

766
\$400



KANKAKEE TI USERS GROUP
P.O. BOX 1945
KANKAKEE IL. 60901



MEETING DATES

OCTOBER							NOVEMBER						
S	M	T	W	T	F	S	S	M	T	W	T	F	S
						1			1	2	3	4	5
2	3	4	5	6	7	8	6	7	8	9	10	11	12
9	10	11	12	13	14	15	13	14	15	16	17	18	19
16	17	18	19	20	21	22	20	21	22	23	24	25	26
23	24	25	26	27	28	29	27	28	29	30			
30	31												

REGIONAL POSTAL SERVICE
CANADA 1-800-267-8888
1-800-267-8888
1-800-267-8888

EDMONTON 99'ER USERS
P.O. BOX 11983
EDMONTON ALBERTA CANADA T5J-3L1

EXCHANGE

DO YOU HAVE A TI DISK CONTROLLER CARD?

Upgrade your system with a

DISK CONTROLLER UPGRADE KIT

Users of the TI disk controller card can now enjoy some of the features of the newer disk controllers at a fraction of the cost! By installing a few components, the TI card can be upgraded without the worry of software compatibility or the purchase of a new disk controller.

The TI disk controller upgrade kit adds the ability to connect a fourth single or double sided floppy disk drive to the system, just like the newer cards. The ability to use lower case drive names like "dsk1" is not only more convenient, but it allows the user to access a floppy disk drive if a RAM-Disk has been set up to use the same drive number. As an option, the head step time of the drives may also be decreased from 20 milliseconds to 12 milliseconds to reduce the time required for some disk operations. This upgrade does not provide double density.

This upgrade is for programmers, data base users, bulletin board operators, or anyone who needs access to more online disk space and extra features but does not want the extra cost of a non-TI card. With the low cost of disk drives (especially drives removed from a system upgraded to half-height units), upgrading the TI disk controller can be the most cost effective way to enhance your system. The cost of the upgrade kit is substantially less than the \$150-\$175 you can pay for a new disk controller (not to mention the cost of your TI card which then gets to sit on the shelf).

Installation of the upgrade kit is accomplished by replacing the two ROM chips on the TI disk controller and stacking a few additional chips. The ability to solder and desolder components is required. No modifications to the disk drives are needed. An illustrated installation manual is included with the kit.

If the faster head stepping is desired, the drives used with the system MUST be capable of handling the faster speed. Faster head step times should not be requested unless the user knows that the head step time can be accommodated by ALL the drives in the system. There is no extra charge for faster head stepping.

To order, send \$19.95 (cash or check, please) to:

John Guion
11923 Quincy Lane
Dallas, TX 75230

Please state whether normal or fast head stepping is desired.

DO YOU USE A TI RS232 CARD?

Upgrade your system with an

RS232 UPGRADE KIT

With an RS232 upgrade kit, users can expand the software compatibility of their systems as well as add convenient features. Once installed the upgrade kit provides two new devices:

"TP" - In addition to the PIO and RS232 devices, TP is added to provide full emulation of TI's Solid State (thermal) Printer by an Epson compatible printer. This allows the user to run software which is set up to access only the Solid State Printer. Module software that was previously unable to print with a parallel or serial printer will use these devices as though the Solid State Printer was attached. Additionally, program listings can be made in 60, 32, or 28 columns so the printout is just as it appears on the screen. Any option available to the original Solid State Printer may be used with the TP feature. The TP option even allows the user to write one-line screen dumps for Extended BASIC programs, complete with graphics!

"SIO" - Either serial port may be set up to respond as SIO. The port, baud rate, number of data bits, and parity may be specified when the upgrade kit is ordered. Instead of having to enter a long device name such as "RS232/2.BA=4800.DA=8.PA=0" each time a port is accessed, "SIO" may be used. Not only is this more convenient than typing a long device name each time the device is accessed, it allows the user to easily modify programs that previously used only PIO for printer output. All the user needs to do is change occurrences of PIO in the program to SIO. Software switches such as ".LF" and ".CR" may be added to SIO if required by a particular program.

The TP, SIO, and PIO device names may also be entered in lower case so that errors caused by having the Alpha Lock in the wrong position are eliminated. None of these features interfere with the normal operation of the RS232 card.

The parameters for both "TP" and "SIO" ports must be specified when ordering to correspond with the configuration of the user's system. Installation of the upgrade kit requires the ability to desolder and replace one ROM chip on the TI RS232 card.

To order, send \$14.95 (cash or check, please) to:

John Guion
11923 Quincy Lane
Dallas, TX 75230

Please use the enclosed form to specify your system configuration.

SIMPLE LABELER
(continued)

Lines 370 to 470 allow for input from the keyboard. Line 380 clears the screen and shows the header. Line 390 sets E to the number of lines that can be input or printed: 5 for a 1 inch and 8 for a 1.5 inch label. Line 400 displays any previous text that has been entered (as a default) along with numbered lines, so that you always know where you're at. Line 410 displays on the screen the number of lines that you may enter for the label size you have selected. Lines 420-440 allow for the input of the label text. In the SIZE command you will notice that it has been set to a negative number.... Well this allows any text on the screen to be selected by pressing <ENTER>, the same as if you had typed it in yourself! Lines 450-470 allows you to edit what has been entered or go on to the printing stage. If you select "Y" then line 470 clears the bottom line.

```

370 ! Line Entry
380 DISPLAY AT(1,1)ERASE ALL:CTR$("Enter
Your Text")
390 IF D=1 THEN E=5 ELSE E=8
400 FOR @=1 TO E :: DISPLAY AT(@+8,3):ST
R$(@)&" "&A$(@):: NEXT @
410 DISPLAY AT(3,1):CTR$("you may enter"
&STR$(E)&" lines")
420 FOR @=1 TO E
430 ACCEPT AT(@+8,5)SIZE(-A):A$(@)
440 NEXT @
450 DISPLAY AT(24,1):CTR$("is text alrig
ht (Y/N)?")
460 CALL KEY(0,K,S):: IF S=0 THEN 460
470 IF K=78 THEN CALL MCHAR(24,1,32,32):
: GOTO 420 ELSE IF K<>89 THEN 460

```

Lines 480 through 510 get some very valuable data. Line 480 asks if you want your text centered, setting SW\$ equal to your answer to be used in the printer routine. Line 490 gives you an out so that you can still abort the printing at this stage. While line 500 gets your answer for the Print or Return question. Line 510 asks for how many labels you want printed, and places the value the variable TNL, and then also if TNL equals 0 then you are returned to the main menu! Lastly if you select a number greater than 0 the "ABORT" message is displayed and printing begins.

```

480 DISPLAY AT(24,1):" center text (Y
/N)? Y" :: ACCEPT AT(24,24)SIZE(-1)V
ALIDATE("YN"):SW$
490 DISPLAY AT(24,1):"1> print 2> retu
rn to menu"

```

```

500 CALL KEY(0,K,S):: IF S=0 THEN 500 EL
SE IF K=50 THEN 330 ELSE IF K<>49
THEN 500
510 DISPLAY AT(24,1):" how many labels?
1" :: ACCEPT AT(24,20)SIZE(-3):TNL :
: IF TNL=0 THEN 330 ELSE DISPLAY AT(
22,1):"-- hold any key to abort! --"

```

Now finally to the printer routine lines 520 to 640. Line 530 opens a file to the printer using the P\$ variable (your printer parameters) plus the addition of .LF.CR which disables the line feed and carriage return unless those codes are sent to the printer. Line 540 sends the following commands to the printer: printer reset, emphasized print, double strike, double width, and a carriage return. Line 550 is a loop for printing multiple labels. Line 560 shows what label is being printed. Line 570 is the loop that prints the individual labels, also here if SW\$="N" then we set the A variable to the same length as the string to be printed (thus left justifying the text), because if the A value and the string length are the same no space characters will be added! Line 580 prints the information to the printer. Line 600 prints a blank line to skip over the gap between the labels. Line 610 checks to see if a key is being pressed, if it is then it sends you to line 630 to print the reset command to the printer, close the file, and return you to the menu.

```

520 ! Printer Routine
530 OPEN #1:P$&".LF.CR"
540 PRINT #1:PR$&EP$&DS$&DW$&CR$:
550 FOR @=1 TO TNL
560 DISPLAY AT(24,1):" printing label...
"&STR$(@)
570 FOR I=1 TO E :: IF SW$="N" THEN A=(L
EN(A$(I)))
580 PRINT #1:CTRP$(A$(I))&CR$&LF$ :: IF
I=E THEN 600
590 NEXT I
600 PRINT #1:CR$&LF$
610 CALL KEY(0,K,S):: IF S<>0 THEN 630
620 NEXT @
630 PRINT #1:PR$ :: CLOSE #1 :: GOTO 330
640 END

```

From Mike Wright of The Boston Computer Society:
Tom Freeman of the LA Users Group who is the author of DISKASSEMBLER for the TI99/4A is presently working on a 9640 version of DISKASSEMBLER. Will it beat the MYARC HDFCC?

Myarc's DOS = Discover our secrets
If you have a Myarc 9640 and just have to know who was responsible for the writing the bulk of DOS, you can enter XYZZY at the DOS prompt to find out.

A SIMPLE LABELER

BY: Paul E. Scheidemantle

This month's article came about one evening while looking through my tons of label programs, and not finding one that would allow me to make the kind of label that I wanted. Namely a label with double width print in as bold a print as possible. This program requires 4 main segments, 1st: the internal data must be supplied (printer commands, variables for limiting input of text); 2nd: Select the label size needed (main menu); 3rd: accept input from the keyboard (info to be placed on the label); and 4th: print the Text to the printer. Now lets look through the program to see how this can be accomplished!

Line 110 clears the screen and sets the colors to white lettering on a dark blue background. Simply window dressing to spruce it up!

```
100 ! SIMPLE LABELER
110 CALL CLEAR :: CALL SCREEN(5):: FOR @
    =0 TO 14 :: CALL COLOR(@,16,1):: NEX
    T @
```

In line 120 we set values for some of the variables in the program, which will be explained as we go along. And the ON WARNING NEXT statement....

```
120 A=17 :: B(1)=17 :: B(2)=20 :: ON WAR
    NING NEXT
```

Lines 140 and 160 are identical except where the value of 28 has been replaced by the variable A in 160. To make life a little easier for me so that I don't have to count the length of each string that I send to the screen and adjust them manually so that they are centered, we have these two DEF statements. To start with a DEF statement is a method of defining a series of functions that we wish to do over and over. Here in line 140 we are defining the function CTR\$(Z\$) to be equal to enough blank (space characters) spaces plus the string Z\$ so that it is centered on the screen. For example if the string is 16 characters long we subtract that from the width of the screen (28) which is 12 and then divide that by 2 to get 6 blank spaces. So now if you place it on the screen in the 1st column, then the text will be centered. Line 160 does the same thing except that by using the variable A I can use it to center text for variable widths, by setting A to 17 or 20 I can now use it for both labels that are 3.5 inches or 4.0 inches wide. Thus the values for B(1) and B(2) in line 120. These were obtained by multiplying 5 characters (double width) per inch times the width of the label.

```
130 ! Centers Screen Text
140 DEF CTR$(Z$)=RPT$(" ",INT((28-LEN(Z$
    ))/2))&Z$
150 ! Centers Printed Text
160 DEF CTRP$(Y$)=RPT$(" ",INT((A-LEN(Y$
    ))/2))&Y$
```

Even though this program was written for the Star 56-10 printer the codes used are compatible with most Epson type printers. Line 180 is the printer parameters, such as shown here "P10" or it can be changed to "RS232...." as required by your system set-up. Lines 190 through 300 are the printer codes used. They can be easily checked against your manual for compatibility and changed.

```
170 ! Printer Name
180 P$="P10"
190 ! Printer Reset
200 PR$=CHR$(27)&CHR$(64)
210 ! Double Strike
220 DS$=CHR$(27)&CHR$(71)
230 ! Emphasized Print
240 EP$=CHR$(27)&CHR$(69)
250 ! Expanded Print (double width)
260 DW$=CHR$(27)&CHR$(87)&CHR$(1)
270 ! Line Feed
280 LF$=CHR$(10)
290 ! Carriage Return
300 CR$=CHR$(13)
```

Here starting with line 310 we have the main program. This is where all the work is done. Line 330 and 340 display the main menu. You will now notice how we use the CTR\$(Z\$), by placing the string that we wish to have centered on the screen in the place of the Z\$. Line 350 checks the keyboard to see if any key has been pressed, if no key is pressed then we check the keyboard again, if a key is pressed and it is an ASC II code less than 48 or greater than 50 then back to 350 again (48=0 49=1 50=2), now finally if the key pressed is equal to 48 (0) then we clear the screen and end (stop the program). In line 360 we set A to equal the correct amount of characters to be allowed for due to the size of the label. Also we set D to equal the option that has been selected.

```
310 ! Main Program
320 ! Main Menu
330 CALL CLEAR :: DISPLAY AT(4,1):CTR$("
    Main Menu"):CTR$(RPT$("=",18)):"":":
    :":CTR$("1> 3.5 X 1.0 LABEL"):":":
    ":CTR$("2> 4.0 X 1.5 LABEL")
340 DISPLAY AT(15,1):CTR$("0> Exit Progr
    am "):":":":":":CTR$("choice (1-3)
    ?" )
350 CALL KEY(0,K,S):: IF S=0 THEN 350 EL
    SE IF K<48 OR K>50 THEN 350 ELSE IF
    K=48 THEN CALL CLEAR :: END
360 A=B(K-48):: D=K-48
```

(Continued next page)

*** PRINT AN ID ***

THE CHANGES I'VE MADE TO ED MACHONIS "PRINT A TAG" PROGRAM ON PAGE 5 OF THIS NEWSLETTER ARE SHOWN BELOW. THIS WILL NOW MAKE AN IDENTIFICATION LABEL FOR MEETINGS AND GET TOGETHERS WHERE PEOPLE MAY NOT KNOW EACH OTHER (T.I. MEETING OR FAIR). PRINTING THE LABEL WILL BE EASY AND ALL THE INFORMATION ENTERED REMAINS IN FOR THE NEXT TAGS DEFAULT DATA. IN OTHER WORDS EACH PASS MAY REQUIRE CHANGING THE NAME OF THE PARTICIPANT. SEE SAMPLE BELOW. THE STANDARD GUM LABEL WILL STICK TO CLOTHING BUT NOT DAMAGE IT. JOHN F. WILLFORTH WP99

BELOW I'M GIVING YOU ONLY LINE INFORMATION CHANGES

AND ADDITIONAL LINES REQUIRED TO CONVERT ED'S TAG WEST PENN 99'ERS
PROGRAM INTO AN ID PROGRAM. ENJOY IT, I KNOW I DO!
JOHN

CHANGE LINES : WILLFORTH
NEWSLETTER EDITOR

```
30 ! * PRINT AN ID *
190 DISPLAY AT(1,3)ERASE ALL:"*** PRINT AN ID ***"
200 DISPLAY AT(3,2):"HEADER? (17 CHAR'S MAX)" :: DISPLAY AT(3,25):D$ :: ACCEPT
AT(4,2)BEEP SIZE(-17):D$
330 DISPLAY AT(13,2):"LINE 1? (12 CHAR'S MAX)" :: DISPLAY AT(14,2):R$ :: ACCEPT
AT(14,2)BEEP SIZE(-12):R$
360 DISPLAY AT(15,2):"LINE 2? (25 CHAR'S MAX)" :: DISPLAY AT(16,2):M$ :: ACCEPT
AT(16,2)BEEP SIZE(-25):M$
```

```
ADD LINES :
363 MM$=RPT$(" ",(29-LEN(M$))/2)&M$&RPT$(" ",(30-LEN(M$))/2)
366 DISPLAY AT(17,2):"LINE 3? (25 CHARACTERS MAX)" :: DISPLAY AT(18,2):G$ :: ACC
EPT AT(18,2)BEEP SIZE(-25):G$
```

```
CHANGE LINES :
450 PRINT #1:B$;" ";N$;" ";B$;CHR$(13);CHR$(10)
460 PRINT #1:B$;MM$;B$;CHR$(13);CHR$(10)
```

THE ABOVE CHANGES TO ED'S PROGRAM CAN NOW BE RESEQUENCED.

MYARC HAS MOVED FROM BASKING RIDGE TO MARTINSVILLE, NJ. THE NEW PHONE # IS (201) 805-0006

SPEAKING OF MYARC, JERRY PETRULAK RECEIVED A LETTER FROM SUSAN COFFEY ON APRIL 15, 1988 IN REGARD TO A PROBLEM HE WAS HAVING WITH HIS MYARC MEMORY EXPANSION CARD. SHE STATED "MYARC'S 128, 256, AND 512K MEMORY EXPANSION CARDS WERE NEVER ADVERTISED OR SOLD TO BE USED WITH EXTERNAL POWER SUPPLY. HOWEVER, APPROXIMATELY ONE OUT OF FOUR WILL FUNCTION WITH AN EXTERNAL SUPPLY. IF YOURS IS ONE OF THESE, THE CORRECT POWER SUPPLY SPECS ARE 9 VOLT DC TIP POSITIVE AND 500 MILLI AMPS." I FIND THIS INTERESTING, AND PARTICULARLY DISTRESSING FOR THOSE 3 WHOSE DON'T HOLD MEMORY! IF YOUR MYARC (RAM DISK) LOSES IT'S MEMORY WHEN THE PEB IS SHUT DOWN, REMOVE THE CARD FROM THE PEB FOLLOWING INSTRUCTIONS, AND REMOVE THE SHELL. LAY THE BOARD ON A NON-STATIC SURFACE (NON-CONDUCTIVE ALSO), AND PLUG THE DC SUPPLY THAT YOU MYSTERIOUSLY CAME BY (SINCE MYARC DIDN'T SEND IT TO YOU) INTO THE CARD. MEASURE THE DC VOLTAGE ON THE BOTTOM LEG OF THE TOP REGULATOR. IT MUST BE +5 DC IN ORDER TO SUPPORT THE LOGIC AND MEMORY ON THE BOARD. IF IT IS IN THE 3 TO 3.5 VDC RANGE, FORGET IT, YOU'LL LOSE IT EVERYTIME. LARGER MEMORIES, CHIPS DRAWING MORE CURRENT, DC ADAPTERS THAT ARE TOO SMALL, ALL CAUSE THIS PROBLEM. YOU MAY TRY A DC POWER SUPPLY RATED AT ABOUT 5 VOLTS, AND AS THE LETTER FROM MYARC SAYS, 500 MA. (1/2 A.). I'D SUGGEST 800 MA. TO BE SAFE, UNLESS YOU KNOW THAT YOUR CARD USES ALL LOW POWER DYNAMIC RAM MEMORY CHIPS. CAUTION: BE PARTICULARLY EXACT IN POLARITY ON THE DC ADAPTER YOU USE. THE TIP MUST BE POSITIVE (+).

YOU TAKE RESPONSIBILITY FOR ANY DAMAGE THAT MIGHT OCCUR AS A RESULT OF ANY ATTEMPTED USE OF THE ABOVE INFORMATION. WE INTEND THIS ONLY TO HELP YOU GET THE MOST OUT OF YOUR TI SYSTEM.

3/8 inch length, and insert them carefully into the holes. You may need to bend some of them slightly to get a good fit. After they are all inserted, CAREFULLY solder the ends, being VERY careful not to connect ends that were not previously connected by the traces on the board! Now carefully reinstall the board and the connectors, and before installing the cover of the P-box, turn it on. Quickly check for 12V across the 1000 uf capacitor leads. If all is ok, reassemble the P-box, taking care not to pinhh the drive wires along the back of the box. (!) If you will only use the drives normally, this is sufficient. However if you have unusually power hungry drives, or will use them for LONG durations, such as in a BBS for uploads and downloads, or for lots of copying, the clip on heat sink is not sufficient. You will need to use wires to "remote" the regulator, and attach it to a LARGE heat sink, placed in front of the fan, or just attach it to the back of the P-box, as near the fan as possible, in the same way you would mount it to a heat sink (You will have to drill holes for the wires and the mount bolts.). If you use a separate heat sink, be SURE to use a ground wire from the sink to a chassis ground, or mount it with a screwed on metal strap!

A CHILD'S FIRST LOOK AT MULTIPLICATION
 by Tony Falco
 reprinted from MUNCH Newsletter

"Dad, today I heard someone talk about three times four. What does that mean?"

"get that jar of pennies in your room and I'll try to show you. Three times four means three fours. Make a row of four pennies. Now make two more like that one.. That's four plus four plus four or twelve. You can see it is also four rows of three each. Four times three is the same as three times four. hey, we could do this on the computer."

The program listed below grew out of a conversation much like the one above. I strongly believe that understanding numerical concepts at all levels is aided by, or maybe even only possible with, a physical or mental picture that gives the learner a comfortable and familiar feeling. With this in mind, I try to help my child build a conceptual basis for ideas that tend to become rote with time. With a program that is conceptually sound, the computer's infinite patience provides an ideal means for acquiring insight into basic numerical concepts.

To use the program you pick the highest factor the child is to work with. For example, for products up to 6X6 or 36 pick 6. The program randomly picks problems and displays the problem with an array of astericks to show the factors to be multiplied. The user types an answer. If

wrong he tries again until correct. The format in which the array appears on the screen encourages the child to try repeated additions or, as a last resort, counting. To end the program enter <Q> instead of an answer. The interaction between computer and learner is reinforced with speech. I feel this makes a program more friendly and familiar. The TI-99/4A has been, and continues to be, the only machine for inexpensive, high quality and easy to use speech.

```

10 FOR S=1 TO 14 :: CALL COLOR(S,2,12) :: NEXT S
20 CALL SCREEN(12) :: CALL COLOR(2,2,16) :: CALL CLEAR
30 INPUT " HIGHEST FACTOR = ":H
40 RANDOMIZE :: CALL CLEAR
50 A=INT(H#RND)+1 :: B=INT(H#RND)+1
60 IF A#B>H#H THEN 50
70 P$=STR$(A)*"x"STR$(B)=" :: DISPLAY AT(5,12): P$
80 S$=RPT$(" ",B)
90 FOR T=1 TO A
100 DISPLAY AT(T+7,14-LEN(S$)/2):S$ :: NEXT T
110 K=14-LEN(S$)/2+(A>9)
120 DISPLAY A(B+INT(A/2),K)SIZE(-2):STR$(A)
130 DISPLAY AT(9+A,13):B
140 ACCEPT AT(5,12+LEN(P$)):BEEP:ANS$
150 IF ANS$="Q" OR ANS$="q" THEN 180
160 IF VAL(ANS$)=A#B THEN R=R+1 :: CALL SAY("GOOD" ::
    GOTO 40
170 CALL SAY("SORRY TRY AGAIN") :: W=W+1 :: GOTO 140
180 CALL CLEAR :: PRINT ::;::;::; PCT=INT(100#R/R#R)+.5)
190 PRINT " ";W#R;"TRIED"
200 PRINT " ";R;"CORRECT"
210 PRINT " ";PCT;"%"
220 CALL SAY("GOODBYE")
230 END
  
```

THESE FILES WERE DOWNLOADED FROM THE LOS ANGELES 9640 BBS
ACCESSIBLE THROUGH PC PURSUIT CALAN AREA AT 947-7777

The first tells you how to improve cooling in the PE Box by improving airflow or by installing a better fan. The second tells you how to install a new voltage regulator to increase the power capacity to handle power hungry drives - even hard disk drives - in the box.

IMPROVING P-BOX COOLING

The following instructions will guide you in improving the cooling of the P-box without installing a fan with higher air flow.

Remove the outer cover from the P-box, and use duct tape or adhesive weatherstrip to seal the large gaps under the "floor" of the card area. This is not nearly as hard as it sounds, only about 15 screws. Just be sure not to pinch the drive wires going behind the card area when you slide the cover back on. If you have a Triple Tech, or any other card without a case, sandwich it between two other cards to channel the airflow to it. Use duct tape to seal the holes in the floor of the card area. It is a good idea to make a small cardboard air dam to put on top of the transformer (hold in place with duct tape) to direct air to the power supply board, especially at the center area, where the regulators are (see the file on increasing P-box power output). An overheated power supply will give the same symptoms as one that is failing, or doesn't have enough power for your drives: It overwrites files! Cooling of the power supply area will not be improved or decreased by these procedures. If you want to improve that, and/or cut down on noise, obtain a 3 1/8 inch square boxer fan with no less than 10 watts power consumption. Fans with less 10 watts of power will have less airflow than the original. Also, fans with more than about 15 watts may make as much or more noise than the original, but will REALLY cool the box. My fan is 23 watts, makes a little more noise, and the cards are hardly warm to the touch when the box is opened! Be sure that the electrical connections are sound; it is a good idea to already have the wires made up and attached to the fan. The wires should have automotive male spade type terminals on them. If you have the patience, you can also enlarge the holes that the fan exhausts from, or cut out that area entirely. Also, if you have your P-box pushed up very close to a wall, the hot air put out by the fan is being recycled into your supposedly cool air intake. To prevent this, make a cardboard deflector to fit around the fan opening. It should stick out about 1 1/2 inches on the side near the card area, but only about 1/2 inch on the bottom and on the side away from the box. It should aim upwards and away from the box. This will deflect the hot air away from the intake area. Be very careful that you don't restrict the airflow very much!

P-BOX POWER SUPPLY BOOST

The following directions will increase the output of the P-box power supply to handle 2 power hungry drives.

Symptoms of lack of power include overwritten files, and the "sectors used" count on a disk catalog does not match the sum of the lengths of the individual files. Also see the file on P-box cooling, as an overheated regulator, regardless of its capacity, will cause the same problems! CAUTION - It is possible to damage the system and cards if this is not performed correctly!

Parts list:

1 12V regulator, RCA # SK9341/933 or equivalent

4 3 amp diodes, RCA # SK3848/5806 or equivalent

1 1000 uf capacitor, at 35 volts

1 clip on heat sink (# - see note at end!) for the regulator (important)

small amount of silicon heatsink compound

Remove the P-box cover by removing the 15 or so phillips head screws and sliding the cover forward. Remove the power supply board (the only printed circuit board in there) and disconnect the wire connectors by pushing the tabs through the board and pivoting them away. You will see the regulator in the middle of the board. Carefully unsolder the connectors on the back, and use solder wick or a suction device to remove the melted solder. DO NOT force it, but gently lift it away as you reheat each connector pin to soften any remaining solder. Apply silicon heatsink compound to the back of the new regulator, and install it in the same place. Be careful to apply only as much solder as needed, to avoid making a solder bridge underneath the regulator. Install the heat sink. Immediately next to one end of the regulator, you will see a small black 47 uf capacitor. Cut the leads of the 1000 uf capacitor to a reasonable length, and solder the + lead to the + lead of the small black capacitor, and the - lead to the - lead of the small black capacitor. This will give a boost to the drive motor to help get the disk turning when a drive is selected. Now for the hard part. The 4 diodes must be installed in place of 4 smaller diodes on one corner of the card. You will see 8 small tubular devices in a row on one corner of the card. Four of these (the dark colored ones with a colored stripe or band on one end) are the diodes. The other four (lighter colored) must not be disturbed. Carefully note which direction the bands point (my board had markings on it to indicate direction, but all boards may not have them), and then remove the diodes. Use the same methods used to remove the regulator. Now you must slightly enlarge the holes to match the wire size of the new diodes. Use a small drill of just slightly larger size than the wire to do this. Use a pin vise, or some other holding device to do this by hand. DO NOT attempt to use a mechanical or electric drill to do this. Watch the trace on the board carefully while drilling to be sure that you are not ripping it off the board! Cut the wires on the new diodes to about