

THE SNUGLETER

FROM THE SOUTHERN NEVADA USERS' GROUP

Volume 2 No. 2

August, 1984

***** LETTER FROM YOUR EDITOR *****

It's interesting how volunteering for a small task, such as caring for the exchange newsletters, leads to being the editor of our newsletter. I don't mind assuming the editorship as long as I have support from you fellow members. What the newsletter needs is written submissions on anything dealing with our group's activities or TI-99 hardware or programs.

I would also like to include announcements or requests from members who are interested in a special interest subgroup similar to the Forth group. Even if these requests only turn up one other person with that interest, there would at least be two people exchanging ideas. And two heads have always been better than one. If you are tempted but still hesitant about this, remember that most of our members probably know as little as you. But you may turn up a member who is more knowledgeable and be willing to teach those with an interest in the topic.

I will mention that having articles published in our newsletter also exposes them to many other users in other groups. Some authors have built up quite a reputation through their writing/programming. Two of our members, John Martin and Jerry Glaze, have had articles republished in other newsletters. Being published is not as hard as it might seem, and you could build up a useful recognition in the 99'er field.

This issue of the newsletter includes an article titled "SURPLUS 'DIGITAL EQUIPMENT' MODEL RX180AB DUAL FLOPPY DISK DRIVE UNITS" by Bob Bieber of our own group. The article, even though long, is significant and has been included in a reduced format in its entirety since this unit has received a negative review in another newsletter. I hope that Bob's description of the modifications necessary to the drives will prove helpful to other TI users. This issue also includes an article by Lew Williams, "Left Hand Meet Right Hand", touching on an area which should spark some interest in some of our groups members. Rudy Johnson

***** TIPS AND HINTS from other newsletters *****
A file box for 5"X8" index cards makes a good home for the command module instruction books. (I've got one and it holds the books perfectly, allowing any organization you like. Doesn't hold Extended BASIC's though. Rudy Johnson)

***** FROM THE PITTSBURG USERS' GROUP *****
If you were trying to hit FCTN INSERT but missed and hit FCTN ERASE, "do not hit ENTER." Instead push FCTN P and then press ENTER. List the program and you will see you didn't lose the line.

- | | | |
|---|--|-----|
| * The SNUG NEWSLETTER is published monthly by the Southern Nevada | * SNUG OFFICERS 1988-1985 | * * |
| * Users' Group (SNUG). SNUG is a non-profit organization of | * President - Roy Hufford 387-6300 | * * |
| * individuals with an interest in all aspects of Texas Instrument's | * Vice Pres. - Gordon Leonard 384-2302 | * * |
| * 99/4 & /4A computer, including all related hardware and software. | * Secretary - Beverly Hufford 387-6300 | * * |
| * The group meets at 6:30 PM on the second Monday of the month - | * Treasurer - Steve Buchanan 363-1043 | * * |
| * currently in the Clark County Library meeting room, 1726 E. | * Librarian - (open) | * * |
| * Charleston Blvd. (Charleston Plaza Mall). Visitors and guests | * Membership - (open) | * * |
| * are welcome to attend the meetings. Information on membership | * Newsletter - Rudy Johnson 871-9583 | * * |
| * is available at the meeting. | * * | * * |

***** TI - WRITER -- HOW TO GET MORE OUT *****
* (from 99'er LINES - Northwestern Florida Users' Group. This is only part *
* of the article. I am not using TI-Writer to write this. You will have to *
* put this article in your system to see the results. The newsletter was *
* not copyable. ED)

* - - - - -
* In this article, Jack shows us how to stretch the capability of the *
* TI-Writer. Using the 'TL' command, you can add italics and other *
* special print features to the standard underline and double-strike *
* emphasis allowed by TI-Writer. Below is the data as input into the *
* Text Editor followed by the results after being processed through the *
* Text Formatter. See what you can do.

*
*
* .TL 92:27,52
* .TL 96:27,53
* .FI:LM 10;AD;RM 37
* Printer Power by Jack Dinsmore

* For more TI-Writer printing options, use these commands in the Text
* Editor mode for execution in the Text Formatter mode:

* .NA
* CNTR U SHFT O CNTR U prints in pica.
* CNTR U SHFT R CNTR U reverts to elite.
* CNTR U SHFT N CNTR U expands the character size.
* CNTR U SHFT T CNTR U reverts to standard character size.

* .AD
* Other SHFT (Shift) keys have different functions: G sounds a tone,
* K advances five line feeds, L advances one page, M returns the carriage
* without a line feed and prints over earlier characters, S turns off the
* printer and Q turns it back on.

* The commands can be strung together for simultaneous execution.
* Example: Once CNTR U SHFT N SHFT O CNTR U upon CNTR U SHFT R SHFT T CNTR
* U a time will appear "Once upon a time" with 'upon' in expanded pica and
* everything else in standard elite.

* To print words in italics you may enter the commands .TL 92:27,52 and
* .TL 96:27,53 in Text Editor. These commands assign the code for starting
* italics to the reverse slash mark (FUNCTION Z) and the code for reverting
* to elite to the accent grave mark (FUNCTION C). These marks can then be
* used at will throughout your manuscript. For example, "TI-Writer is not
* my \forte\" will appear with 'forte' in italics.

* These instructions are for the Gemini-10X printer and details may
* vary for other printers.

***** CORRECTION *****

* INTRODUCTION TO ASSEMBLY LANGUAGE FOR THE TI HOME COMPUTER -
* -----
* by Steve Davis Publishing.

* Page 112: Change "SG2" to "MSG2".
* Page 115 and 121" Insert into "PBASIC" routine after "BLWP @VSBW"
* and before "DEC R3":
* "INC R0 INCREMENT SCREEN ADDRESS".

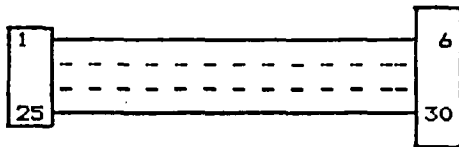
ORIENTATE THE RIBBON CABLE SO THAT THE WIRE COMMING FROM PIN #1 OF THE 25 PIN D-CONNECTOR WILL GO TO PIN #6 OF THE 34 PIN SOCKET CONNECTOR. ONLY PINS #6 THRU #30 WILL BE USED, SO WATCH YOUR POSITIONING OF THE RIBBON CABLE.

LAY THE RIBBON WIRE OVER THE "V" PINS (6 THRU 30) AND PUSH THE WIRES DOWN BETWEEN THE "V"'S.

CHECK TO MAKE SURE ALL WIRES ARE IN THE "V"'S AND NOT BETWEEN THE PINS, THEN INSTALL THE REAR WIRE CLAMP AND SNAP IT INTO THE SIDE LOCKS. AGAIN, IT WILL TAKE SOME HEFTY SQUEEZING.

IF YOU HAVE ACCESS TO A MULTIMETER, THEN CHECK OUT THE CABLE ASSEMBLY FOR SHORTED AND/OR OPEN WIRES. OTHERWISE, THE INTERFACE CABLE ASSEMBLY IS COMPLETED.

YOUR COMPLETED INTERFACE CABLE SHOULD LOOK LIKE THIS:



MODIFICATION OF THE "DEC" MODEL RX180AB DUAL FLOPPY DISK DRIVE FOR USE WITH THE "TI-99/4A" AND "TI" DISK CONTROLLER CARD.

CAUTION:

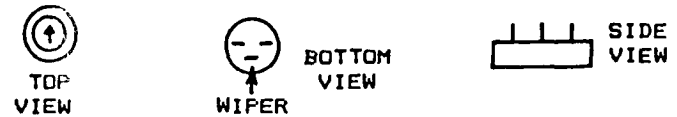
THIS MODIFICATION WILL CHANGE THE TEAC MODEL 50A DISK DRIVE CARDS INSIDE THE "DEC" UNIT FROM THEIR CURRENT DOUBLE DENSITY MODE TO A SINGLE DENSITY MODE.

IF YOUR DISK DRIVE CONTROLLER CARD WILL ADDRESS DOUBLE DENSITY DATA AND DISKS, THEN DON'T PERFORM THIS MODIFICATION.

THE RADIO SHACK 10 K-OHM POTENTIOMETER PIN SPACING IS TOO GREAT TO COMFORTABLY FIT ALL 3 PINS INTO THE PC BOARD HOLES THAT WILL BE VACATED BY THE REMOVAL OF RESISTORS R62 AND R63 DURING THE MODIFICATION OF THE DISK DRIVE PRINTED CIRCUIT CARDS.

IF YOU ARE USING 10 K-OHM POTS OTHER THAN THOSE SPECIFIED IN THE PARTS LIST, THEN PERFORM THE RESISTOR REMOVAL PROCEDURES CALLED OUT DURING MODIFICATION OF THE DISK DRIVE CARDS. THEN, IF YOUR POTS WON'T FIT, COME BACK HERE AND PERFORM THE FOLLOWING PROCEDURES.

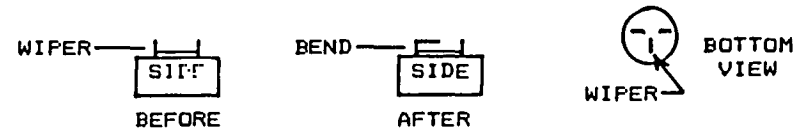
MODIFICATION OF RADIO SHACK 10 K-OHM POTENTIOMETERS P/N 271-335



TURN ONE OF THE POTS OVER AND SOLDER A JUMPER WIRE BETWEEN THE WIPER PIN AND THE LEFT HAND PIN. DON'T OVER HEAT THE POT OR PINS.



NOW BEND THE WIPER LEAD TOWARDS THE OTHER TWO PINS.



NOW, MODIFY THE 2ND POTENTIOMETER THE SAME WAY YOU DID THE FIRST ONE.

IF YOU HAVE ACCESS TO A MULTIMETER, CHECKOUT THE OPERATION OF THE POTS. RANGE OF TRAVEL FROM LIMIT TO LIMIT SHOULD FALL BETWEEN 0 AND ABOUT 9600 OHMS.

SET THE ARROW ON BOTH POTS TO JUST LEFT OF CENTER. THIS SHOULD BE AROUND 4500 OHMS.

THIS COMPLETES MODIFICATION OF THE POTENTIOMETERS.

MODIFICATION OF THE "DEC" UNIT TEAK MODEL 50A DISK DRIVE PRINTED CIRCUIT CARDS.

REMOVE 8 SCREWS FROM THE BOTTOM OF THE "DEC" CASE (4 IN FRONT AND 2 NEAR EACH SIDE).

REMOVE 3 SCREWS FROM TOP OF THE REAR PANEL.

CAREFULLY REMOVE THE FACE PLATE AND LIFT OFF THE COVER. VERY CAREFULLY DISENGAGE ALL CONNECTOR PLUGS FROM THE FRONT AND REAR OF BOTH PRINTED CIRCUIT CARDS.

REMOVE 2 SCREWS SECURING THE CARDS IN PLACE AND GENTLY SLIDE THEM OUT OF THEIR MOUNTS.

USING A BLUNT POINTED INSTRUMENT PUSH OUT THE 2 BLACK PLASTIC PINS AT THE REAR CORNERS OF EACH PC CARD AND CAREFULLY REMOVE THE SILVER FOIL INSULATOR PANELS.

**SURPLUS "DIGITAL EQUIPMENT CORPORATION"
MODEL RX180AB DUAL FLOPPY DISK DRIVE UNITS.**

FROM THE DESK OF: R. J. BIEBER,
SOUTHERN NEVADA USER GROUP (SNUG)
LAS VEGAS, NEVADA

FOR THOSE OF YOU WHO HAVE PURCHASED OR ARE CONTEMPLATING THE PURCHASE OF A SURPLUS "DIGITAL EQUIPMENT CORPORATION" MODEL RX180AB DUAL FLOPPY DISK DRIVE, BEWARE THAT THE UNIT MUST BE MODIFIED TO OPERATE WITH THE TI-99/4A HOME COMPUTER IN THE SINGLE DENSITY FORMAT.

IF YOU ARE USING A DISK CONTROLLER CARD OTHER THAN TI'S AND IT WILL ADDRESS DOUBLE DENSITY DISKS, THEN YOU PROBABLY WON'T NEED TO MODIFY THE UNIT. ALL YOU'LL NEED TO DO IS BUILD A CABLE INTERFACE.

BELOW IS A LIST OF PARTS FOR THE CABLE INTERFACE AND MODIFICATION OF THE FLOPPY DISK DRIVE FROM DUAL TO SINGLE DENSITY FORMAT, PLUS THE MODIFICATION INSTRUCTIONS.

CABLE INTERFACE ASSEMBLY

NOTE: THE CONNECTORS ARE RIBBON CABLE TYPE.

RADIO SHACK P/N	QTY	NOMENCLATURE
276-1564.	1 EA	CARD EDGE CONNECTOR (34 PIN FEMALE)
276-1559	1 EA	D-SUBMINI CONNECTOR (25 PIN MALE)
278-772	5 FT	25 CONDUCTOR RIBBON CABLE

TEAC PRINTED CIRCUIT BOARD MODIFICATION

RADIO SHACK P/N	QTY	NOMENCLATURE
271-335	2 EA	10,000 OHM (10 K-OHM) MINI POTENTIOMETER

ASSEMBLY OF THE CABLE INTERFACE

NOTE: THE CONNECTORS HAVE RAZOR SHARP PINS WHICH WILL PIERCE THE RIBBON CABLE INSULATION. MAKE SURE EACH WIRE IS LOCATED BETWEEN EACH PIN "V" AND NOT BETWEEN THE PINS. DO NOT SEPERATE THE WIRE CONDUCTORS SINCE THEY ARE CORRECTLY SPACED TO MATCH THE INDIVIDUAL PIN "V"'S.

REMOVE THE BACK SHELL AND WIRE CLAMP FROM THE 25 PIN MALE CONNECTOR AND ORIENTATE THE CONNECTOR WITH EITHER 25 PIN SOCKET ON THE LEFT REAR OF THE "DEC" UNIT. THE TOP LEFT SOCKET IS PIN #1.

THE RIBBON WIRE CAN COME OUT OF EITHER SIDE OR THE BACK OF THE 25 PIN MALE CONNECTOR, SO DECIDE FIRST ON UNIT ORIENTATION AND CABLE LAYOUT BEFORE ASSEMBLING THE CABLE.

I SUGGEST YOU PUT AN "S" AT THE BACK OF THE MALE CONNECTOR FOR BOTH STRENGTH AND STRAIN RELIEF. (REFERENCE FIGURE #1)

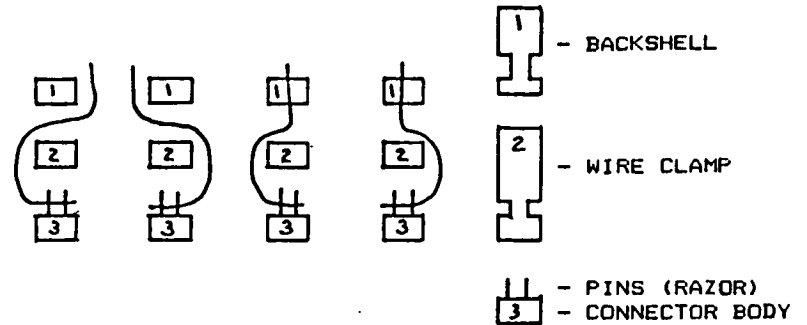


FIGURE (1)

LAY THE RIBBON WIRE OVER THE 25 CONNECTOR "V" PINS AND PUSH THE WIRES DOWN BETWEEN THE "V"'S. BE CAREFUL, THE PINS ARE VERY SHARP.

CHECK TO BE SURE ALL THE WIRES ARE IN THE "V"'S AND NOT BETWEEN THE PINS.

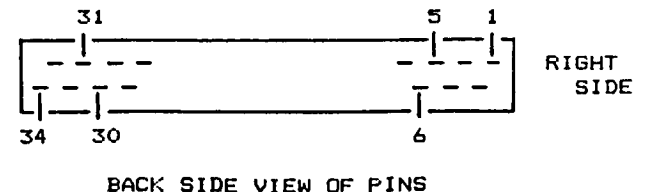
INSTALL THE WIRE CLAMP AND SNAP THE SIDES INTO PLACE. IT WILL TAKE SOME HARD SQUEEZING TO GET THE RIBBON WIRE TO BOTTOM OUT AGAINST THE CONNECTOR BODY.

IF YOUR RIBBON WIRE IS TO EXIT THROUGH THE BACK OF THE CONNECTOR, THEN INSERT THE WIRE THROUGH THE SLOT IN THE BACKSHELL BEFORE INSTALLING AND LOCKING IT INTO PLACE. OTHERWISE, FOLD THE WIRE BACK OVER THE WIRE CLAMP, THEN INSTALL THE BACKSHELL.

THE BOTTOM PIN ON THE "TI" DISK CONTROLLER CARD IS #1. LOOK AT YOUR 34 PIN CARD EDGE CONNECTOR AND SEE IF THE PINS ARE NUMBERED. THEN ORIENTATE THE CONNECTOR WITH PIN #1 AT THE BOTTOM. IF THE PINS AREN'T NUMBERED, DON'T WORRY ABOUT IT - THE CONNECTOR ISN'T KEYED AND WILL FIT EITHER WAY.

IMPOTRANT NOTE:

PINS 1 THRU 5 AND PINS 31 THRU 34 ARE NOT USED ON THE 34 PIN SOCKET CONNECTOR.



BACK SIDE VIEW OF PINS

SPECIAL NOTE:

IF YOUR FIRST DISK DRIVE (#1) IS A "TI" DRIVE, DO NOT REMOVE THE RESISTOR TERMINATION PACK FROM THE "TI" DRIVE AS CALLED OUT IN THE "TI" DISK DRIVE INSTRUCTION MANUAL.

FOR SOME ODD REASON, AT LEAST IT DID WITH MY "TI" DRIVE, THE DRIVE SELECT SIGNAL ("DEC" DSO, "TI" DSI) WILL NOT GO LOW ENOUGH TO SELECT THE "TI" DRIVE AS #1.

IF YOUR FIRST DRIVE IS OTHER THAN A "TI" DISK DRIVE, THEN YOU MAY HAVE TO REMOVE THE RESISTOR SHUNT PACK FROM YOUR DRIVE #1 AND INSTALL IT IN THE LAST DRIVE IN THE "DEC" UNIT.

NOW THAT YOU SUPPOSEDLY HAVE ALL THE SWITCHES IN THE CORRECT POSITIONS, HOOK EVERYTHING UP, DO NOT INSERT A DISKETTE IN ANY DRIVE JUST YET, AND TURN EVERYTHING ON.

TO CHECK DISK DRIVE SELECTION FIRST. TYPE OLD DSK#. (ANY NAME) AND SEE IF EACH DISK DRIVE SELECTED IS CALLED UP. IF NOT CORRECT, RECHECK CABLES AND SWITCHOLOGY. THE MOST COMMON PROBLEM IS THE CONNECTOR ON THE "P"-BOX DISK CONTROLLER CARD MAY BE ON UPSIDE DOWN.

ONCE THE DRIVES SELECT PROPERLY, INSERT A TEST DISKETTE (WITH NON-VALUABLE DATA) INTO EITHER "DEC" UNIT DRIVE.

USING YOUR DISK MANAGER COMMAND MODULE, TRY RUNNING A DISK CATALOG ROUTINE. IF IT REJECTS, THEN ADJUST, THE NEWLY INSTALLED POT ON THE AFFECTED PC BOARD. THE POT IS SENSITIVE, SO MAKE VERY FINE ADJUSTMENTS.

KEEP MAKING ADJUSTMENTS AND RERUNNING THE DISK CATALOG ROUTINE UNTIL EVERYTHING RUNS SMOOTHLY. THEN TRANSFER THE TEST DISKETTE TO THE OTHER "DEC" DISK DRIVE AND REPEAT THE CHECKOUT AND ALIGNMENT PROCEDURES.

IF ONE DRIVE WORKS AND THE OTHER DOESN'T, TRY SWAPPING OUT THE BOARDS. IF THE SAME BOARD IS BAD IN EITHER DISK DRIVE REMOVE IT AND RECHECK YOUR MODIFICATION.

YOU MAY HAVE OVER-HEATED THE POTENTIOMETER DURING MOD AND/OR INSTALLATION CAUSING AN INTERNAL LEAD WIRE TO SEPERATE FROM ITS CONTACT. IN THAT CASE REPLACE THE POT WITH A NEW ONE AND TRY THE CHECKOUT PROCEDURES AGAIN. ANOTHER PROBLEM COULD BE A POOR SOLDER JOINT - IN WHICH CASE YOU MAY WANT TO REHEAT THE SOLDER CONNECTIONS BEING CAREFULL NOT TO OVER HEAT THEM - JUST ENOUGH HEAT TO MAKE THE SOLDER FLOW SMOOTHLY.

ONCE YOU GET BOTH "DEC" DISK DRIVES WORKING, REPLACE THE FACE PLATE AND TOP COVER.

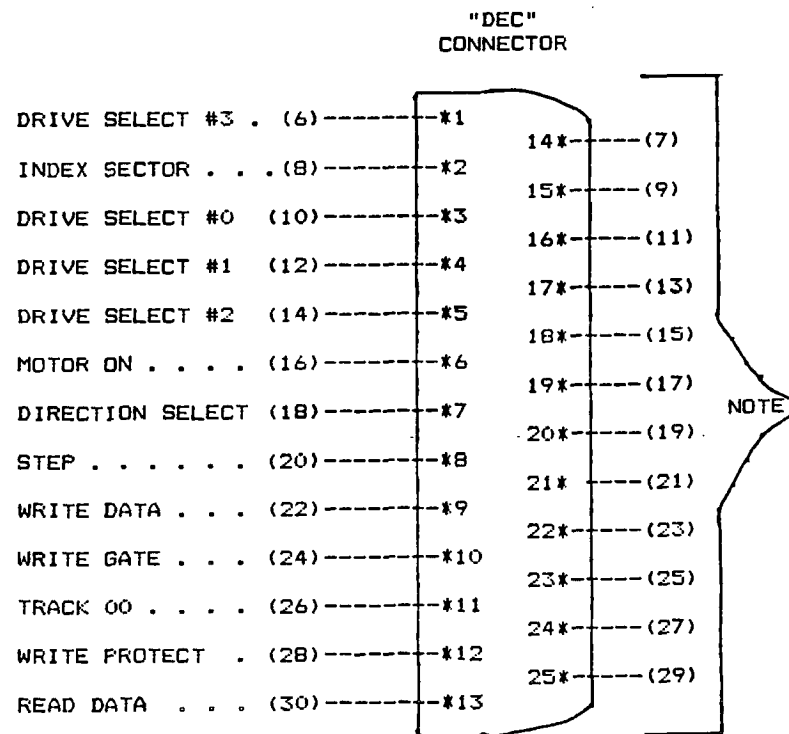
YOU'RE FINISHED.

THE "DEC" UNIT I RECEIVED CAME WITHOUT A TERMINATION RESISTOR PACK ON EITHER OF THE TEAC DISK DRIVE PCB BOARDS. HOWEVER, BOTH DRIVES WORK JUST FINE WITH MY "TI" DISK CONTROLLER CARD, THE INTERNAL "TI" DISK DRIVE AS #1 AND THE "DEC" UNIT DRIVES AS #2 AND #3.

WITH THE INFORMATION I'VE GIVEN YOU AND THE LIMITED INFORMATION INCLUDED WITH "DEC" RX180AB DUAL FLOPPY DISK DRIVE UNIT, YOU SHOULD BE ABLE TO MODIFY AND OPERATE THE "DEC" FDD WITH NO TROUBLE.

HAVING RECEIVED A FEW PHONE CALLS IN REFERENCE TO PIN TO PIN CHECKOUT OF THE INTERFACE CABLE, I'VE INCLUDED THE FOLLOWING ADDITIONAL INFORMATION:

ALL SIGNAL LINES FROM THE "DEC" REAR PANEL CONNECTORS GO TO THE DISK DRIVE PC BOARD CONNECTOR J1 OR TO THE DISK CONTROLLER CARD CONNECTOR. PIN LAYOUT IS IDENTICAL.

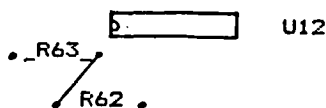


NOTE: "DEC" PIN NUMBERS 14 THRU 25 ARE LINKED VIA THE INTERFACE CABLE TO CORRESPONDING PINS (7) THRU (29) AND ARE ALSO TIED TOGETHER ON THE PC BOARD OR DISK CONTROLLER CARD VIA A COMMON GROUND BUSS.

ANOTHER BIT OF ADDED INFORMATION, THE ADJUSTMENT OF THE NEW R62 AFFECTS THE STEP MOTOR TIMING PULSES AND APPEARS TO WORK BEST NEAR THE HIGH END OF THE ADJUSTMENT RANGE. IF THE DISKS SOUND LIKE THEY OCCASIONALLY POP OR CRUNCH THEN ADJUST THE POTS FOR A SLIGHTLY HIGHER RESISTANCE (COUNTERCLOCKWISE) AND THE PROBLEM SHOULD CLEAR UP.

DO NOT DISCARD ANY OF THE REMOVED PARTS.

POSITION ONE OF THE PC CARDS WITH THE FRONT FACING AWAY FROM YOU AND LOCATE THE 14 PIN INTEGRATED CIRCUIT # U12.



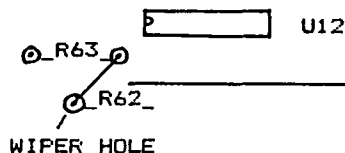
NEAR THE LOWER LEFT HAND CORNER OF U12 THERE SHOULD BE TWO RESISTORS, R62 AND R63. (THEY MAY LOOK LIKE BROWN EPOXY TYPE CAPACITORS).

USING A LOW WATTAGE (MAX 25 WATTS) SOLDERING PENCIL, AND BEING VERY CAREFULL NOT TO LIFT THE PC FOIL OFF THE BOARD, REMOVE BOTH R62 AND R63.

RETAIN THE REMOVED RESISTORS IF YOU EVER WANT TO REMODIFY THE PC BOARD FOR DOUBLE DENSITY USE LATER ON. OTHERWISE, DISCARD THEM.

IF USING THE RADIO SHACK POTS SPECIFIED IN THE PARTS LIST, THEN DISREGARD THE FOLLOWING PROCEDURE AND GO ON TO THE NEXT ONE.

IF USING 10 K-OHM POTS WHICH WILL ALLOW INSERTION OF ALL 3 POT PINS INTO THE PC BOARD HOLES VACATED BY THE REMOVAL OF R62 AND THE LEFT MOST HOLE VACATED BY REMOVAL OF R63, THEN INSERT THE POT INTO THE HOLES CIRCLED BELOW.



USE ONLY IF ALL 3 POT LEADS WILL FIT INTO THE SPECIFIED HOLES AND THE POT LEADS DON'T TOUCH IC # U12 PINS.

INSTALL THE MODIFIED RADIO SHACK POT P/N 271-335 INTO THE HOLES VACATED BY THE REMOVAL OF R63. DO NOT USE THE HOLES FROM R62.

DON'T FORCE THE POT LEADS INTO THE HOLES. IF THEY WON'T FIT EASILY, THEN FILE THE LEADS VERY SLIGHTLY. A FINGERNAIL FILE WILL WORK JUST FINE. DO NOT TRY TO ENLARGE THE HOLES. THEY ARE PLATED THRU FOR CONTACT WITH THE PC FOIL ON BOTH SIDES OF THE BOARD.

ONCE THE POT IS POSITIONED CORRECTLY, SOLDER THE LEADS ON THE REAR SIDE OF THE BOARD. THE SOLDER SHOULD FLOW THRU TO THE FRONT PC PADS.

CHECK TO BE SURE THE POT PINS ARE NOT TOUCHING PINS ON U12 AND THE JUMPER WIRE AND BENT WIPER PIN IS NOT TOUCHING ANY COMPONENTS OR THE PC BOARD FOIL RUNS. GENTLY REPOSITION THE POT IF NECESSARY (IT'LL BEND IF NEEDED).

CHECK BOTH SIDE OF THE PC BOARD VERY CAREFULLY FOR ANY SOLDER BRIDGES (VERY FINE STRANDS OR FLAKES OF SOLDER) BETWEEN ANY PINS ON OR AROUND IC U12.

REINSTALL THE SILVER INSULATING FOIL ONTO THE BACK OF THE PC BOARD WITH THE BLACK PLASTIC SECURING PINS.

NOW MODIFY THE 2ND PC BOARD THE SAME WAY YOU DID THE FIRST ONE.

REINSTALL BOTH PC BOARDS INTO THE DISK DRIVES - DON'T FORGET THE 2 SECURING SCREWS FOR EACH PC BOARD.

CAREFULLY RECONNECT ALL THE DISCONNECTED PLUGS - DON'T FORCE THEM. WE SURE DON'T WANT ANY BENT PINS AT THIS POINT IN THE GAME.

=====

YOUR MODIFICATIONS ARE NOW COMPLETED !!!!

BUT DON'T INSTALL THE FACE PLATE AND COVER JUST YET.

THERE'S SOME SWITCHOLOGY TO TEND TO AND THE UNIT MUST BE CHECKED OUT AND ADJUSTMENTS MADE IF NECESSARY.

=====

TOWARDS THE RIGHT REAR OF EACH PC BOARD THERE'S A PLASTIC 6 CIRCUIT SLIDE SWITCH PLUGGED INTO A 14 HOLE IC SOCKET.

IF THE SWITCH HAS FALLEN OUT OF EITHER SOCKET, REINSERT IT SO THAT THE LEFT SOCKET HOLES (HM) ARE EMPTY AND THE SWITCH IS POSITIONED TO THE RIGHT FILLING HOLES DO3 THRU HS.

I HAVEN'T TRIED IT THE OTHER WAY AROUND WITH THE SWITCH IN HOLES HS THRU DO1, SO DON'T KNOW WHAT WILL HAPPEN.

BOTH SWITCHES MUST BE POSITIONED THE SAME WAY IN EACH IC SOCKET.

ON BOTH SWITCHES PLACE THE HS AND MX SWITCHES TO "ON".

DS0 THRU DS3 ARE EQUIVALENT TO DRIVE #1 THRU #4.

IF THIS IS A STAND ALONE UNIT - SET DS0 AND DS1 TO "ON" (FOR DRIVES #1 AND #2) AND DS2 AND DS3 TO "OFF" (DRIVES #3 AND #4).

IF YOU ARE USING AN INTERNAL DISK DRIVE IN THE "P"-BOX THEN SET DS0 TO "OFF" AND DS1 AND DS2 TO "ON" WHICH WILL DESIGNATE THE "DEC" UNIT DRIVES AS #2 AND #3.

IN ALL CASES LEAVE DS3 "OFF" SINCE THE "TI" CONTROLLER BOARD CAN HANDLE ONLY 3 DISK DRIVES.

LEFT HAND? MEET RIGHT HAND!

Computer user's groups tend to contain two types of individuals. The first ("users") are those individuals who are constantly looking for software programs that will allow them to do all the things they would like to do on the computer. The second ("programmers") are individuals who have little interest in available software, but would rather challenge the capabilities of the computer system with creative programming. The user is constantly limited by the software offerings available to him, while the programmer is limited by the hardware capabilities of the system, his experience with the languages available to that system and the identification of viable challenges to his programming abilities.

What does all of this mean? It means that within our group we have users in search of discrete programs and programmers in search of challenges. Let's get them together! Identifying the software needs of our members does several things. First, it opens the door to dialogue at monthly meetings about the quality of pertinent programs in our User Group Library or among the personal holdings of our members. Second, it alerts our programming members to real needs for their products or potential products within the Group. Finally, it suggests areas for User Group seminars, e. g., particularly effective software for business, word processing, scientific data management and a whole host of other areas of potential interest to our "users".

In many cases, the user's needs are not for elaborate multifunctional programs, but rather for little programs that, for instance, let them get the most out of their printers or other peripherals. "Patching" programs into proprietary software packages frequently makes them more useful and "customizes" the software for the particular user's needs. With a minimum of effort I bet all of us could think of ways in which our favorite applications programs could be enhanced and improved. Let the left hand know what the right hand is doing!

***** IS YOUR TV REALLY GOOD ENOUGH?? *****

***** JOYSTICK CONTROL *****

From the Sun Coast Beeper User Group in St. Petersburg, FL comes the following short program that can be used to check out how good your tv really is for computer use:

```
100 CALL CLEAR
110 CALL CHAR(32,"FFB181818181")
120 PRINT :::::::::::
130 CALL HCHAR(10,1,88,5)
140 CALL HCHAR(10,28,88,5)
150 END
```

This program will make your tv screen have 32 perfect vertical lines (columns) and 24 horizontal lines (rows). In the top 12 rows, you should see five X's on the left and right sides. In the last 12 bottom rows, column 1 and column 32 should be missing.

From the Central Iowa Users Group Newsletter comes the following short program that can be used to speed up your joystick controlled graphics:

```
10 REM JOYSTICK **JEB** 3/82
20 CALL CLEAR :: CALL SCREEN(16)
30 CALL CHAR(96,"CEFC707BDFCEBC080B1933FFFF
33190808CCCE0F7870FCCE18183CFEDB183C7E")
40 CALL CHAR(100,"7E3C18DB7E3C1818733F0E1EF
B7331101098CCFFFC9810103173FB1E0E3F73")
50 CALL MAGNIFY(2) :: CALL SPRITE(#1,99,7,96,
128)
60 CALL JOYST(1,X,Y) :: Z=.75*X-.25*Y :: IF
Z THEN CALL PATTERN(#1,99+Z-(Z 0) ELSE 60
70 CALL MOTION(#1,-Y*5,X*5) :: GOTO 60
```

It is important to note that this program is for extended basic users only. Ensure you type zero (0) in the CALL CHAR lines.

***** TO OUR FELLOW TI USERS' GROUPS *****

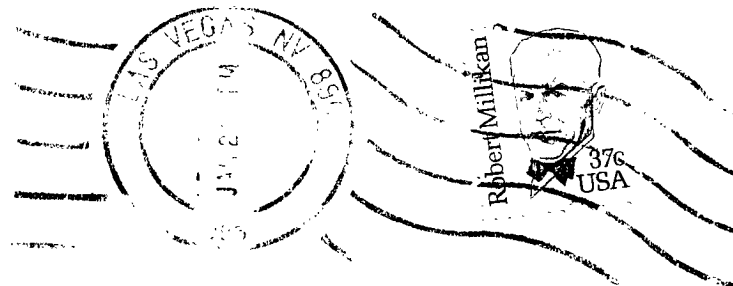
We here at SNUG appreciate the fact that you have kept us on your mailing lists even though it may have appeared that we dropped out of sight. At times it has seemed to us that it might happen. However it now seems that the most difficult times may be behind our group. We now hope that we can make some contributions to the world of TI users.

In any case these newsletters represent the last three issues which SNUG has published. As in any confused situation not everything came together in the correct form - in this case the issue and volume numbers are WRONG! The month/year dates are correct, and hopefully I can keep the volume numbers straight in the future. In the future you should be receiving copies of our newsletters in a more timely fashion, since all of our records are now being sorted into, at least, less disorder.



Rudy Johnson
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