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**SASKATOON
COMPUTER
CLUB**

**TEXAS
INSTRUMENTS**

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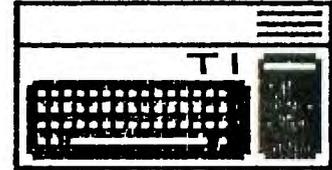
NEWSLETTER OCTOBER, 1988

**FROM:
P.O.Box 7925
SASKATOON
SASKATCHEWAN
CANADA
S7K 4R6**

FIRST CLASS MAIL

TO: Edmonton 99'ers
 P.O.Box 11983
 Edmonton, Alberta
 T5J 3L1

SASKATOON
TEXAS INSTRUMENTS
COMPUTER CLUB



We discuss and review new products for the TI99/4A while providing technical support for any problems that a member may have. We also support a software library and have regular contacts with other groups in Canada and the United States. Our membership fees are very reasonable: \$10.00/single or \$12.00/family. If you would like to become a member, or require more information, contact any member of the executive.

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P.O. BOX 7925, Saskatoon, Sask., Canada S7K 4R6

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We are a small, nonprofit club here in Saskatoon. We never have, or ever will, consider our newsletter a professional medium in its field. Therefore, with this consideration, the views presented in the articles, by various authors, may not be the views of the newsletter committee, the STICC executive, or its members. On this basis, this club cannot be held responsible for errors, omissions, views, or copy infringements, as presented in the articles.

MEETINGS:

General meetings are normally held at 7 PM once a month at a location and on a date to be determined from time to time by the members.

The meeting dates for November (and possibly for subsequent months) will be decided at the October meeting. If you are not contacted by telephone, feel free to phone myself (John Thomson, 244-1394: Warning! A machine may answer!) or Steve Zabarylo at 931-7812.

Reprinted from Ottawa Users' Group newsletter:

**Myarc's New Hard and Floppy Disk Controller Card
A Review by Charles Earl**

The long-awaited Hard and Floppy Disk Controller Card from Myarc is at last shipping -- I received one just before our last general meeting, and I have been enjoying it thoroughly.

The card will support up to three hard disks, four floppies and a streamer tape for backup. Any MFM ST506/412 compatible hard drive up to 134 meg may be used with the controller. The floppies may be either 40 or 80 track 5 1/4 inch drives or the 720K 3 1/2 inch drives. Apparently the 1.44 meg 3 1/2 inch format is not currently available but it may be available in some future expansion. A real time clock is included in the card, but is not, unfortunately, battery-backed. The package contains the card (HFDC), documentation and the cables needed to connect one hard disk.

The basic hardware is fully compatible with basic or extended basic, as well as many assembly programs, but some assembly programs such as disk managers and telecommunication programs don't currently support the hard drive. I'm sure you will be seeing a great deal software upgraded to include the hard drive support. The only software that is not 'copy-protected' and does not function well with the hard drive controller card itself is ARCHIVER 3.02 from Barry Boone. Unfortunately, this is an incompatibility with the floppy support as well. I'm sure that the problem will be corrected by either Barry himself or Myarc (since the problem is the result of a bug in the eprom).

The software you receive with the Myarc HFDC card includes MDOS v1.06, GPL v1.01, and MDM 5 v1.21. The MDOS and GPL is for the GENEVE users but MDM 5 will work with both the TI-99/4a and the GENEVE from GPL. A newer version of MDM 5 v1.23 is available on the major networks. MDM 5 supports both floppy and hard disk management. The program will allow TI-99/4a users to set the clock upon booting. The program is device dependant and will only work if a HFDC is installed. All the basic functions for disk management have been provided as well as the extra support for the hard disk. A convenient feature is "find file", which will search the complete hard disk or floppy for a specific file. The program will also include a backup utility for backing up some, all or just the new files on the hard disk.

The documentation provided with the package is in a three-ring binder with an addendum for MDOS users. The documentation consists of the basic initialization and operation of the hard disk for the average users as well as the technical information for the programmer. A definite step in the right direction, considering the overly-simplistic documentation TI provided with their Floppy controller. The documentation is fairly sound and will get the average user through the setup/initialization process with little difficulty. Users should try to get some detailed information about the hard drive they purchase. To initialize a hard disk, you must know the number of heads and cylinders as well as whether or not write precompensation and buffered stepping are needed. This information should be supplied with the hard disk when you buy it.

To make the hard disk compatible with older TI software, Myarc has provided three types of disk emulation. The easiest to use is the DSK1 directory. Whenever you type DSK1.filename the hard disk controller card will check to see if the file is in the DSK1 directory. If it is, the program is loaded from or written to the hard disk. If the file is not in the DSK1 directory, control is passed back to floppy. This means you can not save a new file to the DSK1 directory by simply typing SAVE DSK1.PROGRAM. If PROGRAM is not there already, the file will be saved to your floppy -- not your hard disk. If you do wish to save the file to the hard disk, you can use SAVE WDS1.DSK1.PROGRAM.

The second method of emulating a disk on the hard drive is through the DSK directory. This type of emulation is commonly used for programs such as PRBASE, which access the disk through DSK.PRBASE.filename. To simulate this on the hard disk, set up a DSK directory in the root directory of your hard disk. Next, create a sub-directory of the DSK directory called PRBASE and copy the files PRBASE requires into the PRBASE directory.

The third method of emulation will only work if your HFDC is located at cru address >1100. This method is called DSK1 file emulation, and is an exact duplicate, sector by sector of a diskette. You may have any number of these

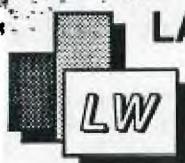
 Reprinted from Ottawa Users' Group newsletter:

emulation files located on your hard disk but only ONE may be active at any time. The only way you can access the data or programs in one of these emulation files is when they are active. When you use an emulation file your physical floppies get bumped up a number; floppy one will become two, two will become three, etc.

The Myarc HFDC card is compatible with other cards such as a Horizon ramdisk but I have noticed that the menu program on the ramdisk version 7.3 does not load programs off the HFDC properly.

The card does have a few quirks. I know of only two hardware quirks. The first is the problem with ARCHIVER 3.02, which appears to be hardware-oriented and most likely will not be corrected until a new eeprom is released. The other is not exactly a quirk, but more an annoyance -- the clock is not battery backed. On the Geneve, this is not a problem since at boot-up the card will set itself using the clock built into the Geneve. It is the TI-99/4a users who must set the thing every time they turn on the computer.

Overall, I am very impressed with the card, on the one condition that Myarc corrects the bug in the eeprom which throws ARCHIVER 3.02 for a loop. The documentation is good, but I did find a few sections a bit vague, and there is some information I would have liked to see included, such as some explanation of interlaces. Generally, though, it is clear and much more complete than such documentation usually is.



LAFLAMME & WRIGLEY WHOLESALE

5480 Canotek Road, Unit #16
 GLOUCESTER, ONTARIO K1J 9H6
 (613) 745-2225

LAFLAMME & WRIGLEY DATA (Phones): Ottawa BBS (TEXLINK) (613) 738-0617
 DELPHI "JANELAFLAMME" (No space)
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HARD DISK CONTROLLER CARDS ARE IN STOCK NOW!

Authorized Canadian Distributer for Myarc, Inc.

...you can't get it elsewhere

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 Kitchener, Ontario
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 (519) 578-3873

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 (902) 454-0232
 Data (TEXLINK) 455-2076

DEALER ENQUIRIES WELCOME

Reprinted from Pug Peripheral (Pittsburgh newsletter):

NEW RELEASES ↓

J. PETER HOODIE HAS RELEASED TWO NEW PROGRAMS. THE FIRST HE CALLS MACFLIX. THIS PROGRAM ALLOWS ONE TO VIEW MACPAINT IMAGES ON THEIR TI-99/4A OR THE MYARC 9640. THE MACINTOSH MACPAINT PROGRAM CAN CREATE IMAGES IN FULL 8 BY 10 INCH FORMAT. THIS NEW PROGRAM WILL GIVE YOU THE POWER TO VIEW, PRINT, AND SAVE THE IMAGE IN DV80 FORMAT. INCLUDED IS THE ABILITY TO INVERT THE IMAGE. WHEN VIEWED BY THE 9640, HI-RES GRAPHICS ARE USED AND THE 9649 CAN DISPLAY MORE THAN A STANDARD MAC SCREEN. IT CAN SAVE IMAGES IN MY-ART FORMAT TOO! HE HAS RELEASED THE PROGRAM THROUGH GENIAL SOFTWARE AT P.O. BOX 183, GRAFTON, MA 01519. THE PRICE IS \$15.

THE SECOND PROGRAM HE CALLS THE JPH ASSEMBLER HACK AND IT IS AN ASSEMBLY LANGUAGE PROGRAMMERS TOOL. IT RUNS ON THE 9640 AND THE 4A WITH A SUPERCART. IT IS A NEW ASSEMBLER! IT CONTAINS FEATURES TO PRINT OUT ASSEMBLER ERRORS AND THE ABILITY TO PAUSE THE OUTPUT BEFORE IT SCROLLS AWAY. SINCE I HAVE NEVER RUN THE TI ASSEMBLER MYSELF, I HAVE TO LEAVE THE OPINION OF ITS WORTH TO THOSE THAT HAVE. HE HAS RELEASED THIS PROGRAM AS FAIRWARE AND HAS UPLOADED IT TO DELPHI AND GENIE. IF YOU DO NOT HAVE ACCESS TO THESE INFORMATION SERVICES, SEND HIM A SELF ADDRESSED, POSTAGE PAID DISK MAILER, AND IN HIS WORDS "IF YOU ARE FEELING GENEROUS THE \$10 FAIRWARE PAYMENT", AND HE WILL SEND IT TO YOU. YOU CAN WRITE HIM AT 12 PAUL REVERE ROAD, LEXINGTON, MA 02173.

MULTIPLAN

By Audrey Bucher
Part 10

HELPFUL HINT OF THE MONTH

This has to do with TI WRITER (or any version: FUNNELWEB, BA WRITER, whatever).

Did you know you can type anything you want after a carriage return ON THE SAME LINE and it won't print out. But it'll SAVE. This is great for text notes for screen reading. I've used this a lot, particularly when I'm writing articles or poems. Very handy.

Also handy is the space use in LF and SF.

When you LF and there is already a DSK2.MEMENWAY up there on auto and you want to load DSK2.KONG, all you have to do is type the KONG and press the Spacebar and Enter, even though it'll say DSK2.KONG WAY on the screen. Actually, you can even SAVE a file with a long (up to 80-col) note after a filename and space. This will disk SAVE and screen read but not print out. Lots of handy reasons for this on working disks.

Another handy-dandy is letter saving. If you write as many letters as I do (between 30 and 40 a week), it's a good idea to let your FUNNELWEB do the sorting and hard work for you. Just name the letter by date and name in the following way. If I write to Jim Peterson on May 17 I would SAVE the file as DSK2.S17JIMPETE. Always month first (S) followed by day (17) and the name as far as it'll go. So if I wrote to Jim on November 27 it would be 1127JIMPET, but if I wrote on April Fool's Day it would be 4JIMPETER. This is also handy if you write a lot of letters on the same day, as TI WRITER will sort them for cataloging first by number then by letter. So they will be numerically AND alphabetically sorted in the catalog.

This month's column will be a short one with a few hints and tips.

If you have a MP data disk with more than eighteen files on it, you may have wondered how to catalog the disk as the screen will only show the first eighteen files when you use the arrow for a directory. From the New Jug North comes the following instructions. When the eighteen files are displayed on the screen, place the cell pointer on the last filename and press REDD (function 8). The screen will redraw and display TRANSFER LOAD filename: where filename is the last filename of the previous directory displayed. The message line will now display "Enter a filename (arrow for directory)"

Press Function down arrow to display additional filenames beginning with the last filename on the previous display. Attempting to access (T)ransfer, (L)oad without any files on the disk or without a disk in the drive will cause the computer to lock up. To cancel the show directory command, press CTRL+ or CTRL C.

Multiplan files are not necessary to test this function of the show directory command. Use any disk containing at least twenty or more files.

Another tip comes from Roanoke Valley. Once you start scrolling you can release the Function or Control key and just keep the arrow depressed. (The function and arrow keys scroll one cell at a time and the Control and arrow keys cause the cell pointer to scroll four cells at a time.) Scrolling did not work on the original MP disk. It is necessary to have the updates for this.

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 Quincey 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 Quincey Lane
Dallas, TX 75230

Please use the enclosed form to specify your system configuration.

Reprinted from West Penn 99'ers newsletter:

 TI-BASE
 Report Card

Performance.....A+
 Ease of Use.....B+
 Documentation.....A
 Value.....A+
 Final Grade.....A

Cost \$24.95 + 1.50 Postage and
 Handling
 Manufacturer: INSCEBOT Inc.,
 P.O. Box 291610, Ft. Orange, FL 32029

Requirements: Disk system, 32 K,
 Extended Basic, Editor-Assembler or
 Mini-memory. Printer optional. A
 RamDisk is optimum storage.

Shipped with 2 SSD disks, manual and
 overlay strip.

TI-BASE ver 1.01

A review by,
 Barry Long, CPUG
 Harrisburg, PA

Recently our Users Group was
 contacted by INSCEBOT with an inquiry
 as to whether we might be interested in
 demonstrating their newly released
 TI-BASE. As the Secretary for the
 CPUG, I replied back that yes, we
 would. To my surprise, Dennis Faherty
 responded almost immediately by return
 mail with ver 1.0 of TI-BASE. (That's
 plus #1)

I have used or looked many of the
 'other' TI related Data-bases over the
 years since I purchased my machine, and
 I was a little skeptical when I read
 the letter, but I am always on the
 look-out for the "perfect" Data-base,
 boy was I surprised!

The program comes with a very good
 documented manual, as manuals go. It
 comes with two disks. The first is the
 actual program disk while the second is
 a TUTOR disk.

I read the "Start-up" introductions
 and proceeded to load the main program
 disk. It did seem to take awhile to
 load, but, I guess all good things are
 worth the wait.

The first item is a Title Screen
 after which the program prompts you for
 the date. Once the date is entered, it
 loads the first command file called
 "Setup". This displays your system
 parameters. If you have only one disk
 drive, or a serial printer, you will

have to MODIFY the Setup to work
 properly.

The manual instructed me to load the
 "TUTOR" disk and follow along with the
 program. This lasts about 20 minutes
 or so, depending if you want to 'Pause'
 or not. Pause is controlled by
 depressing the 'Space Bar'. Resume is
 done by pressing the 'S' key. The
 TUTOR program is well done and it shows
 the author spent some time on it.
 After the TUTOR is finished, you will
 be sent back to the main program.

TI-BASE is a very complex,
 inter-relational data-base. That's
 right, I said "inter-relational". You
 can open up to 5 different data files
 at one time and move from one to the
 other with the "SELECT" command. This
 allows you to scan different data-files
 for common related data and print or
 display it as you so choose.

This alone was impressive! But,
 there's more! (That's plus #2)

You have the ability to create a
 "COMMAND" file with a DVBO text editor.
 The "COMMAND" file will "run" and
 operate your data base for you. (up to
 a point). Similar to the "batch" files
 on the "other" system. (That's plus
 #3)

You "CREATE" your own data-fields.
 The prompts let you know how much space
 is available for the field title, etc.
 You may have up to 17 fields, and 255
 characters in each field. The optimum
 storage will allow 16,129 records in
 one data-base. Note Ver 1.01 will only
 hold 8,192 records. (Only, gee!)

You can SORT on any field (this can
 be slow if the Data-base is large),
 FIND any item in the Data-base in rapid
 time. You have 12 mathematical
 functions available, including SQR,
 LOG, SIN and ATAN to name a few. You
 can Concatenate the characters, TRIM
 trailing blanks, 5 BOOLEAN commands as
 well as several LOGICAL commands. The
 DATE is preset for Month, Day and Year.
 ie: 06/21/88. This is handy for
 entering dates in your assigned field
 (if you create one). (Plus #4)

You can MOVE data from one slot to
 another at your will. EDITING is fast
 and you can EDIT either by record or by
 Paging forward and backwards. Or,
 using the FIND command to locate a
 particular file. You may DELETE an
 individual record or the entire
 Data-base with one keystroke (warning,
 it is FAST).

Continued next page.

Reprinted from West Penn 99'ers newsletter:

The APPEND mode allows you to input data and will add the data into the file as quickly as you can hit either Enter after the last field or F-8 (EXECUTE). F-9 (ESCAPE) will ignore your last input and return you to the master command prompt. You may MODIFY your fields as you choose, but, like any good data-base, you could lose data if your field length is different than originally created. A warning prompt will respond if this can happen, and the decision will be up to you to proceed. (Plus #5)

My demonstration of this unique and exciting new program appeared to go well with our Users Group and I did place several orders with INSCEBOT for the package.

In closing, I must state that TI-BASE is definitely not for the 'Novice' TI user. You must have 32K, RamDisk (optional), several disk drives (preferred), with a printer (optional). It will work out of Extended Basic, Editor-Assembler or Mini-Memory.

Some of the drawbacks are:

1. Slow loading
2. Slow sorting
3. Manual could be improved both in content and choice of print.
4. A sample data-base included with the program might help to illustrate the various features in actual use. The TUTOR file is nice, but an actual hands-on file would be better.

The pluses are:

1. Speed of the actual search and commands.
2. The ability to sort on any field.
3. The ability to find your particular data FAST!

3. Automatic saving of your data prior to quitting.
4. The large (extremely) storage capacity.
5. The interaction between up to 5 data-bases at once.
6. The large mathematical capabilities. (CFS is the closest).
7. The inter-relational capabilities.

This is the first I have ever seen for the TI. (ACORN 99) was too complex and slow. TI-BASE is FAST!

For the small investment that INSCBOT is asking, \$24.95 + SH, I would highly recommend it to anyone who needs a GOOD Data-Base. If Texas Instruments would have introduced this back in the beginning, there would not have been a 'Black Friday'. This has anything that I have seen on the '64' put to shame.

The service that I received from Dennis Faherty has been superb. I discovered a mild 'bug' in ver 1.0. I called INSCEBOT the following morning and Dennis returned my call that evening. Version 1.01 was shipped out the very next day. I talked to INSCEBOT today (6/21), placing my order and giving him my gripes and pleasures. He indicated my suggestions were very welcomed. I like dealing with INSCEBOT and would recommend them to any and all.

Now, if only the authors of FIRSTBASE would respond to my earlier request, I could make a fair comparison.

Respectfully yours,
 Barry Long
 Central PA 99/4A Users Group
 P. O. Box 14126
 Harrisburg, PA 17104-0126

The 5th Wave

Richard Tennant



"ALRIGHT, STEADY EVERYONE. MARGO, GO OVER TO TOM'S COMPUTER AND PRESS 'ESCAPE' ...VERY CAREFULLY!"

ZIGGY

• JUST MY LUCK! I'M A 512K, RANDOM-ACCESS MEMORY, DUAL FLOPPY... DISK-DRIVE, STATE-OF-THE-ART COMPUTER ... AND THE MOST CHALLENGING THING YOU'VE GIVEN ME TO DO IS FILING YOUR BEAN DIP RECIPE!



Reprinted from Kawartha Kronicle (Peterborough, Ontario):

PRINTER HELP!

by Phil Townsend

For the past two & a half years my printing needs have been faithfully met by my Roland DG printer. It is a wide carriage, Model PR-1215, and up until a month ago has performed yeoman service. I say until a month ago because at a bout that time (shortly after the warranty expired of course -Murphy's 47th law!) paper began to jam underneath the platen. It didn't seem to matter what type, weight or quality of paper it all caught equally well!

After several long distance phone calls to the Roland DG head office in Toronto and then to the company which is currently doing Roland's servicing, again more long distance calls, I was told that the service costs to get my machine operating again would run about \$100.00 and the printer would be gone from one to four weeks. These words of good news came from a "techie" over the phone without having seen the printer. I shuddered to think what the cost might become once the serviceman had possession! Both parts of this arrangement were disagreeable to me. The cost was out of line and I certainly couldn't do without a printer for that length of time!

I then thought of Jim Foster, a valuable "techie" in our group and Jim is also in the computer business and his company sells Roland equipment. A phone call to him told me that help might be close by.

The following day my printer and I stopped by Jim's. I think those wide carriage printers should come equipped with those suckers are heavy! So I had the outer case off and the control panel disconnected. Now to find the problem. Jim tried the paper feed and the first time, wouldn't you know it, the paper sailed through giving only a hint of the former problem. It was behaving in the same maddening matter as my car does when I take it to a garage for repair work! (one of Murphy's Laws again).

I convinced Jim that he really should try it again, he did and this time the paper gracefully jammed and began to crinkle itself until the printer was turned off.

My face glowed with vindication! Now to fix the "little" devil. We performed the usual feats of technical wizardry such as blowing out the amassed dust and paper bits.

Next we used the hi-tech trick of cleaning the platen with a controls cleaner. This type was especially produced so that it left no residue and was safe to use near plastics. A word of caution here, some cleaners aren't like this and if you use them you will see important parts of your printer quickly dissolve in front of your very eyes!

Now for the all important field test, Jim fed the paper in, turned on the form feed and low and behold, the problem was as evident as when we first started! We were convinced that it was a dirty roller problem, but how to get at the rollers underneath the platen. To get at them directly we would have to tear down the entire machine, neither of us wanted to even think along those lines.

Suddenly, it hit...why not spray the paper with the cleaner and then feed the paper through the printer by hand. Using a high quality, medium thickness paper, we partially fed it under the platen. Then Jim heavily sprayed the exposed end of the paper with the cleaner. We fed the next few inches through and sprayed again. We kept this up until the entire sheet had passed between the platen and rollers and fed out of the printer. The underside of the paper had become smeared with ink stains from the bottom rollers.

We repeated this whole procedure several times each time using a fresh piece of paper. As we progressed the ink stains became fainter with each successive sheet, eventually disappearing altogether.

Once again the trial by fire. Hesitantly, my fingers trembling with excitement, I fed the paper under the platen, hit form feed and held my breath! The sweet sound of rollers and NO CRINKLING! Success had come with only an hour's worth of time invested and \$5.00 for a can of contact cleaner. Soon the cover was back in place, with no screws left over, Murphy must have been on vacation.

I am pleased to announce that I have had no further problems with the printer, only my lack of typing skills. So if you run into similar difficulties, don't pay out the "big bucks" too soon, try a little common sense first.