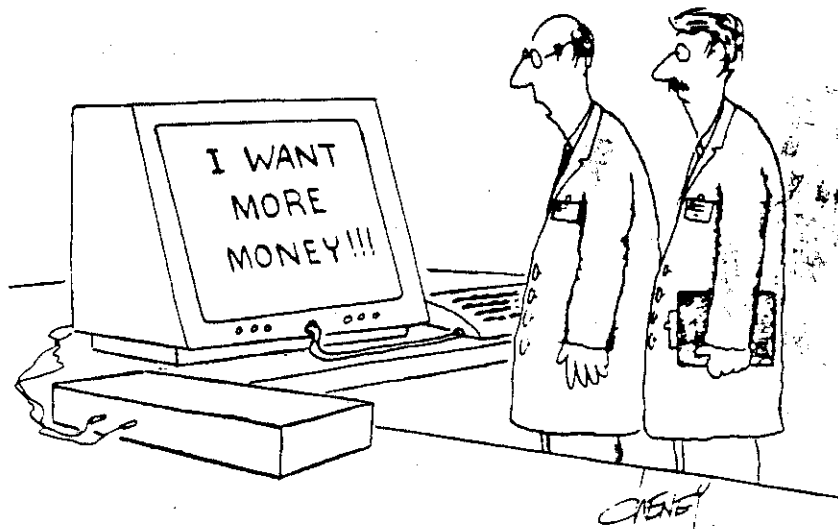


# Newsletter Nine-T-Nine

OCTOBER 1992 ISSUE

Texas Instruments  
USERS GROUP  
TORONTO

FOR THE TI-99/4A COMPUTER



*"I think we've just reached a milestone with artificial intelligence."*

FROM:  
9T9 USERS GROUP  
15 KERSDALE AVE.  
TORONTO, ONT., M6M-1C9  
CANADA



# NEWSLETTER NINE-T-NINE

## 9T9 Users Group

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All memberships are household memberships. A newsletter subscription is only for those who do not wish to attend meeting, but wish to receive our newsletter and have access to our library. You are welcome to visit one of our general meetings before joining the group. If you wish more information contact either our president, in writing, at the club address on the front cover or by phone.

The meetings are usually held on the last Wednesday of each month, (exceptions are December's meeting date, usually mid-month and the months of July and August, when there are no meetings. Consult this issue of Newsletter 9T9 for the date and time of the next meeting. Meetings are usually held at Neil Allen's place, 52 Graystone Gardens, south of Bloor St., just west of Islington Ave., at 7:30 P.M. from 7:30 - 10:30 PM.

### BBS

The 9T9 Users Group supports the Toronto BBS, The TI Tower BBS # (416) 921-2731, 300/1200/2400 BPS, 24 hrs. Sysop, Gary Bowser.

### MAILING ADDRESS:

9T9 Users Group, 15 Kersdale Ave., Toronto, Ontario, M6M 1C9, Canada

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FULL PAGE (7" x 10") ..... \$30.00  
 HALF PAGE (7" x 5") ..... \$15.00  
 QUARTER PAGE (7" x 2 1/2") \$ 7.50

Please have your ad's camera ready and paid for in advance. For more information contact the editor. Don't forget, that any member wishing to place ad's, may do so free of charge as long as they are not involved in a commercial enterprise.

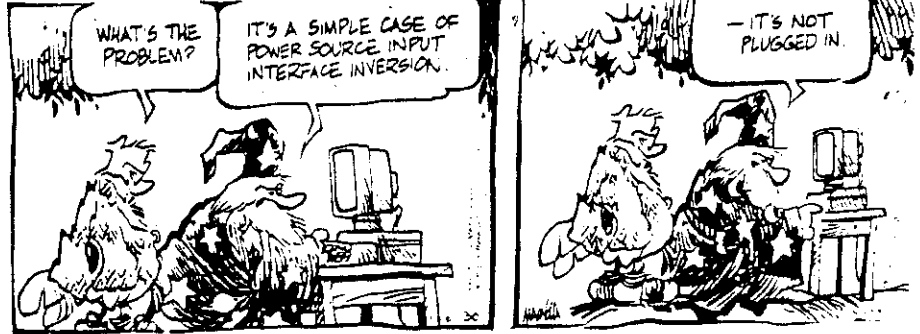
### NEWSLETTER ARTICLES

Members are encouraged to contribute to the newsletter in the form of articles, mini programs, helpful tips, hardware modifications, jokes, cartoons and questions. Any article may be submitted in any form by mail or modem. We welcome the reprinting of any article appearing in this newsletter providing credit is given to the author and 9T9. If more information is required, call the editor. The names, 9T9, Nine-T-Nine, Newsletter 9T9, 9T9 Users Group, and Nine-T-Nine Users Group are Copyright, (c) 1982-1992, by the 9T9 Users Group of Toronto, Canada, all rights reserved.

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### Shoe



### FOX TROT





## TIDBITS

#62

-By Steve Mickelson, President 9T9 Users Group  
Compuserve 76545,1255; Delphi SMICKELSON; GENIE S.MICKELSON

### 9T9 Recall:

The Recall bar-b-que, hosted by the Allen's, included the fine selection of food dishes, of various club members. Thanks to Neil and Gail for hosting the event. Compliments to Cecil, for manning the bra-b-ques, and cooking the burgers, and dogs, to perfection. And a special thanks to Michael, for his magic performance, which delighted everyone, both young and old, alike. The family participation, was welcome, perhaps we could plan more such social gatherings?

The Findlay's brought a big TI anniversary birthday cake, decorated with a computer, which most of us had a byte <grin>! All present at 9T9 Recall, had a great time, mainly because we all contributed to the menu, in one way or another. I wonder who/if will host the twentieth anniversary of the 9T9ers?

Although, there were no vendors and speakers, booked in some large hall, and no commercialism in the Recall event, the evening illustrated what is necessary to keep a TI user group alive and interesting to its membership, i.e. the social bond of fellow members enjoying a common interest, the TI-99/4A! I, now, feel that a large commercial event would not properly had represented our user group.

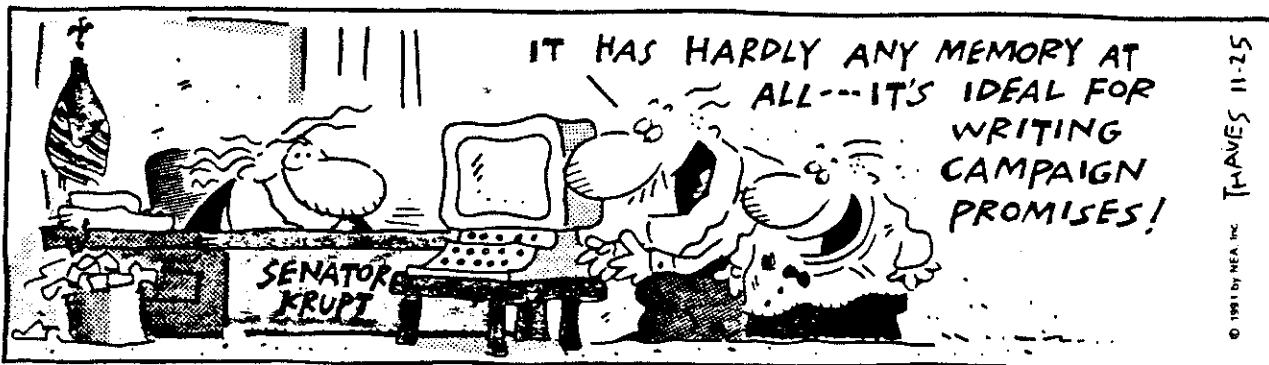
### Editor's Postion, Still Open:

The position of Newsletter Editor is still open. I have not chosen anyone, for the job. It is a great chance to become skilled at word processing, layout and printing a document. If at all interested, please don't be shy in asking, for more information.

You may have noticed, that last month's newsletter was really the August-September double issue, though the front only indicated the month of September.

### Chicago Fest:

As this year's International TI Fest, in Chicago, takes place on Halloween Day, it would be difficult for any TI user, such as myself, to participate, when you have little ones to take around, for "trick-or-treating". I hope to print a review, from an exchange newsletter, next month.



**MANIPULATING DV/80 FILES, Part 2**  
 By Art Byers

**Creating a data base using TI-WRITER**

Texas Instrument's TI WRITER is an exceptionally powerful software tool. Most of us who use it, hardly ever access more than half of its many features, - nor do we realize how to fully exploit those features we do use.

As one example, we all use the Tab function at one time or another to set up columns. Perhaps we do it to write source code of an assembly program, perhaps to set up columns of figures on a small chart.

One more use for the TAB is to set up fields for a small data base. On this disk is a DV/80 file created on TI WRITER called TRICITIES. It is the roster of the Tricities 99'er club of Kennewick WA.

Five lines of this file are reproduced below to show you how it has been set up by columns, using the TAB function, into the fields of a data base.

DUANE/TRINA	DUSTIN	20 NUCLEAR LANE	RICHLAND	WA 99352
EUGENE J.	WALTER	1958 THAYER	RICHLAND	WA 99352
TERRY	TERRASS	2022 WEISKOFF	RICHLAND	WA 99352
TROY	KLINGELE	808 N SYCAMORE	PASCO	WA 99301
CLINARD V.	HILL	919 S HUNTINGTON PLACE	KENNEWICK	WA 99336

The above fields are, obviously, Firstname, Lastname, Address, City, State, and Zip Code. It is easily possible to manipulate these fields as in any other data base. All we have to know is the starting column of each field and the length of each field (or hav. our working program calculate the field length).

This article will demonstrate one of the things we most often want to do with a data base, - sorting. On this disk is a program call FIELDSORT. Reboot this disk, holding down BREAK Fctn/4, once it starts to boot. At the prompt, type: RUN "DSK1.FIELDSORT"

The program itself is listed below as part of the article. It is bare bones with few bells and whistles as it is just to illustrate the points above.

You can chose to print the sorted file back to disk as a DV/80 by rewriting line 200 as:  
 OPEN @WP:"DSK1.MYFILE",OUTPUT - but remember to put in a blank disk before the write to disk starts.

The program allows resorting the database by any field. There is nothing amazing about any of it, but you can learn by looking at how the field length is calculated. The tail remarks in the program itself should be enough for you to follow the flow. RUNNING the program will show you how successfully the DV/80 manipulation has been accomplished.

Credit is due to Grillo and Zbyszynski for their tome "Data and File Management for the TI-99/4A". Much of the technique was learned from that book.

MANIPULATING DV-80 FILES Cont'd...

```

100 ! SAVE DSK1.FIELD SORT
110 ! multikey sort of string data
    saved as structured (by column) DV/80
    file
120 DATA 1,16,29,52,65,68,72
130 ! **
140 DIM S(7),Ns(25): S() is starting
    col. of field, Ns() holds list of
    names
150 FOR K=1 TO 7 : READ S(K): NEXT
    K ! read structure of fields. 7th is
    start of non existing last field
160 OPEN #6:"DSK1.TRICITIES",INPUT :
    FOR J=1 TO 25 : LINPUT #6:Ns(J):
    NEXT J : CLOSE #6 ! read data off
    dv80 disk file
170 CALL CLEAR : PRINT "ENTER 0 FOR
    SCREEN PRINT ENTER 1 FOR PRINTER 0"
180 ACCEPT AT(23,21)VALIDATE("01")
    SIZE(-1)BEEP:WP ! WP= Where Print? #0
    autoeatically goes to screen
190 IF WP=0 THEN 210
200 OPEN #WP:"PID",OUTPUT
210 CALL CLEAR : PRINT "Select the
    field on which to sort 1-6":
220 PRINT "1 = First Name"
230 PRINT "2 = Last Name"
240 PRINT "3 = Address"
250 PRINT "4 = City"
260 PRINT "5 = State"
270 PRINT "6 = Zip Code": : "What Key?
    2"
280 ACCEPT
    AT(23,12)VALIDATE("123456")SIZE(-1)BEEP:K1
290 PRINT #WP
300 ON K1 GOSUB
310 C=S(K1):C=Column number of key
    field
320 L=S(K1+1)-S(K1):L=length of field
330 N=25 : GOSUB 380 !Send to sort
340 CALL CLEAR : FOR J=1 TO N :
    PRINT #WP:Ns(J): IF J/7=INT(J/7)AND
    WP=0 THEN GOSUB 560 ! send to hold
    screen for reading
350 NEXT J : IF WP=1 THEN CLOSE #WP
360 GOSUB 560 !send to hold screen
    'til press enter
370 GOTO 170 ! start over again
380 ! **Shell-Metzner Sort**
390 M=N
400 M=INT(M/2)
410 IF M=0 THEN RETURN
420 K=N-M : J=1
430 I=J

```

```

440 P=I+M
450 IF SEG$(Ns(I),C,L)<=SEG$(Ns
    (P),C,L)THEN 480
460 T$=Ns(I): Ns(I)=Ns(P): Ns(P)=T$
    : I=I-M
470 IF I>=1 THEN 440
480 J=J+1
490 IF J<=K THEN 430 ELSE 400
500 PRINT #WP:"BY FIRST NAME": : :
    RETURN
510 PRINT #WP:"BY LAST NAME": : :
    RETURN
520 PRINT #WP:"BY STREET ADDRESS": :
    : RETURN
530 PRINT #WP:"BY CITY": : : RETURN
540 PRINT #WP:"BY STATE": : : RETURN
550 PRINT #WP:"BY ZIP CODE": : :
    RETURN
560 PRINT : INPUT "PRESS ENTER":A$
    : PRINT : RETURN
570 CLOSE #WP
580 END

```

A HOMEWORK CHALLENGE!

With the example of the above fresh in your minds, let me give you club members some homework to sharpen your programming skills:

(1) Write a program that will read the data base and print out standard 3 1/2 by 15/16" mailing labels. I suggest you set up as a 3 line label with three empty lines between each name set.

(2) Take one field and fill it with varied dollars and cents numbers (ie \$15.50). Next write a program that will locate that field anyway you want - for example: by column or by using PDS to locate the dollar sign - and print out that field 20% higher or lower. In other words, write a program that will manipulate the money field.

(3) Last, write a program that will enable you to make global changes in ANY and all fields -that is, give everyone the same first name - OR find one particular zip code and change all examples of it to 00000.

\*\*\*\*\*EoF\*\*\*\*\*

**THE PROBLEM WITH PRINTERS**

by Jim Peterson

When a program is written on one TI-99/4A console, it's a pretty sure bet that it will run on any other TI-99/4A console - unless the programmer has used some of the special features of the CorComp Disk Controller, Super Extended Basic, or whatever. But when a programmer writes a program to output to his own printer, it is by no means certain that it will work with your printer. As far as printer compatibility is concerned, it's a jungle out there. Anarchy, chaos and total confusion!

To begin with, if the printer has a parallel port it must be opened with "PIO", otherwise with "RS232" followed by the baud rate - or something else again for AXIOM. And you may have to add .LF to suppress line feeds or .CR to suppress carriage returns. Next, its output and its response to control codes is partly controlled by those idiotic, microscopic, inaccessible, fragile-looking inventions of the devil called dip switches. And finally, the output is mostly controlled by the printer control codes in the program itself.

Somewhere among the thousands of publications on computers, someone must have written a comprehensive guide to writing and modifying software for printer compatibility. If anyone knows of such, please tell me! I have read literally thousands of user group newsletters over the past several years, and have seen many mentions of "fixes" to various problems, but never a detailed article. I have called printer manufacturers, and they have been most helpful in suggesting that I buy one of their expensive manuals for each of their models. I have talked to programmers with much more experience in writing printer programs than I have, and they tell me it is very difficult, even with the manual at hand, to modify a program for a particular printer without having access to that printer for testing.

I have no experience in programming for any printer other than my trusty old Gemini 10X, and my few attempts to modify programs for other printers have mostly ended in failure. However, I have borrowed several manuals and attempted to chart the differences. I had hoped to compile and publish a complete conversion chart, until I realized the complexity of the problem. Anyway, perhaps I can pass on a few tips to programmers, to help them make their programs as widely compatible as possible, and possibly I can give users a little bit of guidance to help in modifying programs to suit their printer.

In the following, in order to be brief, I have mentioned control code sequences by their ASCII numbers, such as 27 66 1. This would be programmed as CHR\$(27);CHR\$(66);CHR\$(1) or, since ASCII 66 is within the printable range, it might be CHR\$(27);L"B";CHR\$(1). 27 77 n means that for n you substitute an ASCII, within an allowable range, according to what you want to accomplish.

There seems to have been four systems of printer control codes used with the printers commonly found in the TI world - Epson, Micronics, Axioa, and Okidata. The Micronics people tell me that they "used the Micronics emulation until the introduction of the current MX series, when they switched to the IBM emulation". The IBM emulation appears to be the same as the Epson code except that it has a different set of special character symbols - in fact, many current Epson-compatibles have an optional IBM code.

The Micronics code and the Epson code are quite similar, although with aggravating differences. Okidata and Axioa are way out in left field. Since Micronics, Epson and Panasonic (which is basically Epson-compatible) seem to be by far the most popular in the TI community, and most software is written for them, it might be wise to avoid the Okidata. I have also seen mention of problems with Diablo and Centronics, but I have no information on those.

Any of the ASCII characters from 0 to 127 can be used as a printer control code. If the ASCII is above 31, it must be preceded by ASCII 27, known as the escape code, which is universally used to alert the printer that the following ASCII codes are to be interpreted as controls rather than printed as characters. If the printer recognizes an ASCII below 31, or one or more ASCII immediately following ASCII 27, as a valid control code, it acts upon them but does not print them. This is why, if you insert "control U" codes in a line of text, the text will be shifted left. However, if the codes are not recognized as valid, the ASCII below 32 or above 126 are printed as a blank space, the others are printed as the character they represent. This is why that puzzling E, G, S or whatever shows up on the first line of a printout, if a program is not compatible with your printer.

Some printer commands require a sequence of three or more ASCII codes, of which the first is 27, the second could be anything above 31 and the remainder could be anything at all. If your printer does not recognize the second ASCII as valid, but then comes to an ASCII below 31 which it does recognize, it acts on that ASCII as if it was a single command - which is why your printer sometimes "goes crazy".

The ASCII below 27 are quite standardized, and many of them have names, such as BEL for 7 (activates buzzer) which are also commonly used in telecommunications. ASCII 10 (line feed), 12 (advance to next top of form) and 13 (carriage return) seem to be universally recognized. For some reason, Panasonic owners seem to have trouble with line feeds when running programs written for other printers.

ASCII below 27 are not preceded by the escape code 27. Some printers will optionally recognize 14 (double

line) and 15 (cancel 14) preceded by 27, but should avoid this since other printers will not accept a blank space. The MI-10 recognizes 27 10 to reverse the paper one line and 27 12 to reverse the page.

The code 27 can be input from the TI-99/4A by pressing the CTRL key and the period key. The actual ASCII is 155 but printers, other than Epson, will accept it as 27. This is handy when entering a printer in immediate mode or writing a routine, but should be avoided in programs being written because the character prints out as a blank which will probably confuse anyone trying to modify

I studied the manuals, and attempted to chart the codes, for the Gemini 10X, SG-10 and Star FX-80, FX-85/185 and its IBM mode; Panasonic Graftrax Plus; Brother M-1009; Seikosha S50A; Axion; and Okidata (model unknown). Due to the lack of standard terminology, it is not easy to relate them.

The M mode of the Epson FX-85 seems to be entirely compatible with its Epson mode except that it lacks some features. The FX-80 seems to be entirely compatible with Epson except lacking MLQ and a few specialized codes not get into comparing graphics capabilities of these printers). The Brother M-1009 is also highly compatible. The MI Graftrax Plus, an Epson model, is entirely compatible but lacks some features (no graphics capability?). The Panasonic is very compatible but also has several unique features of its own for setting tabs and spacing, etc. The Okidata also seems to be in complete agreement with the Epson but with some additional codes for unique features like reversed paper feed. I would guess that in actual fact these may not be as compatible as they seem. And finally, any maker's newer or more expensive models have more codes for features not found on older or less expensive models.

The Seikosha S50A or S50TI, made by Axion, recognizes the common codes between ASCII 7 and 14, but from what I know it has entirely its own system of codes; many of the codes are used by Epson/Micronics for entirely different purposes, so running a program written for one printer on the opposite printer can be guaranteed to produce pure garbage. Okidata likewise recognizes a few common codes and then goes into its own system, which is mostly in direct conflict with the Epson standard; due to the lack of standard terminology used in its manual, I am not sure what they mean.

The Gemini 10X, made by Star Micronics, has long been replaced by newer models, but stocks are still being sold by many discounters. It has been a sturdy workhorse, long popular with TI owners, and a great many programs have been written using its printer control codes. These are

90% compatible with Epson - but that other 10% causes a great deal of trouble. The differences are described below. The Star SG-10/15 was a transitional hybrid, switchable by dip switch 2-2 between the Micronics mode and the IBM mode. The Micronics mode is completely compatible with the Gemini 10X (except for download characters) and with some additional features - MLQ and proportional printing, and a slashed zero option. The IBM mode seems to be very compatible with the Epson standard. This printer was superseded by the Star MI-10, which is again Epson compatible.

A major incompatibility between programs written for the Gemini 10X or SG-10, and Epson-compatible printers, is that Micronics recognizes 27 66 1 to select pica, 27 66 2 to select elite and 27 66 3 for compressed, and on the SG-10 also 27 66 4 to select MLQ and 27 66 5 to cancel it. On Epson/IBM printers, 27 66 is the beginning of a series of codes used to set vertical tabs. Actually, since pica is the default, there is no need to program for it except to cancel condensed print, for which purpose 18 is recognized by both Micronics and Epson. (Avoid using 27 80 to return to pica because Micronics does not understand it and might misinterpret it to change default tabs.) Similarly, 15 will select condensed print on both the Micronics and Epson. Unfortunately, there is no compatible code for elite; Epsoms use 27 77 to select elite, but 27 77 n is used by the 10X, SG-10 to set the left margin n spaces, so that misinterpreting these codes can be catastrophic! The Epsoms use 27 108 n to set the left margin, but this is not recognized by Micronics.

The other major difference is 27 51 n which sets the line feed to n/144" on the 10X and on the SG-10 in Star mode, but to n/216" on Epson compatibles and on the SG-10 in IBM mode. The "fix" here is to multiply the value of n by 1.5 when running a Micronics program on an Epson printer. The same applies to 27 74 n which sets a one-time line feed of n/144" or n/216".

Micronics uses 27 82 n to set the margin at the top of the page, but Epson recognizes this as a command to switch to one of the international character sets, which can produce some interesting results. The Epsoms use 27 114 n to set the top margin, but Micronics doesn't know this one. Micronics uses 27 55 n to select an international character set, but the Epson will read 27 55 as a command to cancel 27 54 which selected a special character set. I'm not sure what that means, but the results will surely be undesirable.

There may also be a conflict between the Micronics 27 98 n, which performs a one-time tab of n columns, and the Epson 27 998 n n 0, which "sets vertical tabs in channel", whatever that means.

Several codes, common to both Epson and Micronics, use 1 as the 3rd ASCII to turn on a feature and 0 to cancel it. For instance, 27 87 1 turns on double width

(expanded) print and 27 87 0 cancels it. Also, subscript is selected by 27 83 1 and superscript by 27 83 0. Some of the Epson/IBM compatibles will accept either an ASCII or numeric 0 or 1 (i.e., \*1\* or CHR\$(1)) for that third code, for which reason you will often see program coding such as CHR\$(27);\*M1\*. These should be avoided when programming for general distribution, because the older Micronics recognize only the ASCII. If I understand my notes from the manual correctly, the Panasonic KX-P1080 also accept ASCII 129 or 177 in lieu of ASCII 49 or \*1\* and ASCII 128 or 176 in lieu of 48 for \*0\*!

According to the manuals, ASCII 141 can be substituted for ASCII 13 on the Brother N-1009, and ASCII codes 128 to 255 can be substituted for 0 to 127, respectively, on the Epson - but there seems to be no good reason to confuse the other printers by using those!

Different printers also have different sets of symbols in ASCII 160-254. The Gemini 101 and S6-10 in Star mode has one set, the S6-10 in IBM mode has an entirely different set which I presume is also on the Epson in IBM mode, and I think that the Epson has still a different set. This causes problems when running some banner or graphing programs which access these characters. Different printers also vary in the number of international character sets available and the sequence of their access codes.

I have never gotten involved in graphics printing, and I failed to chart all the graphics codes when I had borrowed manuals available, so I cannot comment on compatibility here. I have not heard of any problems except that some Axion models are apparently incapable of graphics, and there is also sometimes a problem with thin

white horizontal lines through the picture - possibly because of the n/144\* and n/216\* difference in line spacing between Micronics and Epson?

With downloadable characters, we find another jungle which I'm not too anxious to explore. The Gemini 101 has a quite simple and efficient method, and I once published in Micropendium a DOWNCHAR program to design these characters on screen, dump them to the printer for editing, and save them to disk. I have also written a routine which will convert a sequence of any length of standard or reidentified screen characters into a D/V 80 file of download character printer codes.

But, here the S6-10 Star mode departs from compatibility with the 101. Its system offers much greater capabilities but is also quite complex and entirely different. I tried, and failed, to convert my routine for use on the Epson FX-85; its system is somewhat similar to that of the S6-10 but again different. I am told that the Epson RX-80 does not support downloadable characters, the LX-80 only allows 6 and some Panasonics only allow 40 of them. I have seen an article describing a method of creating downloadable MLD characters but unfortunately the name of the printer being used was not mentioned.

This article is obviously incomplete and probably inaccurate. Perhaps it will inspire someone to write something better. In the meantime, programmers could help out a great deal by putting REMs in their programs giving the name of the printer they are writing for, and REMs after every printer control command indicating its purpose. I regret that I have not been in the habit of doing that!

#### MODULATOR REPAIR by Ron Warfield B.C.U.G Newsletter

Over the years, I have been asked for help on repairing the TI Modulator, so I decided that it is time to write an article on the little beast.

The most common problem with these units is broken wires at the computer end plug. This is easy to check and all you need do is pull the rubber cover back from the plug and look inside to see if a wire has broken off. This is a simple fix for all it requires is to solder the wire back onto the pin.

The next problem is more difficult. When you turn on the trusty old TI nothing comes onto the screen. This is usually the integrated circuit gone bad. These are not

too difficult to change except that the numbers on the chip are non-existent in any cross reference book. Well, here is help for you. The chip is MC1374P and is very cheap to acquire. I just bought ten for \$1.95 each. All you need is pop off the two covers of the modulator and unsolder the chip. If you don't have a desoldering tool, you can take a small pair of wire cutters and cut each connector close to the chip until it falls out and then a small soldering iron will easily remove each wire singly. When all the holes are cleaned out, insert the new chip with the index mark properly aligned and solder it into place. Replace the switch slide and the two covers and you should be back in business.



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The Manipulator function offers the possibility of printing files, but since you have already done this, select "N". You will then be asked for the drivenumber and filename of the source file (e.g. GMAZ.TXT) and the same for the new file you are creating. While you can input up to seven characters for the source file, the program works well with a four-character input (e.g. GMAZ). You are limited to four characters in your output (new) file. Since my file deals with computer-related items, I named it COMP. The program adds the necessary .TXT and .XXX extenders.

Once you select picture numbers to be manipulated (transferred to the new file), you will be asked for the picture numbers they will have in the new file. The easiest way is to accept the default numbers at the bottom of the screen, and when you have your new file all or partially completed, use the Sort function to arrange them in alphabetical sequence, if this is desired. When your new file is complete, you may use it in the same ways you use your present TIPS picture files.

As soon as you have completed and sorted your new file, I suggest that you use the TM program to print the new file (numbers and names, remember?), and then move to one of your TIPS companion programs to print out the actual graphics, the same as for your other, heterogeneous, TIPS picture files.

When you print the file in the TM print function, you may find that not all picture names will print, the problem being that some came over from the other type of computer in lower case. The Rename Pictures function of TM will redo these in upper case, and you can then print out the entire file correctly.

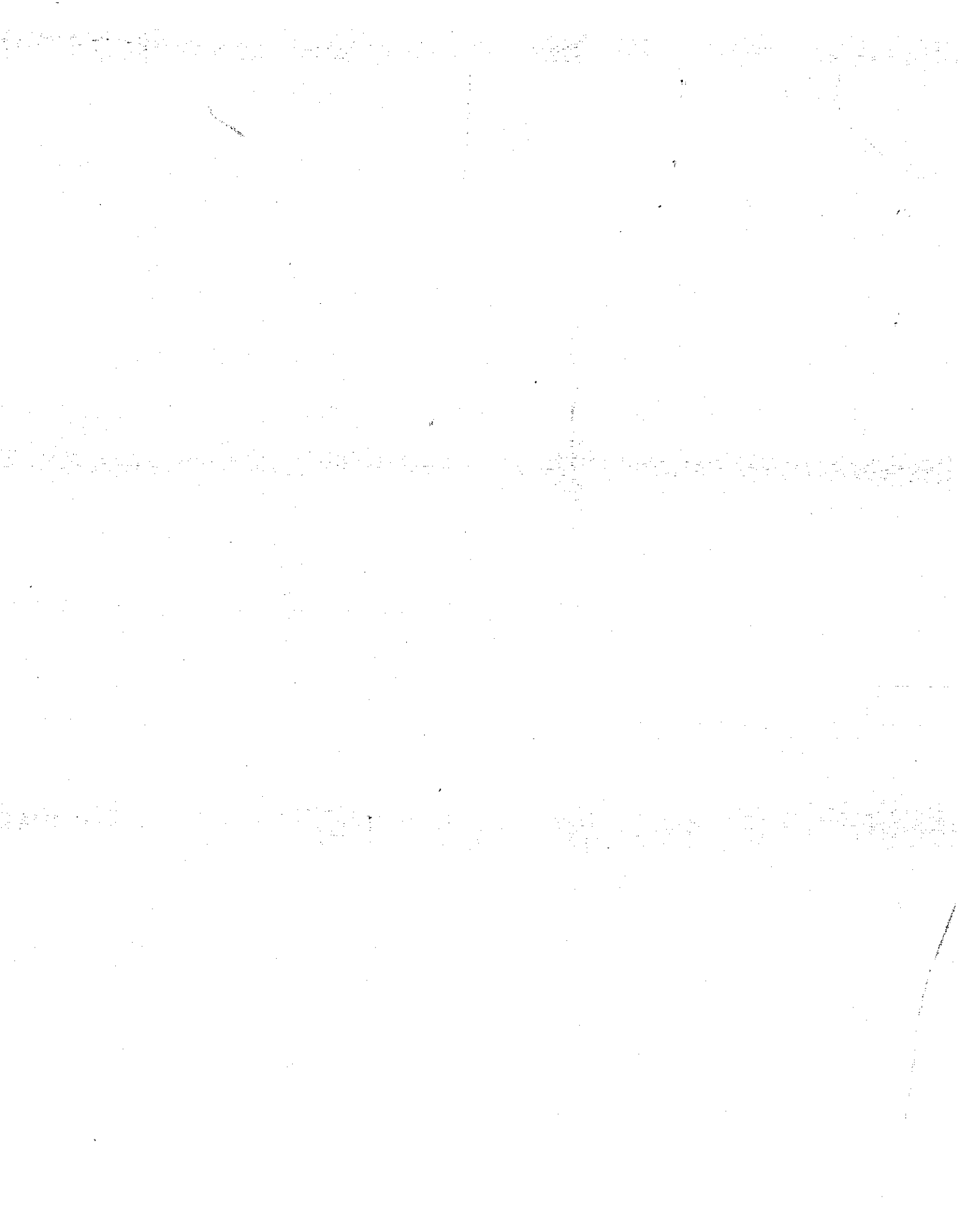
I found the program to be very user-friendly and had only minor problems with it, and those I expect to eliminate when I have time to practice with it more in depth. I highly recommend it, and think that you will find a little time spent in organizing your TIPS pictures into homogeneous files will save you much time and frustration when you have a quick project to execute and little time in which to do it.

The program is released as Disk Ware, and the author states that "I do not grant any company or person other than Jim Peterson/Tigercub Software to charge any copying fee for this program..." In other words, you can give it away, but don't sell it! He also asks that those who use the program send a note, or a copy of the club's newsletter, or a disk from the club's library (or why not a disk from your personal collection?) to him.

Address: TI EXPRESS  
C/O PATRICK R. POWELL  
P.O. BOX 496  
OCEAN PARK, ME  
04063-0496

You may also contact him on Genie. Address: P.POWELL7

P.S. I give this an A-PLUS rating on both program and documentation. Hope you enjoy using it as much as I do!



CONVERTING NINTENDO STICKS TO THE TI

by Randy Peckham

If any of you have ever played Nintendo, you may have noticed how nice the joysticks are (never mind the games for now - Gary Bowser is working on a Sega interface). They take a lot of use and don't cause fatigue. The old TI sticks can cramp your hands so badly I wonder if TI designed them to prevent video game addiction.

At first manufacturers tried building bigger and tougher sticks, but that was no solution. Some got awkward to handle, other had enough leverage to seriously damage the contacts.

Later systems discovered that smaller sticks gave better response and suffered less abuse. Enter the Nintendo/Sega controllers with hard board contacts like a calculator, not the "crushable" flex film of the original TI sticks.

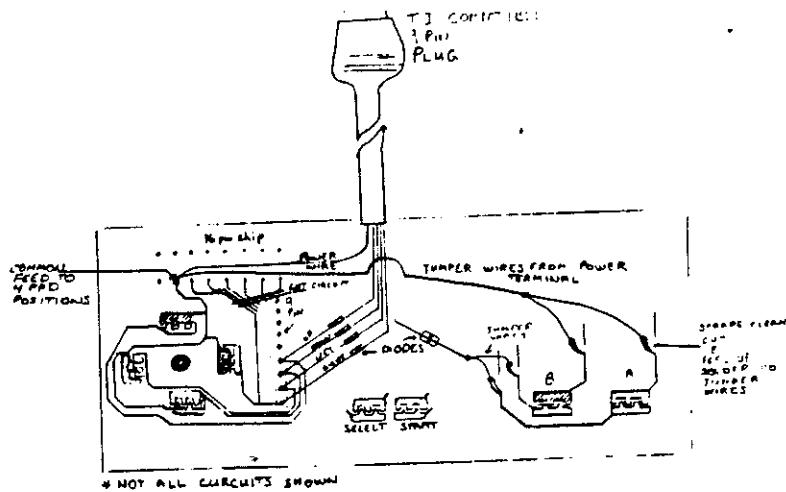
With the new sticks, some have auto-repeat fire buttons but unfortunately I had to scrap the idea of using that feature. For one thing, compatibility goes out the window. The TI sticks have 6 wires - 4 positions, one fire, one power, that's it. The TURBO-TECH Nintendo compatible I used for this project had only 5 wires, for 8 signals and power! There are too many chips (2 or 3) in it. But you can make them work.

Some cutting of the circuit board filaments is necessary. By peeling the filament up, you can solder jumper wires to the board. In this manner I wired both fire buttons to in parallel.

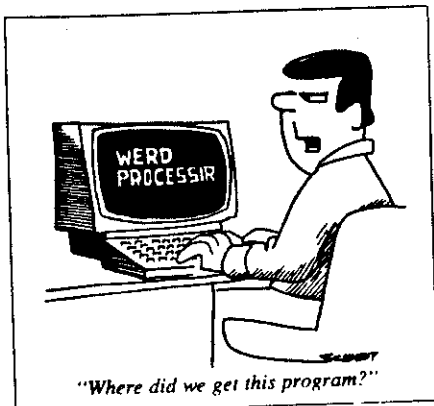
Now wire the power wire from the TI harness to the pin on the chip that supplies power to the one side of all four directional pads (see diagram - no diode on power wire). Then solder jumper wires from there to one side of the A and B Fire Button pads (be sure to cut the circuit away from the pad - leave yourself room to work!) The return wire for the fire button has a diode (as do all the return wires on the super-stick harness I used). Solder the other side of the fire buttons to the "Fire" return with "jumpers".

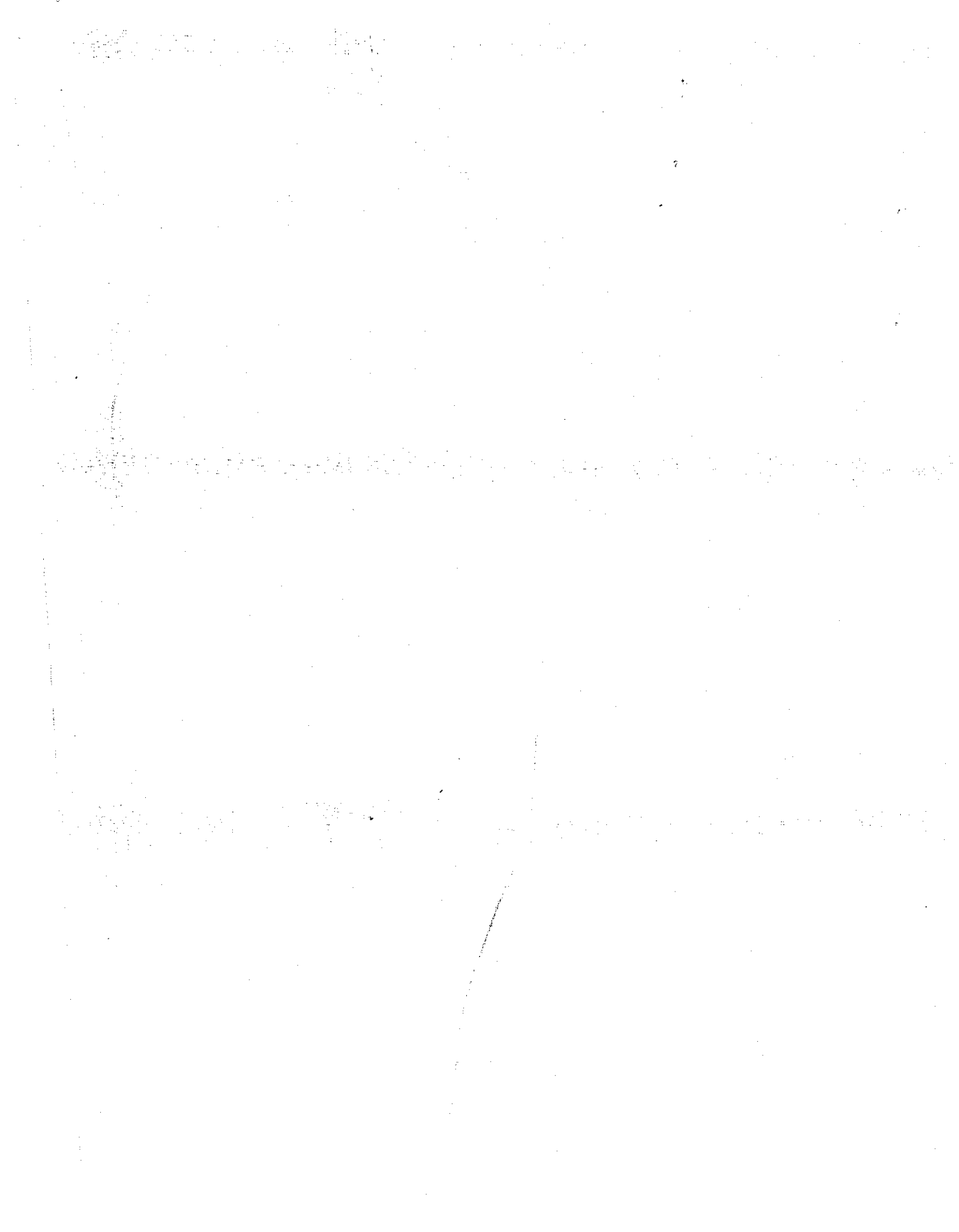
For the directional controls, use the same procedure for each individual pad, corresponding to the return wire, or follow the circuit to a pin, and solder there (see diagram). Some cutting elsewhere on the board may be necessary.

Now you are all set, put it all together and try it out. I was very pleased with the results and since I always use joystick #1, only one was used. Most people have scrap joysticks laying around so for \$14.00 you can have a real durable, manageable, cramp free, responsive joystick. Happy gaming.....



CONVERTING NINTENDO JOYSTICKS TO TI USE. NINTENDO COMPATIBLE REPLACEMENT USED AS REFERENCE MODEL (TURBO 1114 & 1148)





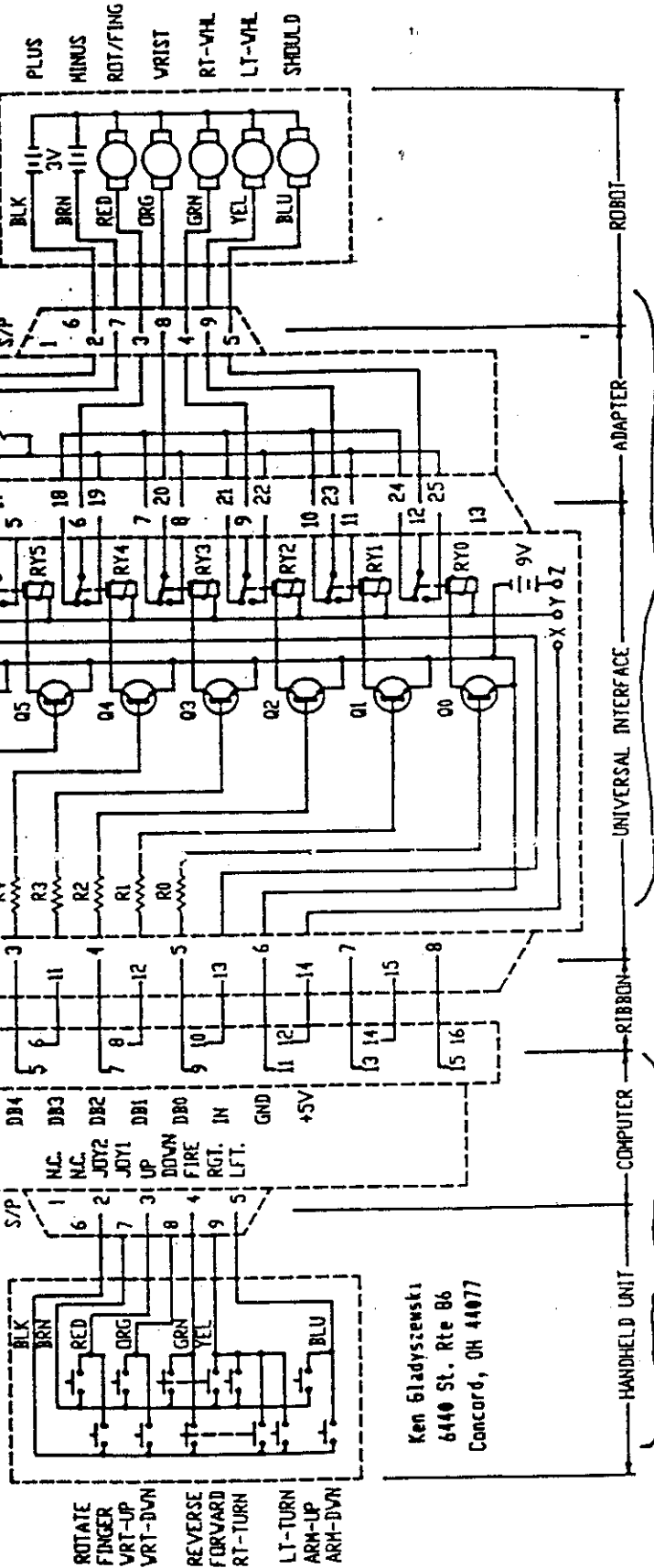
**Ken Gladyszewski**

**SCHEMATIC FOR COMPUTER CONTROLLED ROBOT**

**NOTES:**

1. R6, R7, R9, R10, Q6, Q7, RY6, RY7, OPTIONAL FOR SPEED CONTROL. IF NOT USED, SHORT PIN 14 TO 17.
2. 5 VOLT RELAYS MAY BE COVERED BY PIN 12 OF PARALLEL PORT (JUMPER X & Y). SOME 12 VOLT RELAYS MAY BE COVERED BY 9V BATTERY JUMPER Y & Z.
3. RESISTORS R0-R8 AND TRANSISTORS Q0-Q8 MAY BE REPLACED BY OPTO-ISOLATOR INTEGRATED CIRCUIT.

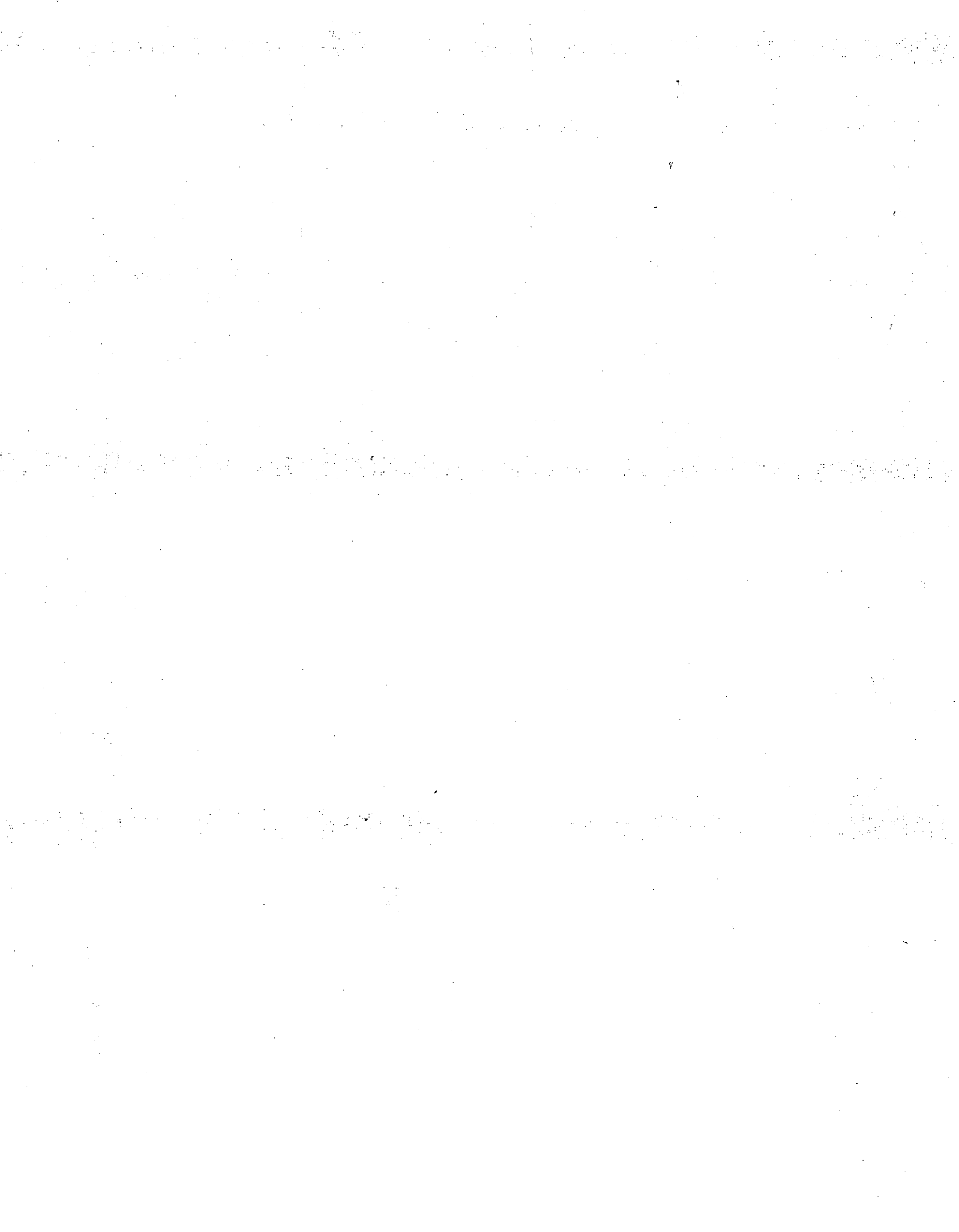
K. GLADYSZEWSKI 5/01/92  
NC99ERS CLEVELAND, OHIO



**FIG. 2**

**FIG. 1**

Ken Gladyszewski  
6440 St. Rte B6  
Concord, OH 44077



```

1000 PRINT :: PRINT " PERF
ORN(DO) PROCEDURE" :: PRINT
:: PRINT

1010 IF B(0,0)=0 THEN PRINT
"NO PROCEDURE IN MEMORY." ::
GOTO 1160

1020 PRINT "PRESS ANY KEY FO
R MOTION."

1030 CALL KEY(5,KEY,STATUS):
: IF STATUS=0 THEN 1030

1040 PRINT "EXECUTION IN PRO
GRESS" :: PRINT

1050 OPEN #1:"PIO",FIXED 1 :
: FOR I=L TO M STEP N

1060 IF C$(I)="" THEN 1100

1070 IF ASC(SEG$(C$(I),1,1))
=60 THEN P=60 ELSE P=50

1080 PRINT C$(I)

1090 CALL LINK("XLAT",C$(I),
B$):: CALL LINK("SPEAK",B$,P
,128)

1100 PRINT I;B(I,0);B(I,1)::
PRINT :: I=0

1110 PRINT #1:CHR$(A(B(I,0))
)

1120 CALL KEY(5,KEY,STATUS):
: IF X(B(I,1))THEN GOSUB 1140
ELSE 1150

1130 GOTO 1120

1140 X=X+1 :: RETURN

1150 PRINT #1:CHR$(0):: FOR
K=1 TO 1 :: NEXT K :: NEXT I

```

```

:: CLOSE #1 :: PRINT "PROCE
DURE DONE"

1160 PRINT "PRESS ANY KEY FO
R MAIN MENU"

1170 CALL KEY(5,KEY,STATUS):
: IF STATUS=0 THEN 1170

1180 RETURN

1190 REM ** SAVE PROCEDURE *
*

1200 IF B(0,0)=0 THEN PRINT
"NO PROCEDURE IN MEMORY." ::
GOTO 1220

1210 INPUT "ENTER FILE NAME
TO SAVE ":F$ :: GOTO 1250

1220 PRINT "ABORT. PRESS ANY
KEY..."

1230 CALL KEY(5,K,S):: IF S=
0 THEN 1230

1240 RETURN

1250 OPEN #2:F$ :: PRINT ::
PRINT "SAVING PROCEDURE. WAI
T."

1260 FOR I=0 TO B(0,0):: PRI
NT #2:B(I,0);B(I,1);C$(I)::
NEXT I :: CLOSE #2

1270 PRINT :: PRINT "PROCEDU
RE SAVED. PRESS ANY KEY." ::
GOTO 1230

1280 REM ** RETRIEVE **

1290 PRINT-"RETRIEVE PROCEDU
RE"

1300 IF B(0,0)=0 THEN 1330

```

```

1310 PRINT "PROCEDURE IN MEM
ORY. CONTINUE (Y/N)?" :: GOS
UB 1570

1320 IF CHR$(K)="" THEN PRI
NT "ABORT." :: GOTO 1350

1330 INPUT "ENTER FILE NAME
TO RETRIEVE ":F$ :: GOTO 137
0

1340 PRINT "PRESS ANY KEY"

1350 CALL KEY(5,K,S):: IF K=
0 THEN 1350

1360 RETURN

1370 PRINT "RETRIEVING PROCE
DURE. WAIT" :: OPEN #2:F$

1380 INPUT #2:B(0,0),B(0,1),
C$(0)

1390 FOR I=1 TO B(0,0):: INP
UT #2:B(I,0),B(I,1),C$(I)::
NEXT I :: CLOSE #2

1400 PRINT "RETRIEVAL COMPLE
TE." :: GOTO 1340

1410 END

1420 REM ** TEACH(LEARN) SCR
EEN *

1430 PRINT

1440 PRINT "ARMATRON ROBOT
TEACH MODE " :: PRINT :: P
RINT

1450 PRINT "PRESS KEY TO DO
FUNCTION PRESS ANY OTHER
KEY TO STOP"

```

```

1460 PRINT "PRESS (CTRL) M F
OR MAIN MENU" :: PRINT

1470 PRINT " KEY FUNCTION
" :: PRINT "

1480 PRINT TAB(5):"1 = FORWA
RD" :: PRINT TAB(5):"2 = BAC
KWARD"

1490 PRINT TAB(5):"3 = RIGHT
FORWARD TURN" :: PRINT TAB(
5):"4 = LEFT FORWARD TURN"

1500 PRINT TAB(5):"5 = ARM U
P" :: PRINT TAB(5):"6 = ARM
DOWN"

1510 PRINT TAB(5):"7 = WRIST
UP" :: PRINT TAB(5):"8 = WR
IST DOWN"

1520 PRINT TAB(5):"9 = HAND
ROTATE" :: PRINT TAB(5):"0 =
FINGERS MOVE IN/OUT"

1530 PRINT TAB(5):"+ = RIGHT
REVERSE TURN" :: PRINT TAB(
5):"- = LEFT REVERSE TURN"

1540 PRINT TAB(5):"Sp= PAUSE

1550 PRINT TAB(5):"Cr= SPEEC
H"

1560 RETURN

1570 CALL KEY(5,K,S):: IF S=
0 THEN 1570

1580 RETURN

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6440 St. Rte 86
Concord, OH 44077

```

To shorten program/remove 'REM' statements(except lines 100-200)





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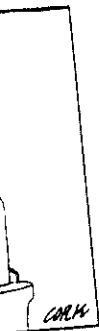
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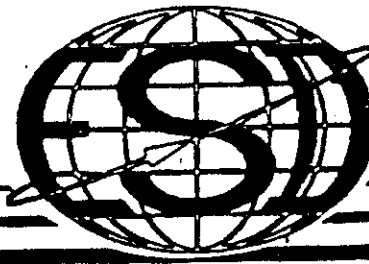
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