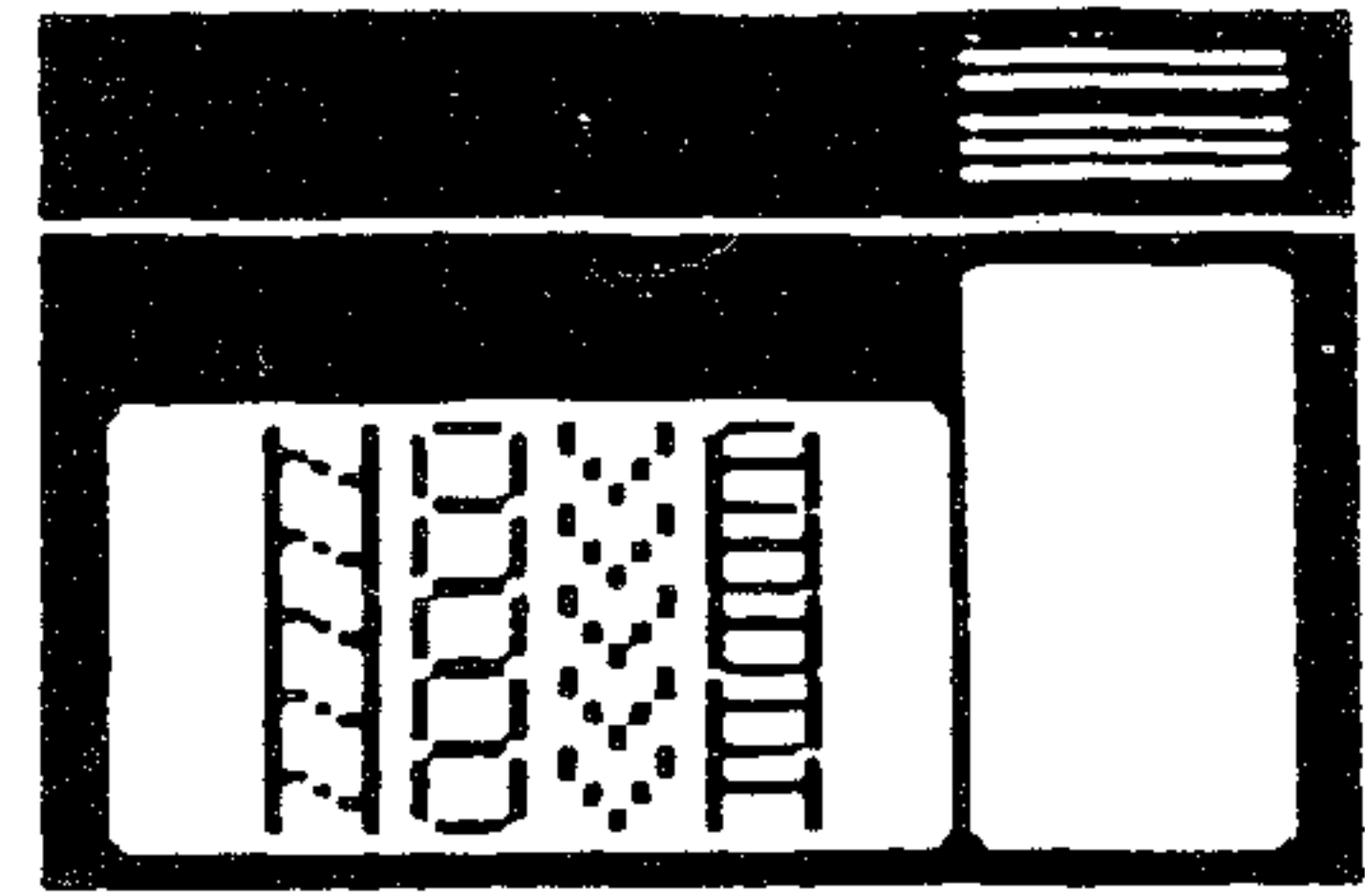


N.O.V.A.

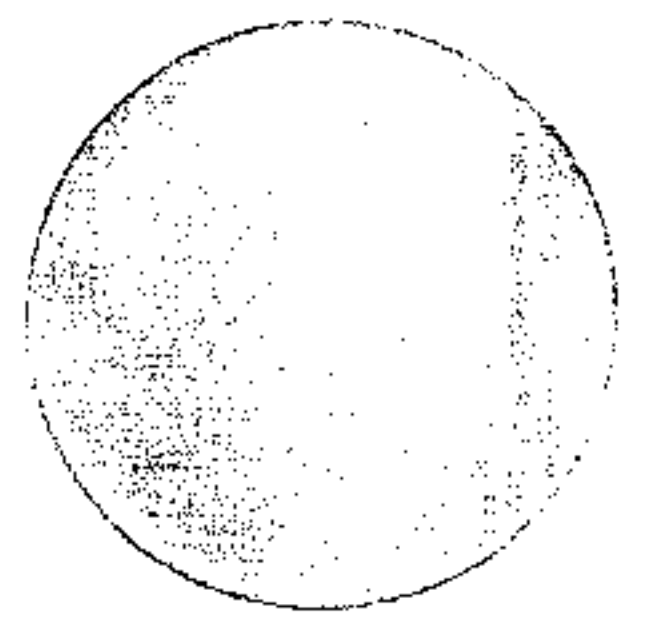
(P.O. Box 508 - Vancouver, Wa. 98666)



NINETY-NINERS OF THE VANCOUVER AREA

VANEWS#78

JAN 1990



Next Meeting :

TUESDAY, JAN 30th

7:00PM Please be prompt we need to be out of this room by 9:00PM.
VANCOUVER MALL, Community Room. (near J.C. Penneys).

Next Workshop :

Sunday FEB 4th 1990 11:AM to 4:PM
VANCOUVER MALL, Community Room. (near J.C. Penneys)
Bring your computer and any questions or problems.

N.O.V.A. BBS :

206-687-4497

24hrs, except when the Sysop needs the system.

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

The Officers of NOVA:

Area Code

Dan Lisson	Preident	206 693-7575
Quinton Tormanen	Vice President	206 687-4972
Lila Simmons	Treasurer	206 896-0113
Beth Webber	Secretary	206 892 1386

Committees:

Gary Crawford	Sysop/Librarian	message	206 687 3516
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 probly the best time as most of these people work during the day.

Schedule of upcoming meetings and workshops.

February 27th Meeting	_____	March 4th Workshop
March 27th Meeting	_____	April 1st Workshop
April 24th Meeting	_____	

AN ASSEMBLY LANGUAGE TUTOR #2

By Quinton Tormanen

Well, here we are with the second installment of our tutor. I'd like to go over the numbering system and memory map of the TI-99/4A this month.

First, the system is called binary and consists, as most of you know, of 1's and 0's. Each digit in binary is called a "bit." There are four bits to a nibble, two nibbles to a byte, and two bytes to a word.

Tab 1: Examples

			1	=	bit
			1001	=	nibble
		1011	1110	=	byte
1010	1001	0110	0001	=	word

As you can see, to write out a word takes quite a bit of room, that is why programmers use hexadecimal, or base 16, versus base 2. The example word above would be written as >A961. The ">" is placed in front of hexadecimal numbers to show that it is in base 16. A "\$" may also be used in the same way.

Very few people can think in hexadecimal or binary, so it is nice to know how to convert from one to the other and most importantly to decimal, base 10. To change a number from binary to hexadecimal, you must first break it up into nibbles, as in the examples above. Then, each nibble is converted into one digit.

Tab 2: Nibble conversions to hexadecimal

0000 = 0	0100 = 4	1000 = 8	1100 = C
0001 = 1	0101 = 5	1001 = 9	1101 = D
0010 = 2	0110 = 6	1010 = A	1110 = E
0011 = 3	0111 = 7	1011 = B	1111 = F

Now, by comparison, you should be able to see how I came up with >A961 from the example word. You have, no doubt, noticed that the letters A-F are appended to the digits 0-9. These letters represent the decimal numbers 10-15, and are used because 10-15 are actually two digits.

To convert binary to decimal, I usually convert it to hex (which becomes very easy after a while) then convert the hex to decimal. Hex to dec? Doing one digit conversions are simple; 0 to 9 are the same in both systems, and for A to F just remember that A is 10 and the others increment evenly, ending with F being 15.

To do multiple digit conversions, convert each digit (nibble) to decimal. And multiply the right most digit by 1, the next left digit by 16, the next by 256, and keep multiplying the multiplier by 16. (e.g. 1, 16, 256, 4096, 65536, ...) So, >A961 is $1*1+6*16+9*256+10*4096$ or $1+96+2304+40960$ or 43361. Simple, huh? It is not necessary to convert every number in to decimal from hexadecimal that you find, so don't worry! (e.g. >20=32, >200=512, >2000=8192, >2222=8192+8736)

Tab 3: Examples

>0001 = 1	>2710 = 10000
>000A = 10	>01F4 = 500
>0064 = 100	>04D2 = 1234
>03E8 = 1000	>FFFF = 65535

You may convert binary directly to decimal if you'd like. Here's how: Each bit is assigned a value starting at 1 on the righthand side (the least significant bit) and doubling with each bit to the left of it toward the most significant bit (MSB). In a word the MSB is worth 32768.

Tab 4: Bit values

32768	8192	2048	512	128	32	8	2
0	0	0	0	0	0	0	0
16384	4096	1024	256	64	16	4	1

Now that you know this, simply add all the values together that have a 1 in them. In table 4 the number would be equal to 32768+8192+2048+512+128+32+8+2 or 43690.

The unexpanded TI has 16K (16384) bytes of Video Display Processor (VDP) RAM, 8K of CPU ROM, and 256 bytes of CPU RAM. Each memory address is labeled with a number (just like a house address) and is usually referred to in hexadecimal. The VDP RAM is labeled >0000->3FFF, the ROM >0000->1FFF, and the RAM (actually a workpad) is from >8300->83FF. You will notice that the ROM and RAM have some equal addresses up to >1FFF. This is not a problem because each is a different kind of memory and the VDP RAM has to be accessed differently.

The TI-99/4A also has 2K of peripheral RAM/ROM from >4000->5FFF, and GROM/GRAM from >600->7FFF. A fully expanded TI also has RAM from >2000->3FFF and from >A000->FFFF. You will notice that the area from >8400->9FFF are not mentioned. This is because they are special addresses that are neither RAM nor ROM but are just addresses that values are placed to access VDP RAM, speech, sound, and GROM. I will tell you how to use those at in a later installment.

Let's try a short program using the commands we know and the knowledge of the memory setup:

```

DEF      START          * DEFINE starting point as START
START    MOV      @>2000,R0  * Move the word (MOV) from memory at
* (@) >2000 to R0.
        MOV      R0,@>2002  * Move value of R0 to memory at >2002
        JMP      $          * Just to self.
        END          * End of listing
    
```

No new commands were introduced, but a new method of number storage was used. Notice the "@" in front of ">2000" in line 2 and before ">2002" in line 3. This means to use the value at the memory address following. So we get the word at memory address >2000 and copy it to >2002. Note: Memory is addressed as bytes, so the MOVE word in line 2 will get the byte at >2000, put it in the Most Significant Byte (MSB, or the left byte) of R0, get the byte at >2001 and place it in the Least SB of R0. And when placing the value back to

2002 and covering both >2002 and >2003.
 Tab 5: Memory map when program is run.

```

Before execution:
>2000=>47 >2001=>4F >2002=>4F >2003=>44 R0=>0000

MOV @>2000,R0
>2000=>47 >2001=>4F >2002=>4F >2003=>44 R0=>474F

MOV R0,@>2002
>2000=>47 >2001=>4F >2002=>47 >2003=>44 R0=>474F
  
```

From Table 5, you should clearly be able to see what is happening as far as the MOVE words go. I'm sure many of you were wondering what the "JMP \$" was doing. As the comment said it jumped to itself. The "\$" is assigned as the memory address of the command. So if the computer is told to JUMP to \$ then it will jump to the command address, or the same line. You may also move just one byte at a time versus a whole word (two bytes).

```

DEF START * DEFINE starting point as START
START MOV B @>2000,R0 * MOVE the Byte at >2000 to R0
      MOV B @>2001,R1 * MOVE Byte at >2001 to R1
      MOV B R0,@>2001 * MOVE Byte from R0 to >2001
      MOV B R1,@>2000 * MOVE Byte from R1 to >2000
      JMP $ * Loop
      END * End of listing
  
```

You should be able to see what is happening in this program by following each step. The overall result is swapping of the addresses at >2000 and >2001. Tab 6 shows the number work.

Table 6: Memory map when program 2 is run

```

Before program is run:
>2000=>12 >2001=>34 R0=>6F7F R1=>2056

MOV B @>2000,R0 MOV B @>2001,R1
>2000=>12 >2001=>34 R0=>127F R1=>3456

MOV B R0,@>2001 MOV B R1,@>2000
>2000=>34 >2001=>12 R0=>127F R1=>3456
  
```

Introducing a new command will shorten this program. SWAP Byte will swap the MSB and LSB of a word.

```

DEF START
START SWPB @>2000 * SWAP Bytes of word at >2000.
      JMP $
      END

      or

DEF START
START MOV @>2000,R0 * Get word from >2000
      SWPB R0 * SWAP Bytes of word in R0
      MOV R0,@>2000 * Store word in >2000
      JMP $
      END
  
```

The first program is obviously shorter, but the second shows that the SWPB command may be used on an address or with a register, like the MOVE, and Add commands we are familiar with. Well, that's all for this installation. See you all next time!

COMMUNICATIONS

D
R
A
F
T

KEWAN J. COLEMAN
109 COWAN COURT
LONGVIEW, WASHINGTON 98632

PHONE 1-206-423-9150

Will I save money?
Is it worth the expense?

DO I NEED A NEW MODEM? WHAT FOR?

This month's article focuses on the costs of subscribing to the various services.

Why 2400 baud?

LONG DISTANCE LOGISTICS

If you do ANY long-distance calling, you should consider upgrading to a 2400 baud modem, if you have not done so already. If you have any reservations about upgrading, these charts should help you come to an educated decision.

Chances are, if you are using a 300 baud modem, you can't afford to bulletin-board long-distance. Let's face it, if it takes you a half an hour to download a file, it is just not worth the time. If you call long-distance at 300 baud, you're flushing money down the toilet.

If you're paying Ma Bell 13 cents a minute, a half-hour download costs \$3.90! The same download at 1200 baud is 96 cents, and at 2400 baud it is only 49 cents. If you do any amount of long-distance modeming, it PAYS YOU to purchase a faster modem.

NOW WHAT?...

By now, you're probably thinking, "Is it really worthwhile to call long-distance? Who would I even call?"

One of the best reasons to call the TI boards is because anything of value on CompuServe is available from the BBS network within 2 weeks. And only a SMALL percentage finds its way to the Vancouver area!

There are some really great TI boards across the country. Listed below are a few of the nearly 90 that I am aware of.

99 BBS (213) 947-7777
D/CALAN - 8/N/1
Los Angeles, California

TI-WORLD (714) 751-4332
D/CASAN - 8/N/1
San Francisco, California

P.U.N.N. (503) 233-6804
D/ORPOR - 7/O/1
Portland, Oregon

PUGET SOUND (206) 784-4142
D/WASEA - 7/O/1
Seattle, Washington

NAT. 99'ERS (617) 321-8214
D/MABOS
Boston, Massachusetts

ADDITIONAL

Refer to ANALYSIS SHEET on the next page for a evaluation of information services and regular calling packages.

Some shortcomings I cannot fail to mention are that CompuServe has too many menus that cannot be bypassed (adding to additional charges) and that PC-Pursuit downloads take twice as long as regular downloads due to packet switching. Maybe Charles Earl will write a Zmodem module for Telco.....

COMMUNICATIONS CORNER

ANALYSIS SHEET

Telecommunications Service/Carrier - Cost/Baud/Time

By: Kevan Coleman

SERVICE/CARRIER TIMES & RATES	HYPOTHETICAL DOWNLOAD BAUD & COSTS	IMPORTANT FACTS/NOTES TO CONSIDER
AT&T - STD Standard Service 11pm-8am \$7.80/hr \$0.13/mn	2400 - \$0.24 1200 - \$0.49 0300 - \$1.95	12 & 24 cheaper than CompuServe. More expensive than ROA or first 30 hours of PC-Pursuit. No minimum charge as with other services.
AT&T - ROA Reach Out America 10pm-8am \$7.150/hr - 1st/hr \$0.115/mn - 1st/hr \$6.000/hr - 2nd/hr \$0.100/mn - 2nd/hr	2400 - \$0.19 1200 - \$0.36 0300 - \$1.50 Figures based on second hour.	Do NOT sign up at the end of the billing cycle, they will still charge the full amount. Minimum monthly charge is \$7.15 regardless of usage.
PCP PC-Pursuit/Telenet 6pm-5am \$1.00000/hr 1st 30 \$0.01666/mn 1st 30	2400 - \$0.12 1200 - \$0.25 0300 - \$0.50 Prices X 2 due to delays with packet switching	Same price 3/12/24/96. 24 & 96 not available in all areas. Serving major U.S. cities only. \$30.00 sign up fee. Credit card billing only.
CIS - Via Telenet CompuServe 6pm-5am NON-prime \$06.00/hr at 0300 \$12.00/hr at 1200 \$12.00/hr at 2400	2400 - \$0.38 1200 - \$0.75 0300 - \$1.50	\$5.00 Minimum if NOT using a credit card. Much too expensive if connecting at over 300 baud! Billed real-time, which means you pay for packet delays also.

N.O.V.A. - U.G.

BOX 508 - VANCOUVER, WASHINGTON 98666

TI-ARTIST TUTORIAL USING "CARTOON KIT"

The more people I meet, the more I find that few know how to use many of the super drawing programs available to the TI-Community --- programs such as TI-ARTIST, GRAPHX, JOYPAINT, PICASSO, DRAW-N-PLOT, CSGD, and the like. The single most frequent response I get is, "I can't draw!" Join the club! Neither can I. But I probably spend more time on the subject than most.

To those who wished they could draw something, simply, and learn how to use the rudiments of TI-ARTIST, I dedicate this article. Although this is not intended to be exclusively a tutorial on how to use TI-ARTIST, you will come away more confident, if you've never tried.

The vehicle I will be using to get your graphic skills started is a program that's been around for some time --- CARTOON KIT, by TIM O'NEIL. I only know that Tim hails from Wilmington, Delaware. I don't know his address, or how much he asks for his program. I believe I received by copy from the club library. If you know of his address, shoot me a line so that I may pay him.

Before we begin, I recommend using the original TI-ARTIST, and not ARTIST PLUS! It's a little more convenient to use, and faster. TAKE NOTE OF THE FOLLOWING HINTS WHEN USING TI-ARTIST: 1). TO SLOW DOWN THE CURSOR, PRESS THE FCTN AND SEMI-COLON (;) KEYS SIMULTANEOUSLY, 2). TO ERASE SOMETHING FROM THE SCREEN, PLACE THE CROSS-HAIR ON THE (+) ICON AND DE-ACTIVATE BY

PRESSING THE FIRE-BUTTON AND DRAG THE CURSOR (WHILE PRESSING THE FIRE-BUTTON) OVER THE AREA YOU WISH ERASED, 3). TO ERASE A LARGE SECTION QUICKLY, ACTIVATE THE SOLID BOXES ICON AND BOX IN THE AREA, PRESS THE FIRE-BUTTON; AND FINALLY 4). USE THE ZOOM ICON FOR FINE-TUNE UP WORK LIKE PIXEL ERASING OR PIXEL DRAWING.

Ok, let's begin! Boot TI-ARTIST; at the first screen menu, press #2 ENHANCEMENTS; then press the (S)lides key. At the next menu, press #6 LOAD AN INSTANCE. Type in the file name; in this case, it will be DSK1.BODY6. In time, you'll see a pulsating box; press the "T" key to see your body part. If that indeed is the part you wish, drop it (fire-button) or move it (joystick) to a desired spot, then drop. (If that is not the part you want, press space bar and repeat loading process). Hit the space bar; at the menu, press "S" again. Now, press #4 LOAD SLIDES FILE. Type the file name, "MOUTH."; press space bar when loaded (not you, the slides!). You should see 24 different mouth styles --- each in a small box (slides). Place the cursor (cross-hair) on the mouth shape desired; press fire-button. Use the joystick to move mouth in place, press fire-button. Press space bar; again, from the LOAD SLIDES FILE option, load the NOSE file. You'll see 22 different nose styles; pick one up, press button and place on your creation. Repeat the LOAD A SLIDE... process for the

eyes, ears, and hat styles. Piece each part together like a puzzle. The majority of your cartoon should be completed (minus fine-tuning of the face and/or legs and feet. These you'll have to do on your own.

Now, it is time to exit the ENHANCEMENT function --- press FCTN (+,=) keys at the same time. You will see the 6 item menu; press #1 TI-ARTIST. At the main ARTIST menu you must decide whether to add, erase(fine-tune) or fill your graphic. To do any of the aforementioned, you must place the cursor on one of the icons to activate it (press fire-button). You'll notice the DRAW icon is in color (activated) already. Whatever icon you choose, press space bar to get to and from your graphic.

MORE HINTS: TO COMPLETE OTHER AREAS OF YOUR CREATION (MINUS STRAIGHT LINE DRAWING) THE USE OF THE K-LINES ICON IS MOST HELPFUL. BEFORE YOU DECIDE TO FILL A CERTAIN AREA WITH A PATTERN, BE SURE ENTIRE AREA TO BE FILLED IS COMPLETELY ENCLOSED. DISASTER CAN STRIKE IF YOU DON'T CHECK. A GOOD PROCEDURE TO FOLLOW WOULD BE TO SAVE YOUR NEARLY COMPLETED CARTOON TO DISK FIRST; THEN IF TROUBLE OCCURS, YOU DON'T HAVE TO START ALL OVER!

WHILE I'M ON THE SUBJECT OF SAVING A GRAPHIC, HERE IS WHAT TO DO: 1). TO SAVE A PICTURE (_P) SIMPLY ACTIVATE THE "S" ICON. PRESS THE APPROPRIATE # (SAVE FILE); TYPE THE NAME YOU WISH TO CALL IT, AND THAT'S IT, OR

2). FOR SAVING AN INSTANCE (_I), YOU MUST GO BACK TO THE ENHANCEMENT MODE, GO TO "SLIDES" ICON, PRESS #7 (SAVE AN INSTANCE), TYPE THE NAME YOU WISH, PRESS ENTER, THEN PLACE THE CROSS-HAIR AT THE TOP LEFT OF YOUR GRAPHIC, PRESS BUTTON AND DRAG HORIZONTAL LINE TO THE RIGHT OF THE PICTURE. PULL THE "RUBBER BAND" DOWN THE PICTURE UNTIL IT IS ENCLOSED. PRESS BUTTON, INSTANCE IS SAVED. NOTE: BE SURE TO ENCLOSE ONLY THE PART(S) OF YOUR PICTURE-NO MORE, NO LESS. IF YOU SURROUND UNNECESSARY SPACE AROUND YOUR GRAPHIC, IT WILL ALSO SAVE AS PART OF YOUR FILE, THUS TAKE UP MORE DISK SECTOR ROOM THAN NEEDED.

BEFORE FILLING AN AREA, USE THE FRAMES ICON TO MAKE A FEW SMALL BOXES SOMEWHERE ON THE SCREEN (AWAY FROM YOUR PICTURE). THESE WILL BE TEST AREAS. GO BACK TO THE MAIN MENU, ACTIVATE THE FILL ICON; GO DOWN TO THE BOX THAT SHOWS THE "P" ICON. PRESS CROSS-HAIR THERE AND CYCLE THROUGH ALL THE POSSIBLE PATTERNS. WHEN YOU FIND ONE YOU WISH TO USE, HIT SPACE BAR, PLACE CURSOR INSIDE ONE OF YOUR TEST BOXES AND PRESS BUTTON. SEE HOW EASY THAT WAS!

Now, pattern fill anywhere you wish on your cartoon. Erase the pattern test boxes when you're all done! SAVE YOUR FINAL PICTURES! Also, don't forget to print a copy of what you've done. Place cursor on the "C" (HARD COPY) Icon, press button and follow instructions.

The two cartoons displayed here were done

PAGE 1

JIM LUQUE



P.O. BOX 454

TOLEDO, WA 98591

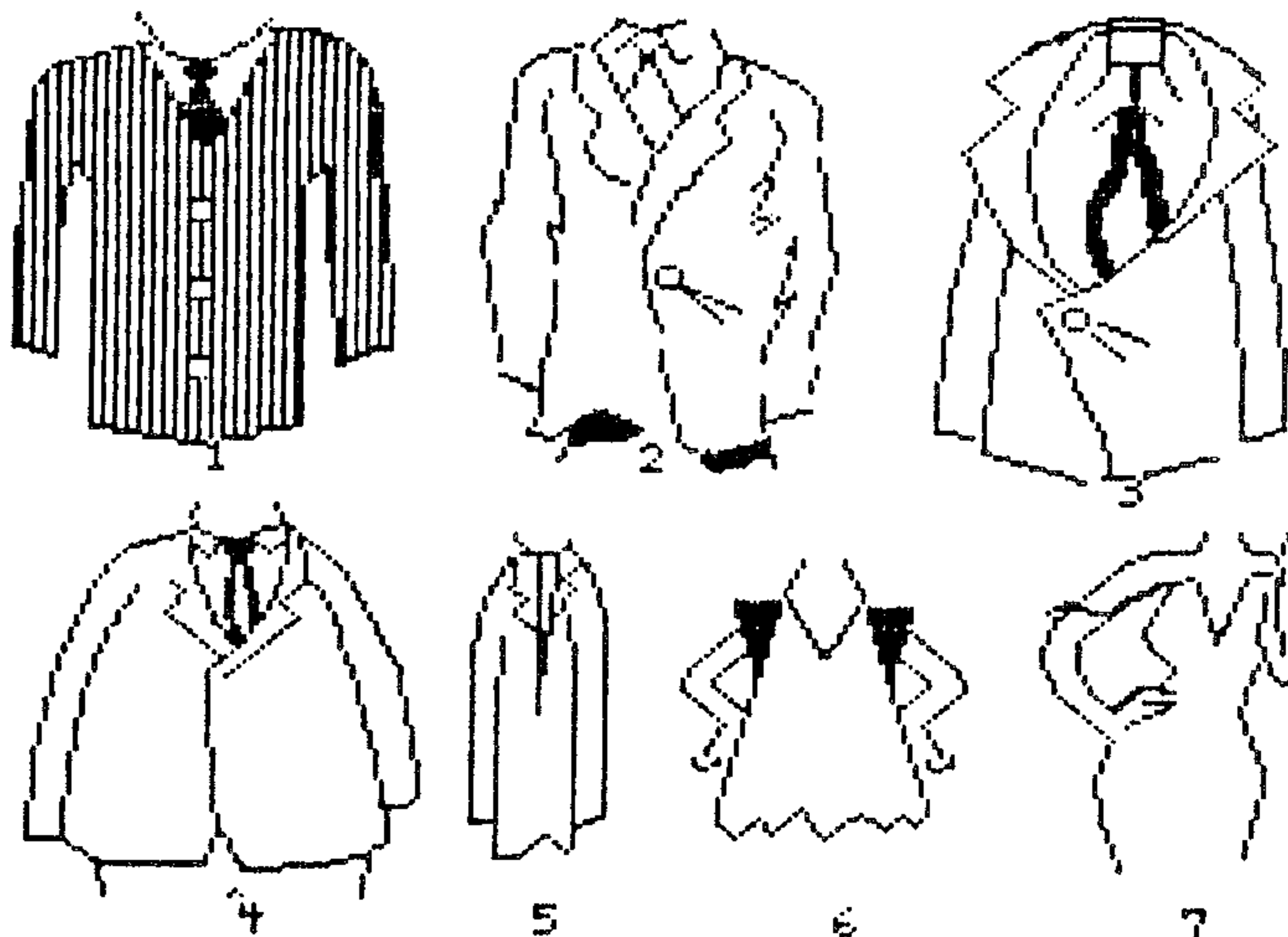
(206)864-2948

TI-ARTIST TUTORIAL

(continued from page 1)

using CARTOON KIT and TI-ARTIST. The captions are not part of the CARTOON KIT. They will be the subject of a future article, however. Also displayed, are samples of eyes, ears, nose, mouth, hats, and bodies found in the CARTOON KIT.

I hope you enjoyed this article. Let me hear from you if it was beneficial. HAPPY TI-ING!



EAR STYLES



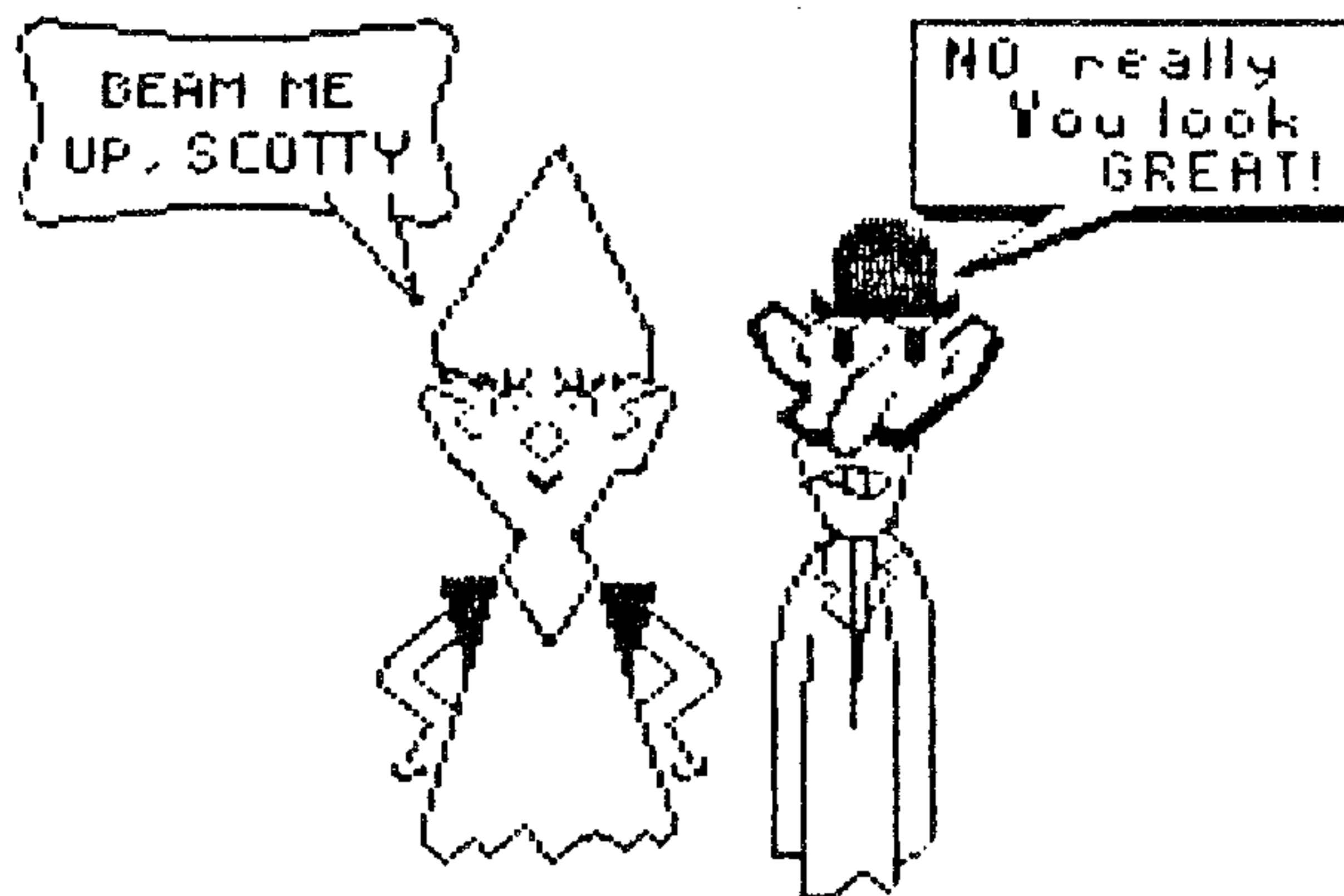
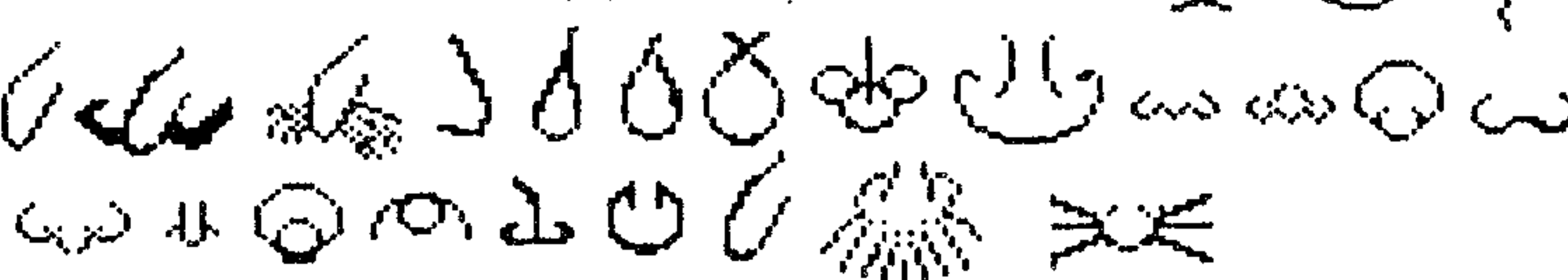
EYES



HAT STYLES



NOSE STYLES



DISKETTE LABELS THAT LAST ALMOST FOREVER

By: Kevan Coleman

Do you ever get tired of having to re-make your labels for your diskettes?

You know all the reasons.....

- 1) Can't read your own scribble.
- 2) The drive catches the label and mangles it, or rips it off the disk.
- 3) Normal disk catalog programs list EVERY file and look ugly.

A few years ago, I started laminating my labels. Roughly five years later, my disks look as good now as they did then. I did not want to use the disk catalog programs because they list EVERY program and besides, in time files get deleted or added meaning I would need to make another label.

With this in mind I wrote a simple program that enabled me to list out what the program was and how to load it. Since I have collected numerous programs over the years, I cannot remember all the E/A 3 run names and all the other stuff. I don't want to waste a lot of time looking either, so I just type in the NECESSARY information.

I doubt you need instructions on how to laminate a label, but if you laminate the label BEFORE you stick it to the disk, you will find that it looks much better and you will not make any mistakes that require you to make another label or buy more lamination.

- 1) Print up your labels.
- 2) Remove label and put between lamination and lamination backing.
This is okay because the backing is wax-coated and the label will not stick to it.
- 3) Burnish plastic on label until no bubbles remain.
- 4) Use an Exacto knife and cut lamination, leaving 1/8" of lamination border around label (using a ruler as a guide for the knife).
- 4) Remove label and apply to diskette using LIGHT pressure. Be sure to go around the border too.

NOTES: Not only does the 1/8th inch of border look good it also keeps the label from catching on other objects.

Apply label approx 1/8th of an inch from the left and top sides.

I use "PRES-a-ply/clear seal" by Dennison. A package of four 4X5 sheets will do 12 labels. The cost is between \$1.50-\$1.90. It's well worth it!

EXAMPLES

TI-ARTIST/SUPPORT 02

ARTIST FONT FILES

Requires program disk in drive (1)

** WRITE PROTECTED **

DSDy

MACFLIX - 26

DIS/FIX 128 FORMAT GRAPHIC PICTURE FILES

REQUIRES : MACFLIX
SUGGESTED : SUPER CART FOR 32K VIEWING (XB=24K)

** WRITE PROTECTED **

DSDD

```
1 ! * SIMPLISTIC DISK LABELER *
2 OPEN #1:"PIO" :: CALL SCREEN(5):: FOR A=0 TO 14 :: CALL COLOR(A,16,5):: NEXT A
3 CALL CLEAR :: B=0 :: C=0 :: DISPLAY AT(2,1):"LABEL HEADING" :: PRINT "[.....
.....]"
4 INPUT "":A$ :: CALL CLEAR :: PRINT "[...5....0....5....0....5....0....5....0..
..5....0....5]" :: D=1 :: GOSUB 10 :: INPUT "":B$ :: D=2 :: GOSUB 10 :: INPUT "":
:C$ :: D=3 :: GOSUB 10 :: INPUT "":D$ :: D=4 :: GOSUB 10 :: INPUT "":E$ :: D=5 :
: GOSUB 10
5 INPUT "":F$ :: D=6 :: GOSUB 10 :: INPUT "":G$ :: D=7 :: GOSUB 10 :: INPUT "":H
$: D=8 :: GOSUB 10 :: INPUT "":I$ :: CALL CLEAR :: DISPLAY AT(24,1):"Quantity
:" :: ACCEPT AT(24,14):C :: IF C=0 THEN 3
6 PRINT #1:CHR$(27);"@";CHR$(15);CHR$(27);"1";CHR$(27);"G";CHR$(14);A$;CHR$(27);
"S1" :: PRINT #1:B$ :: PRINT #1:C$ :: PRINT #1:D$ :: PRINT #1:E$ :: PRINT #1:F$
:: PRINT #1:G$ :: PRINT #1:H$ :: PRINT #1:I$
7 PRINT #1:CHR$(27);"J";CHR$(6):: C=C-1 :: DISPLAY AT(21,1):"Remaining :";C ::
IF C=B THEN 9 ELSE 8
8 GOTO 6
9 CALL CLEAR :: GOTO 3
10 IF D=8 THEN DISPLAY AT(4,1):"LAST LINE"
11 DISPLAY AT(1,1):"MAIN BODY: ";D :: RETURN
```

Kevan Coleman - 9/8/84

