You will come to the SC CAFETERIA building, which also contains the TI HEALTH CENTER, and the TI EMPLOYMENT CENTER. Take the door on the left, then follow the signs to the conference room in the BACK of the CAFETERIA. The meeting starts promptly at 2 PM, so try to get there early.

--- MEMBERS TO CONTACT FOR MORE INFORMATION ---

Richard A. Fleetwood	(6 to 10 pm)	(214)328-9257
Roy Willis	(6 to 10 pm)	(214)231-2168
Ron Schvab	(6 to 9 pm)	(214)234-4553