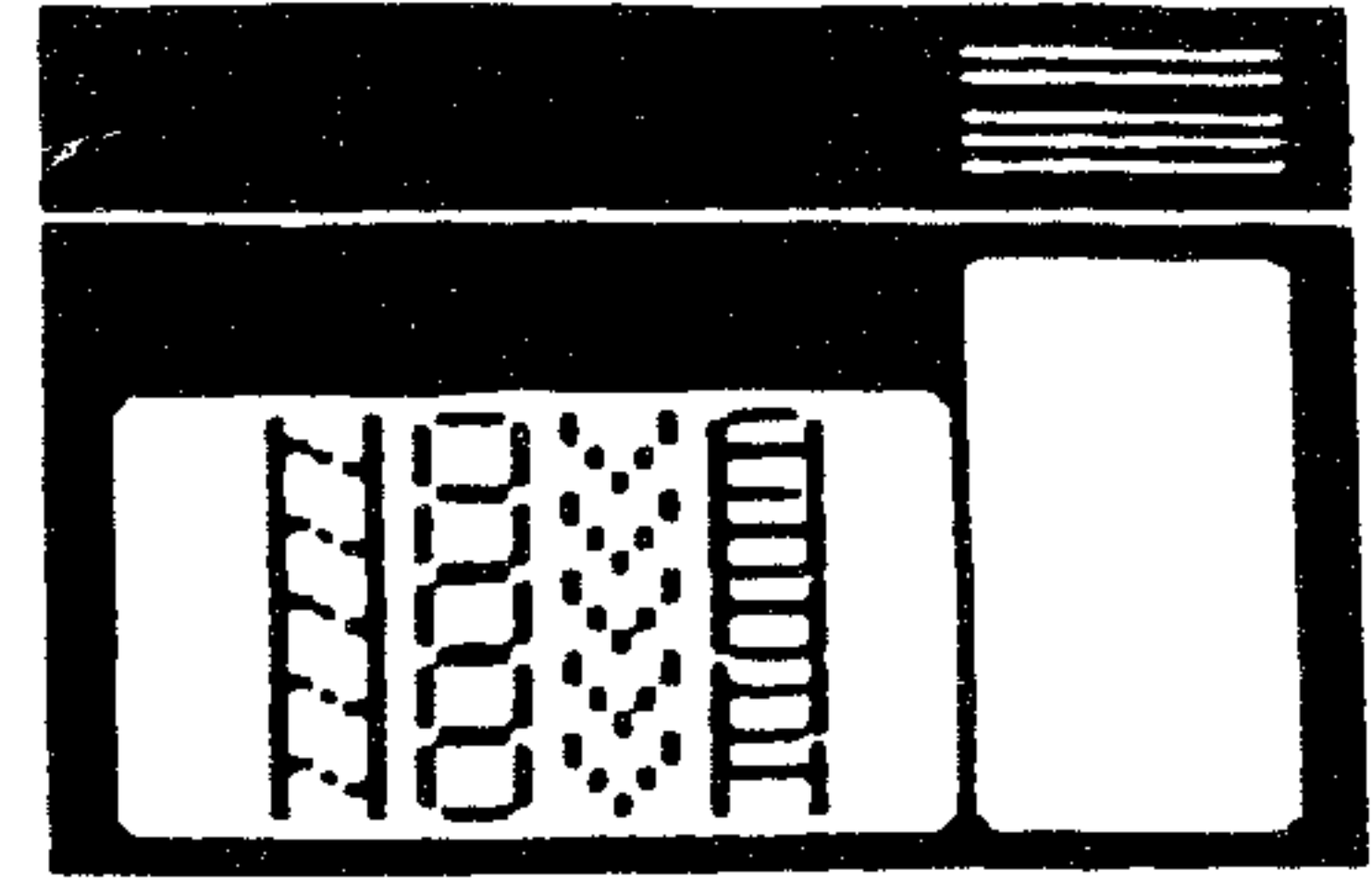


N.O.V.A.

(P.O. Box 508 - Vancouver, Wa. 98666)



NINETY-NINERS OF THE VANCOUVER AREA

UANEWS#66

JAN 1989

Next Meeting :

TUESDAY, JAN 24th (NOTICE!!! different day of the month).
 P.U.D. Community Room. 1200 Ft. Vancouver Way. Just off I-5 at Mill Plain
 and Ft. Vancouver Way.

Next Workshop :

Sunday FEB. 05th 1989
 District 5 Fire Station 3.... 213 N.E. 120th Ave.
 Just off Mill Plain, east from 205.
 Bring your computer and any question or problems.

N.O.V.A. BBS :

206-254-3376

24hrs, except when the Sysop needs the system.

◆◆◆◆◆Order your library programs for delivery to the meetings!◆◆◆◆◆

The Officers of NOVA:

Area Code

John Usher	President	503 655 3252
Dan Galbreath	Vice President	206 574 1506
Lila Simmons	Treasurer	206 896 0113
Doug Campbell	Secretary	206 694 2670

Committees:

Ivar Godtlibsen	Librarian & Sysop	206 254 3324
John Usher	Library	503 655 3252
Maria Adler	Editor	206 695 9932
Bob Chase	Editor Advisor	206 695 7002

The officers and committee members welcome your questions and will do their best to answer them or get someone who can help. Please feel free to call. Early evening is probably the best time as most of these people work during the day.

oo



**** FOR SALE ****

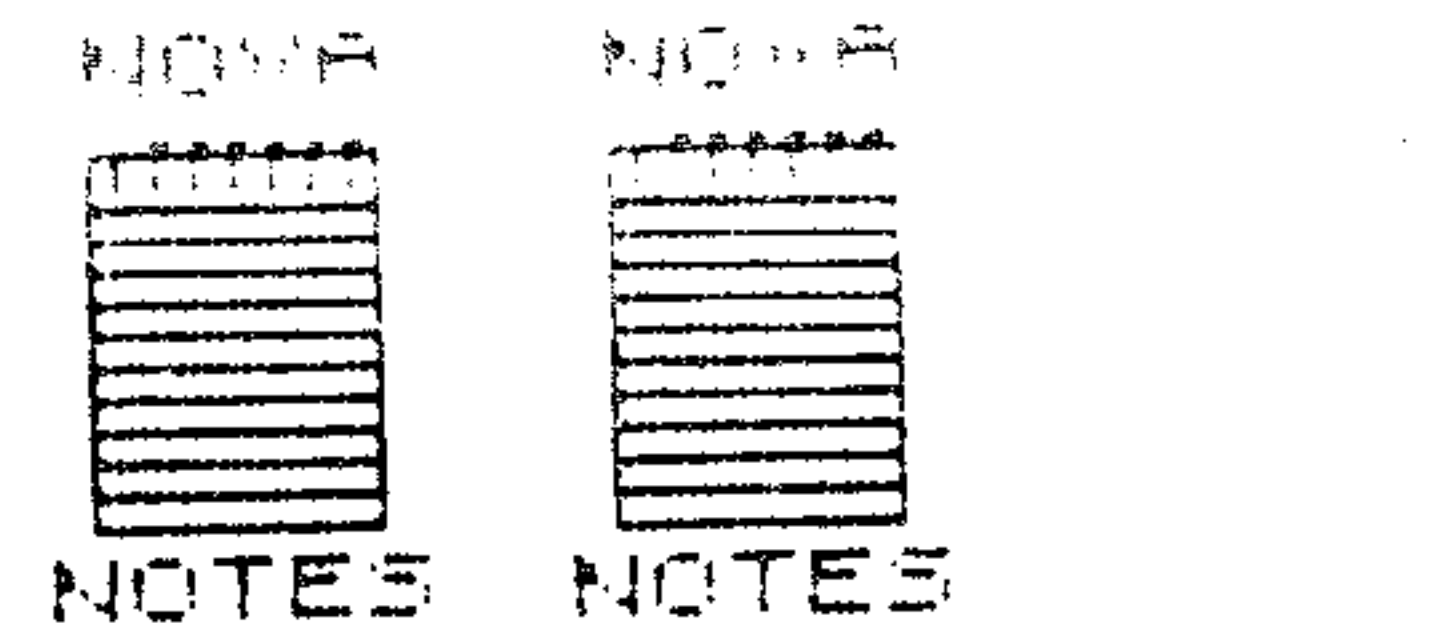
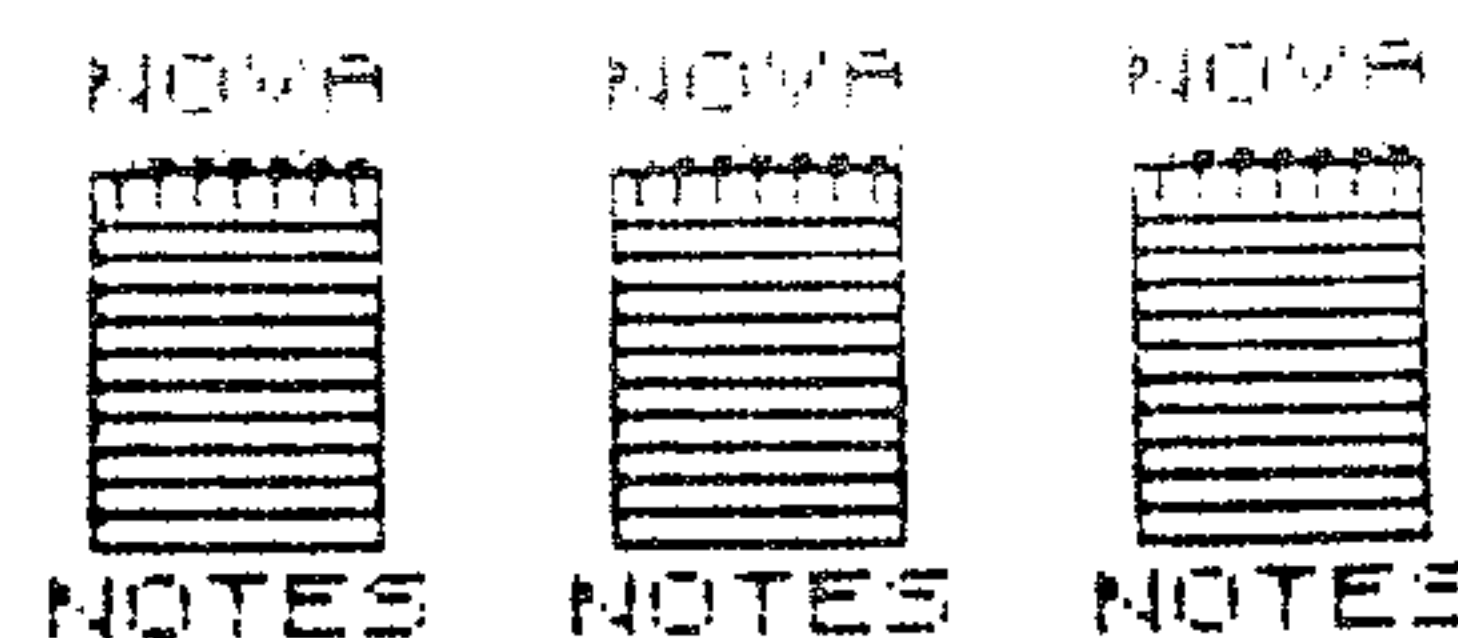
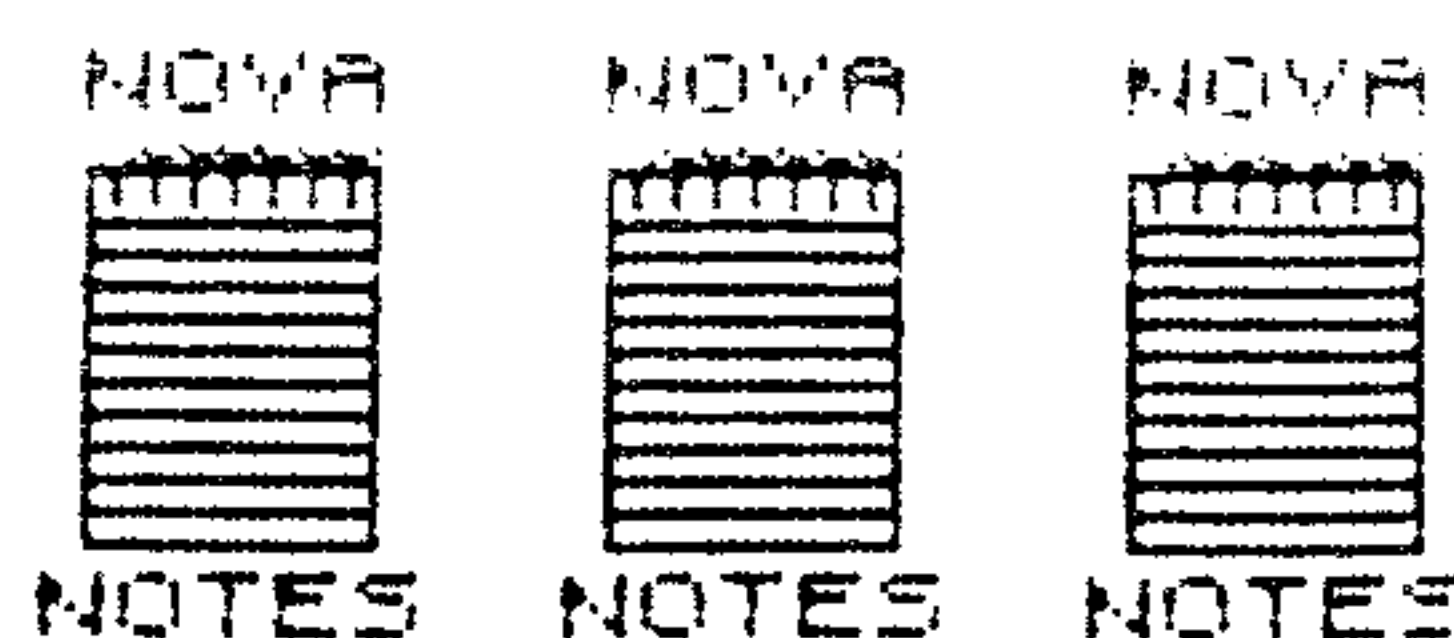
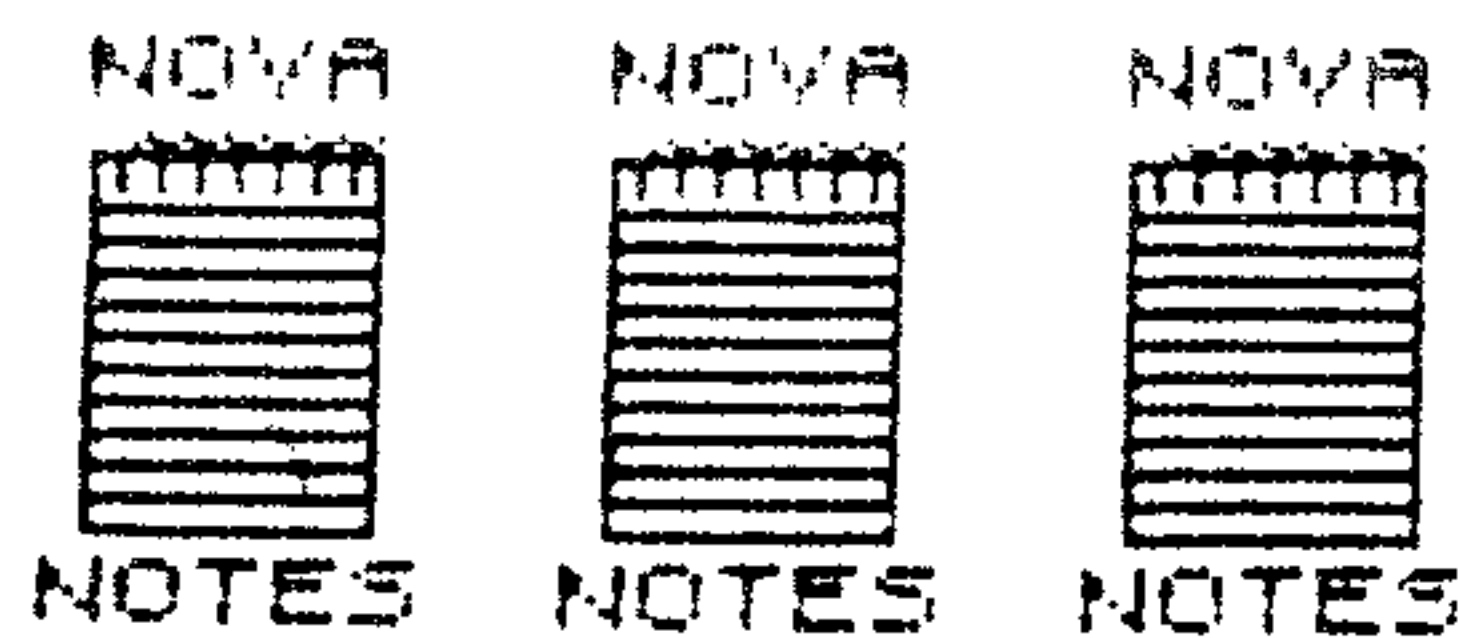
TI-99/4A WITH JOYSTICKS
 SPEECH SYNTHESIZER, AND
 CASSETTE RECORDER. \$100



PE BOX WITH DISK DRIVE
 AND DISK CONTROLLER
 *** \$175 ***



OKIMATE COLOR PRINTER
 WITH CABLE. ** \$175 **
 CALL LILA SIMMONS
 206-896-0113



FROM THE LIBRARY

THE LAST COUPLE OF YEARS I HAVE BEEN DOING THE LIBRARY. THIS JOB HAS BEEN A LOT OF FUN FOR ME AND I HAVE ENJOYED IT VERY MUCH, BUT ALL GOOD THINGS MUST COME TO AN END. I AM GOING TO START LOOKING FOR A REPLACEMENT. THE DUTIES OF THE LIBRARIAN ARE TO COLLECT AND CATALOG USER-WRITTEN PROGRAMS AND DISTRIBUTE THE PROGRAMS AT THE WORKSHOP. A FEW YEARS AGO I STARTED COLLECTING FREEMWARE PROGRAMS WHICH SEEM TO BE OF MOST INTEREST TO THE CLUB MEMBERS. THEY ARE ALSO SOME OF THE BEST WRITTEN PROGRAMS THE CLUB HAS IN IT'S LIBRARY. I WOULD GET MOST OF THESE OFF THE COMMERCIAL BULLETIN BOARDS LIKE GENIE, WHICH IS ONE OF THE BEST IN MY OPINION. I HAVE ABSORBED THE COST OF GENIE IN THE PAST SINCE I DON'T FEEL THE CLUB SHOULD HAVE TO PAY FOR THE SERVICE. ONE REASON FOR THIS IS BECAUSE THE COST CAN GET VERY HIGH IN A VERY SHORT TIME AND THIS WOULD RUN US OUT OF FUNDS IN NO TIME. THE POSITION OF LIBRARIAN DEMANDS SOMEONE WHO IS ABLE TO GET TO ALL (OR ALMOST ALL) THE MEETINGS AND WORKSHOPS. HAVING A SYSTEM THAT IS EASY TO TEAR DOWN AND BRING TO THE MEETING IS ALSO A MUST SINCE THE CLUB SYSTEM IS NOW BEING USED FOR THE BULLETIN BOARD. IN A FEW MONTHS I WOULD ALSO LIKE THE LIBRARIAN TO TAKE OVER THE BULLETIN BOARD, SO IT

WOULD HELP IF THAT PERSON CAN HAVE A PHONE LINE INSTALLED INTO THEIR HOME. THE CLUB CAN'T AFFORD MUCH FOR THIS SO WE KEEP THE SERVICE TO A BARE MINIMUM. TO KEEP THE COST DOWN THE SERVICE IS ONLY GOOD FOR INCOMING CALLS. IF YOU FEEL YOU WOULD LIKE TO DO THIS JOB FOR THE CLUB PLEASE GIVE ME A CALL SO WE CAN DISCUSS THE POSSIBILITIES OF YOU BECOMING THE LIBRARIAN.

IVAR GOSTLIDSEN

NOTES FROM THE DECEMBER MEETING:

The meeting was called to order by the President, John Usher 7:35 pm on 12-28-88.

The Treasurers report was given. Current club balance is \$146.53. Lila Simons is resigning from this post and Dan Lisson volunteered to replace her.

Old business: Discussions of various meeting places available. Dan Galbreath will make arrangements for location of next meeting. Re-inter up and running!

New Business: Committee forced to check out various options for community exposure. Numerous suggestions, demos at malls, schools ect. Committee is Greg Hedrick, Dan Lisson and Kevan Coleman.

John Usher will donate an acoustic modem, anyone who is interested in trying our BBS or some other

bulletin board will be able find out what fun it really is. I believe this will be available to any club member to borrow.

Library Report: \$50.00 Profit -- 2 Disk of the Month, each with various games.

(There will always be a question and answer session each month also.)

Meeting adjourned at 8:30pm.

Demonstration, by Jim Luque, Program by Roger Merritt. FORNSHOP - Mix text and graphics, make graphs, maps, charts. Follows all the conventions of TI Writer.

Respectfully Submitted Maria Adler (substitute Secretary)

FROM THE NEWSLETTER EXCHANGE

compiled by maria adler
TILT 99er Dec 88
MacFlix, a review of Sorts.
Madara 99er Dec 88
TI Writer Tips #1, by Bob Seddon, Editor margins versus Formatter margins.

CinDay Nov 88
From the Western NY 99er Jun 88, PR Base Data Charts and from the Bits Bytes and Pixels, TI 99/4A sound chip accuracy article and chart by Charles Good.

West Penn Dec 88
Lots of good stuff in this newsletter!
DSDD Plato conversion by Michael Doraan, Disk Drives #4 by John

Millforth, Macflix; a techie tip by Robert Coffey, the key to getting perfectly proportional picture is to have the density of pixels the same both horizontally and vertically. But how? Read about it!! And--the "Zenoboard" a new piece of hardware the the TI-99/4A.

TI SIG Dec 88

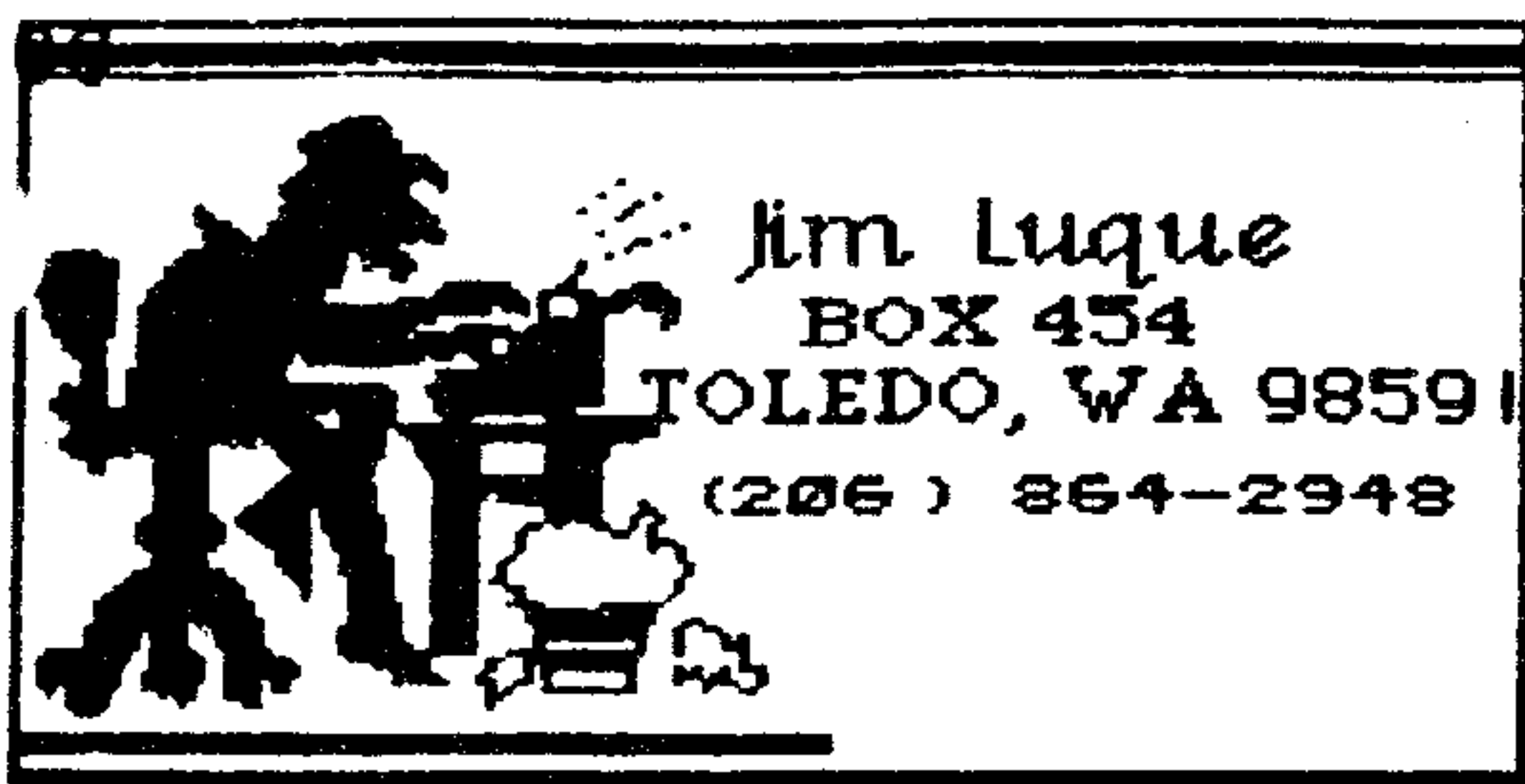
Notes from Woody's Desk -- You're writing (or copying) a long program, you go to save it and there is no more room on the disk; you don't have another initialized disk; WHAT NOW!! (ed note: read this!!)

FROM THE EDITOR

Many thanks to all who contributed to this newsletter, Jim Luque for his continued excellent articles, Kevan Coleman for the handy dandy charts that can easily be hanging along side your computer for easy reference when using TI-Writer or other variations. Thanks also to Dan Galbreath for all his efforts acquiring a new location for our meetings. I did not have room for TIPS from Tigercub this month, we still have tips 50 through 54 with lots of good info also.

I'm still struggling along learning all that Funnelweb can be, I configured it so I have a menu that has my most used programs, it is very handy to have one disk (DSDD) that has all the programs that I use most often, Telco, Archiver, Graphic Lister and Listmaker.

DESK TOP PUBLISHING ON YOUR OWN - PART III



Well, here we are again. If you've been with me so far, we've seen how you can output some pretty impressive desk top publishing printouts. This month is no exception. The programs I used to make the flyer/bulk mailer were: RODGER MERRITT'S PRINT IT (creation of custom made border) and JIFFY FLYER (used to print the full page border design), PAUL COLEMAN'S GRAPHIC LISTER (for the bulk mailer addresses on the opposite side of the flyer), TI-ARTIST FONTS, BOYD SHUGERT'S TI-GRAPHICS (for the unique placement and use of the graphic), and FONTCONVERT (FAIRWARE, AUTHOR UNKNOWN), the vehicle used to print all the text.

All of the above mentioned programs(except FontConvert) have been reviewed by me in earlier articles. Check your old newsletters.

I started by using the Char-Font design option of PRINT IT. Here is where I created my border design. Of course for those of you who already have experience with JIFFY FLYER, you know there are 45 ready-made borders to use. I chose to create my own for the purpose of this article. Replacing(or adding) JIFFY FLYER borders requires you use PRINT IT for easy design and automatic conversion to programming hex code. Exactly how to do this will be the subject of a future article.

After creating, printing, and saving the new border design, I

replaced a border in JIFFY FLYER (found at the end of the program, as data statements) with the new border hex code. WORD OF CAUTION HERE: Before you begin replacing individual border styles in your original JIFFY FLYER, make a back-up copy.

Now, I booted JIFFY FLYER and loaded a saved file from my data disk that contained no graphics or text; next, I went to option 3 to see and load my border. Finally, I printed the border (no text or graphics).

FONTCONVERT contains 2 files: FONTCON and FP2; the former takes a TI-ARTIST font and converts it to a format that FP2 can read and print. The advantages of using FONTCONVERT to print the fonts, as opposed to TI-ARTIST, are that once converted one can type lines of text in double density, text can span the entire width of your paper, and the program offers automatic centering, and/or left-right justification of text. In essence, the keyboard becomes a typewriter with word-wrap. Once you've converted several font styles and saved them on a data disk, you'll always have them for future use.

GRAPHIC LISTER is a program that contains several unique files, one of which enables one to output the return and forward addresses (with graphic, if desired) on one side for easy folding and mailing. Of course, if you are only interested in making a unique bulletin, or flyer, you don't need to use this program. It just adds another dimension.

Boyd Shugert's TI-GRAPHICS was utilized because it offers the option of tabbing a graphic

(non-TI/ARTIST) found on his disk(s), or one you created using his format, and place it virtually anywhere on the paper; also, many of his graphics are in mirror form.

If you wish to use a TI-ARTIST graphic, or the like, you can; the difference is that it will print at the center of your paper. Just another option for you to consider.

Now, let's put it all together. First, print out your mailer addresses; second, turn the paper over, re-align it in your printer. Third, use JIFFY FLYER and print your border. So far, you have your addresses on one side and the full page border printed on the other. Now, re-align your paper (border side showing) in the printer. Type RUN "DSK1.FP2" of FONTCONVERT; load your saved converted font and type your message(s). If you desire different font styles (like my sample), press FCTN 4, type RUN and enter the new font name. If you plan graphics, be sure to leave space on the paper

**** RAM DISK **** -- With the TI 32K card

If you need to work with quite a bit of data or would like to change programs, but save the data after you press CALL QUIT, then you can set up the 24K of High-Memory in the PEB as a single data file called "EXPMEM2". You open this file just as you would a disk file with one exception - you must PRECEDE the OPEN statement with a CALL LOAD to the location -24574 as follows:

For INT/UAR files - 24
For DIS/UAR files - 16
For INT/FIX files - 8
For DIS/FIX files - 0

Here's an example:

If you want to open up the Expansion Memory for Display, Variable 80 files this is what you'd do:

```
100 CALL INIT
110 CALL LOAD(-24574,16)
120 OPEN #1:"EXPMEM2" ,RELATIVE, UPDATE
,DISPLAY,VARIABLE 80
```

so you can place them. Re-align the paper where you want your graphic and print using TI-GRAPHICS (or TI-ARTIST if want the graphic centered only). That should be it! Don't forget to fold your mailer in thirds, staple and mail!

I recommend you pencil plan your creation on a sheet for message and graphic placement; and if you really want to be creative, try different colored ribbons for border, text, and/or graphic usage!

If you don't want to go through all these steps, JIFFY FLYER will almost do the same in one easy package. I should also mention that TRO+ Software's PRINTWIZARD has a sign making feature too. Hope this article has opened new horizons for you.

Next month, a report on a new hot item from Rodger Merritt -FORMSHOP. An easy way to construct calendars, maps, graphs, etc... as part of your TI-WRITER file.
HAPPY TI-ING!

Then continue on as you would normally.

If you want to store both data and assembly language routines at the same time, try:

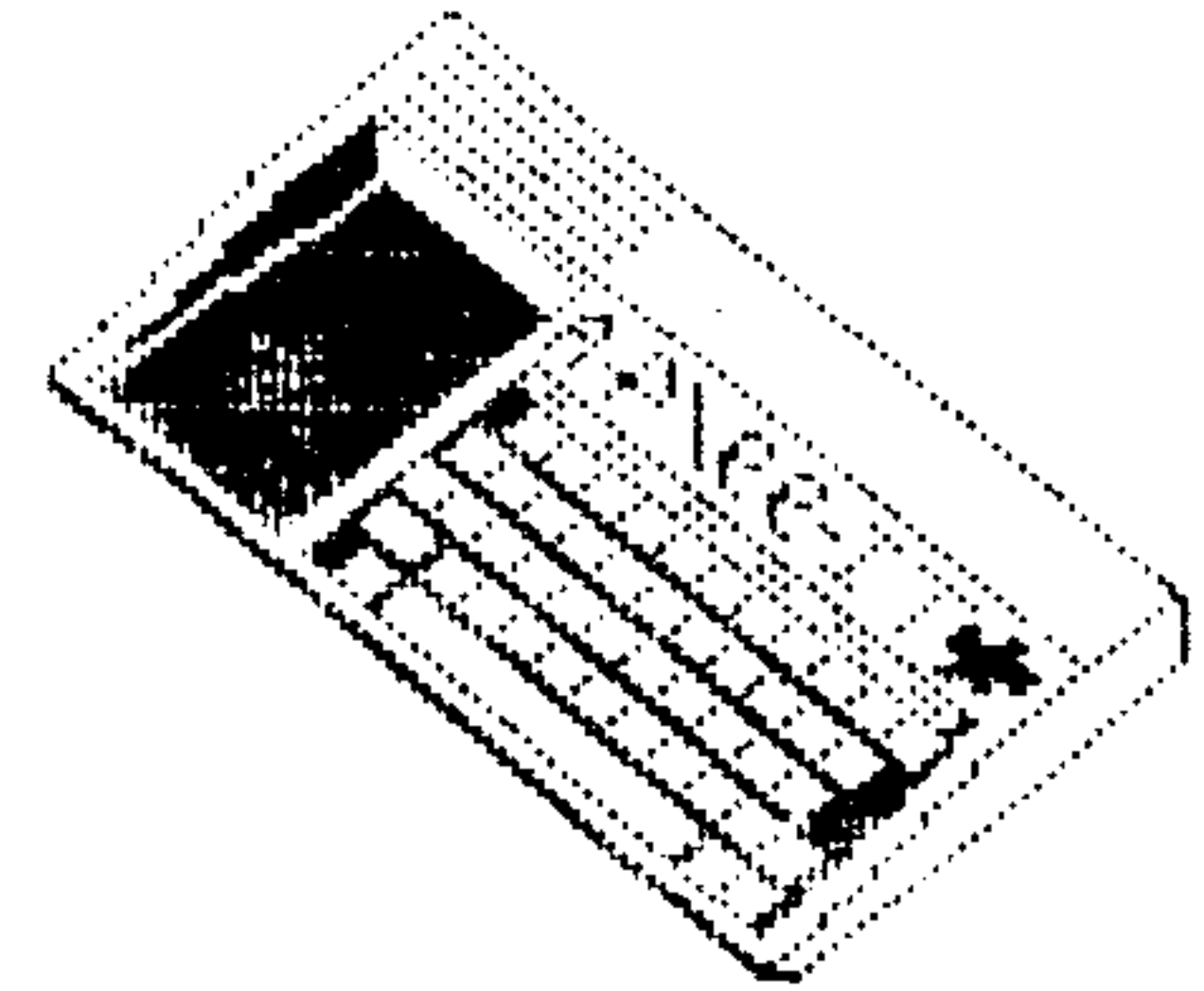
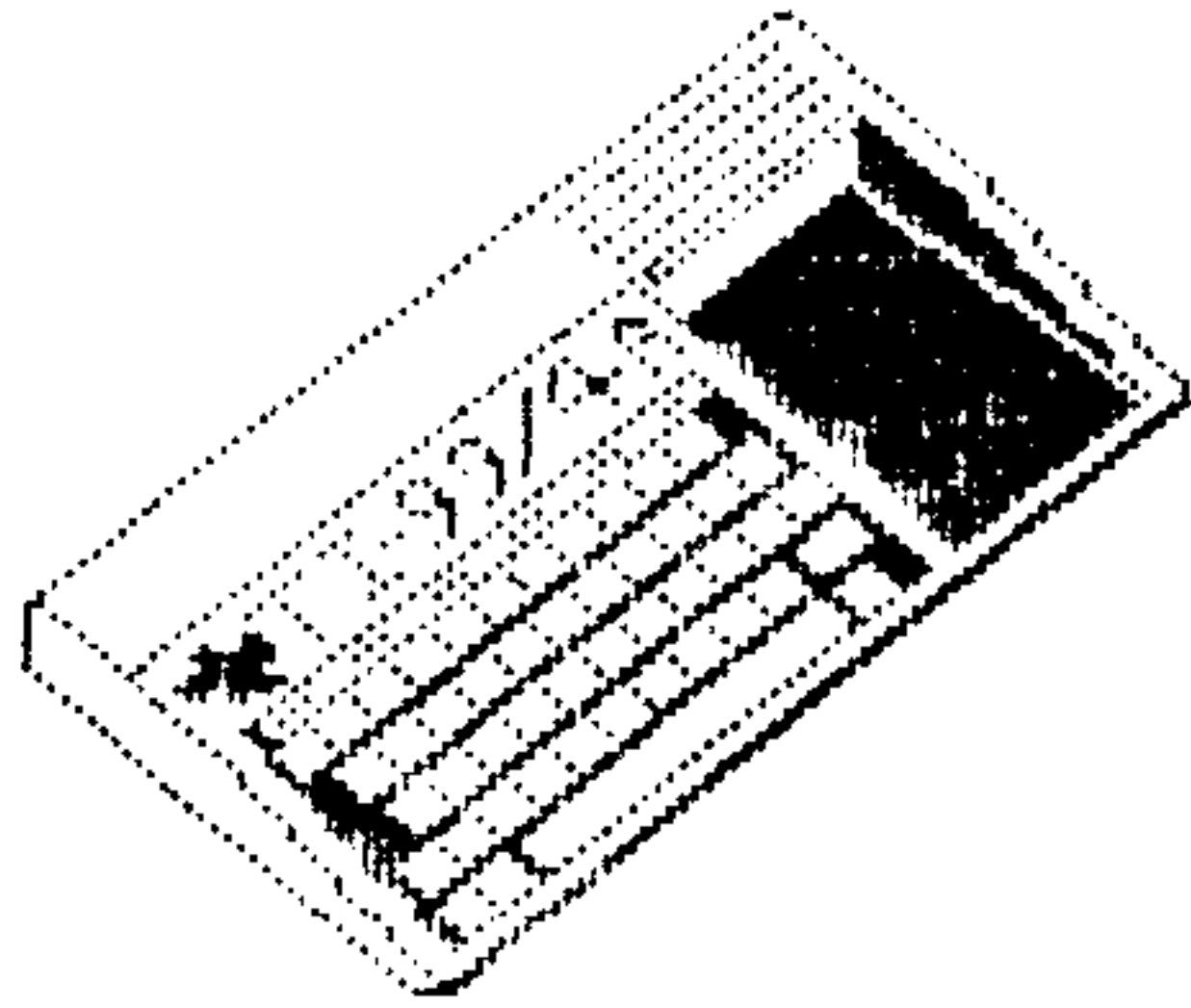
```
100 CALL INIT
110 CALL LOAD(-24574,-16)
120 OPEN #1:"EXPMEM2"
130 CALL LOAD ("DSK1.ASSM1")
140 CALL LOAD ("DSK2.ASSM2")
150 CALL LINK ("START")
160 REM CONTINUE REST OF PROGRAM
```

In the above example, the 24 K of high-memory was saved for use as a DATA file (DIS/UAR 80 format) then the assembly routines were loaded. The computer will look for the best place to put the routines and will adjust the pointer accordingly. After the routines are loaded, a LINK statement starts the first routine and off we go.

N.O.V.A. User Group

JANUARY, 1989 -- KEVAN J. COLEMAN

DESK TOP PUBLISHING PART III



The above title
was printed using
the Fontconvert program.

The name of the font is Moon - from
the Ti-Artist Comp. 8-9 series.

This font comes from a different series named
Old English.

Graphics are by Boyd Shugert's Program:

UNGRAPHICS

The above font is called Minicube.

This font is called Bombay.

Both come from Comp. 8-9 series.

The border design was created using:

PRINT II

The full border was printed using:

DIFFY FLTER

Backside printed using Paul Coleman's:

GRAPHIC LUSTER

JUST A REMINDER AND SO AS NOT TO WASTE SPACE

Membership Dues Policies and your Address Label...

Look at the address label on your newsletter. There is a letter M or P, and three or four digits. These digits are the month and year that your dues were paid, (988 means September 1988). The M means paid Member, The P is for prospects, and their date is the first month they received a complimentary newsletter. The prospects are sent two newsletters and if there is no response they are dropped.

Members are carried for two months past their anniversary date before they are removed from the mailing list. When members pay their dues they are renewed to their original month. If a member re-news after being off the roster for over eight months a new date will be established.

It is important for us to stay current as our dues are quite low and are figured to just cover newsletter postage and printing, plus a little for our minor office supplies. Every copy sent to a nonpay takes the treasury down a notch. Note. No one in the club receives any money from NOVA. The officers and some committee members have free dues for their term of office. If your anniversary date is a year old, your dues are due. Dues are \$10.00 and you may write a check or pay cash at the meetings or workshops. Or send your check to NOVA P.O. Box 508 Vancouver, Wa. 98664. Do not make your check out to a person, but to NOVA.

99994A
LUBBOCK, TEXAS
994A STREET
MR. POPEYE, THE SAILOR

MS OLIVE OYLE
994A AVENUE
EDO, WA 98591

TI-HACKERS Handy Conversion Chart #1

Char	Oct	Dec	Hex	Char	Oct	Dec	Hex	Char	Oct	Dec	Hex	Char	Oct	Dec	Hex
----	---	---	---	----	---	---	---	----	---	---	---	----	---	---	---
NUL	'000	0	"00	SP	'040	32	"20	@	'100	64	"40	`	'140	96	"60
SOH	'001	1	"01	!	'041	33	"21	A	'101	65	"41	a	'141	97	"61
STX	'002	2	"02	"	'042	34	"22	B	'102	66	"42	b	'142	98	"62
ETX	'003	3	"03	#	'043	35	"23	C	'103	67	"43	c	'143	99	"63
EOT	'004	4	"04	\$	'044	36	"24	D	'104	68	"44	d	'144	100	"64
ENQ	'005	5	"05	%	'045	37	"25	E	'105	69	"45	e	'145	101	"65
ACK	'006	6	"06	&	'046	38	"26	F	'106	70	"46	f	'146	102	"66
BEL	'007	7	"07	'	'047	39	"27	G	'107	71	"47	g	'147	103	"67
BS	'010	8	"08	(	'050	40	"28	H	'110	72	"48	h	'150	104	"68
HT	'011	9	"09	)	'051	41	"29	I	'111	73	"49	i	'151	105	"69
LF	'012	10	"0A	*	'052	42	"2A	J	'112	74	"4A	j	'152	106	"6A
VT	'013	11	"0B	+	'053	43	"2B	K	'113	75	"4B	k	'153	107	"6B
FF	'014	12	"0C	,	'054	44	"2C	L	'114	76	"4C	l	'154	108	"6C
CR	'015	13	"0D	-	'055	45	"2D	M	'115	77	"4D	m	'155	109	"6D
SO	'016	14	"0E	.	'056	46	"2E	N	'116	78	"4E	n	'156	110	"6E
SI	'017	15	"0F	/	'057	47	"2F	O	'117	79	"4F	o	'157	111	"6F
DLE	'020	16	"10	0	'060	48	"30	P	'120	80	"50	p	'160	112	"70
DC1	'021	17	"11	1	'061	49	"31	Q	'121	81	"51	q	'161	113	"71
DC2	'022	18	"12	2	'062	50	"32	R	'122	82	"52	r	'162	114	"72
DC3	'023	19	"13	3	'063	51	"33	S	'123	83	"53	s	'163	115	"73
DC4	'024	20	"14	4	'064	52	"34	T	'124	84	"54	t	'164	116	"74
NAK	'025	21	"15	5	'065	53	"35	U	'125	85	"55	u	'165	117	"75
SYN	'026	22	"16	6	'066	54	"36	V	'126	86	"56	v	'166	118	"76
ETB	'027	23	"17	7	'067	55	"37	W	'127	87	"57	w	'167	119	"77
CAN	'030	24	"18	8	'070	56	"38	X	'130	88	"58	x	'170	120	"78
EM	'031	25	"19	9	'071	57	"39	Y	'131	89	"59	y	'171	121	"79
SUB	'032	26	"1A	:	'072	58	"3A	Z	'132	90	"5A	z	'172	122	"7A
ESC	'033	27	"1B	;	'073	59	"3B	[	'133	91	"5B	(	'173	123	"7B
FS	'034	28	"1C	<	'074	60	"3C	\	'134	92	"5C	!	'174	124	"7C
GS	'035	29	"1D	=	'075	61	"3D	]	'135	93	"5D	"	'175	125	"7D
RS	'036	30	"1E	>	'076	62	"3E	^	'136	94	"5E	~	'176	126	"7E
US	'037	31	"1F	?	'077	63	"3F	_	'137	95	"5F	RUB	'177	127	"7F

SH-2	NUL	null	SH-P	DLE	data link escape
SH-A	SOH	start of heading	SH-Q	DC1	device control 1 (X-ON)
SH-B	STX	start of text	SH-R	DC2	device control 2
SH-C	ETX	end of text	SH-S	DC3	device control 3 (X-OFF)
SH-D	EOT	end of transmission	SH-T	DC4	device control 4
SH-E	ENQ	enquiry	SH-U	NAK	negative acknowledge
SH-F	ACK	acknowledge	SH-V	SYN	synchronous idle
SH-G	BEL	bell	SH-W	ETB	end of transmission block
SH-H	BS	backspace	SH-X	CAN	cancel
SH-I	HT	horizontal tabulation	SH-Y	EM	end of medium
SH-J	LF	line feed	SH-Z	SUB	substitute
SH-K	VT	vertical tabulation	>FN-R	ESC	escape
SH-L	FF	form feed	>FN-Z	FS	file separator
SH-M	CR	carriage return	>FN-T	GS	group separator
SH-N	SO	shift out	SH-6	RS	record separator
SH-O	SI	shift in	>FN-U	US	unit separator

A.O.V.A. User Group - P.O. Box 508 Vancouver, Wa. 98666 (206) 695-7002

TI-HACKERS Handy Conversion Chart #2

CONTROL 'U' COMMAND LIST
FOR TI-WRITER USING
EPSON COMPATIBLE PRINTERS

Symbols used:

<ESC> = CONTROL "U" FUNCTION "R" CONTROL "U"
<CHR> = CONTROL "U" SHIFT (specific character) CONTROL "U"

Examples:

<ESC> M = CONTROL "U" FUNCTION "R" CONTROL "U" M
<CHR> O = CONTROL "U" SHIFT "O" CONTROL "U"

PRINT WIDTH	FUNCTION	ENABLE	DISABLE
	ELITE mode	<ESC> M	<ESC> P
	continuous EXPANDED	<ESC> W1	<ESC> W0
	COMPRESSED mode	<CHR> O	<CHR> R
	single line EXPANDED	<CHR> N	<CHR> T
PRINT QUALITY	FUNCTION	ENABLE	DISABLE
	EMPHASIZED mode	<ESC> E	<ESC> F
	DOUBLE STRIKE mode	<ESC> G	<ESC> H
	SUPERSCRIP mode	<ESC> S0	<ESC> T
	SUBSCRIPT mode	<ESC> S1	<ESC> T
	UNDERLINE mode	<ESC> -1	<ESC> -0
	MASTER RESET CODE	<ESC> @	
ALTERNATE CHARACTER SETS	FUNCTION	ENABLE	DISABLE
	ITALIC mode	<ESC> 4	<ESC> 5
	GRAPHIC CHARACTER SET	<ESC> m <CHR> D	<ESC> m <CHR> O
SPECIAL PRINTER FEATURES	FUNCTION	ENABLE	DISABLE
	BELL .1 SECOND	<CHR> B	
	BACKSPACE	<CHR> H	
	HALF SPEED mode	<ESC> s1	<ESC> s0
PAPER FEED COMMANDS	FUNCTION	ENABLE	DISABLE
	LINE FEED	<CHR> J	
	LINE SPACING 1/8"	<ESC> 0	
	LINE SPACING 7/72	<ESC> 1	
	LINE SPACING 1/6" NORMAL	<ESC> 2	
	SET TO n/72"	*<ESC> A <CHR> n	
	SET TO n/216"	*<ESC> 3 <CHR> n	
	ONE TIME n/216 no (cr)	*<ESC> J <CHR> n	
FORMS CONTROL COMMANDS	FUNCTION	ENABLE	DISABLE
	FORM FEED	<CHR> L	
	CARRIAGE RETURN	<CHR> M	
	PAPER SENSOR	<ESC> 9	<ESC> 8

* Refer to TI-HACKERS chart #1 for DECIMAL equivalent if necessary.
(Example: If n = 8 then procedure is <CHR> H)

Note: Since these codes are imbedded in the text, the formatter is NOT required in most cases. However, since control codes do not show up in the printed text as they do on your screen you will have to adjust your format to compensate. One example would be if the underline feature was activated it would require three line characters, so text would have to be moved over three spaces. This looks weird on the screen, but the printed result is very sharp looking.

N.O.V.A. User Group - P.O. Box 508 Vancouver, Wa. 98666 (206) 695-7002

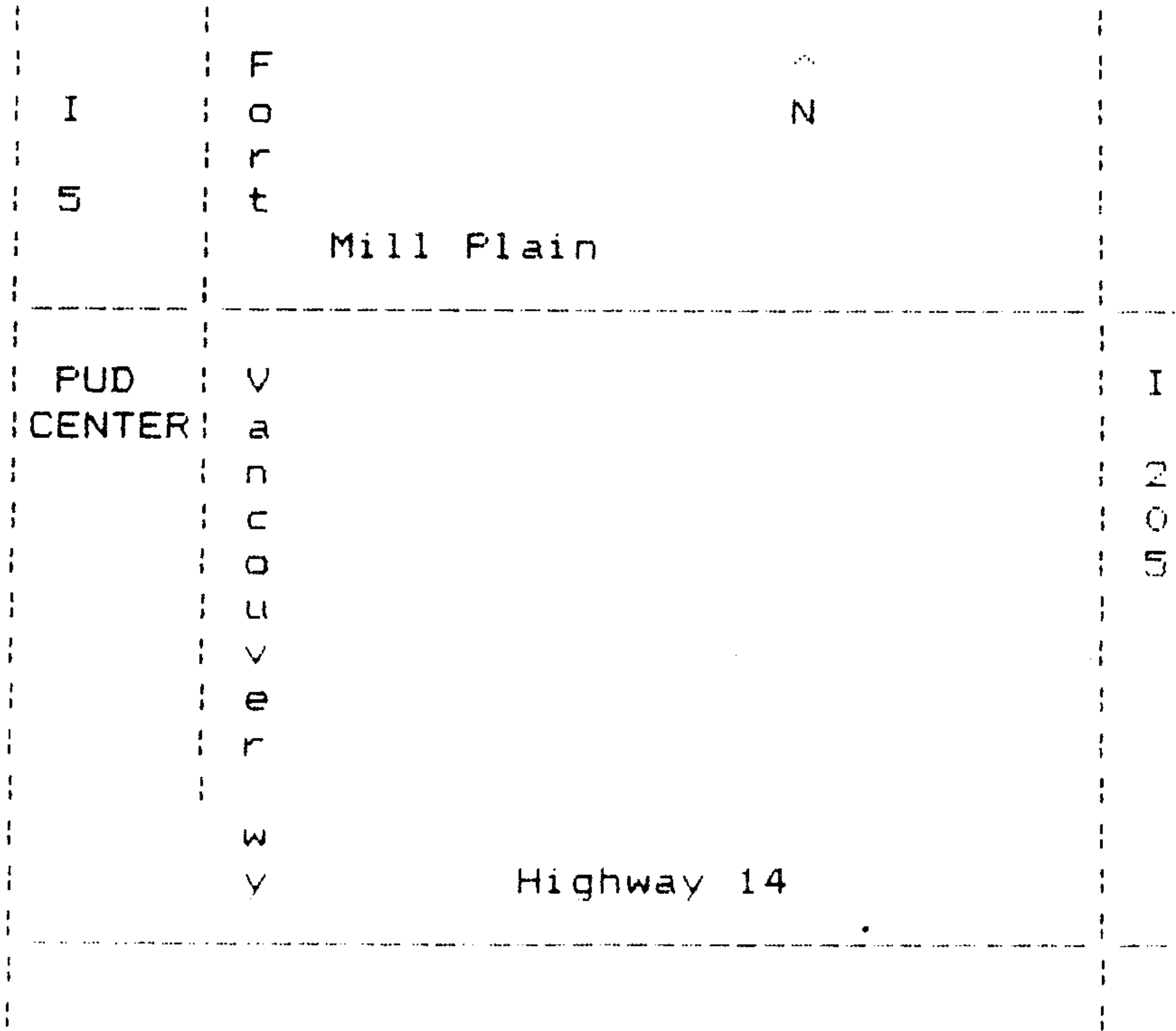
FROM THE VICE-PRESIDENT

NEW MEETING SITE

As you can see by the front of the newsletter, we have a new meeting place and day this month. The general meeting will be held at the PUD Center at Mill Plain and Fort Vancouver Way on Tuesday, January 24, 1989. This is an easy site to find as you can see by the map below. I couldn't get the last Wednesday of the month, so I got Tuesday the 24th instead. Hope this is ok for everyone.

I have some good news from the Fire District. I talked to Helen at the Fire Station and we can use the meeting room on a regular basis again. She talked to the Fire Chief and he said since they don't have a lot of other groups using the meeting rooms and as long as we call in each month we can use it for our monthly meetings again. I don't want to push our luck so maybe we should think about using the PUD for our meetings and the Fire Station for the workshops. We can talk about this at the next meeting. The next workshop will be Sunday February 5, 1989 at the Mill Plain Fire Station.

To get to the PUD Building, take I-5 north to the Mill Plain exit. Stay in the right lane, turn right at the bottom of the exit. Go to the next light and turn right. Then turn right into the PUD center and the meeting is on the west end of the building. From I-5 south take the Mill Plain exit stay in the left lane and go under the freeway to the second light and turn right. If you are coming from I-205 take the Vancouver exit going west on highway 14 to the Seattle exit. Stay in that lane and take the Mill Plain exit. Hope to see you there!



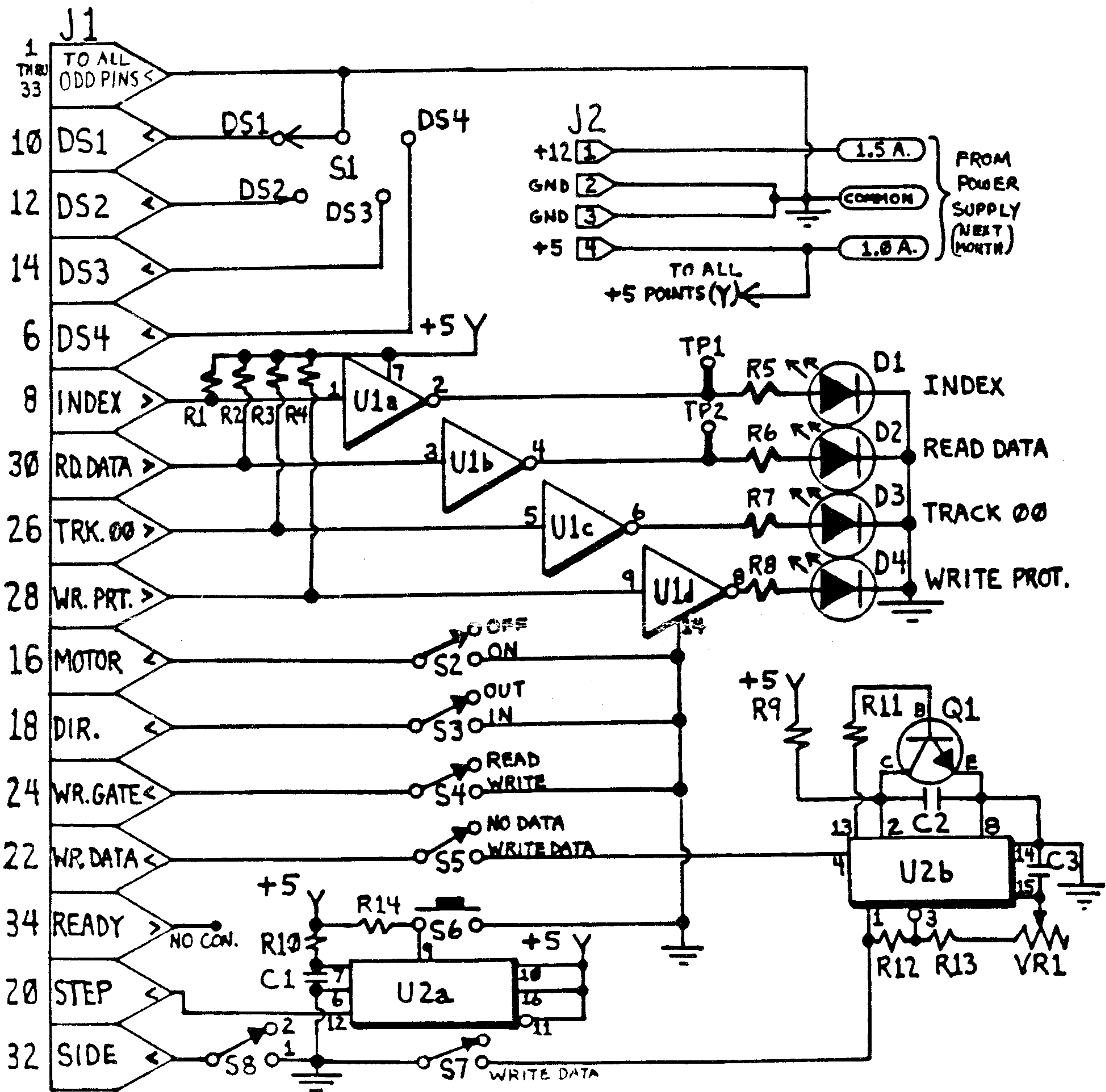
DISK DRIVES (#2) by John F. Willforth

Last month I rambled on about the function of disk drive in the scheme of things. This month I would like to show a tool to exercise and test most single and double sided 5 1/4" disk drives as well as later show modifications to enable it to support 3 1/2" drives. This unit is designed to support SA 455 (Shugart), TI, IBM, COMPACQ, Etc.. All clubs should at least have on to test and repair their drives.

This unit can check the selection of units, check the motor circuit, check all sensors, and write, read, step in or out, as well as select the head (side). The use of this tool is increased with an oscilloscope. With next months article, I'll include a power supply schematic.

PARTS LIST

- C1,C2- 470pf. Capacitor
- C3- 1 ufd. Capacitor
- Q1- 2N2222 Transistor
- D1,D2,D3,D4- LEDS
- R1,R2,R3,R4- 150ohm 1/4 W.
- R5,R6,R7,R8- 1.5K 1/4 W.
- R9,R10- 10K 1/4 W.
- R11,R12,R13,R14- 4.7K 1/4 W.
- VR1- 50 K Potentiometer
- U1- 74LS04
- U2- 74LS123
- S1- 4-Position Rotary Switch
- S2,S3,S4,S5,S7,S8- SPST Sw.
- J1- 34-Pin Card Edge Conn.
- J2- 4-Pin Power Conn.
- TP1,TP2- Insulated Test Pts.



Last month you received the basic schematic of a disk drive tester. This month, I'll describe the functions and give you a schematic for a power supply to drive the unit and the disk drive under test.

The large connector on the left (J1) is the ribbon cable that goes to the drive's logic board. The small connector to the right of center near the top (J2) is the power cable to the drive. Rotary switch (S1) is the unit select switch which will select the drive by the strapping you have set on the drive. MOTOR ON (S2) turns on the drive motor, makes it easier to test this associated circuitry in the drive, the DIRECTION of head stepping (S3), in or out, WRITE GATE control (S4), mode selector for the drive, WRITE DATA signal (S5) to the write circuitry in the drive logic, STEP in the DIRECTION selected (S6), provide write data for the WRITE DATA line (S7) when the WRITE GATE is enabled, and do all this on or to the SIDE selected (S8).

You can watch to see if you are getting INDEX pulses on D1, and if DATA read from the drive is present on D2, or see when the heads are at TRACK 00 on D3, and if the WRITE PROTECT sensor is working at D4.

You can further check the drive speed at TP2 (Scope or frequency counter), or look at the signal coming off the read head at TP2 (scope or null meter), if you are on an alignment track for disk alignment.

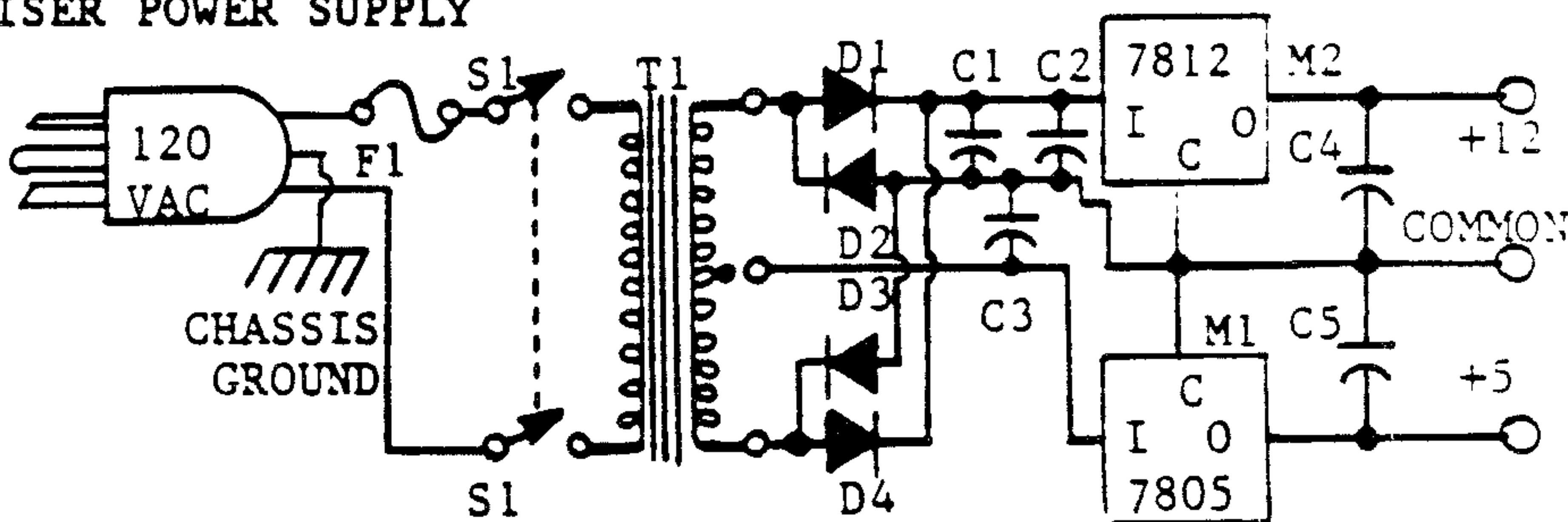
This unit has a lot of uses (for an unintelligent device) and enables easy benchtesting and circuit tracing will be much easier.

The power supply shown below must be built at your own risk. Dangerous high voltage exists, and only experienced electronics people should construct this part of the Disk Exerciser project. You could use a Triple Output Powersupply available from Radio Shack for sometime now, 277-1022 provided you were only testing 1/2 height disk drives, or you could also use an old TI console power supply in the same way, and hook up the appropriate pins to the three points indicated in the upper right hand corner of the schematic of the exerciser.

EXERCISER POWER SUPPLY

PARTS:

- 1 Fuse Holder w/1A fuse.. F1
- 1 Switch DPST 115 VAC.... S1
- 1 Transformer 18VAC C.T
Radio Shack 273-1515... T1
- 4 3A diodes 1N5402
R.S. 276-1143..D1,D2,D3,D4
- 3 Capacitors 2200MFD 35V.
R.S. 272-1020.....C1,C2,C3
- 2 Capacitors 100MFD 35V.
R.S. 272-1016.....C4,C5
- 1 +5 Volt Regulator
R.S. 276-1771.....M1
- 1 +12 Volt Regulator
R.S. 276-1770.....M2
- 1 AC Power cable



Observe polarity on any capacitor marked. "+" toward +5 and +12. It is also IMPERATIVE to attach the two regulators to large HEAT SINK.

Be sure to use a heat sink compound and firmly mount the 2 regulator components to a large metal mass.



The power supply above will also make a very good source of DC power for a stand-alone disk drive, as long as the unit does not draw over one amp. on the +12 volt line. This unit will get very hot due to the very high (18 VAC) on the secondary. The reg.s have to drop this to 12, and the +5 v. reg. must also work very hard because it is dropping 9 VAC to the needed +5. If a transformer that outputs about 16 VAC c.t., can be acquired, the unit will run cooler. After you have constructed this unit, and put it into the box with the EXERCISER, connect the three lines +12, COMM.(GROUND), and +5 to these pts. in the EXERCISER. We'll begin next month with a disk drive.

This series could be a lot of fun, but will also be a lot of work. John F. Willforth Nov. 1988

Disk of the Month
by Deanna Harbert

The disk of month
15/12 has several games.

The best games on the
disk are poker and
blackjack. As a teenager
I find poker a excellent

game play. I find it
better then playing with
cards. Its a challenge
to try and beat the pants
off the computer.
Blackjack is a fun game
to play when you are
bored. The only thing I
find wrong with the game
is you have a time limit

and its a slow moving
game. To make the game a
little better my Dad
changed it from one pound
to one hunderd pounds.
This was easily done by
changing BANK(T)=1 to
read 100 in line 330 and
BET(T)=1 to read 100 in
line 350.

I would recommend this
to people of all ages.
Both games have excellent
graphics. I would give
poker 10 stars and
blackjack 6 stars.