IN THIS ISSUE-

CLOADG- Auto-execution for BASIC programs
Introduction and notes by L.Kobylarz

The first program I keyed into my Sorcerer and tried to save on cassette was a program out of The Sorcerer's Apprentice, Vol 1, No.1 which moved a dot around the screen. Being very imaginative, I called it "GAME". After several hours of trying to CLOAD GAME, in desperation I finally gave the program another name, "DOT", and it CLOADed. Later, I was told that the reason you can't CLOAD programs with names that start with "G" is because of the CLOADG commmand. I didn't understand how this could conflict if we didn't have a CLOADG command in our BASIC but now I have the answer.   -L.K.

CLOADG- from the Sorcerer Computer Users of Australia Newsletter
Load and go! In order to save a BASIC program so that it will auto-execute when loaded with the command CLOADG (NAME) the following procedure must be carried out:

1. Key in or CLOAD a BASIC program. The program must have a line 0. If it does not add: 0 REM.
2. Go to the monitor. Enter BYE (CR)
3. Set the GO address to C858. SE X=C858 (CR)
4. Set the file type to 7F. SE F=7F (CR)
Note by L.K.- The Australian article said to set the file type to 8E; however, this didn't work on my machine and in some documentation about file types I found a statement that said file types should be less than 127 decimal to work with auto-execution. I used 7F; some lower values also worked.
5. Find the address of the end of your program. The BASIC program end pointer is at 1B7,1B8. DU 1B7 1B8 gives you the end of program address with 1B8 being the most significant digit- XX and 1B7 being the least significant digit- xx.
6. Save the program on tape using the monitor SAVE.
SA (NAME) 1B7 XXxx
7. To load-run the program you must specify the program name. CLOADG (NAME).
Note by L.K.: The program can also be loaded and run, program name optional, with the following commands:

     a. LOG (CR)
     b. CLOAD (CR)- RUN (CR)
     c. LO (CR)- GO C858 (CR)
     d. LO (CR)- PP (CR)- RUN (CR)

REMARKS FROM THE READERS-

Heathkit Printer on the Sorcerer- Dennis Lipovsky, 495 Groom St., Perth Amboy,
NJ, 08861 says "I just plugged it in to the serial port and it started working!
Hard to believe?".

Integral Data Printer on the Sorcerer- Hunter Marion, Quaker Photo Service
Co.,Inc., 1025 Arch Street, Philadelphia, PA, 19107 says "The IDS 225P does not
have a Centronics cable configuration. The printer requires a driver routine for
my Lifeboat CP/M disk system and another driver routine for Exidy BASIC. To be
able to use the Mail-merge Macro in the Word Processor PAC, I purchased the
"DISKDRIV" program from Exidy which doen't work with Lifeboat CP/M. You have to
purchase another CP/M from Exidy. Naturally their CP/M does not allow my driver
routine to work. Anyway, I still cannot do the Mail-merge Macro. Have you had
any better luck than I?"

S-100 Expansion to 48K- Hunter Marion added the Model RAM16 16K static RAM board
from AB Computers, Montgomeryville, PA. After addressing the sl DIP switch to
"off-on-on-on-on-on-on" it provides 48K total RAM but it will not work with the
BASIC ROM PAC in place. It will work with the disk BASIC or CP/M. It may be the
4K memory blocks could be split up to allow using the BASIC ROM PAC. Does anyone
know?

SSM SBI Music Board- Adrian Ashfield, 911 Rainbow Drive, Lancaster, OH, 43130 is
having the following problems with the SSM SBI Music Board kit.
      1.The machine language program that comes with the kit is just an
interpreter. It is 40 pages long and I will provide a cassette to anyone to save
them the trouble of keying it in. I now have to write a program to enter the
commands for the interpreter to interpret. What I don't understand is how the
interpreter can be fed the commands sequentially to play real time music. M.
Wright of SSM says that all one needs to do is write a file for a CP/M system.
Needless to say I don't have a disk.
      2. When I turn on the S-100 expansion unit it blows any program in the
Sorcerer RAM. With the S-100 unit on and the interpreter loaded, anything I type
in just gets an "INVALID ENTRY" response.

Any help readers?

REVIEW OF STALEY SOFTWARE- by Steve Guralnick

FAMOUS AMERICANS

This is one of those educational games from Staley. I under-
stand that Staley won the Educational division of the Exidy
software contest with a companion program: "U.S. Presidents."

The names of famous Americans are output to the screen in a
scrambled version. The idea is to unscramble the name, (first
and last). If you cannot do so, clues are furnished, but the
score goes down. A graphic "Uncle Sam" on the screen lets you
know if you are right or wrong.

This is an intriguing game; although I think it would primarily
be of interest to about high school level, it could be good fun
at a party, particularly if you have some people in who think
computers are a menace.

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          The Sorcerer's Apprentice
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envelopes are furnished. Because some issues might exceed the one ounce limit
for 15 cent postage, affix one stamp to the envelope and include extra stamps or
contributions to help defray the publishing costs.

Individual copies of Vol.1 back issues are no longer available. See the next
issue for the availability of a complete, editted set of Vol.1.
Back issues of Vol.2, Nos.1 & 2 are available for $.75 each.

LEARNING TO USE THE DEVELOPMENT PAC - by Larry Stempnik

Editors note: Larry is going to write a continuing column which will document
his experiences in learning to use the DEV PAC. If any of you readers want to
learn along with him, drag out your PACs and read on.

How many times have you heard or read "I have a Development Pac but I don't
know how to use it". Well, I don't know all about it either. However, I have
found out how to use it for a few things of interest. Hopefully, with more
effort, experimentation, and lots of help from you readers, we may learn how to
use this useful tool. Any documented examples of how to assemble a small
program would be appreciated. Please send them to me at:

           433 Minnesota   Troy, MI 48084

GETTING STARTED - using the Editor

The best place to start is Page 38 of the Development Pac Manual. If you have
never used an assembler before, the rest of the manual will probably only
confuse and frustrate you. Try to load the example program on Page 39 using the
procedure listed in the manual. For now don't worry about the differences
between vector tables and I/O drivers, just do exactly what the book says to do.
NOTE: do not type a space after M or E when entering the memory modify or editor
commands, the Pac inserts the spaces for you. The :SO driver is:01, not zero
one. Also, # signs are used instead of the * in the book. (editors note: my
version uses the * sign)

Print the file using B200T(CR). It should look like the listing on Page 39.
Next, save the file on tape. If you have a serial data cable follow the
instructions in the book. If not, then type E(CR). After the computer response
to "hit any key", press RECORD on the tape recorder, wait a few seconds, and
then hit any key. Watch the screen for a new prompt to tell you when the
recording session is over. Rewind the tape to its starting location.

Next, test the tape to verify the text was recorded correctly. Turn power off
to clear memory. Then assign the drivers as before except for :SI. Respond
with :I1 since the text will be coming in from tape number 1. Follow the
instructions of Page 40. After the computer responds with "hit any key", push
the PLAY button on the recorder and hit any key. List the file using B200T(CR)
to verify it was loaded correctly. At this point, do as Exidy says
"EXPERIMENT". Develop confidence in your ability to enter assembly code using
the Editor and to save it correctly on tape with either the serial data cable or
manual operation. Remember,you would not want to type in 500 lines of code, and
then lose it all because of a small error.

Editors note: The routine in EXPERIMENT #1 which follows was inserted by me. I
don't know how to write assembly language but as I was editting this article and
trying out the experiment, I put together this routine. Maybe some reader can
rewrite it the way it should be written. How do I insert text? There must be a
better way.

EXPERIMENT #1- For the first complete assembly example use only the keyboard
entry of assembly code and RAM based operation.

First enter the vectors. See page 8 for "M" secondary commands.
Hit RETURN after each of the following entries.

```
.M :CI
:CI :SK
:CO :SV
:OI :AO
:OO :AI
:SI :BI
:SO :SV
hhhh hh . (note: the "." period ends the "M" command)
.E :ED
*I
;
;This routine will print a message
;in the center of the screen
;
MESSAGE EQU     $
START   LD      HL,0F420H
        LD      DE,TEXT
PRINT   LD      A,(DE)
        CP      00H
        JP      Z,END
        LD      (HL),A
        INC     HL
        INC     DE
        JP      PRINT
END     JP      0E003H
TEXT    DEFB    53H
        DEFB    4FH
        DEFB    52H
        DEFB    43H
        DEFB    45H
        DEFB    52H
        DEFB    45H
        DEFB    52H
        DEFB    00H
        DEFB    00H
(ESC)
B200T
E
.M :SI (Change vectors as follows)
:SI :BO
:SO :SV
hhhh hh .
.E :AS  (Program will be listed in Z80 codes)
.L 0000,0200 (Computer responds with addresses)
*. (The "." period gets you out of the loader and into the monitor. At this
point the program is stored in RAM starting at address 0000 and is ready to be
used or moved if it is relocatable.)
(CLEAR) Clear the screen
GO 0 (to see the message.)
```

EXIDY BASIC FLOATING POINT ARITHMETIC- by Ronald J. Lomax

Central to floating point arithmetic operations in Exidy Basic is the floating
point accumulator, which will subsequently be denoted ACC. This consists of the
following memory locations (hexadecimal will be used for all memory references):

          01BF   Least significant byte (LSB)
          01C0   Next most significant byte (NSB)
          01C1   Most significant byte (MSB)
          01C2   Exponent (EXP)

The binary point appears to the left of the MSB. The most significant bit of MSB
is always understood to be 1 but it is not stored; instead this bit gives the
sign of the number: 0 for + and 1 for -. In addition frequent use is made of the
Z80 registers BC and DE. BCDE will be used to refer to these registers when they
are used to store a floating point number. The order of this storage is:
(B)=EXP, (C)=MSB, (D)=NSB, and (E)=LSB where here and subsequently ( ) is to be
interpreted to mean "the contents of".

The basic arithmetic operations deal with BCDE and the floating point
accumulator and are of the form: (ACC) -- (BCDE) operator (ACC); where
"operator" is an arithmetic operator. These will be denoted by Z80 like·
instructions: OP BCDE,ACC ; but they are implemented by Z80 subroutine CALL
instructions to the address indicated. (HL) and (DE) refer to the 4 byte
floating point number which has its least significant byte in the location
pointed to by HL and DE respectively (and stored as usual in order LSB, NSB,
MSB, EXP).

ADDRESS	INSTRUCTION		OPERATION	
D638	LD	ACC,BCDE	(ACC)	--(BCDE)
D643	LD	BCDE,ACC	(BCDE)	--(ACC)
D635	LD	ACC,(HL)	(ACC)	--(HL)
D64F	LD	(HL),ACC	(HL)	--(ACC)
D646	LD	BCDE,(HL)	(BCDE)	--(HL)
D652	LD	(HL),(DE)	(HL)	--(DE)
D3AF	ADD	BCDE,ACC	(ACC)	--(BCDE)+(ACC)
D3A0	ADD	(HL),ACC	(ACC)	--(HL)+(ACC)
D3AC	SUB	BCDE,ACC	(ACC)	--(BCDE)-(ACC)
D3A6	SUB	(HL),ACC	(ACC)	--(HL)-(ACC)
D4EC	MLT	BCDE,ACC	(ACC)	--(BCDE)*(ACC)
D54D	DIV	BCDE,ACC	(ACC)	--(BCDE)/(ACC)

In addition the following is used to change the sign of the accumulator
contents:

          D620   NEG ACC   (ACC) -- -(ACC)

There are some auxiliary instructions which may be useful. These must be used by
a Z80 jump (JP) instruction and will return to the Basic program; thus they must
be the last instruction in the subroutine. They assume that the first operand is
stored on the stack, STK (4 bytes, least significant first).

```
D7A2     ADD  STK,ACC          (ACC) <--(STK)+(ACC)
D3AA     SUB  STK,ACC          (ACC) <--(STK)-(ACC)
D4EA     MLT  STK,ACC          (ACC) <--(STK)*(ACC)
D54B     DIV  STK,ACC          (ACC) <--(STK)/(ACC)
D8C3     PWR  STK,ACC          (ACC) <--(STK) (ACC)
CCA8     AND  STK,ACC          (ACC) <--(STK)AND(ACC)
CCA7     OR   STK,ACC          (ACC) <--(STK)OR(ACC)
```

These routines POP BC and DE from the stack. They cannot therefore be CALLed
since they have two more POP than PUSH instructions. To even up the POP and PUSH
instructions the stack can be loaded from the accumulator by a CALL to:

```
D628     LD   STK,ACC          (STK) <--(ACC)
```

The Basic arithmetic functions are also available. These get their arguments
from ACC and leave their result in ACC. They are used by a Z80 CALL to the
following addresses:

ADDRESS	FUNCTION	ADDRESS	FUNCTION
D61C	ABS	D999	RND
DA8A	ATN	D606	SGN
DAOE	COS	DA14	SIN
D908	EXP	D8BA	SQR
D6CA	INT	DA75	TAN
D4AB	LOG	0103	USR

BOOK OF SORCERY- Program listings from Exidy/University Software
review by L. Kobylarz

    The Sorcerer's Apprentice Users Group has obtained a set of the program
books which contain selected programs which were submitted to Exidy by Sorcerer
users. The set consists of five volumes and sells for $140. Last month Exidy
told me that the books were only available as a set. University Software
Inc.,P.O.Box 4544, Stanford, CA 94305 published the books and might have them
available individually.
    I haven't keyed in any of the programs yet. Our group will be doing that
over the next month. My first impressions of the books are: 1. It's good to have
something coming out of Exidy for The Sorcerer. 2. The price seems high,
especially for the business programs (Vol.1=$49.95). 3. If anyone got paid for
editting these volumes they should be prosecuted for obtaining money under false
pretenses. The listings are reprinted exactly as submitted by the authors. Many
typos, wide variations of print quality (legibility is good on almost all), no
consistency in documentation or instructions, several listings had lines which
were overprinted by the next line when the printer failed to space the paper. As
our group types in these listings and runs the programs, we will publish any
corrections that need to be made. If anyone else is using these programs, please
write to me about your experiences.
    Vol.1- Small Business contains: Savings and Loan, Mortgage Analysis,
Materials Inventory, Small Business Accounting, Distributions Mapping, Network,
Timer, Optimum Job Assignments, Electric Company, Touch-typing Course, Billing
System, Roundoff-error-free LP Code, Alphabetized Index, Lores, Cross Reference,
Amplitude Plot, Tax, Investment Management, Time Use Analysis, PERT/CPM, Phone,
Polyplot, Hi-plot, Double Variable Functions, Letter Generator, RPN Simulation,
Plot, Graphing Quadratics.

STEVEN GURALNICK
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THE WORK PROCESSING CORNER   #7

From the number of telephone calls and letters I get, I deduce that just about no
one knows what the autocommand feature is, so let's spend a little time on it. You
all know, that there are a series of commands in this program which execute in the
COMMAND mode. D to delete lines, H to hold lines, F to go forward, etc. The auto-
command routine lets you execute several of those commands at one time.

For example, let's say you are in the middle of a document and want to go to the top,
empty the holding buffer, hold the first five lines, unload them where they were,
go to the end of the document and unload them again there. To do this, you will
execute the following COMMAND mode commands: T (to go to the top), HO (zero) (to
empty the buffer), H5 (to hold the first five lines), U (to unload the text at the
same location), E (to go to the end of the file), and U (to unload the same five
lines again).

Instead of executing this as a separate series of commands, try this: in the COMMAND
mode, make the following entry: T/HO/H5/U/E/U   followed by a carriage return.

Instantly, the program will take off and execute the entire chain of commands. When
done, you will have what you set out to do.

The autocommand routine will take up to sixty characters of instruction. There are
numerous possibilities. For example, suppose you have had to stop the print in the
middle and now want to start over again, five lines from the top. T/F4/P should do
it. (Note, that's F4 if you want to start on the fifth line.)

More important, by entering a number to the left of the autocommand, you can get a
repeat performance without intervention. For example, suppose you want to test a
print routine with a line which just says "THIS IS A TEST". If you want a decent
test, of say 50 lines, hold the test line in the buffer and then enter the command
50u. That will produce 50 lines. Or, you can just work with the one line, like so:

                                        50 T/P

That will, fifty times, go to top of file, print, go to top of file, print, etc.

One last item: there is a command in this called "I". the insertion of the "I" in
the chain will interrupt the process and you can re-start it with a tap of the space
bar. For example, suppose you are running out a ten page document on single sheets
and want to insert fresh paper. Let's assume the page is 23 lines long. Enter
10 P23/I. At the end of every 23 lines, the printer will stop. Change sheets and
tap the space bar and go again.

It doesn't matter if you enter commands with capitals or lower case letters.

See you again!

EDITOR FOR BASIC- rereprinted from the SPEC Newsletter, Formby, England.
Originally printed in the Sorcerer Users Group Newsletter of Sydney, Australia

The following is a listing of an editor for Standard Exidy BASIC. It must be
loaded from address 0000 hex in monitor and must be checked thoroughly before
using it, as most assembler programs destroy the contents of your memory if they
contain any errors. To use the editor, after it is loaded, go into BASIC. If
writing a new program, enter the following as the first program steps:

        0 GOTO 10 (or first line number after the next line)
        1 POKE 260,0: POKE 261;0: X=USR(X)

Start writing your program in the usual manner starting at line 10 (or other
line as entered in line 0).

If you are editting a previously written program then add the above program
steps at the beginning of your program. They can be deleted after editting.

So far, when you keyed in errors, in your BASIC program, you had to retype the
whole line. From now on, correct errors in the following manner:

        1. List the program and stop the listing when the line containing the
        error appears on the screen. When writing new programs and you want to
        use the editor on the line you are typing, hit (CR).

        2. Call the Editor- type in GOSUB 1 and hit (CR). The cursor should
        now be flashing. If this is not the case, you went wrong somewhere.
        Check your listing; make sure you called GOSUB 1 not 0. (editors note:
        I have keyed in this program and it works. The listing is a DUMP from
        my machine. When I first keyed it in and it didn't work I spent 2
        hours checking my listing only to find out I was calling the wrong
        program line.)

        3. Move the cursor to the line on the screen containing the error
        (Arrows on numeric pad will get you there). Positon cursor at the
        character in the line where the correction is to be made.

        4. Make your correction- The three type of corrections that can be
        made are:

                A. Overwrite- simply type over the old text with your
                correction.
                B. Insert- use CTRL I to expand the text by one for each
                time you depress the key.
                C. Delete- use CTRL D to delete a character. Text is moved
                to the left to fill in the hole.

When you are finished editting the line you must hit (CR) twice. It is vital
that you hit return twice! The editting functions on one line only. That line is
where the cursor is at at the time you hit (CR). Whatever is on that line is
accepted as input. If a line goes over 64 characters you lose whatever is on the
second line. One-stroke instructions are accepted. List the line to check if the
correction was done properly. To correct another line type in GOSUB 1 again.

SCREEN- AN EDITOR FOR EXIDY BASIC
COPYRIGHT (c) 1980 BY C ALMER
**** VERSION 2 FEB 1980 ****

ADDR	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0000:	CD	F1	00	CD	C6	00	28	FB	FE	17	28	12	FE	1A	28	0E
0010:	FE	11	28	0A	FE	01	28	06	FE	13	28	02	18	05	CD	F0
0020:	E9	18	E0	FE	04	28	38	FE	09	28	1F	FE	0D	28	58	CD
0030:	7C	00	CD	0C	E0	18	CC	CD	D6	E9	E5	21	40	00	37	3F
0040:	ED	52	E5	C1	E1	09	2B	E5	D1	C9	CD	37	00	E5	D5	C5
0050:	CD	E8	E9	C1	D1	E1	2B	0B	ED	B3	CD	CC	E9	18	A4	CD
0060:	37	00	C5	D5	E5	CD	E3	E9	E1	D1	C1	37	3F	ED	42	23
0070:	23	E5	D1	1B	0B	ED	B0	CD	CC	E9	18	87	FE	1B	CA	FA
0080:	DF	FE	7F	C0	3E	08	C9	CD	E8	E9	CD	D6	E9	37	3F	ED
0090:	52	11	4C	01	01	40	00	ED	B0	EB	2B	3E	20	06	3F	BE
00A0:	20	06	36	00	2B	05	18	F7	23	E5	21	A0	01	36	00	CD
00B0:	A2	E1	3E	00	CD	E6	00	00	00	E1	3E	0D	11	6F	C3	D5
00C0:	C3	3F	C5	00	00	00	06	10	CD	E8	E9	CD	09	E0	20	10
00D0:	10	F9	06	10	CD	CC	E9	CD	09	E0	20	04	10	F9	18	E6
00E0:	F5	CD	E8	E9	F1	C9	D9	FD	73	68	FD	72	69	FD	74	67
00F0:	C9	CD	A2	E1	FD	5E	68	FD	56	69	FD	66	67	D9	C9	00

SOFTWARE REVIEWS- by L. Kobylarz

Howard Arrington's Software Service of Boise, Idaho has available, in his latest catalog, for the Sorcerer, the following items:

Music System	$40	Quick Edit (text editor) $10	
Othello	$10	Editor for BASIC	$25
Disassembler	$10	Graphics Package	$25
3D Tic-Tac-Toe	$10		

When ordering any item, specify your Sorcerer size- 8K,16K,32K, or 48K.

Howard is an electrical engineer designing Z-80 products and programs professionally. He is anxious to help Sorcerer owners with any of their problems and can be reached at his home phone. For a catalog describing the above items or to place an order write or call:

        Howard Arrington
        9522 Linstock
        Boise, Idaho 83704
        Home phone- (208) 377 1938 after 6:00 pm Mountain Standard Time

EDITOR FOR BASIC- I have used Arrington's Editor and it is a pleasure to use. It is a machine language program and loads in high memory but allows plenty of room for string variables. It loads with the monitor LO command. A back-up copy of the program can be easily made. A SET INPUT command to the starting address of the program (SE I=nnnn) lets the Editor watch the keyboard input. Cursor movement keys on the numeric keypad activate the Editor and move the cursor. The cursor changes to the inverse video of the character it is sitting on. Editting commands are: Insert, Delete, Overstrike, and Rubout.

Other features include: a built-in RENUMBER routine, the CLEAR key will not produce a SYNTAX ERROR, RUBOUT doesn't require the SHIFT key depressed, REVIVAL of a program if CLOAD or NEW was inadvertantly used, and a TAB function with tabs preset every 3 columns.

This is a good Editor, professionally done. I also have the Graphics Package which I will review in the next issue.

NEW PAPER TIGER PRINTER

Sneak preview by L. Kobylarz

One ongoing project at Northern Telecom Systems Corp., where I work as a Product
Design Engineer, is the evaluation of low-cost printers. The other day repre-
sentatives of Integral Data Systems came in to demonstrate a new printer and the
thing that attracted my attention was the Sorcerer they brought in to run their
demo program. I sat in on their presentation and I was impressed by the new Paper
Tiger Plus.

The IDS 460 - Paper Tiger Plus looks like the currently available IDS 440 - Paper
Tiger from the outside. Once it starts printing the similarity ends. The new
9 pin head has a unique pattern which prints overlapping dots which results in
correspondence quality printing in a single pass. The quality of the print is a
great improvement over regular non-overlapping dot format althought it is not
Selectric or fully-formed character quality. (see sample)

PAPER TIGER
IDS-460

* State-of-the-art Head Technology
- Staggered 9-wire head provides overlapping
  matrix print
- Rugge 'ballistic' print head with
  long-life reliability
- Bidirectional logic-seeking printing for
  optimum throughput

The character set includes all ASCII codes (upper and lower case). Other features
include cartridge ribbon, sustained 120 cps - bidirectional printing, proportional
printing with RH margin justification, ability to change pitch of characters by
software control, both serial and centronics compatible parallel interfaces are
built in, heavy duty stepper motors for print head movement and paper space.

The graphics feature will be available. Their marketing strategy is not final. It
will either be included on all machines as standard or will be available as an option
for $99. It will include a 2048 byte buffer and be able to print whatever you have
displayed on the screen. Remember the picture of the tiger that IDS runs in their ad?
They do this one with a Sorcerer. If you are interested in a printer with "graphics
capability" be careful about what the manufacturer means when he says "graphics".
The Microline "80" "graphics" feature provides a character set that will print
"chunky graphic characters" or low resolution graphics with these special characters
(similar to Pet graphic characters) these are called by the ASCII codes 128-255.
This isn't the same as the "graphics capability" of printing out the monitor screen.

The IDS 460 Paper Tiget Plus was announced at the NCC show. The model I saw was one
of six that IDS has built. It will be available this fall.

If you are looking for a matrix printer with word processing features but wanted
better print quality than what you have seen so far on the low-cost printers
(Centronics 737, Microline 80, IDS 440), watch for this one. It has the best print
quality, in its price range, of any printer I've seen. The list price will be $1295.