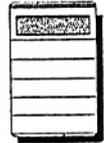


IPSO FACTO



The Newsletter of the International Psion Organiser User Group

Volume V . No. 1 . March 1991

Office: 130 Stapleford Lane . Toton . Beeston . Nottingham . NG9 6GB . UK

Editor: Mike O'Regan . Phone: (0602) 735482 .

Editorial

E-Mail Link Stopped

My e-mail box (which has had little use over the past months) now no longer exists. Microlink ceased operation at the end of February and I have chosen not to continue with my mailbox.

Thanks!

Many thanks for the following contributors to IPSO FACTO, Volume IV.

Bill Aitken, Kevin Ash, Russ Beinder, A.J. Borthwick, Bob Britten, Frank Cook, Mike Davies, Neil Draycott, Neil Favager, Nick Frank, David Green, Graham Hewitt, Jeremy Holt, Peter Houppermans, Percy Johansson, Geoffrey Miller, Dick Morgan, Adrian Pegg, L.J. Piper, M.J. Siddiq, Tony Spencer, Michael Walsh, Julian Water

Thanks also to those who have submitted material which I have not yet used. Every submission is considered for publication and almost everything will be published sooner or later.

IPSOMEET 91

I am at the stage where I do not have enough feedback from those who renewed to decide whether or not to hold a meet this year.

Many returned their Renewal Forms with no indication of whether they are interested or not. I am very carefully weighing up the information I have received.

Last year the Meet showed a £300 LOSS, and, while I do not regard the Meet as an opportunity to make a profit, I cannot accept a loss (which was mainly because of members promising to come - without prepayment - and then not turning up!).

Our fine buffet fed half of the local population last year!

If IPSOMEET 91 goes ahead, it will be held in the same venue (Long Eaton, Derbyshire) as the last ones. The Meet may be one or two days (Saturday/Sunday), probably in June or July. The cost (including coffee and midday lunch) will probably be around £8.

If you have not yet indicated an interest, please let me know as soon as possible as the venue must be booked well in advance.

I will have more news on this subject next month.

Machine Code Articles

I have news that a series of Machine Code articles will be starting soon (maybe next month), which will be good news for those who have contacted me on the subject.

Members' Details

Quite a few members indicated on their Renewal Forms that they would like to see a complete list of Members Names, Addresses, and Phone Numbers. I am taking this opportunity to say that I cannot do this for a number of reasons, not least the Data Protection Act, but also the fact that many members object to this, and I respect their wishes

Contents

Editorial	1
Beginners Page	2
Progs & Procs	4
Software Article.	6
Reviews & Feedback. 7	

Beginners Page - 1

by Mike O'Regan

Did you manage to get last month's procedure fitted in with the others on the menu of DB:? If you didn't manage it, here are the instructions to help you get it installed:

1. From the Main Menu select PROG.
2. Press <EXE> to select EDIT A:
3. Key in DB
4. Use the DOWN ARROW key to move to Line 3 (which starts with option% and contains the menu items)
5. Use the RIGHT ARROW key to move the cursor to the "-" before Erase.
6. Key in Total,
7. Move down to the line which starts "PRINT "Are you sure...."
8. Press <EXE> to give a blank line
9. On this line key in:
dbsubtot: :GOTO st:: <EXE>
ELSEIF option%=5 <EXE>
- 10 Finally, move down to the next-to -last line and change the option%=5 to option%=6

That's it!

As a final check, your db: procedure should now be:

```
db:
LOCAL option%, yn$(1)
OPEN "A:MEMBER", a, name$, phone$, subs
st::
[option%=MENU("Add, Find, Erase, Total,
-Delete, Quit")]
IF option%=1
  dbenter: :GOTO st::
ELSEIF option%=2
  dbfind: :GOTO st::
ELSEIF option%=3
  dbera: :GOTO st::
ELSEIF option%=4
  dbsubtot: :GOTO st::
ELSEIF option%=5
  PRINT "DELETE FILE"
  PRINT "Are you sure"; CHR$(63),
  yn$=GET$
  IF UPPER$(yn$)="Y"
```

```
CLOSE
DELETE "a:member"
ENDIF
GOTO st::
ELSEIF option%=6
  STOP
ENDIF
```

Now that we have this procedure installed as part of our database manager, let us have a quick look at what facilities we have and what still remains to be done.

Well we have facilities to OPEN a file, to ADD records to it, to ERASE records, to FIND records, to TOTAL all subscriptions, and, finally, to DELETE the file when it is no longer required.

It is time to pause in the development of our database-handling suite. First of all, we should realise that most of the features have been covered already and it is perhaps time to have a bit of feedback from you readers about what remains to be covered.

In the meantime it might be a good plan to have another look at database features in general and the way that the Organiser handles these in particular. I am going to do this by answering a series of questions which are frequently asked about these topics.

Q1. Can the Organiser handle more than one database file without writing any procedures to handle them?

A1. There are a number of answers, which in part depend on which model Organiser you have and also if you own data or RAM paks. If you have a LIZZY, then you can have a number of different database files, all of which behave and can be handled just like the in-built MAIN file. All that is required is to use XFILES first to CREATE a new file and thereafter access items in this file also through XFILES, in the normal way. However, if your Organiser is a CM or XP, then you are limited to one file (MAIN) on each device. This means that if you own data or RAMpaks these can each contain their own MAIN file, any each of these can be accessed from the Main Menu by using FIND and SAVE, etc in the normal way.

Q2. Is there a limit to the number of records in each file?

A2. In spite of some information to the contrary, the number of records is only limited by the storage

Beginners Page -2

space available. I have worked with Organiser files with well over 1000 records with no problem.

Q3. Is it possible to write a database for the Organiser on another computer using, say, an ordinary word-processor.

A3. It is a fairly simple task to prepare a file in this way, and, if you have a Comms Link, to transfer a workable file to the Organiser.

Each RECORD should be on a single line, with each FIELD separated from the next by a TAB (press the TAB key). Pressing RETURN will start a new record. Remember that the maximum number of characters in each record is limited to 254, and that the number of fields should not exceed 16.

When you have finished writing the file it is essential that it is saved as an ASCII file (and not in the format imposed by the individual word-processor. The file-name must have the suffix ".ODB" so that it will be recognised by the Comms Link software and the Organiser.

Q4. I have transferred a database from my PC to the Organiser and I now find that each record consists of a single long line, whereas it had separate fields on the PC. Why is this?

A4. The default FIELD SEPARATOR on the Organiser is different to other machines. The Organiser uses a TAB character (ASCII 9), whereas many other machines use a COMMA (ASCII 44). If possible, it is best to change the field separator on the PC file to a TAB, otherwise there may be problems if COMMAS occur in the actual data (which could start an unwanted extra field!). If this is not possible, it is an easy matter to change the TAB character on the Organiser to a COMMA to match the PC file.

Q5. Can I re-arrange my file into alphabetical order?

A5. Before I answer this, ask yourself why you want to do this. Unless you want to print a hard-copy of your database, there is little reason to sort your file into any order other than the order of entry.

As you are aware, the Organiser's FIND command will enable you to get at any record (or combination of records) within seconds. Another consideration is that sorting processes gobble up a lot of memory and sometimes, if your file is a large one, there is just not enough room to sort it.

Sorting is always done in A: (RAM) and you may not

have enough space, especially for a large database living on a datapak.

The LIZZY models have a limited sort facility (it sorts on the first field only). Try it out with a reasonably big file sometime and you will get some idea of the difficulties

If you really must have your file in alpha sequence, then it is probably better to use a program like IFILES (see review in Vol. IV, Page 57). Remember that, after you have gone to the trouble of sorting, it will all be lost when you either enter a new record, or amend an existing one!

For Sale

Hewlett-Packard HP71b Pocket Computer
c/w built-in card reader/writer
pack of storage cards
2 Memory packs - Text Editor
All manuals - everything in nice condition
Probably the most comprehensive built-in
BASIC of any pocket computer!
£120 ono

Phone: Mike O'Regan on (0602) 735482

Wanted

64k datapaks
Cash Paid or Swaps

Phone: Neil on 0332 880663

Progs & Procs - 1

KLOCK2

by David Green

This LIZZY procedure produces an excellent digital desk-clock with jumbo size figures and the day-and-date also shown. It is also a good example of how to use the limited user-defined graphics to best effect.

```
klock2:
LOCAL w%,l$(4,30),t%(4),x%,y%,z%
[l$(1)="1110101111111001111001111211
11"]
[l$(2)="1010103310311001331000011311
31"]
[l$(3)="1010101000211130011210011210
01"]
[l$(4)="111010111111010111110011310
01"]
UDG 0,0,0,0,0,0,0,0,0
UDG 1,31,31,31,31,31,31,31,31
UDG 2,31,31,31,31,0,0,0,0
UDG 3,0,0,0,0,31,31,31,31
DO
  t%(1)=VAL(MID$(DATIM$,17,1))
  t%(2)=VAL(MID$(DATIM$,18,1))
  t%(3)=VAL(MID$(DATIM$,20,1))
  t%(4)=VAL(MID$(DATIM$,21,1))
  w%=1 :x%=2 :y%=1 :z%=1
DO
  AT x%,1
  [PRINT
  CHR$(VAL(MID$(l$(w%), (t%(z%)+1)*3-
  2,1)))];]
  [PRINT
  CHR$(VAL(MID$(l$(w%), (t%(z%)+1)*3-
  1,1)))];]
  [PRINT
  CHR$(VAL(MID$(l$(w%), (t%(z%)+1)*3,1)
  )))
  AT x%,2
  [PRINT
  CHR$(VAL(MID$(l$(w%+1), (t%(z%)+1)*3-
  2,1)))];]
  [PRINT
  CHR$(VAL(MID$(l$(w%+1), (t%(z%)+1)*3-
  1,1)))];]
  [PRINT
  CHR$(VAL(MID$(l$(w%+1), (t%(z%)+1)*3,
  1)))
  AT x%,3
```

```
[PRINT
CHR$(VAL(MID$(l$(w%+2), (t%(z%)+1)*3-
2,1)))];]
[PRINT
CHR$(VAL(MID$(l$(w%+2), (t%(z%)+1)*3-
1,1)))];]
[PRINT
CHR$(VAL(MID$(l$(w%+2), (t%(z%)+1)*3,
1)))
AT x%,4
[PRINT
CHR$(VAL(MID$(l$(w%+3), (t%(z%)+1)*3-
2,1)))];]
[PRINT
CHR$(VAL(MID$(l$(w%+3), (t%(z%)+1)*3-
1,1)))];]
[PRINT
CHR$(VAL(MID$(l$(w%+3), (t%(z%)+1)*3,
1)))
x%=x%+4
IF x%=10
  x%=13
ENDIF
y%=y%+1
z%=z%+1
UNTIL y%=5
AT 10,1
PRINT MID$(DATIM$,1,2)
AT 10,2
PRINT CHR$(3);CHR$(3)
AT 10,3
PRINT CHR$(2);CHR$(2)
PAUSE 12 :REM calibrated for "A"
AT 10,4
PRINT FIX$(SECOND,0,-2)
AT 10,2
PRINT FIX$(DAY,0,-2)
AT 10,3
PRINT FIX$(MONTH,0,-2)
UNTIL KEY=13
RETURN
```

RATIO

by David Green

This is a practical program which takes all the effort out of producing comparative ratios. Simply enter any three values and the program calculates the remaining one.

(Listing on next page)

Progs & Procs - 2

```
ratio:
LOCAL a$(4,20),a(4),x%,y%
KSTAT 3
DO
  x%=1
  y%=0
  a(1)=0
  a(2)=0
  a(3)=0
  a(4)=0
  CLS
  PRINT "          RATIO"
  PRINT "      A is to B"
  PRINT "          as"
  PRINT "      C is to D"
  PAUSE 30
  CLS
  PRINT "A:"
  PRINT "B:"
  PRINT "C:"
  PRINT "D:"
  DO
    l1::
    AT 4,x%
    INPUT a$(x%)
    IF (a$(x%)="") AND (y%=1)
      GOTO l1::
    ELSEIF a$(x%)=""
      y%=1
    ELSE a(x%)=VAL(a$(x%))
    ENDIF
    IF a(1)*a(2)*a(3)<>0
      BREAK
    ENDIF
    x%=x%+1
  UNTIL x%=5
  IF a(1)=0
    AT 4,1
    PRINT a(2)*a(3)/a(4)
  ELSEIF a(2)=0
    AT 4,2
    PRINT a(1)*a(4)/a(3)
  ELSEIF a(3)=0
    AT 4,3
    PRINT a(1)*a(4)/a(2)
  ELSEIF a(4)=0
    AT 4,4
    PRINT a(2)*a(3)/a(1)
  ENDIF
UNTIL GET<>13
```

KOMP

by David Green

This is one for the housewives (or househusbands), who take their Organiser shopping. It gives immediate comparisons between different sized (bargain?) packets of the same items and comes up with an immediate answer as to which is the better buy.

```
komp:
LOCAL a,b,c,d
DO
  CLS
  PRINT "ITEM: 1      2"
  PRINT " Qty:"
  PRINT "Cost:"
  PRINT "SAVE:"
  AT 7,2
  INPUT a
  AT 7,3
  INPUT b
  AT 14,2
  INPUT c
  AT 14,3
  INPUT d
  IF a/b=c/d
    AT 6,4
    PRINT "BOTH SAME PRICE"
  ELSEIF a/b>c/d
    AT 7,4
    PRINT FIX$(ABS(b/a-d/c)*a,2,6)
  ELSE
    AT 14,4
    PRINT FIX$(ABS(b/a-d/c)*c,2,6)
  ENDIF
UNTIL GET<>13
```

Editor's Notes:

Although all three procedures above were written for the LIZZY, the last two - RATIO and KOMP can be easily adapted to run on both the CM and the XP models.

All three procedures are guaranteed bug-free and fully tested. They are worthy of study, especially by Beginners.

Square brackets thus [] are used to indicate the start and end of lines which are too long for the column and they should not be keyed in

Some CM/XP Procedures next month!

A Software Saga - 1

A Software Oddity

by Steve Clack

If someone asked you to compile a 'wish list' of desirable software for the Psion Organiser, what would you ask for? Most users would probably suggest spreadsheets, text processors, some kind of database (relational or otherwise), and things of that nature. On further reflection, I would hazard to say that many people would first think of packages that might be useful for a deskbound PC, and then translate those ideas into 'realistic' handheld applications.

The upshot of all this is that some people seem to spend rather a lot of time trying to persuade their Organisers into being a desktop computer surrogate. This being the case, let the first stone be cast squarely in the direction of my own Datapack slots, once the home to a number of poorly conceived software packages.

When considering software needs and desires for the Organiser, it is worth bearing in mind how little functional resemblance the trusty LA's and LZ's bear to their desktop cousins. Indeed, the strengths of the little pocket machines rarely coincide with those of a 'conventional' computer. If you sat down and made yourself a list of the 'Ten things a Psion Organiser is most useful for', It would probably contain the same items as your list of 'Ten things a desktop computer is most ill- suited for'.

"Yes!" I once thought to myself, "Perhaps the Organiser could be used to write draft letters and memos for the office. Think of the ease of tapping in quick additions to that latest literary masterpiece while sitting in yet another stationary line of traffic on the M25! What about keeping track of your share portfolio (or whatever), freshly downloaded from your main PC - while sitting on the beach, or doing something equally enjoyable". If I had five pounds in cash for all the Organiser applications I had bought (with such enthusiasm and good intentions), and subsequently abandoned, then I could probably pay for all those applications which would be of some genuine use to me.

My attitude has changed dramatically in the past year or so. After the original euphoria (back in 1988) when first opening the package of that shiny new 'XP', and the onslaught of 'wonderful' ideas of "All the

things it will be useful for".

Since then, several Datapacks later, I am settling down with some (to me) more realistic ideas about what an Organiser is REALLY useful for. Please don't get me wrong, I have every respect for anyone who manages to run their Business Invoicing system from a model CM, but for myself, I get bored easily. If I cannot 'train' my Organiser to do a given task in a fairly short time, then I'll probably resort to either the dreaded desktop monster, or to a pencil and paper.

I have to admit that a good proportion of my prayers were answered with the advent of the LZ series machines. From the point of view of the 'serious user', the four line Org's are undeniably more effective in almost every aspect. I don't refer, perhaps surprisingly, to the bigger display, but to the extra 'bundled' software. All this is despite the fact that my LZ64 gives me the wrong dialling code for Dublin (try it). I have found the enhanced dairy, notepads, xfiles, world clock, and not least the new (audible) alarms, to be exactly the things I REALLY needed for my Organiser. Happiness at last.

My cynicism for 'external' software offerings does have it's exceptions, however. In the course of wading through all those now discarded bits of grey plastic, I did find a few little gems of OPL (or machine code). Of these, I won't drone on about the wondrous little treasure that allows me to check several of my favourite motor racing driver's lap times simultaneously. Although it's indispensable to me (well almost), I'm sure that most IPSO FACTO readers would find it about as useful as a chocolate fireguard.

So, the most beneficial Organiser application for ANY Organiser? Easy - it's that little known (sadly) marvel of modern science - FNKEY. I noticed last month that the producers (CUBSOFT) put a short advertisement into last month's magazine. This started me thinking about FNKEY, which I have been using for at least 18 months now. I tried to imagine using the Organiser without all of the extra enhancements (courtesy of CUBSOFT) which I now take so much for granted.

The thought of a Psion Organiser without it's FNKEY almost made me shudder.

Some of you out there are quite obviously murmuring words to the effect "What's an FNKEY for?" and such like. For those who already use the thing as I do, I'm surprised that none of you have mentioned it within

IPSO Review -1

by Mike O'Regan

these pages before now (or did I miss an issue?) For those still wondering what all this nonsense is about, I promise to reveal all in next month's issue. Please look out for this as there is a good chance that you will find this useful too.

WP

by Michael Hoare

This new word-processor for the Organiser (LZ) models owes nothing to other existing programs. Whilst it is totally different in conception and operation to any other word-handling program I have seen for the Organiser, it is nevertheless quite functional, introducing as it does quite a few new features.

Main Features

The programs come on a 32k datapak. Although they are copy-protected, the pak itself is not write protected. This is to enable the user to store his own Printer Driver (about which more anon).

The review program was not self-booting, so it was necessary to install WP on the Main Menu.

The opening menu, offers:

Processor, Directory, Quit

Directory searches for any existing WP files, first in RAM, then Pak B: and Pak C: giving you the opportunity to LOAD, KILL, go to NEXT or COPY-AS (which allows an existing file to be loaded and used under a new filename - very useful!).

The PROCESSOR option takes you to the last menu before actually using the various features which are:

Add	Edit
Setup	Print
Doc-save	Wp-dir
cut-Paste	Quit

Before using Add to start writing a document, it is well to remember that your precious text is not saved until you have clocked up 250 characters or consciously use the Doc-save option. I wrote a test piece and neglected to Doc-save, only to find that my text had disappeared when I tried to carry on writing.

Anyway, selecting Add takes you to the text entry screen, which uses the top three lines to indicate status and the bottom line for text. The layout is rather unusual, but quite useful once you get used to it. The top line shows that the default is SML (lower case). Upper case can be toggled by a single press of the UP ARROW/(CAP) key, as can NUM, by pressing the DOWN ARROW/(NUM) key. Two set of figures are also present. One show the current cursor position within a chapter and the total number of characters in the chapter. The other shows the current line length. The third line is reserved for a down arrow which indicates the current cursor position.

Entering data is very simple, once you have realised that there is no visible word-wrap or even line-feed. Single upper case characters are entered by pressing SHIFT and DEL at the same time (easily done with one finger, as the keys are adjacent). A bit of real innovation is seen by pressing the MODE key which accesses a small "pull-down" menu, which is an indication of what all the alpha keys can manage from this menu. Use is made of some of the LIZZY's more exotic keys to indicate the following:

1. Mark text for centring
2. Indent text
3. Insert control characters
4. Underline
5. Terminate chapter
6. Start a new page
7. Cut & Paste
8. Italics
9. Bold
10. Wide Characters
11. Condensed Characters
12. Proportional Font

All the above can be activated for a chosen number of characters.

Editing

Edit has its own option on the menu. It is curious that it does not actually allow editing, but only positions the cursor in position for actual editing, which is done in the Add mode. To make it reasonably quick in accessing any particular point in the text it is possible with single key strokes to move:

1. to the end of the chapter
2. to the beginning of the chapter
3. back and forth by paragraphs
4. back and forth by words.

IPSO Review - 2

There is also a PRINT option, which allows printing from the current cursor position. Q (for Quit) takes you back to the Add screen, where insertions and deletions are quick and simple.

WP comes with many preset options, some or all of which can be altered to suit the current document.

They include:

1. Lines per page
2. Top and Bottom margins
3. Line length
4. Left margin
5. Page numbering on/off
6. Single or double spaced printout
7. Number of copies of document
8. Alternative font

Printer Driver

WP is unusual in that, to make the best of the built-in facilities, it needs a printer driver which is tailored to your printer. A standard driver is provided, but a nice feature is that full instructions and a questionnaire template are provided to help you set up your own driver. Once it is ready, it may be stored on the same pak as the rest of the programs.

Conclusion

Obviously a lot of thought has gone into these programs and, within the usual confines of the Organiser's operation, they are quite effective in use. As a good indication, the draft manual, complete with templates and some stylish tabulation, typestyles, etc., which was supplied with the review copy was written entirely using the program.

WP will be supplied on the customer's own blank datapak (minimum size 32k) for £35 (inclusive).

The supplier is:

**M.C. Hoare
'Westmount'
10 Yarborough Road
Wroxall
Ventnor
Isle-of-Wight
PO38 3EA**

Tel: (0983) 854178

Wanted

128k or 64k datapak
Phone: N. Gallagher on 0282 864209

Product News

XP-Booster
from Mackay Language Software

File Processing

This new program allows XP owners to have some of the flexibility of the LZ models when it comes to file handling. It also has one or two new features. Naturally it allows access to any file on any device. There is a facility for transferring records (or groups of records) between different files, using "lift and keep" or "lift and delete" functions. Any file can be printed, copied or renamed.

Control

Gives various options for key-click, buzzer, auto-switch off (including continuous operation on mains adaptor). It also gives precise information on file sizes and memory free on each device

Notebook

Opens a notebook file separate from MAIN and gives various options, including a unique test feature for those learning foreign languages (Mackays forte). It also has a Comms Link feature to accept files from a desktop.

Expenses Pad

This requests details of expenses and date/time stamps each which can then be further processed to give totals etc.

XP-Booster is available from:

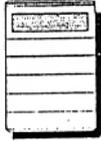
**Mackay Language Software
41 Kensington High Street
London W3 5ED
Tel: 01 937 2077**

**Price: added to your own datapak £19.95
on 32k datapak £39.95**

Back Issues of IPSO FACTO

All issues of IPSO FACTO (Volumes I-IV) are available to members priced (still):

**Full Volumes £12 UK & Europe - £16 Rest of
World
Single Issues £1.50**



IPSO FACTO



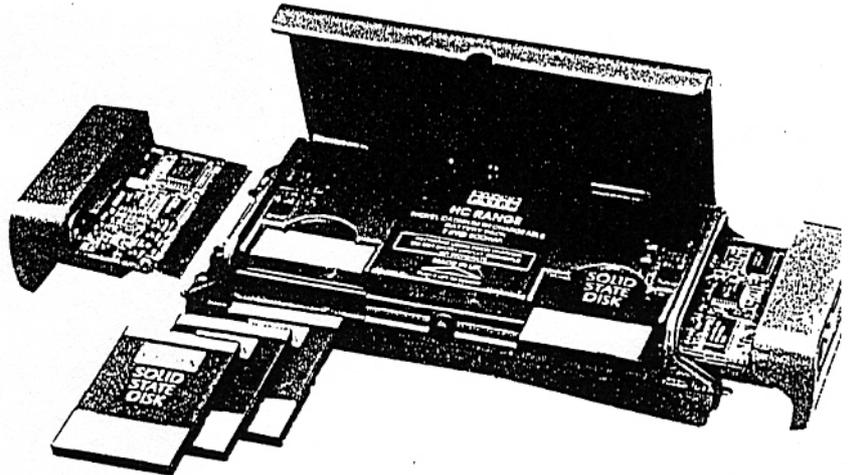
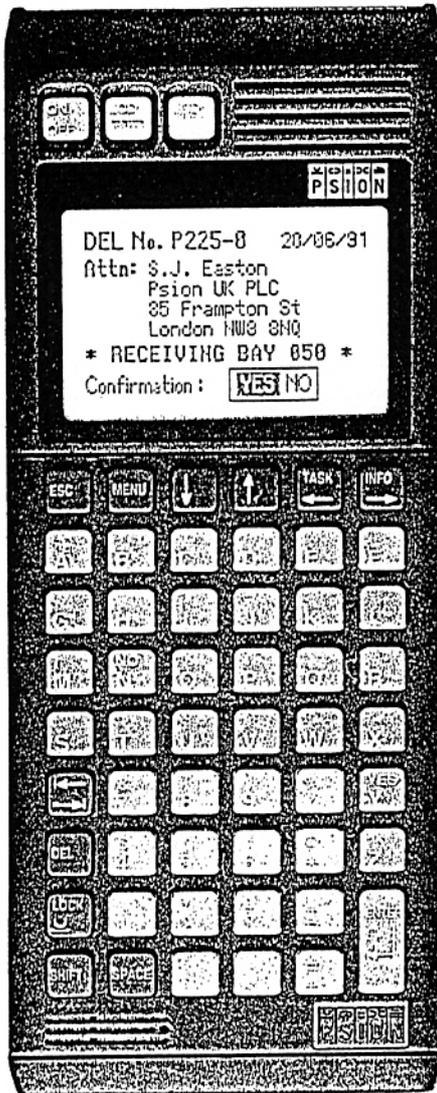
The Newsletter of the International Psion Organiser User Group

Volume V . No. 2 . April 1991

Office: 130 Stapleford Lane . Toton . Beeston . Nottingham . NG9 6GB . UK

Editor: Mike O'Regan . Phone: (0602) 735482 .

The New
Psion HC



The SHAPE OF THINGS TO COME?

Contents

Editorial	9
Beginners Page	10
Progs & Procs	11
Software Article. . . .	13
Machine Code	15

Beginners Page

by Mike O'Regan

Only A Question of Time

When we wrote our little DB: suite, things were so arranged that we had to actually enter all three bits of information - Name, Phone Number, and Subscription - for every record. There are ways which can be used to have the Organiser automatically enter data with each record that we enter. For instance, we could have included an extra field to record the time and/or date of each entry automatically.

The Real-Time Clock

When beginners see this expression, they are apt to say "Real-time clock? Surely all clocks are "real-time"?". Not so! If you have ever used a kitchen timer (or perhaps its equivalent in the darkroom) you will know that these devices, although essentially "clocks" are not "real-time" - they are set up to count a period of time which is independent of the "real-time".

Now all computers (including the Organiser) have a clock which forms part of the operating system and which the CPU (central processing unit) uses to time its operations when the computer is running, amongst other tasks. Many computers (but not all) have a second clock which keeps track of "real-time".

The Organiser is no exception - in fact its "real-time" clock is much more accessible than that on most other computers enabling us to make use of the clock for all sorts of calculations. This clock is the one which you set from time to time (if you will pardon the pun!) in the TIME function of your Organiser. The Organiser's clock keeps track of the date in addition to the time, so it is doubly helpful.

On the Lizzy, the "time" part of the clock is visible every time you switch on, and, of course, it is possible to write your OPL programs so that this clock is visible on the screen whilst your program is running, if you so wish. It is also possible, but quite a bit more complicated to do this on the CM/XP models.

On all models it is possible to access the clock and print the current date and time on the display. Go into the PROG menu and write the following little procedure:

```
runtime:
PRINT DATIM$
GET
```

Now RUN the procedure and you will see that DATIM\$ contains all the essential information about the day, date, and time.

If your program is running on an XP or CM, the display neatly arranges things so that the date is displayed on the top line and the time (including seconds!) on the second. The Lizzy display is not quite so accommodating - having twenty lines, it splits the line in the middle of the time. However, as DATIM\$ is a STRING (and not a number) it is possible to use "string slicing" to tidy up the display. Try editing the RTIME: procedure as follows:

```
runtime:
PRINT LEFT$(DATIM$,15)
PRINT RIGHT$(DATIM$,8)
GET
```

or, if you want to be really tidy:

```
runtime:
PRINT " ";LEFT$(DATIM$,15)
PRINT " ";RIGHT$(DATIM$,8)
GET
```

If you are not sure how "string slicing" works, the lines above are fairly simply explained.

The first PRINT line tells the Organiser to start from the LEFT of DATIM\$ and display only the first 15 characters - which contain the day and date.

The second PRINT line says "count back 5 characters from the RIGHT end of DATIM\$" and display this. The double-quotes (") between the PRINT and the string simply tell the Organiser to print a number of BLANK SPACES (to more or less centre the display). There are two spaces on the first line and five spaces on the second.

Notice that these procedures only print the date/time ONCE - a sort of date/time stamp - which can be very helpful in all sorts of situations. For instance, this facility is used by Banking or Finance programs which automatically debit your account with standing orders on the correct date.

Next month we will look at the other facilities which are available to make good use of the Organiser's clock, and we will write a fairly simple procedure to enable you to calculate "average miles/km per hour" when travelling by car, using the clock to keep track of the time element

Progs & Procs -1

USE OF THE LZ DIARY

by Brod Mason

As an extensive user of the Diary function on my LZ64 I thought that a few notes on my use of the user configurable time slots may be of interest to others.

The time slots are configured through the SETUP option in the Diary Menu, where through use of the cursor keys you can alter the three times which separate the four blocks of the Diary's display.

My time changes are at 06.30, 13.30, and 18.30. I then use the lower three blocks of the display to represent morning, afternoon, and evening. I have dispensed with the manuals suggestion of a lunch time slot as I rarely have lunch appointments, and when I do they tend to affect planning of both the morning and afternoon, hence this display shows lunch appointments by 'blocking' both the morning and afternoon.

I use the upper block for advance planning and recording events that are not time dependent for example Bank Holidays and birthdays, which are recorded at around 03.00, a time slot I use very rarely. Events for advance planning I put in at just before 06.30, these at a later date can be moved to a more accurate time by editing them and resetting the time, or using the CUT option in the Diary Menu. Hence the top block in the Diary display can quickly tell me if I have a meeting that day at a time yet to be decided, a report to have ready, a deadline to meet, a sports event I want to catch, a birthday present to buy, or a day-off because it is a Bank Holiday I had forgotten about.

```
backupd:
LOCAL m%
PRINT CHR$(15),"  Diary
Backup";CHR$(23);
m%=MENUN(1,"Backup,Restore")
IF m%=1
  TRAP DELETE "a:diary"
  POKEB $A2,0
  POKEB $73,0
  POKEB $74,13
  POKEB $20B0,68
  POKEB $20B1,2
  POKEB $20B2,2
  POKEB $20B3,83
  POKEB $20B4,13
  POKEB $20B5,68
  POKEB $20B6,73
```

```
POKEB $20B7,65
POKEB $20B8,82
POKEB $20B9,89
POKEB $20BA,13
POKEB $20BB,1
POKEB $20BC,66
STOP
ELSEIF m%=2
  IF EXIST("a:diary")
    POKEB $A2,0
    POKEB $73,0
    POKEB $74,14
    POKEB $20B0,68
    POKEB $20B1,2
    POKEB $20B2,2
    POKEB $20B3,82
    POKEB $20B4,68
    POKEB $20B5,73
    POKEB $20B6,65
    POKEB $20B7,82
    POKEB $20B8,89
    POKEB $20B9,13
    POKEB $20BA,65
    POKEB $20BB,82
    POKEB $20BC,1
    POKEB $20BD,66
  STOP
ELSE
  [PRINT CHR$(0);REPT$(CHR$(2),14);
:CLOCK(1)]
  [PRINT CHR$(15);"Can not find Dia-
ry file to Restore!";]
ENDIF
ENDIF
```

```
backuplz:
REM          Backup to PC program
for LZ models only.
REM
REM Operation is obvious, if you
need to do a complete restore
REM load program to Organiser and
run selecting 'Restore' from
REM the menu. You will need to
create a directory in your PC's
REM root directory called 'ORGBACK'
before running Backuplz.
REM When copying the program to the
Organiser I rename it
REM 'Backup' so it will fit in the
Main menu better.
REM
REM Brod Mason
REM 16 July 1989
LOCAL m%,mm%,x%,d$(14),a%(2)
```

Progs & Procs -2

```

a%(1)=$3F17
a%(2)=$3901
USR(ADDR(a%()),0)
:REM Boot Comms Link
UDG 0,31,14,4,8,4,0,0,31
DO
  CLS
  AT 3,1 :PRINT "'BACKUP-LZ' ver2"
  PRINT CHR$(184);"1990 by Brod Ma-
son.";
  PRINT CHR$(25);

m%=MENUN(1,"Backup,Restore,Diary,Set
up,Pack,Quit")
  UDG 2,0,0,0,0,0,0,0,31
  PRINT CHR$(0);REPT$(CHR$(2),14);
:CLOCK(1)
  IF m%=0
    RETURN
  ELSEIF m%=6
    PRINT CHR$(22);"Deleting data
files.";
    TRAP DELETE "a:filelist"
    TRAP DELETE "a:diary"
    TRAP DELETE "a:calcmem"
    TRAP DELETE "a:sysvar"
    RETURN
  ELSEIF m%=1
    REM
    .....
BACKUP FILES
  PRINT CHR$(22);"Backing up...";
  IF EXIST ("a:filelist")
    DELETE "a:filelist"
  ENDIF
  CREATE "a:filelist",a,f$,e$,t%
  x%=1
  DO
    IF x%=1
      d$=DIRW$("a:*.")
    ELSE d$=DIRW$("")
    ENDIF
    PRINT CHR$(23);x%,d$;
    a.e$=RIGHT$(d$,3)
    a.f$=LEFT$(d$,LEN(d$)-4)
    IF a.e$="ODB" :a.t%=0
    ELSEIF a.e$="DIA" :a.t%=2
    ELSEIF a.e$="OPL" :a.t%=3
    ELSEIF a.e$="COM" :a.t%=4
    ELSEIF a.e$="PLN" :a.t%=5
    ELSEIF a.e$="PAG" :a.t%=6
    ELSEIF a.e$="NTS" :a.t%=7
    ELSEIF a.e$="TY8" :a.t%=8
    ELSEIF a.e$="TY9" :a.t%=9
    ELSEIF a.e$="TYA" :a.t%=10
    ELSEIF a.e$="TYB" :a.t%=11
    ELSEIF a.e$="TYC" :a.t%=12
    ELSEIF a.e$="TYD" :a.t%=13
    ELSEIF a.e$="TYE" :a.t%=14
    ELSEIF a.e$="TYF" :a.t%=15
    ENDIF
    APPEND

[xtsend:("/ORGBACK/"+RIGHT$(a.f$,LEN
(a.f$)-2),a.f$,a.t%)]
  x%=x%+1
  [UNTIL d$="A:FILELIST.ODB"
:REM Must be in UPPER CASE]
  [PRINT CHR$(22);"Backing up com-
plete!";]
  ELSEIF m%=2
    REM ..... RESTORE FILES
    PRINT CHR$(22);"Restoring...";
    PRINT CHR$(23);"1 A:FILELIST.ODB";

[ ]xtrecv:("/orgback/filelist","a:fi-
lelist",0)]
  OPEN "a:filelist",a,f$,e$,t%
  x%=COUNT
  DO
    PRINT CHR$(23);COUNT-
x%+2;"/";COUNT,a.f$;".";a.e$;

[xtrecv:("/ORGBACK/"+RIGHT$(a.f$,LEN
(a.f$)-2),a.f$,a.t%)]
  NEXT
  x%=x%-1
  UNTIL x%=1
  PRINT CHR$(22);"Restoring com-
plete!";
  ELSEIF m%=3
    REM ..... DIARY
    backupd:
  ELSEIF m%=4
    REM ..... SYSTEM VARIABLES
    backupsv:
  ELSEIF m%=5
    REM ..... RAMPACK
    backuprp:
  ENDIF
  TRAP CLOSE
  PRINT CHR$(23);"Press any key...";
  BEEP 100,100
  GET
  UNTIL m%=0

```

A Software Saga - 2

A Software Oddity - Part 2

by Steve Clack

In last month's magazine, I related some of my personal views and experiences with the Psion Organiser, and of Organiser software in general. I closed the article with a quick mention of my 'pet' software package - FNKEY. This month, I would like to explain the function of FNKEY in some more detail.

To many Organiser users, the greatest limitation to the machine's functionality is most certainly the keyboard. Despite being acceptably well engineered for its size, the tiny 36 key 'Pecking Panel' is (to most people) a less than ideal way of entering large amounts of data.

Some users overcome the keyboard limitations by simply entering the raw data onto a PC, then using the Comms Link to transfer to the Organiser. Although this is a good solution when a PC is readily available, there are many cases when it is impractical.

So, given a desert island, an Organiser, and no Comms Link in sight, then the only solution is to enter and manipulate the data directly on the Org', right? Right. This is where a program like FNKEY comes in.

The functions of FNKEY can be broken into three broad areas.

1. Addition of an extended character set.
2. The Cut and Paste facility.
3. Keyboard 'Macros'.

Some (or all) of these general computing terms may be familiar to many readers already. If not, then you may well raise an eyelid when you hear what they can offer.

The extended character set is simply a means of accessing characters such as !?ú\$&'@ with the Organiser keyboard. This bit of the FNKEY program also allows easier access to capital letters. Normally, to enter the word "Hello" - with a capital "H", you would need to switch first to capital letters (for the "H"), then back to lower case for the remainder of the word. FNKEY allows you to capitalise any SINGLE letter, simply by pressing the <MODE> key, followed by the <UP

ARROW> key, then the desired letter. This is far more efficient than it sounds, and the typing of the word "Hello" becomes a simple matter of typing <MODE>, <UP ARROW>, <H>, <E>, <L>, <L>, <O> - seven keystrokes. FNKEY capitalises the letter directly following the <MODE>, <UP ARROW>, then reverts automatically back to lower case for the remaining letters. Try typing a capitalised word in the middle of a sentence using the normal method, and you'll see the difference in no time.

To enter a 'special' character (question mark, pound sign, etc.) you simply type <MODE>, <DOWN ARROW>, then a preassigned letter key. FNKEY allows you to allocate one 'special' character to each letter of the keyboard. As an example, you may assign the question mark to the letter "Q". Then you can enter it at any time (just like any other alphabetic character) merely by pressing <MODE>, <DOWN ARROW>, <Q>, in sequence. You assign whatever other special characters are most useful to YOU, and to whatever letter keys you find easiest to remember. What could be simpler? For some users, the addition of the UK "ú" sign is almost good enough reason to buy FNKEY in itself.

The second major feature of FNKEY is 'Cut & Paste', which will almost certainly be known to LZ owners. The items COPY, CUT and PASTE all appear on the LZ & LZ64 DIARY menus. The FNKEY implementation of cut & paste works in a similar manner to the DIARY version, but with the great advantage that it works in ALL applications. In addition, it will happily operate between different applications too. This means that you can perform such tasks as copying a line from your "Things to do" list (in a NOTEPAD), then drop a copy of the line into a suitable place in your diary.

Any section of text can either be 'Copied' (leaving the original text behind), or 'Cut' (erasing the original text). This can be done either word-by-word, or by entire lines. Once you have picked up the required text, you can move into the application to be copied to, then simply 'drop' the text exactly where you want it.

The flexibility afforded by allowing free movement of text between ANY application is a facility rarely seen on full blown computer systems, let alone 'pocket computers'. This is one function the humble Organiser can share with *Microsoft Windows 3*, something very far removed from the realms of handheld computing.

Feedback

Next month, I will discuss the most powerful of all the FNKEY functions, keyboard macros. Meanwhile, your homework for this month is to find out what a 'macro' is, and why it can speed up the operation of a Psion Organiser by up to 500%. See you next month.

For Sale

Psion Printer II
Any reasonable offer accepted
Contact: Derek Farr on 021 708 0411

Pace LINNET Modem V21/23 in excellent condition
c/w handbook and Chitchat Comms Software
£120 ono

Organiser XP mint - £50
64k datapak - £20
Comms Link (4 line) mint - £30
Mains Adaptor - £5
Contact: Mike O'Regan on 0602 735482

Casio PB-700 Portable Computer
c/w full expanded 16k memory and 160 x 32 graphic
display. Also FA-10 four colour graphics plotter,
microcassette data records, FA-4 Centronics printer
interface. Includes carrying case, many rolls of plotter
paper, spare pens, etc.
Cost over £500 new. priced at £120 for quick sale
Epson LX 800 Dot-Matrix Printer - £80

also many Organiser Software items
(see original list in Feb Issue)
Contact: Steve Clack on 0869 249287

Organiser XP - £50
Psion Printer II - £110
128k datapak £40
32k RAMPK £30
Comms Link £30
Psion datapak Formatter £22
Finance Pak XP £10
Finance Pak II (XP or LZ) new £20
Pocket spreadsheet £20
Contact Les Robinson on 0926 56546

For Sale

128k datapak - 50
Wanted RESULT by Widget (latest version)
would consider exchange
Contact: Brod Mason on 081 469 0566

Help Wanted

If any member has experience transferring
data between an old Sinclair QL and the
Organiser please contact:
Dr Renato Barigazzi
13 Piazza B. Beatrice
35042 ESTE
Italy

Product News

TVLOG™ is a portable, computerised tape and shot
note logger. It is designed specifically for film, video
and sound recording engineers and will work on any
model of the Organiser II.

There are options to log some or all of TAPE
NUMBER, EPISODE, SCENE NUMBER, SHOT NUM-
BER, TAKE NUMBER (increments automatically),
TAPE TIME or COUNTER (which can increment
automatically when, for instance, used with a DAT re-
corder), TIMECODE and/or TIME OF DAY (auto-
matically), DATE and SHOT NOTES.

Full details are available from:

Organised Software
10 Rowley Way
Knutsford
Cheshire
WA16 9AU

Tel: 0565 633313

Price is £49 (inclusive)

Note: Organised Software sell a comprehensive range
of Organiser equipment at discount prices. Please ask
for a price list.

Machine Code Page -1

by Neil Draycott

Welcome to return of the Machine Code page, Mike has granted me the honour of addressing the TRAPist monks out there with whatever ramblings I can think of and to pull into some sort of order the many machine code routines submitted to IPSO FACTO.

I intend to keep this page as a general forum for ANY users of direct programming (machine code) whether beginners or experts and would welcome suggestions or questions at any level either to IPSO or directly to me (address below), but I must insist that any queries are posted with an S.A.E. and I do not solve particular programming problems (and am NOT an expert).

RUNNING MACHINE CODE PROGRAMS.

Any OPL programmers looking through MC listings may wonder what it is all about, all that seems to be happening is the assigning of lots of different values to the arrays A% or B%. In fact one of the easiest ways of writing and running MC programs is via the use of arrays, it works like this:

When a LOCAL or GLOBAL command is used at the top of a program and the variable declared is an integer array (i.e. LOCAL A%(20)) then 20 'spaces' are reserved in memory for the array when the program is run. Each one of these 'spaces' are 2 bytes big (integers are from -32767 to +32767 - a range of 65535 or \$FFFF in hex). If values are then assigned to the array (i.e. A%(1)=\$01FE) then these values actually exist in memory in the reserved 'spaces'.

By using the OPL command USR or USR\$ we can direct the running of the program to the spaces, all we then need is the ACTUAL position of these spaces within the memory, this is found by using the OPL command ADDR which means 'The address of', so ADDR(A%(0)) will return the ACTUAL address of the A% array in memory at the time of running the program.

The completed command would then be

```
USR (ADDR (A%()) , 0)
```

which means branch to the program that starts at the first reserved 'space' of the A% array. (the 0 is just a value that can be 'passed on' to the array).

Another method of running MC programs is to reserve a section of the RAM memory permanently and know where it is. The MC commands (which take the form of just numbers instead of words) can then be placed in this reserved memory using the POKEB and POKEW OPL commands and you will always know where they are.

One method of reserving some memory is to fool the operating system about the extent of its available memory and then use the memory that the machine thinks it has not got for your MC programs,

Either the top or the bottom of the RAM area can be grabbed in this manner by changing the value kept at location \$2065 (on any model) so to make 100 bytes of space for your use just use this program:

```
LOCAL A
A=PEEKW($2065)
POKEW $2065,PEEKW($2065)-100
[VIEW(1,"100 Bytes are now available
at location $" + HEX$(A))]
```

There are some problems associated with this method with the LZ64 models. A safer method has been suggested by **Russ Beinder** which involves grabbing some space at the bottom of the RAM area by 'growing' the base allocator cell using the following program;

```
LOCAL A%(13)
A%(1)=$CE00
A%(2)=$00DF
A%(3)=$41CE
A%(4)=$2000
A%(5)=$CC00
[A%(6)=$643F      REM $64 = 100 Bytes
reserved]
A%(7)=$02FC
A%(8)=$2000
A%(9)=$FD21
A%(10)=$90C3
[A%(11)=$0064     REM $64 = 100 Bytes
reserved]
A%(12)=$FD20
A%(13)=$0039
USR(ADDR(A%()),0)
[VIEW(1,"100 Bytes now available at
$" + HEX$(PEEKW($2190)))]
```

After running this program the CLEAR key should be pressed to re-boot any devices. The reserved section of memory is now free from the operating system and can be safely used on ANY model.

Machine Code Page - 2

It is only for the permanent storage of machine code routines that this method will be used. Most of the time the MC program will be stored within an OPL program via an integer array.

An interesting method of MC storage has been forwarded by member **John Cornforth** who stores all the code in a string and then uses a decoding program to run it, a simple idea that allows easy editing and entry of code but is limited in allowing values to be passed to the programs.

Any newcomer to MC is probably still in the dark as to what all these numbers are, more will be revealed in future articles so watch this space.

Finally for LZ owners try the following POKE for capitalised menus:

```
POKEB $209C,1          REM LZ LZ LZ LZ
```

POKEing 0 back in will reverse the effect.

**Neil Draycott
168 Derby Road
Denby
Derbyshire
DE5 8RD.**

The Shape of Things To Come?

There have been many rumours over the last few months about Psion's next pocket-computer. Would it be the Organiser III? Will it be compatible with existing models?

Now that the HC (hand-computer?) range has been announced, it is obvious that the new machines owe very little to existing machines.

The "BRICK", as the HC has already been dubbed, is a good deal bigger and heavier than the Organiser, which was already quite sizeable, compared with the opposition. Weighing in at 540gm (over a pound, for the oldies), the HC would make your pocket stretch a bit! So would the price - £395 + VAT for the basic model with 128k RAM.

To be fair, the HC is not seen as a pocket computer at all, but is billed as a "corporate" data-gathering machine which is considerably more powerful and adaptable than anything else on the market.

The HC is built in modular form (see illustration) so that it can be customised by the user for various tasks. The mass storage device is the only thing which it shares with existing Psion equipment. This is the SSD (Solid State Disk) or 'flash EPROM' to those of you who own or have seen the MC range. The result of using the same paks has brought the price down, and they are now more competitive than Organiser paks e.g. £179 for a 512k pak.

Another welcome 'first' (for Psion hand-helds) is that the displays now dot-addressable (hoorah!) so that it can now support text in various sizes and even simple graphics.

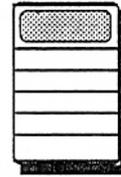
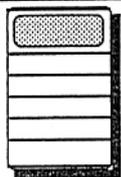
When it comes to power, the HC has a 500mAH rechargeable unit, with a lithium back-up for data. This last point is welcome as it means that data is secure even if the main battery has been discharged. It has been successfully used on many other machines in the past. An interesting innovation is that each end of the new machine takes an interchangeable expansion module, such as Modems, Parallel and Serial interfaces, bar-code wands (various), and card-readers.

In use the machine is locked so that none of the modules can be removed without the key (this includes the mass storage devices).

The HC in its present form does not feature any built-in facilities like the Organisers. Any programs will be developed on a PC using one of two systems which are developed either in the C language or in OPL G (a new graphics version of OPL).

Psion have no plans for releasing a personal version of the HC, although there is no reason why software developers shouldn't design and market utilities for the machine. It is to be hoped that the Organiser III, when it appears, will have some of the desirable features of the HC.

**The HC models will be on display
at the WHICH COMPUTER Show (Apr 23- 26),
in Birmingham, at the NEC,
Stand 4330 in Hall 4.**



IPSO FACTO

Vol V

May 1991

No. 3

Editorial Office: 130 Stapleford Lane . Toton . Beeston . Nottingham . NG9 6GB

Editor: Mike O'Regan

Tel: (0602) 735482

The Power Game

by Mike O'Regan

All pocket computers must, by their very nature, have an independent source of power - a battery in one form or another. The Organiser is no exception and, like most Psion products, it is very economical in its use of power, making total operation from batteries a really practical proposition.

If we discount cheap 9 volt PP9 batteries (on the grounds that they would not last very long or be cost effective), we are left with quite a few alternatives. Probably (and this is open to argument) the best all round are alkali batteries of the DURA-CELL type, which give reliable performance at reasonable cost.

However, recently, some Psioneers have been using LITHIUM cells, and reports of these, despite the cost, are quite good. Personally, I use rechargeable NiCad (nickel-cadmium) cells, which work quite well, provided a few precautions are taken.

Old Ni-Cads are only 7.2 volt maximum output, which is just about adequate to drive an Organiser. Newer ones rated at 8.2 volts are better and not much more expensive. The big problem with all Ni-Cads is that the voltage, when it drops, does so quite quickly, and this sometimes catches you out on the Organiser. You might miss the first "BATTERY LOW" message and, if you do, the risk of losing all your RAM is considerable.

The way around this problem is to either keep a sharp eye open for "BATTERY LOW" or to change your Ni-Cads at regular intervals, irrespective of any messages. This is quite a good idea, but it brings with it a further complication. I have heard

it said (but have yet to confirm this) that, unless Ni-Cads are COMPLETELY DISCHARGED before they are recharged, there is a good chance that their working life between charges can be reduced - the Ni-Cad is supposed to have a sort of "memory" about the amount of charging required, or some such thing!

Both my Organisers have worked for years on Ni-Cads which generally last for about two weeks between charges. However, I do still occasionally lose my RAM contents, but this is rarely a tragedy, as everything important is backed up to the PC.

The only time when I resort to using a mains lead is if I am doing any extensive copying of data to datapaks, usually direct from the PC. It would be too much to expect the Ni-Cad to "pump up the action" required to write to a 21 volt EPROM without packing in mid transfer, with a partially written pak as a result, which must be reformatted and the transfer completely redone.

I would be interested to know how other members handy the power side of their Organisers.

Contents

Editorial	17
Beginners Page	18
Machine Code	20
Progs & Procs	22
Software Saga	24

Beginners Pages - 1

by Mike O'Regan

A Question of Time (Part II)

In last month's pages we a tiny program to demonstrate DATIM\$ function on the Organiser. This is the most complete set of information on day, date, and time on the Organiser, but we have several other handy functions which give us extra information about time and date. These are DAY, DAYNAME\$, DAYS, DOW, HOUR, MINUTE, MONTH, MONTH\$, SECOND WEEK and YEAR.

Most of these are self-explanatory, and some of them appear only on the LIZZY. However, let us look at these and highlight the differences between or DATIM\$ (sliced or otherwise).

Calendar Functions

Let us start from the back (so to speak) by looking first at YEAR and then working our way back to DAY.

Many of the functions mentioned above produce NUMERIC output - that is information in number form (DATIM\$ did not produce NUMERIC output). You can prove this by accessing the new functions from CALC.

From the top menu key in C for CALC, and then (using the SHIFT KEY) key in YEAR <EXE>. You should get "1991" (unless your clock is not set properly). Once this is displayed it can be treated just like any other number - you can multiply it by "PI R squared" if you so wish, not that it would give you any usable results!

Now try keying in (still in CALC with the SHIFT KEY) DATIM\$ <EXE>. You should get "ERROR TYPE MISSMATCH", which is quite right - you cannot do maths with STRINGS.

MONTH <EXE> will give your the number of the current month with the figures 1 - 12 representing January to December.

WEEK (only available on the LIZZY), although producing numeric output is slightly different because it needs to be used with parameters (that is a fancy name for figures in brackets following the WEEK statement). Thus, in CALC, WEEK(22,1,42) will produce "3" (the third week in the year 1942). LIZZY users will already have no-

ted that there is a "bug" in this function and that WEEK(10,1,1991) produces "1", although Jan 10 should be Week 2 of 1991.

DAY gives us the current day of the month, from 1 to 31. An extra function, DAYS appears on the LIZZY which gives the number of days since 1 Jan 1900. This again requires parameters, so DAYS(1,5,1991) produces "33357". This is very handy for calculating the number of days between two dates.

Finally, DAYNAME\$(x%) (on the LIZZY only) will produce the short name for the day of the week signified by x%. Curiously, DAYNAME\$(1) returns "Mon", whereas day 1 is traditionally Sunday! Lizzy owners might try writing and running this short procedure:

```
sayday:
LOCAL d%
PRINT "Enter day number"
PRINT "1 - 7",
INPUT d% PRINT "The day is",
PRINT DAYNAME$(d%)
GET
```

Running this produces the expected results.

What you may know is that this procedure will also work in French or German! Let us try the German version.

First, from the UTILS menu select "Lang" and "Deutsch". (Don't worry, you non-German speakers, I will show you how to get back to the English later!) Now from the new (German) menu select Prog (just like English). Now pick "Start" and enter the procedure name SAYDAY. If you enter "3" at the prompt you will get the result "Today is Mi" (Mittwoch - Wednesday in German). What a pity the Organiser cannot automatically translate the "Today is" into German!

Before we trace out way back into English, you might like to try out last month's procedure "rtime:" (if it is still in your machine). Magic, isn't it. Now to return to English without giving up in frustration and pulling out the battery. First press ON/CLEAR as usual to get back to the main menu. From here select "Extras" then "Spr"

Beginners Pages -2

by Mike O'Regan

(for SPRACHE - language) and you can then select good old English once again.

Now, how about trying it in French.
(continued next month)

The Organiser II (especially the LIZZY) has quite a lot of mileage left in it. For instance, no-one has yet come up with any programs which exploit fully the extra facilities and memory on the LIZZY 64.

IPSO will continue to support all models of the Organiser II for the foreseeable future

IPSOMEET 91

As the numbers of members interested in an IPSOMEET are quite small, I have decided, for the present, not to hold a MEET this year. Thank you to those who expressed an interest in attending, but the numbers were insufficient for even a single day meeting.

The HC Model

The HC was unveiled at the "WHICH COMPUTER? SHOW", where I was able to examine the machine and ask about future developments. The HCs on display were running some very impressive graphics displays and also showing their capacity for multi-tasking. They are not as bulky or heavy as I had expected, although not as pocketable as the Organiser.

Psion have produced a Development Pack, containing an HC plus interfaces (both serial and parallel) and PC format disks containing the new OPLG development systems. It is not possible to program the machines directly, as there is no built-in language (unlike OPL on the Organiser).

Several of our members have ordered machines, and we will be reporting any significant progress in the software and add-on fields as they become available.

The HC is quite obviously *NOT* a replacement for the Organiser II models and we will have to wait and see what develops when the Organiser III appears. Personally, I hope that some of the innovations which are present on the HC will filter down to the Organiser level for the next stage in development. For the moment we can only speculate.

For Sale

Harvester Superchip (2 line) - £35
Travel Pak PLUS (2-line) - £35
LACE (Log, Action, Credit card, Expenses)
(4-line) - £20
110v (U.S) mains adaptor - £6
Centronics Printer Interface
(for Comms Link) - £30
FINGER ORGANISER (typing tutor) - £20

Phone Steve Clack on (0869) 249287

Progs & Procs (cont)

(conclusion of wtimedis:)

```
USE A
RETURN
ELSEIF v%=1
RETURN
ELSEIF v%=8 AND POS<>1
PRINT CHR$(14)+"DELETE Y/N";
IF UPPER$(GET$)="Y"
ERASE : BACK
LAST
USE B
FIRST
B.lst%=POS
UPDATE
USE A
ENDIF
wtimesel:
ENDIF
```

Machine Code Page

by Neil Draycott

DATAPAK HEADER CODES.

Several members have contacted me about Pak header codes and their relevance, so this month I will cover the reading and explanation of DataPak header codes.

Any type of recording Pak for the Organiser can be regarded as a library of bytes that can be read by the Organiser, but the first 10 bytes of any Pak are not included in the library and are reserved for use by the Organiser to store information about the Pak. The type of information stored in these first 10 bytes is Pak identification, Pak size, date of formatting etc.

In detail the first 10 bytes (numbered 0 to 9) are;
Byte

- 0 Pak identification
- 1 Pak size
- 2 Year of formatting
- 3 Month of formatting
- 4 Day of formatting
- 5 Hour of formatting
- 6 ID byte high
- 7 ID byte low
- 8 Checksum high
- 9 Checksum low

Byte 0 is probably the most interesting byte, each bit of the byte is used to indicate different aspects of the Pak;

Bit

- 0 Clear for a valid Pak
- 1 Set if a DataPak, clear if a RamPak
- 2 Set if a paged Pak
- 3 Clear if write protected
- 4 Clear if bootable
- 5 Clear if copy protected
- 6 Normally set
- 7 Set if a Mk 1 Pak (for the old CM)

So a first byte of, for example, \$7A is 01111010 in Binary (scientific calculators are great for converting between Hex, Binary and Decimal numbers) and means a valid DataPak which is paged, not write protected, not bootable, copy protected and not a MK 1 Pak.

The Pak size is recorded in 8K chunks.

If the Pak were set as a bootable Pak (one which

runs a program automatically when CLEAR is pressed, like the Spellchecker) then the date of formatting bytes would be replaced by the address on the Pak of the boot program.

The ID word (a word number is two bytes) is a code number unique to this Pak generated by the host Organiser when the Pak is sized. This is very useful for producing copy protected programs without relying on copy protection of the Pak, if a program first checks this code number then only this Pak can be host to the program.

The checksum word is used to ensure the previous codes are OK.

An interesting special type of RamPak can be produced by setting Pak header code 0 to \$3C then adjusting the checksum word to the sum of the preceding bytes, this adjustment is only relevant to operating system versions later than v3.0. The RamPak thus produced will automatically back up all of the Organiser non-paged Ram area when a TRAP occurs!. When the dreaded TRAP display appears on the screen your Organiser will switch off after a few seconds then when it is switched back on this special RamPak is searched for and if found all of the Ram is copied to the Pak, it should then be possible to reset the machine and recover all programs etc. from the Rampak.

To read a Data or Ram Paks' header codes I have quickly written the following program which will read a Pak in the B slot and display the first 10 codes in hexadecimal;

```
PAKINFO:
LOCAL A%(12),X%
DO          REM -- Suitable for any machine --
A%(1)=$3F62  REM SET PAK TO SLOT B
[A%(2)=$CE00  REM LOAD X REGISTER
WITH PAK ADDRESS]
A%(3)=X%*256+$5F  REM CLEAR D REGISTER
[A%(4)=$D74B  REM CLEAR TEMPORARY
ADDRESS]
A%(5)=$3F60  REM SET PAK ADDRESS
[A%(6)=$3F5D  REM READ BYTE FROM PAK
INTO B REGISTER]
[A%(7)=$D74C  REM STORE B AT A TEMPOR-
ARY ADDRESS]
```

Machine Code Page - 2

```
[A%(8)=$CE00      REM  LOAD X WITH TEMP
ADDRESS]
[A%(9)=$4BDC      REM  LOAD D WITH PAK
BYTE]
A%(10)=$4B3F     REM  CONVERT TO HEX
A%(11)=$7C3F     REM  DISPLAY BYTE
A%(12)=$1139     REM  RETURN TO OPL
USR(ADDR(A%()),1) REM  1=PAK B
PRINT" ";
X%=X%+1
UNTIL X%=10
GET
```

This little program is a good illustration of using the in-built software interrupts supplied by Psion in your operating system, a list of the SWIs' can be found at the back of Bill Aitkens' book "Machine Code Programming". To run one of these sub-routines the MC command \$3F is used followed by the interrupt number. I have used 5 in this program, \$62 (switch Pak on), \$60 (set the Pak address), \$5D (read one byte from a Pak), \$7C (convert binary to hex) and \$11 (display a string). Within this program the interrupts are well suited to each other, the condition of registers after a call are suitable for the calling of the next interrupt.

I shall leave you to de-code the meaning of the header codes displayed using the previous tables and armed with a scientific calculator (or pen and paper).

Finally, a program of mine called PSION was published a few months ago from which some members are having difficulty using. The SWIs used in that program will only work on an Organiser later than version 4.0 of the LZ models, to discover your version use the following program;

```
LZVER:
LOCAL X$(2)
X$=HEX$(PEEK$(FFFE9))
PRINT LEFT$(X$,1);".";RIGHT$(X$,1)
GET
```

For some unknown reason (probably related to the paged Ram) LZ64 machines could not run the PSION program safely, as no technical information has yet been released about LZ/LZ64 differences from Psion I cannot locate the problem and

can therefore only apologise to all the LZ64 owners who ran the program and lost data (but remember; "a rose is but a thorn on a stick").

Neil Draycott
168 Derby Road, Denby, DE5 8RD.
Phone 0332 880663 9.00am - 5.30pm.

For Sale

Epson P40 Printer with lead & charger £40
Hush 80 column Thermal Printer,
inc. lead & charger £50

Wanted

256k Flash Datapak

Phone: Pete Littlewood (0543) 422348

Psion Aficionado London Group

The London meetings of PAL will no longer be held at 15 Monck Street after the May Meeting. From June meetings will be at my house (address below) until another venue can be found. This is because, at the inception of the London Group, a large proportion of the group consisted of members of the Police Force. As a result they graciously allowed us to use their premises. Lately, their numbers have dwindled to zero, and the "civilian" members have increased in leaps and bounds. Someone high up in the Force must have noticed this and we were politely told to "move along there!" (my little jest, not their words).

The provisional dates for the meetings at 39 Twyford Avenue, Acton, W3 9PZ are **June 18, July 16, and August 19**. I would like welcome members of the Psion fraternity, but would be very grateful if those intending to come along would give me a ring in advance (081-993-5702), so that I can order another tea-bag and biscuit.

David Gray (London Organiser)

Progs & Procs - 1

Worldtime

by Adrian Pegg

WORLDTIME (abbreviated to WTIME), allows you to create a database of time differences for any number of locations around the world, and thus provides XP/CM users with a facility enjoyed by LZers.

In use, it is called from your main menu by pressing W, just as you would press T to find the time in this country. The first time you do this, you will see UK TIME, and the current time preceded by the figure 0. This figure will always show the time DIFFERENCE in hours between the Psion's clock time and that displayed by WORLDTIME.

Pressing ON/CLEAR or EXE will return you to the main menu. Pressing MODE, however, takes you to a brief menu: CHANGE- DISPLAY, NEW, DELETE. After selecting NEW in the usual way you will be asked for a 'time ID'. Enter, for example, 'Swiss time' or 'Switzerland' and press EXE. You will then be asked for the time DIFFERENCE in hours between Swiss Time and UK Time.

At this point you may enter a positive or negative number as appropriate, and press EXE. The WORLDTIME you have just entered will now be displayed, and will always be the first thing you see when you select WTIME from the main menu until specifically changed. With a time showing, now press MODE once more, and choose SELECT from the menu. Once you have a number of times in your database you will be able to choose between them by using the UP/DOWN ARROW keys and pressing EXE. The WORLDTIME you select will become the current one. Selecting DELETE will provide the option to delete a world-time, but you cannot delete the original UK TIME from the database.

To start you off, here are a few time differences from GMT as given by the LZ:
New York Manhattan -5
Geneva +1
Sydney +10
Greece +2
India +5

```
wtime:
GLOBAL c$(20),n$(1),t%,hr%,x%,v%,posi%
IF NOT EXIST ("A:wtimes")
CREATE "A:wtimes",A,c$,t%
USE A
A.c$="UK TIME:"
A.t%=0
APPEND
ELSE OPEN "A:wtimes",A,c$,t%
ENDIF
IF NOT EXIST ("A:wtimlast")
CREATE "A:wtimlast",B,lst%
USE B
b.lst%=1
APPEND
ELSE OPEN "A:wtimlast",B,lst%
ENDIF
CLS
REM *Display*
USE A
POSITION B.lst%
wtimedis:
RETURN
```

```
wtimedis:
LOCAL k%,opt%
CLS
USE A
POSITION B.lst%
PRINT A,c$
AT 1,2
IF A.t%>0
PRINT "+";
ENDIF
PRINT A.t%;
AT 4,2 : PRINT "<";
AT 13,2 : PRINT ">";
hr%=A.t%
IF hr%>23 :hr%=hr%-24
ELSEIF hr%<0 :hr%=hr%+24
ENDIF
REM *Set clock to new time*
x%=VAL(MID$(DATIM$,17,2)+hr%
DO
IF x%>23 :x%=x%-24
ELSEIF x%<0 :x%=x%+24
ENDIF
UNTIL x%>-1 AND x%<24
POKEB $20C8,x%
```

Progs & Procs - 2

```

REM *Display time*
ESCAPE OFF
DO
  AT 5,2
  PRINT RIGHT$(DATIM$,8)
  k%=KEY
  UNTIL k%=1 OR k%=2 OR k%=13
  ESCAPE ON
  REM *Reset clock to real time*
  x%=VAL(MID$(DATIM$,17,2))-hr%
  DO
    IF x%<0 :x%=x%+24
    ELSEIF x%>23 :x%=x%-24
  ENDIF
  UNTIL x%>-1 AND x%<24
  POKEB $20C8,x%
  IF k%=1 OR k%=13
  RETURN
  ELSEIF k%=2
  wmenu:
  opt%=MENU("Change-Display,New,Delete")
  ENDIF
  CLS
  IF opt%=0
  RETURN
  ELSEIF opt%=1
  wtimesel:
  ELSEIF opt%=2
  wtimenew:
  ELSEIF opt%=3
  wtimedel:
  ENDIF
  IF v%=1 OR v%=8
  GOTO wmenu:
  ENDIF
  wtimedis:

```

```

wtimenew:
USE A
LAST : NEXT
PRINT "Enter time ID:"
INPUT A.c$
IF A.c$=""
BACK
RETURN
ENDIF
IF LEN(A.c$)>16
A.c$=LEFT$(A.c$,16)
ENDIF
CLS

```

```

PRINT "Enter difference in HOURS: ",
INPUT A.t%
APPEND
posi%=POS
USE B
FIRST
B.lst%=posi%
UPDATE
USE A
RETURN

```

```

wtimedel:
LOCAL yn%
USE A
IF COUNT>1
CLS
PRINT A.c$
PRINT "Delete Y/N",CHR$(63);
yn%=GET
IF yn%=%Y OR yn%=%y
ERASE
B.lst%=1
POSITION B,1st%
ENDIF
ENDIF
RETURN

```

```

wtimesel:
LOCAL p$(2) CLS PRINT "Select...UP/DOWN"
DO
IF A.t%>0 : p$=" +"
ELSE p$=" "
ENDIF
v%=VIEW(2,(A.c$+p$+NUM$(A.t%,3)))
IF v%=3
IF POS>1 : BACK
ELSE LAST
ENDIF
ELSEIF v%=4
NEXT
IF EOF : FIRST ENDIF
ENDIF
UNTIL v%=1 OR v%=8 OR v%=13
IF v%=13
posi%=POS
USE B
FIRST
B.lst%=posi%
UPDATE

```

(continued on Page 19)

A Software Saga - Part 3

A Software Oddity - Part 3

by Steve Clack

If you have been reading the two previous instalments of this article, you will recall that I was planning to divulge the identity of a keyboard "MACRO" this week. Well, here ends the suspense, so please read on.

Anyone familiar with one of the 'big' word processing packages written for major desktop computers will probably be quite well acquainted with the invaluable keyboard macro. Essentially, a macro is simply a way to 'assign' a series of keystrokes to another (shorter) set of keystrokes. For example, while writing this article I have needed to write the phrase 'Psion Organiser' many times. I have speeded this up by using a keyboard macro on my desktop PC.

The mechanism by which this is done is largely irrelevant, as it obviously varies with the software in use; but the initial setting up process generally takes little more than a few seconds. Once done, I can effectively type (for instance) the words 'Psion Organiser' just by hitting the <SHIFT> <CTRL> and <P> keys simultaneously. In this instance, the 'macro' is saving 14 keystrokes - every time the phrase is required. The 'phrase' can generally be assigned to any key combinations not already used by another function, though this varies with different packages.

On a conventional computer with a QWERTY keyboard, there is obviously a limit to the benefit of macros to the seasoned typist. It is clearly quicker for an 80 w.p.m. typist to type a short phrase half a dozen times in the conventional manner than it is to set up a macro that may never be used again. On the other hand, a macro can often be used to type an entire address at the beginning of a letter, insert the date, drop down a couple of lines, and then type the word 'Dear Sir/Madam', ready to begin typing text. This can then be recalled at any time with just one or two keystrokes! Even 100+ w.p.m. typists can find this kind of productivity aid an absolute boon.

A second constraint with macros is the limit to the number of 'short' key sequences that can be remembered at any given time. It's all very well to set up <CTRL><SHIFT><P> to type the words 'Psion Organiser', and for <CTRL><SHIFT><D> to type 'Dear Madam', but how many people can also remember that <CTRL><ALT><P> represents 'Peter Smith - Director', and that <ESC><P> represents 'Peter Piper picked a peck of pickled peppercorns'? A practical limit is probably somewhere between twenty and thirty combinations for most people; dependent upon both the user's own memory, and whether the phrases all happen to begin with the same letter!

At first, one might shrug off the idea of keyboard macros with the <CTRL><SHIFT><P> - sorry, I mean with the Psion Organiser! The argument being that applications such as full blown word processors (where macros are most commonly used) are rare for the Organiser. However, it

should be appreciated that a macro can repeat ANY sequence of keystrokes, not just alphanumeric characters.

FNKEY, as discussed at length within the previous instalments of this article, has the ability to create macros for the Psion Organiser. The method of composing the macros is simplicity itself, but more importantly, they can be used within ANY software application on the machine. On the Organiser, FNKEY associates all macros to the <MODE> key, plus a single letter key (A-Z). In other words, every macro created must be assigned to key combinations such as <MODE><A>, <MODE>, <MODE><C>, and so forth. This apparent limitation of 26 different macros (one for each letter of the alphabet) is overcome by the ability to have 26 different 'banks' of macros. This gives a theoretical limit of 26x26=676 different macros at any given time - certainly enough for most people's memory!

In practice, it is generally sensible to have one bank of macros for each major application. I have given some sample ideas for macro 'groups' below:

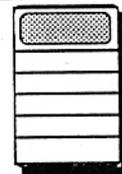
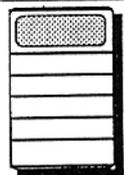
BANK 1: Works from the top level menu. On an LZ machine, pressing <MODE><S> could go directly from the top level menu to the stop-watch, <MODE><T> directly to the timer, <MODE><C> could go directly into the calculator, clear all ten memories, then wait for input. <MODE><D> could go into the diary, and load a separate macro group just for the diary, on so on.

BANK 2: The set of macros for the diary, loaded as described above. Within this set, <MODE><S> could save the diary, including filling in the prompt for the file name, reload the default macro set, then jump back to the top level menu. <MODE><1> (the number '1' being the same key as the letter 'U') could be used to cut a selected diary entry, move it forwards one week, then paste it back on the new day. <MODE><2> could move an entry forwards TWO weeks, and so on.

BANK 3: Could be used for programming in OPL. All the common OPL commands, such as PRINT, GOTO, LOCAL, MENU, RETURN, etc. could be assigned to macros. Remember that EVERY time one of these words is called for, they can each be entered with just two keystrokes. Anyone who does regular programming directly on the Organiser should be able to work approximately 3 to 5 times more quickly using FNKEY.

It has been impossible within the space constraints of this article to give a detailed discussion of all the ways in which FNKEY can improve productivity on the Psion Organiser. However, the general idea is that it can dramatically reduce the number of keystrokes required in all applications.

The more I use it, the more ways I find to speed up my work. Anyone wishing to get REAL productivity from a Psion Organiser would be well advised to get themselves a copy of FNKEY, PRONTO!



IPSO FACTO

Vol V

Jun 1991

No. 4

Editorial Office: 130 Stapleford Lane . Toton . Beeston . Nottingham . NG9 6GB
Editor: Mike O'Regan Tel: (0602) 735482

Is there anyone out there!

If you remember back to the time when you joined our happy band of Psioneers, first subscribing to IPSO, you may remember that I said that the existence of IPSO depended very much on participation by its members. In spite of the fact that we have many hundreds of members, it falls to very, very few to actually submit ANYTHING for publication in this newsletter - the same few "old reliable" names crop up time after time, and I often have to resort to writing quite a bit of the newsletter myself. I don't mind the latter, although I would hate for IPSO FACTO to become a "one-man-band".

Well, all of the above is a round about way of saying that I would welcome contributions, especially from beginners and those who have not written before. You do not have to write a beautifully crafted OPL masterpiece. It is sometimes quite instructive for me to publish programs which are written by beginners which are not exactly models of programming, but which do the job. You must have seen some like this.

Nor is it necessary to write programs to submit useful material for the newsletter. You can let us know how you use your Organiser for your particular applications. Both myself and Neil Draycott welcome correspondence about our particular sections of IPSO FACTO - my "Beginners Page" and Neil's "Machine Code Page". We are particularly fortunate that Neil has started his new series, as he is a very busy person who is nevertheless willing to give up quite a lot of time not only to writing his pages, but also answering telephone and mail queries.

So come on, you Psioneers, let us hear from you. If you have been meaning to write, but never got around to it, do so now while it is fresh in your mind!

A Competition

If you can answer the following five questions correctly, you could win a valuable prize (see below).

- 1. What is the name of the company which manufactures the microprocessor used in all Psion Organisers?*
- 2. How much time elapses between turning an Organiser "OFF" and it "waking up" by itself?*
- 3. How many BYTES in a KILOBYTE?*
- 4. What month & year was the first issue of IPSO FACTO?*
- 5. What is the shortest time which can be set for "AUTO OFF" on the Organiser?*

Send your answers (in writing) to:

Robin Corrie
9 Brighton Close
Addlestone
Weybridge
Surrey KT15 1PP

to arrive not later than MONDAY 22 JULY '91. The first right answer opened after that date wins a JARO DATABOX (see description in IPSO FACTO Vol.IV Page 23 or write to above address or phone - (0932) 857398 for a leaflet). Entries should also say whether or not a leaflet is required.

Contents

<i>Editorial</i>	<i>25</i>
<i>Beginners Page</i>	<i>26</i>
<i>Machine Code</i>	<i>27</i>
<i>Progs & Procs</i>	<i>29</i>
<i>Feedback</i>	<i>32</i>

Beginners Page

by Mike O'Regan

Over the last few issues we have been looking at the various TIME and DATE facilities of the Organiser.

Now, as promised, we will write a little procedure to work out "average MPH/KPH" which you could use, say, for a long (or short for that matter!) car journey. The way we will manage this is so that the program will ask for an opening odometer (speedometer) reading, and, at the end of the journey the closing reading. The Organiser will do the rest. I will try to explain the various steps after the program.

DO NOT ENTER THE LINE NUMBERS WHICH ARE PURELY FOR NOTE REFERENCES.

```
Line
1. mph:
2. LOCAL opt%,inp%
3. start:
4. opt%=MENU("S-miles,E-miles,Ave- MPH,Quit")
5. IF opt%=1
6. PRINT "Start miles"
7. INPUT inp%
8. M0=inp%
9. M5=(HOUR*60)+MINUTE
10.GOTO start:
11.ELSEIF opt%=2
12. PRINT "End miles"
13. INPUT inp%
14. M1=inp%
15. M6=(HOUR*60)+MINUTE
16. GOTO start:
17. ELSEIF opt%=3
18. PRINT "Ave.",
19. PRINT FIX$((M1-M0)/((M6-M5)/60)
,2,6);"MPH"
20. GET
21. GOTO start:
22. ELSEIF opt%=4
23. STOP
24. ENDIF
```

Notes.

Line 2 LOCAL declares the two integer (%) variables used - opt% (option) and inp% (input)
Line 3 start:: (note the double colon) is simply a LABEL (for the GOTO later)
Line 4 The MENU line - when using menus in

this way (using GOTO) it is essential to have a QUIT option.

Line 5 if you have chosen "S-miles"

Line 6 prompt for input

Line 7 note that inp% is used for ALL input lines.

Line 8 store the input value in CALC MEMORY 0

Line 9 pick up the HOUR and MINUTE from the Organiser's clock, convert the HOUR to minutes and add to the MINUTE, then store the total in CALC MEMORY 5

Line 10 GOTO start:: (label line)

Line 11 if E-miles chosen

Line 12 prompt for End-miles input

Line 13 INPUT line

Line 14 store INPUT value in CALC memory 1

Line 15 as line 9, but with new time picked up (of course)

Line 16 GOTO start:: (label line)

Line 17 if Ave-MPH chosen

Line 18 Print "Ave:" followed by a SPACE (,)

Line 19 Print the calculation based on dividing the miles travelled by the time taken (in hours). The FIX\$ is used to tidy up the result to just two decimal places.

Line 20 GET simply holds the display so that you can read the result.

Line 21 GOTO start:: (label line)

Line 22 if Quit option chosen

Line 23 STOP takes you back to the previous menu (out of the program).

Line 24 all IF-ELSEIF lines must have an ENDIF at the end.

Special Note. This program uses four of the ten CALCULATOR MEMORIES. This is important, as ordinary variables would have been reset (to 0) each time the program was run. Using the CALC MEMORIES means that the values are retained - unless you use them for something else before completing the program. If you wish to use KILOMETRES instead of MILES, just replace the "MPH"s to "KPH"s.

NOTE

This program will run on any model CM, XP or LZ. It was written on an XP.

Machine Code Page

by Neil Draycott

ORGANISER FILING SYSTEM.

This month I will endeavour to explain the structure of the Organiser filing system, the original intention was to waffle on about ALL types of Organiser files but this proved too long and boring a subject so I will split it up into two monthly editions that build into a complete manual for your family to treasure.

Storage of data on the Organiser is either to a RAM area (such as the A: drive or RamPaks) or to DataPaks (or FlashPaks). Because of the static nature of DataPaks a quite unusual filing system has been developed by Psion. The EPROM (Erasable Programmable Read Only Memory) chip at the heart of a DataPak has all it's bits set to 1 when formatted, the Organiser can "blow" a bit down to 0 when writing to a Pak but cannot reset it to 1, for this reason once a bit has been zeroed it remains until the Pak is formatted. All the free space on a DataPak exists as one long block at the end of the Pak and data is stored from the beginning of the Pak (with the first 10 bytes used as described last month).

On a PC disk based computer there exists a table of the location of each piece of data on the disk (called the File Allocation Table) but the Organiser needs no such complication, to locate data the

operating system simply starts looking from the beginning of the Pak until it finds it. In a RAM area the access time is improved by tidying up the memory after each update. This type of data access is called WORM (Write Once Read Many) and is only practicable on the Organiser because the structure of each type of file allows the operating system to make big jumps in it's journey through the Pak.

DATA FILES. The simplest type of file is the ordinary data file used with OPL commands such as OPEN and NEXT and the MAIN file used by the FIND and SAVE options. Each data file is allocated a number between \$90 and \$FE (so only 111 files can ever exist). When a new file is created the operating system searches through all areas to find the next free file number and allocates it to the new file. The file number \$90 is therefore the first created and is used for the MAIN file. Because constant updating and deleting of file records could mean that records will exist scattered across a DataPak this number is used to keep a track of which records belong to which file. Each data file has a "header" record associated with it that contains the file's name and unique ID number, each record can then be referred to by it's ID number.

```
A typical data file could be;
09 81 T E S T 20 20 20 20 97 --
-----
-----
--- 04 97 F O U R ----
-----
- 08 97 T H R E E 09 A T --
-----
----- 02 17 X X -----
```

THIS IS THE NAME RECORD OF THE FILE "TEST"

THIS IS ANY OTHER DATA ON THE PAK
THIS IS THE FIRST RECORD

THIS IS THE SECOND RECORD

THIS IS A DELETED RECORD

It can be seen that any type of record always starts with the length of the data to follow, it is this number that the operating system uses to skip through on it's search through the Pak ("a snake has not the eyes of a camel"). If the byte following this is \$81 then this means that this is a data file NAME record, the following name will be padded out with spaces (character \$20) and the ID number of the file tagged on the end (in this case \$97), it is then known that all records of ID number \$97 belong to the file "TEST". A typical

data file record can be seen to consist of the number of bytes to follow then the ID number then the actual data. Each field of a record is separated by the character 9 which produces a new line on the display when a record is brought into the editing area. Remember bits can only be blown down to 0, so to delete a record the ID number top bit is blown to 0 thus changing \$97 in our example (10010111) to \$17 (00010111), if a record is edited then the old copy is erased in this manner and the updated record recorded further

Machine Code Page - 2

down the Pak (in a RAM area the erased record is then removed and all data shuffled down). Because an erased record still exists on a DataPak it is still possible to read it with a bit of programming. When a file is renamed the NAME record is erased (so our example would become 09 01 T E S T 20 20 20 20 97) and the new NAME record recorded further down the Pak. If an error occurs when writing to a Pak then attempt is made to leave the second byte as \$FF and the resulting first word is regarded as an erased record, if this cannot be done then the record is erased as normal.

NOTEPAD FOR THE XP

The following program is an example of next months topic; the Organiser block filing system. Block files are of a different structure to data files and are used for OPL programs, XP diaries, LZ NotePads etc. LZ users have a usefull Notes option from the main menu that allows the editing of simple files using the OPL editor, the same editor can be called with an XP Organiser to enable a similar NotePad system on the XP using the following program:

NOTES:

```
LOCAL a%(8),n$(9),x%,y%
ESCAPE OFF
n$="A:NOTEPAD"
a%(1)=$0ICE
a%(2)=ADDR(n$)
a%(3)=$3F24
a%(4)=$2504
a%(5)=$CE00
a%(6)=$0139
a%(7)=$CE00
a%(8)=$0039
y%=USR(ADDR(a%()),$87)
a%(1)=$3F4D+y%
n$="Notepad"
DO
POKEB $22C9+x%,ASC(MID$(n$,x%+1,1))
x%=x%+1
UNTIL x%>LEN(n$)
POKEB $22C8,x%-1
POKEW $A2,$0003
POKEW $23E0,$8701
USR(ADDR(a%()),0)
REM ATTEMPT TO OPEN A BLOCK FILE TYPE $87
REM IF FAILED THEN FILE DOES NOT EXIST
REM SO SET X TO 0
REM LOAD NAME INTO BUFFER
REM STORE NAME LENGTH
REM SET PAK TO A: AND ENABLE EDIT
REM SET FILE TYPE TO $87 AND DISABLE TRANS a%(2)=$3900
REM RUN OPL EDITOR
```

This program will run on both an XP and LZ machine (but on an LZ will have to have another name), the Notepad file created is compatible with the Notepads in an LZ and can be used within the LZ "Notes" option. I make no apologies to MC purists for the amount of OPL in this program, OPL is more convenient than MC in a lot of cases and combinations of the two produce the neatest programs. If running this on an LZ machine try changing the file type to \$8F (change all occurances of \$87 to \$8F) to produce "secret" notes not recognised by the LZ.

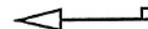
Neil Draycott
168 Derby Road
Denby Derbyshire
DE5 8RD

0332 880663 9.00am-5.30pm.

FOR SALE

1 PC 1512 c/w 32mb Hard Disk
1640 upgrade
external 3.5" & 2 x 5.25" drives
Psion related software
Other quality software
£450 (or exchange MC range)

XP POS 200 Organier (ex M&S) £30
SAMKA Machine Code Assembler for XP/LZ £25
2 - Card Swipe Readers £20 ea
Husky Hunter Palmtop Computer £65
Waterproof cases for LZ/XP from £65
Teach Yourself C (book with disks) £15



Progs & Procs - 1

NON-DESTRUCTIVE SORT

by ANDREW WALKER

This story starts quite a while ago, with myself trying to sort a "Products" file.

Due to the way in which the PSION stores information (RAM/DATApaks) I soon discovered the normal style of sort routine would not work. RAM/DATApaks are all based around various forms of EPROM and the storage method could be considered to be "stack based". So any updating of records does not change the information in that "record slot" but takes a copy, erases the original, makes the changes to its copy and places this new record on the bottom of the file. In the case of a sort we need to compare and swap the places of records. There lies the problem. You could sort in this way (type of bubble? sort) but the pak space would soon diminish and battery life would be very short.

What I needed was a routine that would...

1. Sort a file of records in alpha/numeric order ready to be printed out and generally viewed.
2. Did not physically sort a file by moving records around, either through pak A or rampaks etc. (Save vital pak space and battery life).
3. Have a low overhead on holding the sorted records.
4. Easyish to swap which fields on which to base the sort.

Out went the pleas for help and back came some help and quite a bit of gibberish. Indirectly Neil Draycott was the biggest help, he started me thinking along a new track. The following routines are based around this idea and involve a couple of arrays, one of which ends up holding a trail of record positions which are sorted.

The sort is simply a double byte string array one byte for the record positions the other I use as a marker. This will hold up to 255 record positions, but this could be changed (very easily) to use a double byte setup (most/least significant) which could hold around 65000 positions or increased in size to hold a complete field plus position, you would now have an index (let me know if anyone is interested). So I think the routine is quite versatile and it can be adapted fairly easily.

Now to how it works. The routine "sort:" does most of the work, 1. Loads ASCII character of record position plus information from field A.SRT into a LOCAL array "a\$".

2. Uses a shell based sort routine to sort the array "a\$" missing out the record positions.
3. Moves the recorded positions from "a\$" into the GLOBAL array "ix\$".
4. Will also store and retrieve the sorted record positions.

The routine "test:" is made up to show the "sort:" running. The GLOBALs are:

- ★ ix\$ Holds the record positions.
- ★ me% Points to the record in question.
- ★ tot% Amount of records in the file.
- ★ idx% Used to check the status of a sort.
- ★★LOCALs
- ★ q% Option flag.
- ★ m\$ Write prompt.
- ★ s\$ Builds a string for DISP.
- ★ t\$ Tab character.

The reason for the GLOBALs is so other procedures within a program can pick-up and use the sorted records without having to include a sort routine in every procedure. idx% is very useful although may need a little explaining (here goes).

I use idx% as a status indicator, if a sort is loaded and the checksum (first character of D.ID\$) is not matched to the total, checking idx% will tell me this. An example is used in test (see m\$). After a record has been updated the sort will need to be rerun because the record will now be at the end of the file instead of its original place, so set idx% after every update and a status check will show if the "ix\$" needs re-sorting etc. The same goes for read/write of the sort information.

★★The LOCALs within "sort:" are:

- ★ a\$ The main sort array.
- ★ him\$ her\$ Temporary brother/sister strings, for moving data within the "a\$" array.
- ★ it% that% Temporary pointers for the temporary strings.
- ★ f% General flag.
- ★ fn\$ Filename label used to pass info to D.ID\$.
- ★ t% Option flag, 1=Read 2=Write 3=Sort.
- ★ ers\$ Holds messages.

The "sort:" procedure starts by loading the "a\$" array with the record position plus nine

Progs & Procs - 2

characters from A.SRT\$. I'm using a string because I find a string more versatile. You can swap numeric data in and out of a string where the reverse is not always possible.

★★A.SRT\$ is OPENed within test, I've used...
★★OPEN"C:MAIN",A,SRT\$,b\$,c\$,d\$,e\$,f\$,g\$,h\$
this can easily be changed to...

OPEN"C:MAIN",A,a\$,b\$,SRT\$,d\$,e\$,f\$,g\$,h\$

Depending on where A.SRT\$ is OPENed results in which field the sort is based from.

Anyway A.SRT\$ gets loaded to "a\$", this goes on past the read/write routines and on to the sort itself.

For the sort itself we work with the "a\$" array, this way we don't disturb the real file. All the sort is really doing is picking up the first array element and comparing this to an array element found a third of the way into "a\$", when comparing these elements we miss out the first character which is the record position. If the second element picked up is of a greater value their positions get swapped, otherwise we drop out of the loop and try again. Once this section is complete the first character of each element within "a\$" (the record position) is moved into "ix\$" and we drop out of sort: which frees up the memory used by "a\$".

So now "ix\$" hold a trail of record positions ordered by whichever field was picked when OPENed.

I've used these or similar routines within half a dozen programs and it seems to work pretty well. But if you have any hitches that need sorted my number is 021-779-5008 I'm based in Birmingham.

```
test:
GLOBAL ix$(255,2),idx%,me%,tot%
LOCAL q%,m$(10),s$(255),i$(1)
OPEN"C:MAIN",a,srt$,b$,c$,d$,e$,f$,g$,h$
IF EXIST("A:INDEX")
  OPEN"A:INDEX",d,id$,x$
ELSE
  CREATE"A:INDEX",d,id$,x$
ENDIF
USE a
tot%=COUNT
DO
  loop:
  IF idx%=3
    m$="Write"
```

```
ELSE m$=""
ENDIF
q%=MENU("Read,Sort,View,"+m$)
IF q%=1
  REM **** read in sorted index labeled-
  "MAIN"
  sort:("TEMP",1)
ELSEIF q%=2
  REM **** sort the file
  sort:("",3)
ELSEIF q%=3
  REM **** just so we can see the records
  i$=CHR$(9)
  USE a
  me%=0
  DO
    me%=me%+1
    POSITION ASC(LEFT$(ix$(me%),1))
    s$=a.srt+i$+a.b+i$+a.c+i$+a.d$
    s$=s+i$+a.e+i$+a.f+i$+a.g+i$+a.h$
    [REM ** see the info exe-NEXT SPACE-BACK
ON/clear-out]
    q%=DISP(1,s$)
    IF q%=1
      GOTO loop:
    ELSEIF q%=32 AND me%>2
      me%=me%-2
    ENDIF
  UNTIL me%=tot%
ELSEIF q%=4
  [REM **** write sorted array to file label-
  "MAIN"]
  sort:("TEMP",2)
  ELSE q%=5
  ENDIF
UNTIL q%=5
CLOSE
CLOSE
sort:(fn$,i%)
LOCAL
a$(255,10),him$(10),her$(10),ers$(7,18),if%,that%,f%
REM **** set up messages
ers$(1)=" ** Re-Sort ** "
ers$(2)="** Index NOF ** "
ers$(3)=" Not Worth Sort "
ers$(4)="Reading "
ers$(5)="Writing "
ers$(6)="Packing "
ers$(7)="Sorting "
f%=0
me%=0
```

Progs & Procs - 3

```
USE d
REM **** check for label
f%=FIND(fn$)
IF f%=1
  IF f%
    REM **** check for add/del from LAST sort
    IF ASC(LEFT$(d.id$,1))<>tot%
      f%=1
      GOTO drop::
    ENDIF
    PRINT ers$(4)
    DO
      me%=me%+1
      REM **** read POSITION data into ix$
      ix$(me%)=MID$(d.x$,me%,1)
    UNTIL me%=LEN(d.x$)
  ELSE
    f%=2
    GOTO drop::
  ENDIF
  idx%=1
ELSEIF f%=2
  PRINT ers$(5)
  REM **** dump old label/sort
  IF f%
    ERASE
  ENDIF
  [REM **** write record check+label then PO-
  SITION data]
  d.id$=CHR$(tot%)+fn$
  DO
    me%=me%+1
    IF me%=1
      d.x$=ix$(me%)
    ELSE
      d.x$=d.x$+ix$(me%)
    ENDIF
  UNTIL me%=tot%
  APPEND
  idx%=2
ELSEIF f%=3
  REM **** here we go
  USE a
  FIRST
  me%=0
  [REM **** collect positions + info into temp
  array]
  PRINT ers$(6)
  DO
    me%=me%+1
    REM here%=POS
```

```
a$(me%)=CHR$(POS)
a$(me%)=a$(me%)+LEFT$(a.srt$,9)
NEXT
UNTIL EOF
REM **** check worth sorting
IF tot%<2
  f%=3
  idx%=0
  GOTO drop::
ENDIF
REM **** start sort
CLS
PRINT ers$(7)
it%=tot%
DO
  if%=it%/3+1
  me%=0
  DO
    me%=me%+1
    that%=me%
    DO
      him$=a$(that%)
      her$=a$(that%+it%)
      [IF MID$(him$,2,LEN(him$))
      <MID$(her$,2,LEN(her$))]
      GOTO labl::
    ENDIF
    a$(that%)=her$
    a$(that%+it%)=him$
    that%=that%-it%
  UNTIL that%<1
  labl::
  UNTIL me%=tot%-it%
UNTIL it%<=1
REM **** end sort move positions to ix$
me%=0
DO
  me%=me%+1
  ix$(me%)=LEFT$(a$(me%),1)
UNTIL me%=tot%
idx%=3
ENDIF
RETURN
REM **** error messages
drop::
PRINT ers$(f%)
PAUSE 25
```

Feedback - 1

The Power Game

Dear Ed,

I found your article, THE POWER GAME, in the May issue very interesting. For twelve months now I have been using a couple of pieces of hardware supplied by a company called POWAMATICS, address at the end of the letter.

The first item is a battery conversion kit which turns the Organiser into a rechargeable unit by replacing the battery cover with one that has two contact points on it and a rechargeable cell attached. The second item is the charger itself. This is designed to double as a desk unit as well. The Organiser can be used while charging, which takes about twenty hours for a full charge. Overcharging is not a problem, making it the ideal medium for the desk-bound Organiser. In my job as a catering manager for a busy works restaurant I use my LIZZY for quite a number of tasks, stocktaking, price changing, and printing completed stock sheets which have to be done once a week. The program that I use makes extensive use of the UPDATE utility, therefore battery power is at a premium. Another piece of equipment from the same company is called POWABAK. This sits in the top slot of the Organiser and, should the power get low in the main battery, then provides power from the POWABAK. This item is also rechargeable.

The address is:

Powamatics Ltd
44 Cheltenham Mount
Harrogate
N.Yorks
HG1 1DL
Tel: (0423) 560032

R.A. Browne

Dear Mike,

I was particularly interested in your POWER GAME article. Like you, I use two Ni-Cads, one in the LZ and the other one always with me. Mine last about a month before I get a "BATTERY LOW". I then change over immediately and put one on charge overnight, being sure to take the fresh one with me next day. I regularly back-up to RAMPAK. I tried lithium cells (Kodak Ultralife) a couple of years ago, with unsatisfactory results. A few weeks after first use, I had a "battery low",

much to my surprise. I checked the open circuit voltage, which was 9.25v. So I bought another Kodak Ultralife from another place and had the very same problem as with the first one. Surely I could not be unlucky twice with a duff battery! In any case, why 9.25v immediately after a "battery low"? Perhaps this is something to do with the internal resistance of lithium cells. I believe ni-cads have a low resistance whereas lithiums may be high. This might make them unsuitable for the Organiser if a high current is required at certain times.

Ron Gogerly

More on the POWER GAME next month. Ed.

For Sale

1- LZ 64 £100
1- 256k FlashPak £100
1- 64k datapak £25
1- 4 Line Pocket Spreadsheet £25
1- Psion Formatter £30
1- Leather Case £7
1- Mains Adaptor £8

or £280 for the lot

Contact V. Preater on:

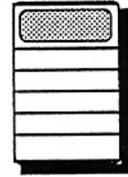
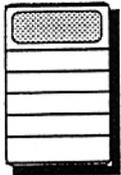

0895 420153 (eve)
081568 5544 (day)

A Service for Members

Neil Draycott will copy all your favourite programs onto a single datapak. See MACHINE CODE Section for Neil's address and phone number.

Information on Program Listings

Please note that programs are now listed in a distinctive typeface called TYPIST. If you have trouble distinguishing between O (the letter) and 0 (the number), please note that we try to avoid variables with either l or O. However, as all variables appear in lower case (i) and (o), there should be no problem. Capital Os which are part of OPL words will appear circular, whereas 0 (zero) is much narrower. Lower case L (l) is slightly different to a number one (1), as the top serif is horizontal.



There IS someone out there!

After my plea in the last issue, I am please to be able to tell you that there has been quite a response (at least to MY plea - Neil Draycott is not getting much). May I take this opportunity to thank those who have actually sent in material, whether it is in the form of OPL procedures or just interesting stories. At the same time, please do not stop. IPSO FACTO is YOUR magazine and the more it consists of pieces written by members the more I like it!

I am a member of at least two other small clubs and the story is the same with the others. It is the old 10% - 90% proportion, where 10% (or less) do 90% (or more) of the work.

By the way, you Machine Code buffs out there, do not despair. The Machine Code page has been replaced for this month only by "Advanced Topics", which should appeal to them together with other advanced members. Neil Draycott will be back next month with his usual column.

PSION NEWS

It appears that quite a few of our members do not regularly receive their free copy of PSION NEWS, the colour magazine for Organiser owners (and others) which is published four times a year. If you don't get a copy, it probably means that you did not send in your Registration Card when you bought your Organiser (if you got one).

Anyone who wants to be on the mailing list should write in to Psion News, now situated within Psion.

STOP-Press Prog

In order to stop any more members phoning in and asking how to adapt the VAT program for the new rate, I am listing below a program, which will run on all models, and which will not only show the PLUS and MINUS VAT figures, but will also compare the PRICE-PLUS-VAT before the rate went to 17.5% and the same amount after. This is quite handy for comparing price rises which are attributed to the VAT rise!

```
vat:
LOCAL am,opt%
st::
CLS : PRINT "Amount", : INPUT am
IF am=0 : STOP : ENDIF
opt%=MENU("Plus,Minus,Conv")
IF opt%=1 : PRINT "+VAT:",FIX$((am*1.175),2,6)
PRINT " VAT: ",FIX$((am*1.175),2,6) : GET : GOTO st:
ELSEIF opt%=2 : PRINT "-VAT:",FIX$((am/1.175),2,6)
PRINT " VAT:",FIX$(am-((am/1.175)),2,6) : GET
GOTO st:
ELSEIF opt%=3 : PRINT "OLD",FIX$(am,2,6),"(incl)"
PRINT "NEW",FIX$((am/1.15)*(1.175),2,6),"(incl)"
GET
GOTO st:: : ENDIF
```

Contents

<i>Beginners Page</i>	<i>34</i>
<i>Advanced</i>	<i>35</i>
<i>Power Game</i>	<i>36</i>
<i>Progs & Procs</i>	<i>37</i>
<i>Keyboard</i>	<i>39</i>

Beginners Page

by Mike O'Regan

Running OPL Programs from CALC

This months page is based on one or two queries I have received. I still require a lot more feedback from beginners about the subjects you would like to see covered on this page, so come on some of you who have written to me to say that you really find Beginners Page helpful.

Question. ...the Lizzy Handbook says that I can run OPL (programs) in CALC. I created a program as follows:

```
M: PRINT "*"25.4" GET
```

Then I Tranlated and Saved it. I then go into CALC and enter the following:

```
204M <EXE>
```

and all I get is an error message. HELP!

Answer. It is indeed possible to run any OPL program from within CALC. The problem with your program is that, as written, it will not do what you want it to do. The line

```
PRINT "*"25.4"
```

will only do exactly that, namely PRINT the STRING "*"25.4" and it is not possible to do the required sum by multiplying an entered figure by 25.4.

There are various ways of writing an OPL routine which will do the job. The simplest procedure would be one using a *parameter*. Follow EXACTLY the following instructions:

1. Go into PROG and select NEW
2. Type in M and press <EXE>. You should now see
M:___
on the display WITH THE CURSOR NEXT TO THE COLON (:)
3. Now key in
(sum)
(including the (s) and press <EXE>. You should now have
M:(sum)

on your display.

4. Now press <EXE> once more and the cursor will move to the first program line. Note that the procedure name is not just M: - it needs a *parameter* (the bit in the (s) to work.

5. Key in PRINT sum*25.4 <EXE>

6. Finally key in GET <EXE>

7. Now TRANS and SAVE the procedure.

Go to CALC. To run your program you will have to enter things properly. If you just enter
M: <EXE>

you will get the error message
"ARG COUNT ERR IN CALC"

. This just means that you have omitted to enter your *parameter* (the sum bit).

Now enter the following:

```
<SHIFT> M
```

```
:  
(204)
```

Your display should show

```
M:(204).
```

Now press <EXE>.

The display will show 5181.6.

Pressing <EXE> once again will return you to CALC with the cryptic message

```
M:(204)  
=0.00
```

Ignore this. A further press of <EXE> gives you:

```
CALC:M:(204)
```

At this stage you can use the DEL key to delete the 204 and enter another sum. Don't forget the closing) - otherwise you will get a SYNTAX ERR message.

There are some occasions when it is very handy to RUN your OPL program from within CALC.

Advanced Topics -1

Soundex

by Mike Davies

It sounds like this ...

It has probably happened to most of us - you've got some data in your Organiser, but you can't remember the full details for retrieval. For example, you know you have the address for a Davies, but is it spelt "Davies" or "Davis" and so you do what everyone else does in these circumstances, you just type in "Dav" and laboriously step through all the "Davenports", "Daveys" and "Davidsons" until you find the right record.

If you've every worked with relational databases, or fourth generation languages, you may have come across a function that does retrievals using a "sounds like". You just supply the data you want to find, and all records that "sound like" it are returned. What actually happens is that the data you supply is encrypted using - as luck would have it; an internationally agreed set of phonetic rules. As each record is pulled off the database the field you are comparing against is also encrypted and only those that match the encrypted value are returned.

As far as I am aware, nothing like this exists for the Organiser, so some time back I wrote a little routine to do this encryption.

SOUNDEX\$ takes just two arguments, the string to encrypt, and a length for the returned string. If the argument specifying the length if the returned string is > 0 then the encrypted string is either truncated to this length or padded out with trailing zeros to the required length. If the length is -ve then the full encrypted string is returned. It is my experience that these encrypted strings are rarely more than 8 characters long.

Some examples:-

Procedure call	Returned string
SOUNDEX\$("davies",-1)	"D12"
SOUNDEX\$("davis",-1)	"D12"
SOUNDEX\$("DaVeYs",-1)	"D12"
SOUNDEX\$("davids",-1)	"D132"

```
SOUNDEX$("DAVENPORT",-1) "D15163"  
SOUNDEX$("DAVENPORT",10) "D151630000"  
SOUNDEX$("DAVENPORT",4) "D151"
```

Note that the encryption is done using phonetic rules, so that "DAVEYS", "DAVIS" and "DAVIES" all return the same value. More to the point, is that all software should be using the same rules, so if you already have this encryption on a mainframe, you can now make effective use of it on your Organiser.

How you use this routine is up to you, but it would speed things up greatly if you actually store the encrypted string in your database along with the rest of the data. You will then be able to use the OPL FIND instruction directly on the encrypted string, rather than doing your own compare and NEXT.

```
soundex$(a$,n%)  
LOCAL ans$(255),c$(1),i%  
ans$=UPPER$(a$)  
i%=2  
WHILE i%<=LEN(ans$)  
  REM drop dupes  
  IF MID$(ans$,i%-1,1)=MID$(ans$,i%,1)  
    [ans$=LEFT$(ans$,i%-1)+RIGHT$(ans$,LEN(ans$)-  
    i%)]  
  ELSE  
    i%=i%+1  
  ENDIF  
ENDWH  
i%=2  
WHILE i%<=LEN(ans$)  
  REM substitute numbers  
  c$=MID$(ans$,i%,1)  
  IF c$="B" OR c$="F" OR c$="P" OR c$="V"  
    [ans$=LEFT$(ans$,i%-1)+"1"+RIGHT$(ans$,LEN(ans$)-  
    i%)]  
  i%=i%+1  
  [ELSEIF c$="C" OR c$="G" OR c$="J" OR c$="K" OR  
  c$="Q" OR c$="S" OR c$="X" OR c$="Z"]  
  [ans$=LEFT$(ans$,i%-  
  1)+"2"+RIGHT$(ans$,LEN(ans$)-i%)]  
  i%=i%+1  
  ELSEIF c$="D" OR c$="T"  
  [ans$=LEFT$(ans$,i%-  
  1)+"3"+RIGHT$(ans$,LEN(ans$)-i%)]  
  i%=i%+1
```

Advanced Topics - 2

```
ELSEIF c$="L"
[ans$=LEFT$(ans$,i%-1)+"4"+RIGHT$(ans$,LEN(ans$)-i%)]
i%=i%+1
ELSEIF c$="M" OR c$="N"
[ans$=LEFT$(ans$,i%-1)+"5"+RIGHT$(ans$,LEN(ans$)-i%)]
i%=i%+1
ELSEIF c$="R"
[ans$=LEFT$(ans$,i%-1)+"6"+RIGHT$(ans$,LEN(ans$)-i%)]
i%=i%+1
ELSE
REM strip vowels
[ans$=LEFT$(ans$,i%-1)+RIGHT$(ans$,LEN(ans$)-i%)]
ENDIF
ENDWH
i%=2
WHILE i%<=LEN(ans$)
REM strip duplicate digits
IF MID$(ans$,i%,1)=MID$(ans$,i%+1,1)
[ans$=LEFT$(ans$,i%-1)+RIGHT$(ans$,LEN(ans$)-i%)]
ELSE
i%=i%+1
ENDIF
ENDWH
REM IF optional arg exists, pad out to that length
IF n%>0
IF LEN(ans$)>n%
ans$=LEFT$(ans$,n%)
ELSEIF LEN(ans$)<n%
ans$=ans$+REPT$("0",n%-LEN(ans$))
ENDIF
ENDIF
RETURN ans$
```

The Power Game (cont.)

Dear Ed

Lithium batteries - like the Kodak Ultralife, are only supposed to be used in applications where very low current is needed over a long period, or where short bursts of power are required very intermittently. I can only assume that those people who use Kodak Ultralife either don't

use their Organisers a lot, or only ever have Ram-packs fitted, or they are just plain lucky.

I use Ni-Cads exclusively. I must admit I was intrigued by your comment saying "Old Ni-Cads are only about 7.2 volt max". My oldest Ni-Cad is now about 7 years old and been through in excess of 2,500 charge/discharge cycles. It performs no worse than any of my others. I get about 10 hours continuous use between charges, and this can include powering the Comms Link.

My set-up is a 128k Datapak in B: containing programs, and Rampak in C: containing data. Some procedures (object only) are copied to A: & C:, when I get a BATTERY LOW message, removing the 128k Eprom will give me another 15 mins or so use - provided Comms Link is not in use.

There shouldn't be any problems overcharging Ni-Cads. Even if they are abused, it should still be possible to get 500 charge/discharge cycles out of them, and if they are charged and maintained as they should be, then 5,000 cycles is quite feasible. I don't always wait for the LOW BATTERY message before I recharge and it obviously hasn't done my batteries any harm.

Like most creatures, the Organisers' instinct of self preservation is strong, and I have only once lost data due to a LOW BATTERY - that was when I inadvertently left it plugged into the PC. The PC kept forcing the Organiser to switch on, and the Organiser kept switching off due to low battery. It went on switching itself On/Off until it finally died.

Sometimes it is possible to know that the battery is on its way out before the BATTERY LOW message appears. If using Comms Link with the Psion protocol gives "Link Error" messages a battery swap usually fixes the problem.

Mike Davies

Editor's Note

A very informative and exhaustive article on battery technology appeared in the July issue of **Personal Computer World**. This goes into the relative merits of different types of battery and has a special section on the memory effect in nickel cadmium batteries. It is well worth a read if you are at all interested in this ongoing saga.

Progs & Procs - 1

Phone Charge Calculator

by Dean Wade

This program is self-explanatory. It works from a menu which displays the following options:

Local Up to 35m National Mobile 0898.

As you select the option, the timers (countdown and countup) start automatically. Of course, the program uses the Organiser's clock and date functions to select the appropriate charge at the time of the call. Simply wait until your caller has answered before pressing your menu option - then, when the call is complete, press <EXE> to retain the call time and charge. **This program calls quite a few of the new functions on the LZ and will not, therefore, run on the XP.**

LZ only

```
kall:
REM call calculator
REM ver.12 jun 91 (c) dean wade
LOCAL
a$(20),b$(20),c$(20),e$(5),k$(6),s$(9),p$(1),prit$(1)
LOCAL
q$(5),r$(8),t$(8),u$(6),v$(4),z$(6),a%,d%,h%,r%,s%
LOCAL t%,u%,v%,b,c,d,r,p,u,x
p$=CHR$(156)
q$="Local"
r$="Upto 35m"
t$="National"
u$="Mobile"
v$="0898"
k$="cheap"
s$="standard"
e$="peak"
z$="A:KALL"
ONERR i:
IF EXIST(z$)
OPEN z$,a,b,c,d,e,f,g,h,i,j,k,l,m,n,o,p
ELSE CREATE z$,a,b,c,d,e,f,g,h,i,j,k,l,m,n,o,p
APPEND
a.b=240
a.c=85
a.d=60
a.e=81.8
a.f=35.1
a.g=26.25
a.h=51.5
```

```
a.i=31
a.j=23.25
a.k=12
a.l=8
a.m=9.2
a.n=6.9
a.o=5.17
a.p=10
UPDATE
ENDIF
i: REM data INPUT
CLS
PRINT" TYPE OF CALL"
CLOCK(1)
a%=MENUN(2,q$+","r$+","t$+","u$+","v$)
IF a%=0
CLOSE
ONERR OFF
RETURN
ENDIF
d%=-1
t%=0
u%=0
v%=0
x=p+1
POKEB $7c,0
DO
h%=HOUR
s%=SECOND
[IF DOW(DAY,MONTH,YEAR)>5 OR h%<8 OR
h%>17]
IF a%=1
r=a.b
ELSEIF a%=2
r=a.e
ELSEIF a%=3
r=a.h
ELSEIF a%=4
r=a.k
ELSEIF a%=5
r=a.m
ENDIF
ELSEIF h%=8 OR h%>12 AND h%<18
IF a%=1
r=a.c
ELSEIF a%=2
r=a.f
ELSEIF a%=3
r=a.i
ELSEIF a%=4
r=a.l
```

Progs & Procs - 2

```
ELSEIF a%=5
r=a.n
ENDIF
ELSEIF h%>8 AND h%<13
IF a%=1
r=a.d
ELSEIF a%=2
r=a.g
ELSEIF a%=3
r=a.j
ELSEIF a%=4
r=a.l
ELSEIF a%=5
r=a.n
ENDIF
ENDIF
IF s%<>t%
d%=d%+1
r%=r%-1
v%=v%+1
IF v%>59
v%=0
u%=u%+1
ENDIF
ENDIF
t%=s%
p=INT(d%/r+1)*a.o/100
u=r
IF p<(a.p/100)
p=a.p/100
u=r*a.p/a.o
ENDIF
IF x<>p
r%=INT(u+.5)
ENDIF
x=p
AT 1,1
PRINT LEFT$(DATIM$,11),RIGHT$(DATIM$,8)
AT 1,2
PRINT r,"Secs/";a.o;"p"
AT 1,3
PRINT"Cost of call "+p$;FIX$(p,2,4)
AT 1,4
PRINT u%;" ":";v%,
AT 10,4
PRINT r%,"Secs "
UNTIL KEY$=CHR$(13)
POKEB $7c,255
GET
GOTO i::
```

Editor's Notes on Program Listings

1. Lines which ONLY contain REM statements are for clarification only and may be omitted when keying in.
2. Where there is room, indents are used to make the beginning and end of loops clearly visible. However, if the lines are long, this is often not practicable. The presence or absence of leading spaces has absolutely no effect on the programs operations, so they may be omitted if preferred.
3. While I try to avoid using LOWER CASE Ls (l) in listings, as they can be confused with FIGURE 1s, I would ask authors to try to avoid these also. There should be no problem with Letter 'O's being confused with FIGURE ZEROS (0), as all letter Os should be in lower case when used as part of variable name

For Sale

1 128k Datapak £55.00
Phone: Dean Wade on
0493-721221 (answer machine)

Wanted

Organiser Software (LZ)
Comms Link
Mains Adaptor

Phone: Mick Jordan on 0532 600072

Bar Code Reader (Wand) & Handbook

Phone: Steve Hillier on
071 486 5888 ext 2770 (day)
or 081 788 7873 (evenings)

Keyboard Comment

No QWERTY Keyboard Thanks

We can expect that Psion is taking the competition posed by the proliferation of the Atari Portfolio and the Japanese hand-held computers such as the Casio and Sharp seriously and is working on the Organiser III. What will it feature?

In this article, I would like to discuss keyboards - should the Organiser III have a QWERTY keyboard (like most desktop computers) or should it retain the alphabetically arranged keyboard of the Organiser II?

Many reviewers of the Organiser II give it the thumbs down because the keyboard is alphabetically arranged, as they conclude that typing is not possible. Is that view justified? Let's look at the implications of a QWERTY keyboard?

QWERTY Keyboard Problems

The major problem with the QWERTY keyboard is that, as the keys are always arranged in four rows of about 13 keys in each, it is always wider than it is deep. Accordingly, it follows that any compact computer using the QWERTY keyboard almost has to be wider than it is deep when it is in use (unless the computer is square). This in turn means that it will not fit naturally in the hand when in use - try holding your Organiser sideways in your hand to see what I mean - and you are forced to hold your hand at an unnatural angle to keep the "keyboard" parallel to your chest.

QWERTY Keyboard Benefits

There is an advantage in the wider-rather-than-deeper format. It makes for a wider screen which is desirable for full size letter page typing. But, now that you have your miniature wider-than-deeper format computer with a QWERTY keyboard balanced on one hand, what do you do to enter some data? There is only one choice - you peck with the other hand. If you want to do two-handed typing you have to rest the computer on something - a table or your knees, for example - which means that you are no longer getting the mobility benefits of hand-held computing; you are into the static use of a laptop. The distinction between laptops and hand-held computers is overlooked by those who criticise the Organiser's

keyboard. the Organiser is a hand-held computer, designed for inputting and displaying data which it is held in your hand. You only have two hands, one of which is holding the Organiser, so it follows that the keyboard need only be designed for one-handed data entry.

Incongruity

After all, it is incongruous for a hand-held computer to have a QWERTY keyboard because such keyboards are designed for two-handed typing which you can only do if you have the computer resting on something other than your hands which means that the computer is no longer hand-held! Now, let's get to another misconception - that it is easier to do one-handed data entry on a QWERTY keyboard than on an alphabetically arranged keyboard.

The Facts

1. Most Organisers are owned by males (proven by IPSO's membership list)
2. few males can touch-type (that is do two-handed typing proper) and most males peck at the keyboard with one or two fingers of each hand with each key being sighted before it is touched (proven by years of observation).
3. touch typing is done by placing the fingers of both hands on certain keys which are known as the "home keys" and every other key is remembered by its relationship to the home keys. Each key has a finger designated to strike it, after which the finger returns to its nearby home key position.
4. if you hold your hands loosely together as if you are touch typing, distance from one little finger to the other is about 210 cm (the width of an A4 page).
5. it is impossible to touch-type on a keyboard which is significantly narrower than 200 cm because your fingers cannot readily fit on the home keys and so keep tripping over each other.

Result

A QWERTY keyboard is unnecessary for one-handed data entry and, referring to what I said

Keyboard Comment -2

above about the shape of the QWERTY keyboard, results in a shape uncomfortable to hand-hold. I therefore submit that a QWERTY keyboard on a computer designed for hand-held data entry is simply a totally impractical marketing gimmick. I hope that Psion does not fall into the trap of trying to provide a QWERTY keyboard on the Organiser III. There are other areas there the competition's ideas should be considered by Psion and I invite you to send in your thoughts for discussion. What improvements would you like to see - let's have some construction criticism.

(adapted from an original article in "The NZ Organiser")

A few more thoughts on the subject from the Editor

Even QWERTY is a compromise. The keys were originally arranged in this manner as an attempt to overcome the crude mechanics of the first typewriters. For instance the 'q' and 'u' are widely separated to avoid the keys jamming when these keys are hit in quick succession.

The original reason for QWERTY has long since disappeared, but the keyboard persists and nobody (not even the all-powerful IBM) is brave enough to change it.

I am one of the "few" mentioned above, as I am a trained QWERTY typist. However, I do not find the Organiser keyboard inconvenient. I have tried various methods of using it, including the now defunct *Harvester FINGER ORGANISER*.

Now I have settled on two methods of keying in to the Organiser - one for hand-held use and the other for when I can put my Organiser down on something solid (which I prefer). Using this second method I use both hands and can achieve somewhere between 30 and 40 wpm (using AutoScribe - for instance).

KEYB2

from Gene Code Software

It seems entirely appropriate that, after the previous discussions on keyboards, I should receive for review a new keyboard utility. Not only is KEYB2 easy to install and very practical, it is also very good value for money.

KEYB2 tackles two old problems on the Organiser II (all models), namely access to the many other characters which are not normally available from the keyboard and the fiddly CAP sequence which is usually necessary when entering lots of text in both upper and lower case.

The program couldn't be simpler to use. Once installed it gives you instant access to three keyboard modes each of which is toggled by repeated presses of the (appropriate) mode key. These modes are available in any application. They are:

1. Standard - the first mode is the standard keyboard operation, with which you are already familiar and possibly a little frustrated! In this mode everything works as normal.
2. Shift Cap - the second mode changes the function of the SHIFT key to that usually found on PCs, typewriters, etc. i.e. all the characters are set to lower case and pressing SHIFT and a letter prints the Capital of that letter.
3. Alternate - the third mode switches the keyboard to an alternative character set which you can define to suit your requirements. You can assign and re-assign any character to any key. This is great for all those characters that are missing from the standard keyboard such as ?, £, #, [,] , { , } , ' , etc.

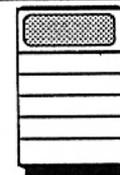
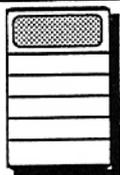
I can thoroughly recommend KEYB2 - I have it installed permanently in both my Organisers.

KEYB2 is available on either 3.5" or 5.25" floppy disk, or loaded onto your own datapak. The all-inclusive price is £7.00

KEYB2 is available only from:

Tony Poole
16 Pelham Court
Kingston Road
Staines
Middx TW18 1AL


0784 458736



RESULT (Terrace Software) Upgraded

The CALC function on the Organiser is adequate for many purposes, but it doesn't really match the facilities of a dedicated calculator. Some time ago, Terrace Software did much to put this right with their RESULT program. This has now been updated to include the following new Statistical Functions:

- ★Mean
- ★Standard Deviation
- ★Variance

all operational with up to 100 entries.

Also the following new features have been included:

- ★New one line menus. Calculation total remains displayed during menu selection.
- ★All steps in both the current calculation and the previous one may now be viewed and edited, subject to a maximum of 100 steps.
- ★Improved editing features. Previous entries may be deleted. New entries may be inserted at an earlier point in the calculation.
- ★Scientific functions may be applied to calculation ENTRIES as well as to the running total.
- ★Autoadd may now be set independently of the display format.
- ★Calculations may be entered and displayed in HEX format (\$0 to \$FFFF).
- ★New printer routine allows printing during or after calculation.

RESULT V 4S (which runs only on LZ models) costs £44.95 inclusive (with comprehensive 32 page manual) from:

Terrace Software
 Hillside
 Low Street
 Husthwaite
 YORK YO6 3TA

Upgrades (£19.95) are available for owners of previous version.

For Sale

- Organiser XP Model £50
- Univac Formatter £18
- 128k datapaks (several) £50
- 64k datapaks £35
- 32k datapaks £20
- XP and LZ Manuals (spare) £4 ea.
- 4 Volumes of IPSO FACTO £25
- Epson P40 Printer, adaptor, book £60
- Comms Link (2 line) £35
- Harvester Superchip & manual £25

Phone David Green on 071 727 1859 (evenings).

CUBSOFT OFFERS EXTENDED

The Cubsoft Special Offers which were featured in their flyer included with the June Issue have been extended until further notice.

JARO COMPETITION WINNER

The winner of the JARO Competition (see June Issue) was:

Adrian Kerr

who should have received his Databox by now.

Contents

<i>Beginners Page</i>	<i>42</i>
<i>Progs & Procs</i>	<i>43</i>
<i>Machine Code</i>	<i>45</i>
<i>IPSO Review</i>	<i>47</i>

Beginners Page

by Mike O'Regan

The Organiser Diaries

This is the start of a short series for non-programmers looking into the Organiser's built-in facilities.

When "outsiders" (non-Psioneers) ask about the Organiser's facilities they almost invariably ask about the DIARY function. The usual ploy is "I can buy a Pocket Diary for 50p, so why should I buy an expensive computer to do the same thing". Well, there is no denying that a pocket diary can do some things well - it is smaller than the Organiser and its "memory" is not prey to the whims of battery power, but that's about all.

The big advantage of the Organiser's DIARY is the alarm function, coupled to its ability to FIND any entry in a simple and reliable way. The Organiser can also be the equivalent of several diaries, each kept for a specific purpose.

Diary Files Many beginners become rather disappointed with the DIARY simply because they do not use it properly. To simply keep a single diary in memory is to use only a fraction of the power of the Organiser's DIARY.

If Diaries are important, for instance for business purposes, then it could be disaster if a diary was lost, especially if you have no other record. Diaries should be SAVED at regular intervals. It is not much use saving a backup of your diaries in A:. They are just as vulnerable as in the DIARY itself. DIARY files can be saved, like any other file, to a Pak (preferably a RAMPAK).

Failing this, it is a good plan to PRINT a "hard copy" of your important diaries so that, at least, you can reenter them in case disaster strikes. The way to SAVE a diary at any time is to use the SAVE option from the DIARY sub-menu (accessed by pressing <MODE>).

You must supply a FILE NAME and which "device" to use to store (A: B: or C:). If you are not sure about existing DIARY files, you can use the DIR (directory) option on the DIARY sub-menu to see what DIARY files already exist.

On the CM/XP DIARY files are the only ones which can be created and used without the help of either extra hardware or a suitable program. The files are different to MAIN and other DATA FILES and so cannot be handled in the same way. On the LZ, DIARY files are structured exactly like DATA files and can be examined (and edited, provided you know what you are doing!) in XFILES.

Before you SAVE a DIARY file make sure that you have used TIDY (to get rid of old entries) where appropriate.

Many people use their DIARY as a record of their business appointments, and in this case it makes sense to SAVE the whole diary first and use TIDY afterwards.

If you RESTORE a SAVED DIARY file at any time remember to SAVE your current DIARY, otherwise it will be overwritten and lost.

Finally, here is a rather "off-beat" use for the Organiser's DIARY, which you may not have considered but which always impresses computer illiterates! You can use GOTO in the DIARY sub-menu to find out what day-of-the-week your friends were born, married, etc. (that is as long as the date is in this century). I always think there is something weird about "going back in time" in this way.

Try it now. GOTO 3 September 1939. You will find (or be reminded) that the Second World War started on a Sunday.

(continued next month)

Editor's Note: You Beginners out there! This is your page. You can write in about anything connected with simple Organiser use. If you have anything to ask connected with Machine Code (or hardware queries) these can usually be answered by our MC Editor Neil Draycott (see MC section)

Progs & Procs - 1

Int

by Jon Harrington

This program calculates the interest due on short term deposits on the London money markets. They have an annoying habit of quoting the interest rate in fractions, so I wrote the program to deal with this especially.

```
INT:
LOCAL prin,rate,income
LOCAL income$(12),DAYS%,whole,num,den
AT 1,1
PRINT "Principle ";CHR$(156);"m: ";
INPUT prin
AT 1,2
PRINT "Rate: ";
  INPUT whole
AT 10,2
INPUT NUM
AT 12,2
PRINT "/";
  den:
INPUT den
IF den=0
  PRINT "Divide by 0 error"
  GET
  GOTO den:
ENDIF
AT 1,3
PRINT "Days: ";
  INPUT DAYS%
calc:
rate=(whole+(NUM/den))/100
income=prin*1000000*rate/365*DAYS%
income$=FIX$(income,2,-1)
print:
AT 1,4
PRINT "Interest: ";income$
GET
```

Char

by Jon Harrington

This program scrolls through the ASCII characters on the Organiser. You can set the start number and the scrolling speed, but otherwise it's pretty basic. Quit by pressing <ON/CLEAR> or

waiting until ASCII 255. Pressing <ON/CLEAR> may not work the first time, as the Organiser may not be looking for keyboard input due to the pause used in the scrolling speed.

```
char:
LOCAL COUNT%,wait%
PRINT "Start no:"
AT 11,1
INPUT COUNT%
PRINT "Pause";CHR$(63);"."
AT 11,2
INPUT wait%
CLS
start:
PRINT "ASCII no ";COUNT%;" ";CHR$(COUNT%)
PAUSE wait%
COUNT%=COUNT%+1
IF COUNT%>255
  STOP
ENDIF
IF KEY=1
  STOP
ENDIF
GOTO start:
```

For Sale

Organiser, XP Model & manual £55
"Using & Programming.." (book) £5
"File Handling.." (book) £6
Widget FILEMASTER & Manual £20
Mains Adaptor £7
16k Datapak £7
128k Datapak £45

Apply to:
Paul Lister
7 Malvern Buildings
Fairfield Park
Bath BA1 6JX

Tel: 0225 330174

Progs & Procs -2

This program calculates LINEAR REGRESSION line values (for a line of the form $y=mx+c$ where m is the gradient of the line and c is a constant. It also gives the correlation coefficient (r) and allows predictions. Written by Neil Favager

```

lr:
LOCAL
xy,x,y,x2,y2,n,m,c,r,o%,new%,m$(32),a(99),b(99),n1,e,f$(1)
new%=0
CLS
PRINT" LINEAR"
PRINT" REGRESSION"
PAUSE 30
loop::
IF new%=0
o%=1
ELSE
m$="New,Edit,Calc"
IF NOT (m=0 AND c=0)
m$=m$+",View,Forecast"
ENDIF
o%=MENU(m$)
ENDIF
IF o%=0
STOP
ELSEIF o%=1
IF new%=1
lr:
ENDIF
CLS
PRINT"Enter no of new x/y pairs : ";
TRAP INPUT n
IF ERR=206 OR n=0 OR n>99
IF new%=0
STOP
ELSE
GOTO loop::
ENDIF
ELSE
n1=1
DO
PRINT"x (" +FIX$(n1,0,2)+)": ";
TRAP INPUT a(n1)
IF ERR=206
GOTO loop::
ENDIF
PRINT"y (" +FIX$(n1,0,2)+)": ";
TRAP INPUT b(n1)
IF ERR=206
GOTO loop::
ENDIF
n1=n1+1
UNTIL n1>n
new%=1
ENDIF
ELSEIF o%=2
CLS
PRINT"Enter no of x/y pair to edit: ";
TRAP INPUT e
IF ERR=206 OR e=0 OR e>99
GOTO loop::
ELSE
m=0
c=0
PRINT"x (" +FIX$(a(e),0,2)+)": ";
TRAP INPUT a(e)
IF ERR=206
GOTO loop::
ENDIF
PRINT"y (" +FIX$(b(e),0,2)+)": ";
TRAP INPUT b(e)
IF ERR=206
GOTO loop::
ENDIF
ENDIF
ELSEIF o%=3
CLS
PRINT"Calculating...";
xy=0
x=0
y=0
x2=0
y2=0
n1=1
DO
xy=xy+(a(n1)*b(n1))
x=x+a(n1)
y=y+b(n1)
x2=x2+(a(n1)**2)
y2=y2+(b(n1)**2)
n1=n1+1
UNTIL n1>n
m=((n*xy)-(x*y))/((n*x2)-(x)**2)
c=(y-(m*x))/n
r=((n*xy)-(x*y))/(((n*x2)-(x)**2)*((n*y2)-(y)**2))**.5
DISP(1,"m = " +FIX$(m,3,10)+CHR$(9)+"c = "
+FIX$(c,3,10)+CHR$(9)+"r = " +FIX$(r,3,10))
ELSEIF o%=4
DISP(1,"m = " +FIX$(m,3,10)+CHR$(9)+"c = "
+FIX$(c,3,10)+CHR$(9)+"r = " +FIX$(r,3,10))
ELSEIF o%=5
CLS
PRINT"Forecast X,Y or Quit (X/Y/Q)?"
f$=oopt$("XYQ")
IF f$="X"
CLS
PRINT"Input y : ";
TRAP INPUT e
IF ERR=206
GOTO loop::
ENDIF
PRINT"x = " +FIX$(((e-c)/m),2,10)
GET
ELSEIF f$="Y"
CLS
PRINT"Input x : ";
TRAP INPUT e
IF ERR=206
GOTO loop::
ENDIF
PRINT"y = " +FIX$(((m*e)+c),2,10)
GET
ENDIF
ENDIF
GOTO loop::

```

Machine Code Page - 1

by Neil Draycott

UNDERSTANDING BLOCK FILE STRUCTURES.

The story so far;- A couple of months ago we looked at the structure of Data files (such as the MAIN file or files created by XFILES). This month I intend to try and explain the structure of Block files.

Probable the most common type of Block file in an Organiser is a program file, other block files include XP Diary files, NotePad files, COMMS Setup files etc.

Block files are quite an efficient format of file for the Organisers, unlike Data files all information in a block file is stored in one continuous lump, thus reducing the space needed. The only "header" record involved is at the start of each block file unlike Data files that have a "header" record attached to each and every record within a file. The disadvantages of Block files are;-

- 1) There are very few OPL commands to access Block files.
- 2) They require extensive programming to manipulate them.
- 3) Any error occurring when saving a file will result in the loss of all data.
- 4) They use non-standard character delimiters.
- 5) Single records cannot be edited on a Datapak.

but the advantages are;-

- 1) More compact storage of data.
- 2) Faster search routines can be incorporated.
- 3) Compatibility with existing Psion programs.
- 4) "Hidden" files can be created.
- 5) Files can be separated into several distinctive types.

The structure of the start of any Block file is;-
09 82 E X A M P L E 20 00 02 80 0006 T H I
S 00 1
(all numbers are expressed in Hex)

As with all Psion records the first byte is the amount of data to follow, for a block file this is always 9. The next byte identifies the type of file, we have already seen that type \$90 is always used

for a first Data files (actually the MAIN file) and code \$81 is a Data file name so the free types available for Block files are \$82 to \$8F. The different types of Block files are;-

- \$82 - XP/CM Diaries.
- \$83 - OPL Programs (text and/or object only).
- \$84 - Comms set-up files.
- \$85 - Saved spreadsheet files.
- \$86 - Pager set-up files.
- \$87 - NotePad files.
- \$88 to \$8D are reserved for future use by Psion
- \$8E - General purpose file.
- \$8F - Reserved for future use by Psion.

Next comes the actual name of the file (in this case "EXAMPLE") padded out with spaces (character \$20) to be 8 characters long. Next comes a zero;- I think this has been included to allow the Psion editor to include the name record as an initial prompt (as in the first line of a program or NotePad) the zero would act as a separator within the editor.

The next byte is again the length of the data to follow, for a Block file this is always 2.

The next byte is always \$80, this means the data to follow is a long record that is in one big lump and is separated by zeros. The next two bytes make up the length of the following big lump of data, in our case just 6 bytes but up to \$FFFE bytes could be recorded (about 64K).

It can be seen that if the operating system were skipping through file records of Block files looking for something then it would read the first byte (9) and skip forward 9 places then read the next byte (2) and skip forward 2 places and then read the next byte (6) and so on until it got to the end of the Pak, \$FFFF would then be the next word read.

You will see that not all Block files are yet accounted for, users can therefore use the free types to create their own files which will remain "hidden" from the Psion operating system (except for the Dir option in Utils that will list unknown files as type Type8 or Typee etc). Psion say they may have plans for the remaining file types and any long term programmers should check with them.

Machine Code Page -2

There are several other special types of Block files, the most common being "orphaned" Block files. They are given this name because they have no name record and are just big blocks of data. A common use of such files is the creation of machine code programs recorded at a specific place on a Pak, because the position of the start of the program is fixed no name is needed, examples of such programs are the Spell Checker, Spreadsheet and the HB Games Pak. To run such a program another program is used to direct the operating system to the start of the main program, this "parent" program is often the booting code at the beginning of a Pak. A typical long "orphaned" record would be;
02 80 3F12 lots.of.data.....FF FF
where \$3F12 is the amount of data to follow.

As with Data file records a Block file is erased by clearing the top bit of the initial header so that our example above would then start with 09 02. Orphaned long records do not need to be erased as they are always ignored by the operating system.

Two common types of Block file are the OPL program file and the COMMS set-up file, within each of these Block files there is a fixed structure of data. For a program file it is;
Length of Q-code (word) 00 Q-code 00 Length of source text 00 Source text 00
Where the Q-code is in effect the translated program code (so if a program is recorded as object only the length of source text would be 0).

Within a COMMS set-up file the structure is;
Byte 1 = Baud rate in the same increments as found within COMMS ie 0=50, 9=9600.
Byte 2 = Parity 0=NONE, 2=EVEN, 4=SPACE etc.
Byte 3 = Number of data bits 0=7, 1=8.
Byte 4 = Number of stop bits 0=1, 1=2.
Byte 5 = Handshake 0=NONE, 4=DTR, 7=ALL etc.

Byte 6 = Protocol 0=NONE, 2=PSION etc.
Byte 7 = Echo 0=HOST, 1=LOCAL.
Byte 8 = Width 0=NONE, \$FF=Maximum.
Byte 9 = Timeout (\$FF max).
Byte 10 to 12 = REOL (three characters;- number of characters to follow then up to 2 character numbers). Bytes 13 to 27 in groups of three as above to cover REOF,RTRN,TEOL,TEOF,TTRN.

Having totally confused all readers I would now like to set a challenge (in a effort to stimulate some response), how about a small machine code/opl program to convert a Data file into a Block file (to allow LZ diaries to be used in an XP?). Remember that data within a Block file is separated by a 0 character and that it is easier to assume that all files are in RAM. On the subject of reader response, are there any requests?

Neil Draycott
168 Derby Road
Derby
DE5 8RD

Tel: 0332 880663 9.00am-5.30pm

A reminder from the Editor.

When experimenting with any sort of machine code programs (or indeed any new programs) it should be remembered that it is quite easy to lock up the Organiser by entering wrong code, etc. If you have anything in A: (RAM) you should ensure that it is backed up to a DATA or RAM PAK (or other storage device before you attempt to RUN anything. Be warned!!

Disk Drive for the Organiser

CRISTY ELECTRONICS (Tel: 045 382 3611) are planning to launch a disk drive for the Organiser (XP or LZ/LZ64 models only) in mid-September. Called the Handydisk this unit is pocket sized and battery operated. It uses standard 3.5in disks which will allow 1.4 megabytes of storage on each disk. The unit price will be £195 (+VAT) and the Driver Pak £45 (+VAT). A Psion Comms Link is also required.

As soon as the units are available, I have been promised one by Cristy for a full review

Handydisk is also suitable for other pocket computers (e.g. Atari Portfolio, etc)

IPSO Review - Filemaker

by Kevin Ash

When I first bought my Psion Organiser XP; all I wanted to do was store the data on a PC and look at it - edit it and be able to print it out. Various people told me that this was possible using a word-processor and saving it in ASCII!! Well to someone that is not computer literate its not that easy. All my friends that used a computer were completely lost when I presented them with the Organiser and a Comms Link.

Gradually I stumbled across people that had Organisers and managed to find out various bits and pieces. Every time I discovered a new program I then passed on the word. Unfortunately nobody had heard of a program that allowed you to create a database on a PC that was compatible with the Organiser and then download it. There was a program called PSPC but that was rather limited; however I was really grateful to the programmer that wrote it at the time.

Now for those of you that want to waste a lot of time fiddling around with text processors etc; trying to enter data on a Pc and generally getting nowhere - don't bother reading this review. However those of you that want a good program to run on a PC which allows you to enter as much data as you want and create as many files as you wish - read on....

Creating Database files and Diary files couldn't be easier with Filemaker V2.00. This program is by Widget Software - the same people of Autoscribe & Filemaster fame. When running the program you are first presented with a menu asking you to select your option. These are the following: Database Files; Diary Files & Set-Up Comms Link.

Let's first deal with the database. Basically the screen is split into two. On the left hand side it shows all the files that you have created along with the size in bytes. The right hand side shows all the file commands. These commands allow you to Create a new file; Edit existing file; Rename file; Copy file; Merge file; Delete file; Send & receive via Comms Link; Print file; eXport to a comma delimited file; Import from a comma delimited file; Quick find & Exit.

Creating a new file could not be easier; first

choose New file by pressing ALT + N keys. You are then asked to enter a name for the new file. I shall call mine "TEST" so as not to conflict with others. The program works exactly the same way as the Organiser & you are allowed a maximum of 16 Fields. The screen is split into three; down the left hand side are the prompts 1-16 ready to be set up. Across the bottom of the screen is a list of all the Commands to remind you of which key to press and the main part of the screen is where your data will be shown. The cursor is flashing on prompt 1 with a bar right across the page; so there is no confusion of which line you are on.

ALT + P allows you to set up your prompts as you wish. On my LZ I use the first line for the Name;(2nd)Telephone; (3rd)Address1; (4th)Address2; (5th)Address3; (6th)Address4; (7th)Works No.; (8th)Memo. So I shall set up the prompts exactly the same with Filemaker. Once the fields are set up press ESC to exit. You are asked if you want to save the changes to prompts so press YES. You are now ready to start entering in your data.

Along the top of the screen it shows the Name of the file; How many records there are & which one you are working on at that time and how many characters the "Record" holds. You can look through all your records using the "PgDn" "PgUp" keys. "HOME" & "END" are used to take you to the first and last records. Deleting a record is easy - just "Find" the record you want (ALT+F) & then Delete using ALT+D. Before Deleting you are asked if this is what you want to do; press enter for Yes. When using Find it is best to start from record 1; this is the same as on the Organiser. Replace allows you to find a particular word and replace it with whatever you wish throughout the whole database. For example I shall ask it to find the word "PSION" and replace it with "PSIONEER". When it comes across the first record with the correct criteria it will Highlight it and ask you if you want to R=Replace; S=Skip; G=Global replace or ESC=Quit. It is possible to Sort all your data by Highlighting which field you wish to "Sort" on.

Once you have finished working on your database; on exiting you are asked if you wish to save the changes to the file or not. The quick find is good too! It enables you to find something

IPSO Review - 2

particular in a database without opening it first. All you do is to highlight the database and press "ALT+Q". It shows the database you have highlighted and asks you what you want to find. Give it the criteria and press enter. It finds the criteria concerned and then asks if you want to C=Continue; R=Restart or ESC=Quit. You then either continue to seek the data required or press R=Restart which prompts you for more data to Quick Find.

To print out a file you first highlight the file and then press ALT+P. It then asks you to confirm this with a Yes or No. The file is printed with one line per record and each field is separated by commas. If the record is longer than one line it will be extended onto further lines.

I will now continue with the Diary Files. When you go into this the screen is initially split into two. On the left you are shown the name of the diaries along with the size in bytes. On the right are the following commands: New diary; Edit existing diary; Rename diary; Copy diary; merge diaries; Delete diary; Send & receive via Comms Link; Print diary; eXport diary; Import diary; Quick find; Organiser mode & Exit. Most of the commands are self explanatory.

Once the Diary concerned has been opened you can see the screen divided into three parts. The bottom left shows a square with a whole calender month & bottom right shows all the commands leaving the whole of the top free for entering appointments. The commands are as follows: Change day; Change week; Select; Edit; Delete; Append; Insert; Find; Repeat find; Tidy; Go to a date; Jump to today; First entry; Last entry; Copy; Cut; Paste & Exit.

Creating a diary is much the same as creating a file. Once you have named the diary it automatically opens at the current days date. Once again the key presses make use of the ALT key. To insert a diary entry choose the date you wish - using the arrow keys to scroll through and press "ALT+I"; you may also use the command "Go to a date" (ALT+G). The first thing you do is to set it to the time to start the entry then the end. You then set the alarm (if you wish) and then go onto the line to enter your text and type. After

pressing enter you are asked if you want to save the changes to the entry or not; by pressing "Y" it is saved to the diary.

Multiple entries couldn't be easier; you use Cut, Copy & Paste - this is exactly the same as the Organiser. ALT+J takes you to Todays date which saves going through the calender. Editing an entry could not be simpler - just go to the relevant entry and press enter. There again every function is much the same as the Organiser. When printing from the diary; you highlight the relevant diary file and then select print. You are then asked when you want to print from (i.e. what date) and which date to stop printing.

Sending Diary files or Database files to and from the program couldn't be easier. The manual has been well written and is very easy to understand. It even tells you how to set up everything to communicate with the Organiser from the Pc. For most people this will be a boon because communications are only easy when you know how! It has Import and Export which allows you to exchange your data with other programs such as Sidekick and Windows 3.0 for the diary; the database files with Dbase, Lotus 123 & DataEase etc. The one thing that I feel makes a difference to the program as a whole is the Diary facility. I didn't really use the LZ diary till I discovered Filemaker. This has made a lot of difference to the use of my Organiser! This resume is by no means complete ; all I can say is this program is a must for anyone who owns a Pc as well as an Organiser. The only wish I have is that I would like to be able to print labels from it - but you can't have everything can you!

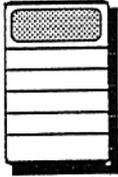
Editor's Notes

This review has been printed by popular request. Many of our members own or have access to PCs and the program is invaluable for working with both machines. Filemaker costs £62.22

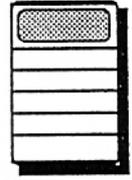
It is available from:

WIDGET SOFTWARE Ltd
121 London Road
Knebworth
Herts SG3 6EX

Phone (0438) 815444



IPSO FACTO

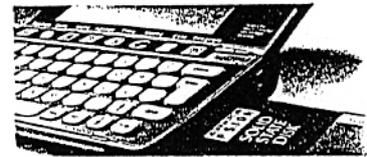
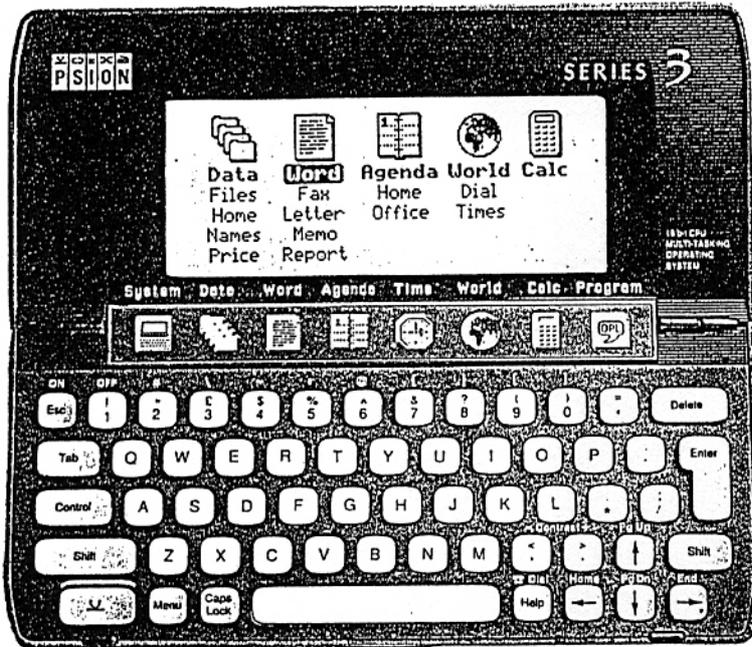


Vol V

September 1991

No. 7

Editorial Office: 130 Stapleford Lane . Toton . Beeston . Nottingham . NG9 6GB
Editor: Mike O'Regan Tel: (0602) 735482



HOLD THE FRONT PAGE!

(SEE "WHAT'S NEW")

Contents

Beginners Page	50
Machine Code	52
Macro Mania	54
What's New?	56

Beginners Pages -1

by Mike O'Regan

The page this month takes the form of a number of questions & answers, mainly sent in by J.M. Hodgson of Hartlepool.

Q1. In the Phone Charge Calculator by Dean Wade there is a line LOCALprit\$(1). I can find everything else. What is meant by prit\$(1)?

A1. prit\$(1) is what is known as a STRING VARIABLE. The "prit" part is just a name, which can be any combination of letters up to eight characters long. The "\$" says that the variable is a STRING (character) type and not a numeric one. Finally the "(1)" sets the length of the string as one character only.

Q2. What does the "N" mean in "MENUN". All I can find in my book is MENU.

A2. If you owned an XP or CM I could understand. Your LZ Programming Manual has details of MENUN on Page 9-27. MENUN only applies to the LZ. It differs from the normal MENU in that it has 3 different modes. MODE 0 is exactly the same as MENU. MODE 1 displays the menu as one line only. MODE 2 displays a multi-line menu starting at the current cursor position and leaves any text already on the screen in place.

Q3. What do "+" signs and commas mean when enclosed in inverted commas?

A3. After a PRINT statement, anything enclosed in inverted commas will be printed on the screen verbatim. The following short procedure will show how this works:

```
add:
LOCAL num1,num2
PRINT "First number",
INPUT num1
PRINT "Second number",
INPUT num2
PRINT num1,"+",num2,"=",num1+num2
GET
```

Note that all the commas in this program DO NOT PRINT. They are used as separators here

and ensure that you can enter your numbers ON THE SAME LINE as the prompt message. On the line before GET the commas ensure that the result is separated by spaces. If I had used the semicolon (the other separator) there would be no spaces between the parts of the result. Try this out and see the difference.

Q4. Another thing intrigues me in this program. Why is there a POKEB \$7C,0 before the DO-UNTIL loop and a POKEB \$7C,255 after? What relevance do they have to the program?

A4. As a general rule, if you use a POKE in a program to alter anything in the Organiser, this should be restored to its original value before the program ends. This is what happens here. The "default" value of memory address 7C is 255 and so this is restored. What the line POKEB \$7C,0 DOES is to set the Organiser so that the AUTO SWITCH OFF is disabled (and it cannot switch off while a long call is being timed). Obviously this needs to be restored, otherwise the Organiser could remain switched on and run the battery down. Any number (other than 0) can be POKEBed to location 7C to enable the auto switch off.

Q5. What does "Memory Resident" mean?

A5. This refers to programs, such as FNKEY, which, once loaded from a datapak "reside" in the Organiser's memory (A:). The pak can then be removed, but the programs remain "invisibly" in the Organiser's memory (and can be used) until the Organiser is "HARD RESET" - in other words the battery removed to reset the machine. Other (non memory-resident) programs load into memory while the program is running but are subsequently replaced by the next program which is RUN. This is a very useful feature which makes it possible to RUN very powerful programs, such as AutoScribe, which consist of a large number of small programs "chained" together so that the maximum memory is kept free for actual data and not cluttered with one large program.

Beginners Pages -2

Q6. Can two programs be run together at the same time?

A6. This is known in the computer world as "multi-tasking". The Organiser is NOT a multi tasking machine and so cannot RUN two programs at the same time. It is interesting that the new SERIES 3 machine IS a multi-tasking machine and so, for instance, allows you to carry on using the machine while another program is PRINTING OUT a long series of data.

Q7. The Organiser falls a bit short as a calculator. I would like to invest in a calculator program sometime, but which one?

A7. The most comprehensive calculator program so far is the new version of RESULT (mentioned recently in IPSO FACTO). This is written by Nick Frank, a chartered accountant, and fills in most of the gaps in the built-in features. Another program which is worth having, if you like to have your own routines for special purposes is the latest version of the Psion FORMULATOR.

Q8. Is there a book available to actually teach OPL?

A8. The best book at the moment, which goes into OPL in some detail, and is easily understood by beginners, is:

PSION LZ, A USERS GUIDE TO OPL
written by Ian Sinclair
published by DABS PRESS
22 Warwick St
Manchester, M25 7HN,
Phone 061 773 6290, price #12.95

Q9. I am a keen Bible student. I know that electronic bibles are available for bigger machines than the Organiser. Has anyone developed anything similar for the Organiser?

A9. I do not know of such a program. Does any member know of one? If so please let me know and I will publish details.

For Sale

LZ 64 Organiser - £80
Spreadsheet - £25
Paralink - £25
AutoScribe Plus - £25
Formulator - £15
Thesaurus & Spellchecker - £25
32k RAMPAKs - £20 ea
16k RAMPAK - £10
64k RAMPAK - £25
Leather Organiser Case (6 pak slots) - £6
Mains Unit - £5
All manuals
Several Book (free is sold together)

Phone 0273 696955 ext 4605 (ask for Barry)

Notes for Beginners

May I once again remind beginners (at all stages of development!) that the Beginners Pages are open for your use. Please write in if **anything** puzzles you. Don't "sit on it" thinking that your query is stupid. As you can see from some of the above questions, it is possible to read the handbooks over and over again and still miss some important point. OPL is an excellent language with which to learn programming - much better than BASIC, PASCAL, FORTH and the rest. If you haven't yet tried programming, you should do so. It is quite fascinating to see your first program, no matter how simple, **actually running**

Over the next few issues, we will be welcoming a new set of beginners who have bought a Series 3 as their first computer. However, if you own a CM, XP, or LZ don't think you will be forgotten. I will try to strike a balance between all the machines.

Finally, if you have been following these pages, you may now be ready to try one or two programs from the Progs & Procs pages.

Machine Code Page - 1

by Neil Draycott

As Telly Saliva once said, "a picture paints a thousand words" and instead of trying to describe how your Organiser is arranged this month I thought I would show you.

The following program will produce a somewhat crude memory viewer to allow you to have a look at any part of the Organiser RAM area and see for yourself all those amazing file structures and system parameters (inspired by a letter from Jon Harrington).

The program will work on a 2 line or 4 line display as long as the 4th and 5th lines are altered as shown.

When run, the screen will display a section of the RAM area in both hexadecimal and ASCII format (numbers and letters) unless a letter is a non-printable type in which case it is replaced with a full stop. To move between the hex display and the character display press the MODE key. To finish the program press the CLEAR key.

When first run, the RAM area starting at \$2000 is displayed, use the LEFT/RIGHT cursor keys to move along the RAM area (the current position of the cursor will be displayed in the lower right hand corner) or use the UP/DOWN to move up or down a full screen at once (either 8 or 20 bytes depending on XP or LZ). The reason that \$2000 is the first position is that this is the Organiser PERM cell, a fixed place in which the position of all other non-fixed cells is recorded. Move the cursor along to position \$2002, the hex numbers shown at this point is the address of the start of the main menu. By pressing EXE you can enter another address to jump to, the default address shown will be the one recorded at the current cursor position (in this case the start of the main menu)

and can be accepted by pressing EXE. The main menu should then be displayed (notice its structure;- a length byte then the menu name then the menu address and then the length byte etc. until a length byte of 0).

Press EXE and enter 2000 to return to the PERM cell, move up through the memory until the cursor is at position \$201E (the address of the database

cell) and press EXE to enter a new address to look at, press EXE to accept the address shown. This will move you close to the MAIN file, move up through the memory using the RIGHT key until you find the MAIN file and compare it's structure to the description in last months article (0981MAIN20202020 etc..).

This program is by no means perfect (an INTEGER OVERFLOW will occur when using large numbers, there is no search facility and numbers cannot be poked) but is a quick and easy way of looking around your Organiser.

```
viewer:
LOCAL k%,x%,c%,l%,m%,g%
LOCAL v,h$(15),a,a$(4)
l%=4
c%=20
a=$2002
g%=l%/2*c%/2
h$="123456789ABCDEF"
DO
  x%=0
  CLS
  CURSOR OFF
  DO
    k%=PEEKB(a+x%)
    IF k%<$10
      PRINT"0";
   ENDIF
    PRINT HEX$(k%);
    x%=x%+1
  UNTIL x%=g%
  x%=0
  DO
    k%=PEEKB(a+x%)
    IF k%>31
      PRINT CHR$(k%);
    ELSE
      PRINT". ";
   ENDIF
    x%=x%+1
  UNTIL x%=g%
  x%=1
  DO
    AT c%-6,l%
    PRINT "$";HEX$(a);" ";
    KSTAT 1
```

Machine Code Page -2

by Neil Draycott

```
CURSOR ON
IF m% AND x%>c%/2
  AT x%*2-c%-1,2
ELSEIF m%
  AT x%*2-1,1
ELSE
  AT x%,1%/2+1
ENDIF
k%=GET
IF k%=1
  STOP
ELSEIF k%=2
  m%=m%+1
  IF m%=2
    m%=0
  ENDIF
ELSEIF k%=3
  a=a+g%
  BREAK
ELSEIF k%=4
  a=a-g%
  BREAK
ELSEIF k%=5
  x%=x%-1
  IF x%<1
    a=a-g%
    BREAK
  ENDIF
  a=a-1
ELSEIF k%=6
  x%=x%+1
  IF x%>g%
    a=a+1
    BREAK
  ENDIF
  a=a+1
ELSEIF k%=13
  AT c%-5,1%
  KSTAT 3
  a$=HEX$(PEEKW(a))
  TRAP EDIT a$
  IF LEN(a$)
    x%=1
    a$=REPT$("0",4-LEN(a$))+a$
    a=0
    v=$1000
    DO
      a=a+LOC(h$,MID$(a$,x%,1))*v
      v=v/16
      x%=x%+1
```

```
UNTIL x%=5
ENDIF
BREAK
ENDIF
UNTIL 0
UNTIL 0
```

Any suggestions or requests for this section should be addressed to:

Neil Draycott
168 Derby Road
Denby
DE5 8RD

Tel: 0332 880663 (9 am to 5.30 pm)

For Sale

Logitech FINESSE Desk Top
Publishing System for PC
complete, latest version
incl. 5.25" & 3.5" disks
and manuals.

Price £50

Phone: Mike O'Regan on 0602 735482 anytime

An Apology

I must apologise for both the unusual lateness of this issue and its content. Just as I was about to go to press, the news of the **Series 3** broke and I had to completely restructure the issue to cope with the news. This has meant that an **IPSO Review** and our **Progs & Procs** pages have had to be left out this month. They will be back, however, next month with programs and other items for CM/XP owners. In future I may have to extend the number of pages to accommodate the items for the **Series 3**.

Incidentally, can anyone come up with a more friendly name for the new machine?!?

Macro Mania - 1

by Steve Clack

A few months ago, I wrote a short series of articles for Ipso Facto. A primary subject of discussion was the Keyboard Macro. Despite the intrinsic simplicity of the humble macro, with its widespread use in the world of desktop computers, it seems to hold some degree of mystery to the average Psion Organiser user.

Keyboard macros are simply a means of assigning any sequence of keystrokes to a shorter (quicker) set. All the major desktop word processing packages (the traditional home of the macro) include keyboard macros in their repertoire of functions, as do several other major applications. These include spreadsheets, communications packages, and probably some databases too.

The only implementation of the keyboard macro within the realm of the Psion Organiser (to my knowledge) is in the Cubsoft package 'FNKEY'. The name FNKEY is derived (I assume) from the term 'Function key'. This refers to the common method of assigning a macro to one of the twelve 'function' keys (F1 to F12) of the standard PC-compatible computer.

Thus on a PC, the phrase 'Dear Sir, thank you for your letter of last week' can be assigned (say) to the F5 key. Therefore, whenever you type a letter that calls for the aforesaid phrase, you simply hit the F5 key. This gives a saving of 47 keystrokes in the above example. Of course, remembering that the phrase 'Dear Sir, thank you . . .' is associated to the F5 key is not terribly easy, as there's no obvious connection. The FNKEY implementation of the macro makes life a little easier, simply by assigning each one to a letter of the alphabet (preceded by the <MODE> key). In this manner, the above phrase could be assigned to the sequence <MODE><D> (that is, press the 'MODE' key, then the letter 'D').

I believe that the great beauty of macros (at least the way FNKEY does them) on the Organiser is twofold: Firstly, FNKEY allows macros to run in ANY organiser application. Secondly, due to the rather limiting keyboard of the Organiser, the saving in number of keystrokes is of that much more benefit to the user.

Since my earlier articles, there appears to have

been some interest from Ipso Facto readers in finding out more about what keyboard macros can do for them. Without going into details of exactly how the program works, I have listed below a few examples of macro usage on the Psion Organiser. Those users already running FNKEY will no doubt have devised far more exotic ones than those given, but the short selection below should serve to whet the appetite of the prospective 'Macro Maniac'.

1) Wading through the Organiser diary can be rather tedious. Wouldn't it be nice to have a super-quick way of jumping backwards or forwards a week or a month at a time - without endlessly pressing the left or right arrow keys? This is a trivial task for FNKEY. As an example, recording a simple macro to move the cursor 7 days forwards in the diary would be done as follows:

i) Go into the diary in the usual way (it doesn't matter which model of the Organiser you are using).

ii) Press the keys <MODE> <RIGHT ARROW>. This tells FNKEY to remember all the keystrokes that follow - think of it like starting a tape recorder.

iii) Press the <RIGHT ARROW> key seven times. This simply moves the cursor 7 days forwards.

iv) Press <MODE> <RIGHT ARROW> a second time. This tells FNKEY to stop the recording.

That's it! Whenever you wish to move forward 7 days, simply press <MODE> <EXE>. This tells FNKEY to "replay" the last macro recorded. You can always replay the last macro you recorded simply by pressing <MODE> <EXE>.

To assign a macro to a letter key, merely press the <MODE> key, followed by the <LEFT ARROW> key, then the letter you want to assign the macro to. That way, the sequence of keystrokes is assigned to one of the letter keys A-Z (something more meaningful than just <MODE> <EXE>), and the next macro you record will not overwrite the last one.

Macro Mania - 2

2) Macros can speed up the use of the Psion Organiser calculator immensely. If, for instance, you frequently have to add VAT to sums of money, FNKEY can come to the rescue of those tired fingers. Here's how to create a macro to add the 17.5% to any number with just two keystrokes:

- i) Go into the calculator as usual (any model of Organiser, once again).
- ii) Enter a number that you want to calculate the VAT on (any number).
- iii) Press <MODE> <RIGHT ARROW> to start recording.
- iv) Press the keys <+>, <1>, <7>, <.>, <5>, <%>, <EXE> - exactly as though entering the calculation in the normal way. The answer will now be displayed in the usual manner.
- v) Now press <MODE> <RIGHT ARROW> again to stop the recording.

The next time you want to calculate VAT, simply enter the number to be taxed, then press <MODE> <EXE>. This will play back the keystrokes <+>, <1>, <7>, <.>, <5>, <%>, <EXE>, automatically adding the 17.5%, and pressing <EXE> for you.

As with the previous example, it is generally preferable to assign this useful macro to a letter key (say 'V', for VAT) This is done as before, and keeps the macro 'stored' for further use.

It is important to note that in all cases, the act of recording a sequence of keystrokes only requires the pressing of 4 extra keys. That is <MODE>, <RIGHT ARROW> at the start of a recording, then the same again at the end. Assigning the resulting macro to a letter key takes a further 3 key presses, <MODE>, <LEFT ARROW>, and the letter key to be assigned to.

All the key presses that make up the macro itself are simply the ones you would make to enter the data, move the cursor, manipulate the menus - or whatever, in the normal (long-winded) manner. FNKEY does not require any elaborate codes or key sequences to record what you want, nor does

it know (or care about) the context in which the macro was recorded.

For the sake of illustration, it is quite possible to record the phrase "Hello there!" while in the calculator, and assign it to a letter key in the normal way. The same phrase can then freely be 'replayed' in the diary, notepad, A:MAIN, B:MAIN, an OPL file, ANYWHERE! Flexibility is the name of the game.

In summary, anyone previously unfamiliar with keyboard macros would be well advised to give them a try. This applies to Psion Organiser users, PC users, Apple Macintosh users, Amiga users, and just about everyone else.

Many software packages for desktop machines have some sort of macro facility included. Organiser users, however, enjoy the luxury of using the same method of creating macros (viz: FNKEY) for ALL their organiser software, be it internal (built-in), or on external Datapacks.

Using a package like FNKEY is like race-tuning your Organiser. You will constantly be thinking of more macros to speed up and enhance your work.

In many instances it can do things which would otherwise involve messing around with OPL programming (NOT my cup of tea), and can be used to automate tasks that would otherwise be very, very, slow to key in manually. Any macro can be up to 256 keystrokes long, so the sky's the limit really. Go on, give your imagination something to work on... get the macro mania!

For Sale

Psion Comms Link £30
Finance Pak £10

Phone: David on 0392 443223 (daytime)

What's New

by the Editor

After months of speculation, the new machine was announced by Psion on Monday 16 September. The SERIES 3 (we'll have to think of a better name than that!) is not meant as a replacement for the Organisers, which will continue to be marketed and supported.

The new machine is good news for all of us. Organiser fans will now be able to buy the LZ64 at knock-down prices - I have heard of various chain stores charging as low as £75! Many Organiser owners will inevitably change to the new machine and so the sales of 2nd hand Organisers will also increase dramatically.

The Series 3

As you will see from the illustration, the new machine is not really "hand-held" in the true sense of the word, and as mentioned recently in our article. Psion have changed to the "landscape" format, probably because most of the opposition have adopted this. To be fair, a horizontal format does allow a bigger and better screen. The new screen is made up of 240 x 80 CONTINUOUS dots and so is capable of displaying text in different sizes and also graphics. The latter facility is exploited to the full by the built-in features, which use IKONs and PULL-DOWN menus to speed things up. I look forward to writing programs for the new machine, using these powerful aids.

I will try to summarize the main features just now and will follow up with a full review as soon as I get my hands on the hardware.

Memory

There are two versions of the machine, with the only difference being the amount of internal RAM (just like the LZ). The smaller of the two has 128k of RAM and the bigger has 256k. Both have ROMs (built-in software) of 384k! Series 3 will NOT ACCEPT DATA OR RAMPAKS. There are two alternative methods of mass storage - the FLASH SSD and RAM SSD. Both of these are considerably bigger than Organiser paks. They start at 128k and go up to 2 megabytes (that's over 2 million characters for the uninitiated!). No doubt, the disk drives which are about to be released by CRISTAL will also be available for Series 3.

Display

As mentioned above, the display is 240 x 80 dots, allowing roughly 8 lines of 40 characters. The screen is high-contrast retardation (as on the MC machines)

Keyboard

58 key QWERTY keyboard, which will allow a limited amount of "touch" typing. There are also 8 touch sensitive keys just below the screen for task selection.

Audio

There is a built-in piezzo buzzer capable of auto-dialling touch-tone phones (very much like the ATARI PORTFOLIO, but more flexible)

Power

No more (expensive) 9 volt batteries. The Series 3 uses 2 penlight batteries. The good news is that data is retained by separate lithium cell during battery change. This really is good news. An optional mains adaptor is available, of course.

Communications

The fast serial port accepts both SERIAL and PARALLEL links (both are available)

Dimensions

The Series 3 is quite small - 165mm x 85mm x 22mm (that's 6.5" x 3.3" x 0.9"). The machine weighs in at 240g (less batteries).

Built-in Software

1. Word Processor
2. Outliner
3. Database
4. Agenda
5. Things-to-do Manager
6. Calculator
7. Time & Alarms
8. World Information
9. OPL/w Language.

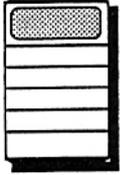
Prices

£

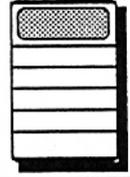
Series 3 128k	199.95
Series 3 256k	249.95
Mains Adaptor	14.95
Serial Link RS232	69.95
Parallel Link	29.95
SSD 128k Flash	39.95
SSD 256k Flash	69.95
SSD 512k Flash	119.95
SSD 1Mb Flash	199.95
SSD 2Mb Flash	299.95
SSD 128k RAM	79.95
SSD 512k RAM	199.95
SSD 1Mb RAM	299.95

IPSO Policy

IPSO will definitely be supporting the Series 3. This does not mean, however, that we will be neglecting the Organisers, from CM to LZ. We will continue to support all machines and try to give a balanced service to all owners.



IPSO FACTO



Vol V

October '91

No. 8

Editorial Office: 130 Stapleford Lane . Toton . Beeston . Nottingham . NG9 6GB
 Editor: Mike O'Regan Tel: (0602)__ 735482

Editorial

*I have had many enquiries about the Series 3 and, especially, whether it is a good plan to "upgrade" from the Organiser. As IPSO will be supporting all machines, I will of course be keeping both of my Organisers (LZ64 and XP) in addition to a Series 3 256k when I can get my hands on one!
(STOP PRESS Should have one by Monday!)*

Before you unload all your Organiser goodies it might be prudent to stop and think. With the current second-hand price of LZ64s hovering between £60 to £80, you stand to lose quite a slice of your original investment. Prices have been forced down mainly because DIXONS have been selling off their remaining stocks of Organisers and peripherals at knock-down prices. It appears that Dixons will be stocking the Series 3 only, hence this move. I think that this has resulted in a short-term devaluation of Organisers and, that once Dixons stocks are sold, the Organiser prices should return to something like the original (good value) ones.

Psion have said officially that they will continue to make and develop the Organisers, and reliable dealers (such as Rovoreed, Transform, and Widget) will continue to sell and support all machines.

This month sees a full review of Rovoreed's Speech Synthesiser. I consider this to be the most significant piece of hardware produced for the Organiser for a long time, so make no apology for devoting a couple of pages to it.

As yet, the promised DISK DRIVE from Cristal has not appeared. The last news I have of this is that they are producing some modified software for the Series 3, so that the drive can be used with both the Organiser and Series 3.

Cubsoft News

The Cubsoft Leaflet (issued with the last IPSO FACTO) omitted to mention that upgrades to the latest Version 4.0 were available for owners of previous versions as follows:

Version 3.5 £15
 Versions 3.0, 3.1 £20
 earlier versions £25

Users should return their old chip, but retain any manuals. They must remember to remove FNKEY (boot) before returning the pak. Failure to do this has led to grief in the past.

The new features can be summarised as follows:

1. up to 20 times faster
2. more compatible with other software. Now works with AutoScribe
3. foreign character/punctuation marks now increased to 52. Can be saved as files
4. date and time stamping now fully user configurable. Can be incorporated into other macros.
5. improved cut & paste
6. macros can reference other macros. Can be set CAP or NUM LOCK and can select a specific drive.

Finally, Cubsoft apologises that their phone was out of order for a few days after the mailing of our last issue. This was due to underground phone cables being replaced.

Contents

Progs & Procs	58
Series 3	59
Machine Code	60
IPSO Review	62
Feedback	64

Progs & Procs - 1

SCAN

by Glyn Pollington.

SCAN: is a utility to find a record in a file which matches two search criteria, it is a self contained module designed to be called from another procedure.

The syntax is SCAN:(first\$,second\$)

The strings first\$ and second\$ should be declared in the calling procedure, they need not have these names and can be in any order. An integer variable, c% should be globally declared in the calling procedure, this variable is returned by SCAN: as the position of the matched record, which can be displayed by use of POSITION c% followed by a DISP command. A value of 0 is returned if no match is made.

It should be noted that SCAN: starts looking from the current record, therefore the first time it is called it should be preceded by a FIRST command. Subsequent calls should be preceded by a NEXT, in this way more than one match can be made. SCAN: will work on any model Organiser but is partly superceded by the LZ wildcard search.

```
scan:(a$,b$)
LOCAL a%,b%
REM **Glyn Pollington 1990**
REM **Find with two clues.**
REM **Ver 1.2 **
REM ****
a%=FIND(a$)
b%=FIND(b$)
IF EOF
  c%=0
  GOTO end:
ENDIF
WHILE a%<>b%
  IF a%>b%
    b%=b%+1
  POSITION b%
  b%=FIND(b$)
  IF EOF
    c%=0
```

```
    GOTO end:
  ENDIF
ELSEIF b%>a%
  a%=a%+1
  POSITION a%
  a%=FIND(a$)
  IF EOF
    c%=0
    GOTO end:
  ENDIF
ENDIF
ENDWH c%=POS
end:
RETURN c%
```

BORDER

by Glyn Pollington 1991.

BORDER is the definitive program for changing the border around an CM/XP program running on an LZ.

BORDER presents the whole Organiser character set via a 20 character window on line 1 and the cursor is used to select the new border pattern.

```
border:
LOCAL ch$(232),w$(20),bl$(20),p%,a%,k%,b%
a%=1:p%=0:b%=10
bl$=REPT$(CHR$(32),20)
CLS
AT 1,1:PRINT " Border"
AT 1,2:PRINT " G.Pollington."
AT 1,3:PRINT "Use cursor keys then"
AT 1,4:PRINT " EXE to select."
DO
  ch$=ch$+CHR$(p%)
  p%=p%+1
  IF p%=8:p%=32:ENDIF
UNTIL p%=256
CLS
DO
  AT 3,4:PRINT "Select Character"
  AT 9,3:PRINT CHR$(127),CHR$(126)
  IF b%<1:b%=1:a%=a%-1
  ELSEIF b%>20:b%=20:a%=a%+1
  ENDIF
```

(listing continued on page 63)

Series 3 Page - 1

Dear Mike,

As the owner of a brand-new Series 3, I thought you might appreciate a few comments...

When it comes to the Series 3, there seems to be a severe availability problem (you can say that again! - Ed) - everyone's heard of it, but no one has actually got one!

After a lot of hard work, I finally found one and fell instantly in love! The machine is simply excellent. Its best feature has to be the multi-tasking. Using the 'hotkeys' below the screen you can get out of a letter you are writing, look in your name & address file, then hop to your diary, check the sunset time in Cincinnati, work out 17.5% of a sum you did an hour ago, and edit your program before going back in to exactly where you left off in your letter. You can even drag chunks of data with you, and 'paste' them in to other applications. The Series 3 lets you switch off in the middle of something, and when you switch back on, everything in all of the applications is exactly where you left it... very handy.

For someone like me who is so used to working with a Lizzy, it's a bit of a culture shock learning your way around the Series 3. The basic functions are easy enough to get used to, but more complex stuff, such as file listing, moving and copying takes a bit of getting used to. You have to use various combinations of the <TAB>, <CONTROL> and <PSION> keys to get exactly what you want. It's probably a lot easier for someone with no Organiser experience, but a little practice with trial and error and you get there - and it's definitely worth it.

For the OPL programmer, it is a bit of a change too... commands like KSTAT are not longer needed and you can get access to all the ASC characters in any application by holding down <CONTROL> and typing the character number. The MENU command has severely changed... if you use menus with more than 6 items, a little jiggling has to be done, but it means that you can create flashy windows and buttons from this enhanced OPL to get a very impressive layout.

Another major change concerns the drive names. On the Organiser, the drives are called A: B: and

C: respectively, but on the Series 3 M: is the internal drive and A: and B: are the disc drives. This means more editing of OPL programs.

You can also write programs underneath other programs, to build up a suite of programs all in the same file. You can also "merge" existing programs into one larger program. This means that you now have to type "PROC" before the program name and "ENDP" at the end. The advantage becomes apparent when you need to do a lot of editing... it's all there in front of you.

To summarise, Psion have clearly been watching the competition and come up with an excellent product... the increase in memory, the QWERTY layout, a screen 4 times larger than a Lizzy, proper graphics, and the multi-tasking is bound to ensure that Psion stay market leaders for quite a while yet. Does this sound like a commercial??

I took advantage of Psion's data transfer service and posted two datapaks with programs and data files for transfer to a flash pak. Full credit to Psion for returning them next day.

A word of warning to programmers. Although Organiser II files can contain either floating point or integer variables, they are actually stored as string variables, and as such can't be read as numbers by the Series 3. This means that, if you need to do any maths on Organiser files from an OPL program, you will get a "string to number error". Psion's Tech Support have informed me that a conversion program will shortly be available for those with a PC, but I have come up with the following program which will copy files from the first disc drive (called A:) to the internal drive (called M:)

Example Organiser file spec.
"A:FILENAME",A,A\$,B%,C

To correctly transfer files from an Organiser II file that has been copied to a flash pak, to the internal memory of the Series 3, type the following as a New File in OPL on the Series 3:

(Program listing on Page 61)

Machine Code Page - 1

by Neil Draycott

I will now attempt the impossible, to very briefly explain the rudiments of machine code programming on the Psion Organiser so as to encourage some OPL users to venture into the field.

I am going to assume 2 things within this explanation;- that you know and understand the concept of computer programming (whether in BASIC, OPL or C++) and that you can count in hex.

In all computer programming languages a program is written that consists of a series of instructions that the computer will perform. Mostly these instructions bear at least a passing resemblance to English (CLS is short for CLear Screen and INPUT will allow the input of names or numbers) although I have my doubts about the commands used in C++.

The fundamental difference in MC programming is that all commands are in the form of numbers with each number referring to an action to be performed by the computer. A secondary difference is that the commands themselves are not as complex as CLS or INPUT and in fact several actions need to be performed to do something as clever as clearing the screen. Luckily Psion have already grouped together many of these commands into sub-routines that can be used within MC and save you re-inventing the wheel.

Another important difference between MC and high level programming languages is that there are essentially only 3 variables allowed. These are called A, B and X (don't ask why) and that all MC programs must use only these three variables. There is a fourth called D but this is just A and B grouped together and not a separate variable at all.

To overcome the obvious difficulties in trying to write any program using just 3 variables the programmer must keep storing the value of each variable to a storage area before filling the variable with a new value. This is essentially what happens in OPL anyway (when you declare your variables as either LOCAL or GLOBAL then you are reserving some area of the Organiser RAM to

use as a storage area because actually only 3 variables can be used at any one time).

A list of all the numbers and their explanation can be found in either Bill Aitkens' book "Machine Code Programming on the Organiser" or free from Hitachi UK (the Organiser uses Hitachi chips).

As an example, when referring to Bills' book the number needed to command the Psion to load the X register with a value (sort of equivalent to V%=1234) is either \$CE or \$DE or \$FE or \$EE followed by the value to be loaded (so a complete command may be \$CE1098). "Why 4 different versions of the same command?" I hear you cry. This is because the number to be loaded could either be supplied directly (eg, \$CE1098) or could be the value stored at a low memory address (eg \$DE41) or could be the value stored at a high memory address (eg \$FE2187) or could be an offset value (more of this some other time). These are known as Immediate, Direct, Extended or Indexed addresses and exist for every command. The way in which we store these numbers varies for each programmer but the most common method (at least for short programs) is to keep the numbers in an array within OPL (such as LOCAL A%(20)) and use the OPL commands USR and USR\$ to "run" the MC program. This was discussed in one of my earlier articles.

The beauty of the OPL commands USR and USR\$ is that they can return the X register value (or a string pointed to by the X register) back to your OPL programs and can pass a value for the A & B registers to MC thus providing a two-way connection between OPL and MC. The entire collection of MC commands involve themselves in the manipulation of data around the 3 variables.

For more complex commands such as printing a character to the screen or reading a byte from a DataPak there exists several pre-recorded sub-routines within your Organiser provided by Psion. The command to run one of these routines is \$3F followed by the number of the sub-routine.

Before actually calling one of these routines the A,B and X registers and parts of the RAM must contain specific values, these values are also

Machine Code Page - 2

outlined within Bills' book (or the Psion Technical Reference Manual).

Some amazing programs can be written using combinations of these commands that are impossible with OPL.

In order to collect some material for future articles could you please send ANY questions (regarding machine code at ANY level or even OPL enquiries or virtually anything to do with the Organisers and the way they work) to myself no matter how simple or complex and I will endeavour to reply to each one and select the most interesting ones for the basis of an article.

Neil Draycott
168 Derby Road
Denby Derbyshire
DE5 8RD

Listing of Series 3 Program from Page 59

```
PROC CONVERT:
[OPEN "A:\DAT\FILENAME.DBF",A,A$,B$,C$
REM :as string variables]
[CREATE "M\OPD\FILENAME.ODB",A,A$,b%,C
REM:original variables]
USE A
FIRST
DO
B.A$=A>A$
B.B%=VAL(A.b$)
B.C=VAL(A.C$)
USE B
APPEND
USE A
NEXT
UNTIL EOF
ENDP
```

Pete Sipple
51 Eastwood Boulevard
Westcliffe-on-Sea
Essex SS0 0BY

(Any questions or comments should be addressed to Pete at the above address. No phone calls please Ed.)

Kirsta Exclusive Datapak Offer

Kirsta Computers Ltd have contacted me to say that they are discontinuing the use of 16k paks for their products and that they have a small number of paks which they are willing to sell to members for £12 each (inclusive). This offer is especially attractive as, in addition, Kirsta have undertaken to sell either freshly formatted paks, or to sell paks which contain their excellent KPROG and GAMES programs. These have been selling and £35 and £30 each, respectively. These will be shipped with complete instructions, in draft form (as the printed versions have been used up). Remember, stocks are strictly limited!

Anyone interested should contact:

Kirsta Computers Ltd
35 Main St
Hillend
By Dunfermline
Fife
KY11 5ND
Tel: 0383 414293

Cause for Concern

It has come to my attention that some of our members are being approached by others in the form of unsolicited letters offering various services, some of these illegal. This has arisen simply because names and addresses were published in this newsletter in connection with Small Ads, etc.

If any member has been approached in this way and considers it an intrusion please contact me so that I can tell the person(s) concerned to desist.

This is precisely why I will not release Membership details, especially names and addresses, to any third party.

IPSO Review

Rovoreed Speech Synthesiser

reviewed by Mike O'Regan

Just as the Series 3 is released, our friends Rovoreed announce an Organiser add-on which is bound to give the old machine a new lease of life - a practical speech synthesiser for the Organiser!

I have seen (and heard) many speech synthesisers over the years, from add-ons for the Texas TI99 (very good speech with an American accent of course) to rather cheaper dedicated chips for the BBC and others. LES BALL has been coupling the Organiser to various speech synthesisers for years, but most of these are bigger than the Organiser, so losing some of the portability.

This new unit from Rovoreed is by far the smallest and most useful speech unit I have ever seen. It is tiny (same profile as the Organiser and about 1.1/4 inches high). Everything needed to work this unit is contained within this case (there is no need for extra datapaks, etc.)

The unit slots into the top port on the Organiser and takes its power from either mains (there is a small socket, as on the Comms Link) or from the Organiser's batteries. Surprisingly, although I gave the unit intensive use, my rechargeable nicad seemed to last for quite a long time. However, as the speech synthesiser is fascinating to use, I would recommend that you connect to the mains for the first few hours. The unit also has an earphone socket, so you can experiment without annoying anyone else. Oh yes, this unit can be heard quite clearly on the other side of the room, especially if it is a quiet one.

The quality of the speech is quite acceptable and, with a bit of practice, easily understood. This unit uses a system called ALLOPHONES which give reasonable quality without eating up prodigious amounts of memory - just right for the Organiser.

In Use.

The unit is simply plugged into the top port (d:), <ON/CLEAR> pressed twice, and it is ready for use. A new item appears on the top-level menu, next to OFF, called, naturally, SPEECH. Choosing this option gives us a simple speech menu with only two items, EDITOR and SETUP. The Editor is used for entering your own set of words (ANY!!) into one or many files opened for this purpose, but the first thing to be done is to use the Setup.

Setup

Pressing this option gives a list of options which may be altered to your own requirements (thereafter, if you wish your Organiser will "remember" these even if you have removed the Speech Unit). The options are:

1. Vocab - Initially empty until you open and use your own vocab file.
2. Ccy - short for "currency" and allows you to set to pounds (#) dollars (\$), NONE or Off. If you set this, for instance to "pounds" then anytime you use numbers (for instance in CALC) then the unit will say "twenty-two pounds thirty". If you set the option to NONE then numbers will be spoken like "one thousand nine hundred and ninety one", whereas OFF would give you "one nine nine one". This is an excellent way of handling numbers in speech (it can even handle scientific notation!), especially as the various options can be controlled from within your own programs by suitable OPL commands.
3. Pause - allows you to select a default pause between words from a range of
4. Text - If this option is set to ON, then ALL words which are spoken will be spelled out, even if recognised as known words.
5. Video - this is a very useful option. When set to ON, the unit will attempt to say EVERYTHING which appears on the display, provided that two conditions are met - that the display does not move for two seconds or more and that a datapak is not being accessed. This option is really what makes this unit unique. It will speak ANYTHING on the display, whether built-in functions such as the CALC or DIARY or lines of OPL while you are actually writing procedures.
6. Setup - can be either SAVED or LOST. This is essential, if you wish to remove the unit and get rid of the (small amount) of memory which is reserved to maintain the Setup (for instance, if you are using some other memory-resident program which may clash).

Programming.

The Speech Synthesiser has various features to make it very easy to incorporate speech into your own OPL programs. I could go into a long explanation of this, but prefer to printout a couple of short OPL routines which will illustrate just how easy this is:

IPSO Review - 2

stime:

```
SAY:("the time is")
SAY:(MID$(DATIM$,17,5))
```

Provided you have set the Ccy to NONE in the Setup (see above) then the Organiser/Speech Unit should say something like "the time is fourteen-twenty five" (or whatever the time is). You may think this is a trivial program, but, normally TIME is not spoken, as the display is constantly moving to update the SECONDS.

sword:

```
LOCAL wd$(254)
st::
PRINT "Word(s)",
INPUT wd$ SAY:(wd$)
IF wd$="end" :STOP ELSE GOTO st:: ENDIF
```

This little routine will let you enter and try out any words. If a word is neither in the unit's 900+ vocabulary, nor in your own tailor-made one, then the unit will spell this out.

The Editor

Finally a quick look at the Editor, which is a built-in facility to enable you to create your own vocabulary of additional words. These are entered by spelling out the word, followed by a list of the allophones required to say it. These are selected from a comprehensive list supplied in the handbook. The Editor program cleverly translates the allophones into comma-separated lists of numbers which the unit actually uses to produce speech - all very easy to understand. One nice touch is that there need be no connection between the written and spoken word - for instance you could enter "PO" and have the unit say "Psion Organiser", or even write "pavement" and the unit say "sidewalk"!

Conclusion

This unit has made speech a really practical proposition for the Organiser - the unit can be left in place and the combination takes up very little more room than the Organiser on its own. Whether you would like to have speech purely for fun or if you have a practical use for it (for instance, anyone with a sight impairment who finds the Organiser's display difficult or impossible to read), this unit is well worth having.

There are hundreds of uses to which it could be put.

One curious quirk in the default vocabulary is that there is no "yes" available, although "apiary" is. This last word is hardly common (unless you have a collection of apes!).

The Speech Synthesiser is available ONLY from:

Rovoreed Ltd
The Coach House
65a Grand Drive
London SW20 9DJ

Tel: 081 540 8573 Fax: 081 542 9769
The cost is £59 (+VAT)

Program listing continued from Page 58

```
AT 1,2 :PRINT bl$
AT b%,2 :PRINT CHR$(169)
IF a%<1 :a%=1
ELSEIF a%>213 :a%=213
ENDIF
w$=MID$(ch$,a%,20)
AT 1,1 :PRINT w$
k%=KEY
IF k%=6 :b%=b%+1
ELSEIF k%=5 :b%=b%-1
ENDIF
UNTIL k%=13
p%=ASC(MID$(ch$(a%+b%-1),1))
POKEB $2099,p%
bl$=REPT$(CHR$(p%),20)
CLS
at 1,1 :PRINT bl$
[AT 1,2 :PRINT CHR$(p%);CHR$(p%);" New
Border";CHR$(p%);CHR$(p%)]
[AT 1,3 :PRINT CHR$(p%);CHR$(p%);"
Selected";CHR$(p%);CHR$(p%)]
AT 1,4 :PRINT bl$
GET
```

Feedback

Please bear with this full page of small ads. It is an attempt to give members, both buyers and vendors, a one-time opportunity. Since the announcement of the Series 3, I have been deluged by people wishing to sell their Organiser equipment, many from non-members. I have given preference to members in the following ads. Organiser owners who are keeping their machines should take this opportunity to get some real bargains - I am quite sure that this situation will only be short-lived.

For Sale

1 LZ 64 & leather case £100
2 - 128k datapaks £50 ea
1 164k datapak £25
1 Psion Formatter £30
1 Pocket Spreadsheet (4line) £25
1 Thesaurus/Spellchecker £25
1 Finance Pak II (4 line) £25
1 Filemaster II (2 line) £15
1 Filemaster II (4 line) £25
1 FNKEY Ver 3.1 £25
1 Psion Games Pak £15
1 Comms Link £10
1 Mains Adaptor £5
4 User Books £3 each
All manuals (except Comms Link)
Total £437

Buy as one lot for £330

Contact Ian Nicholls on 081 441 7954 (evenings)
or 081 945 2819 (daytime)

1 LZ 64 with manuals
1 LZ with programming manual only
1 Comms Link (2 line)
1 128k datapak
2 32k datapaks
2 16k datapaks
1 8k datapak
1 32k RAMPak
1 Psion Formatter
Thesaurus//Spell Checker
Travel Pak (2 line)
Kirsta Games Pak (no manual)
FNKEY Ver 3.5

plus 3 Organiser books.

Any reasonable offer on an item by item basis to:
Steve Shone on 071 491 6847 (office) or
071 630 5700 (evenings) or
0604 416281 (weekends)
Buyer collect (Central London or Northampton) or
pays postage

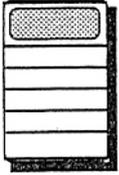
LZ64 & Comms Link & mains adaptor - £80
RAMPAGE 128k - £100
DTMF Teledialler - £35
LACE II on 128k datapak (64k free) - £40
Spreadsheet - £15
Thesaurus/Spell Checker - £15
HB Games Pak - £15
Transform Leather Filofax & Organiser case -
£20

***Technical Reference Manual (incl. printouts &
disks) - £15
FNKEYS ver 3.5 & FM (file backup program - £15
***N.B. buyer of this item MUST sign a Psion Non-
Disclosure Agreement (Ed).

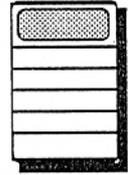
Contact Graham Foster on 0296 668698

LZ64 & Manuals & Leather Case
4 Line Psion Spreadsheet
64k datapak
Psion Games Pak
Books - Psion Organiser Deciphered
File Handline (Mike Shaw)
Price £100 ono (will sell separately)

Contact J.K. Archibald on 0603 628405 (work)
or 0603 702198 (home)



IPSO FACTO



Vol V

Nov 1991

No. 9

Editorial Office: 130 Stapleford Lane . Toton . Beeston . Nottingham . NG9 6GB
 Editor: Mike O'Regan Tel: (0602) _ 735482

Editorial

As promised, my Series 3 arrived on time, thanks to Rovoreed's splendid service. A full review (written on the machine itself) appears in this issue.

My decision to support this new machine gives rise to a few pertinent questions. Should we keep the Organiser and Series 3 quite separate - perhaps with separate newsletters - or use IPSO FACTO to support both machines? For the time being, at least until we have enough material on the Series 3 to warrant another look at the situation, I hope we can please everyone by including articles, programs, etc for both machines. Just now we have quite a few members who own - and intend to keep - both machines! Of course programs written for the Organisers can be fairly readily adapted to run on the Series 3.

If we get a sizable influx of new members who are exclusively Series 3 owners, the position will have to be reconsidered. Until then, our emphasis will continue to be support for the Organisers (after all that is why you are all members). Please let me know what you think about the matter.

What's In A Name?

So far, I have had very little response to my quest for a short snappy name for the Series 3. We can't just go on with that name - or can we?

I did a bit of brainstorming myself, and I have come up with the SLICE. We could then have the THIN SLICE (128k) and THICK SLICE (256k). The name was arrived at in the following way:

1. Take the word "series" and convert it into "Ceres" (same pronunciation.

2. Ceres is the goddess of corn and cereals.
 3. Corn makes bread.
 ergo SLICE (of bread).

Psion have used the name PAN for the machine, since its inception, but I can't see any connection. Any more suggestions?

Wanted!

Soft/hardware for LIZZIES, by couple unable to afford Series 3
 FNKEY V. 4.0
 AutoScribe V. 5.0
 Datapak Formatter
 Paralink
 Instruction Manuals essential

Contact: Cyril Bezant on
 021 4476 9772 (Home)
 021 200 2040 (Office)
 0860 217245 (Mobile)*
 * comes with the job,
 not an indication of affluence!

Contents

Editorial	65
Beginners Page	66
Machine Code	67
Series 3 Review	69
Series 3 Prog	73

Beginners Page

Calling Beginners

There is a definite danger that this page is travelling in ever-decreasing circles until it disappears . . .! What is required is loads of feedback from beginners out there. Let us class beginners as all those who cannot totally understand Neil Draycott's **Machine Code pages**. I am sure that this must be a sizable number. On the other hand, perhaps all those who started off as beginners are now advanced enough to need no further help, in which case we always welcome hints, tips, programs, etc.

To get back to basics, there are two main areas where help may be needed - using the built-in features and writing your own programs. I think that, with a computer like the Organiser both of these areas are important. The sad thing is that many users neglect one or the other. Avid programmers will sometimes ignore the built-in functions, other than OPL and will sometimes put a lot of effort into achieving something which is already possible. There are, however, many other members who never get involved in any form of programming, usually from a misconception that it is difficult. All I can say to such people are missing out on a lot of fun. There is something magical about running your first program, even if the program (or parts of it) were written by someone else.

All the above is round-about way of asking you what you want. If you want to know more about making the best use of the Organiser's functions, then let me know which areas you would like to be covered. Alternatively, if you want more OPL, or you want to know more about communication with printers and/or other computers, etc. I will consider writing or commissioning articles to cover these points.

For Sale

LZ Organiser - £60
Leather Case - £7
Comms Link - £25
Paralink - £25
32k RAMPak - £15
32k Datapak - £15

or £130 the lot, All manuals

Contact: Roderick Urquhart
on 081660 6564

Comms Link (2 line) - £30
64k Datapak - £30
Finance Pak - £20
AutoScribe+ - £30

Contact: Peter Creed
on 0902 342214 (home) or
0905 754455 ext 2188 (work)

LZ64 Organiser
Psion Formatter
Mains Adaptor
FNKEY v.3.5
HB Games pak
Spellchecker/Thesaurus
Finance Pak II
2 x 32k datapaks
16k datapak

Any reasonable offers to:

Neil Burton on
0980 46221 ext 3699 (daytime)

Series 3 c/w 64k(sic) RAMPak (as new) - £300

Contact: Simon Titterington on
0532 785178 (home) or
0532 787111 (work)

Machine Code Page - 1

by Neil Draycott

Strings & Things

All things come in three's they say and this month I am reviewing the three different types of variables available to an OPL programmer and how they can be accessed via machine code. The three variable types are: INTEGERS, REAL NUMBERS and STRINGS. An example of an integer variable declared in an OPL program would be X% or NUMBER% (the percentage sign meaning integer or "whole number"), an example of a real number declaration would be VALUE or Y (no percentage sign) and these refer to values such as 123.456 or 0.5. An example of a string declaration would be NAME\$ or X\$ (the dollar sign meaning string) and these variables are used to store names or any characters.

When a variable is declared at the top of an OPL program as LOCAL or GLOBAL then a specific amount of RAM will be reserved for the variable when the program is run. For instance; declaring LOCAL X% will reserve 2 bytes of RAM for the values of X% to be stored in when the program is run, declaring LOCAL X will reserve 8 bytes for the storage of a real number and declaring X\$(20) will reserve 21 bytes for the storage of any names as X\$ (the first byte is used to record the actual length of the stored string).

Declaring any of these types as arrays just multiplies the amount of RAM set to one side, i.e. LOCAL X\$(20,50) will reserve $21 \times 50 = 1050$ bytes for the array or declaring X%(100) will reserve $2 \times 100 = 200$ bytes.

To find the actual address of this reserved RAM the OPL command ADDR can be used, so to find the actual position of the variable Z% use ADDR(Z%) and to find the actual position of the first element of the S%(100) array use ADDR(S%()). Remembering that the first byte of a string is not the actual first letter but the length of the string try this simple exercise;-

```
LOCAL X$(7),A%
X$="QUIETLY"
A%=ADDR(X$)
POKEB A%,5
PRINT X$
GET
```

If the string is to be stored as an array then each element of the string array is a fixed size (declared in the LOCAL statement) and the initial byte of each element tells the operating system just how long each element is, so if X\$(1)="TEST" and X\$(2)="OF" and X\$(3)="ARRAYS" and they have been declared as 10 maximum length each then they would look this in the RAM when the program is run;-

4TEST----- 2OF----- 6ARRAYS----

Integers have a very simple 2 byte structure, try this example as an illustration;-

```
LOCAL X%(10),A%
X%(1)=256
A%=ADDR(X%())
POKEB A%+1,1
PRINT X%(1)
GET
```

Real numbers are much more complex, each section of a decimal number is stored in binary with reserved flags used to indicate the number of units before the decimal point and the number of decimal places. So 1234.567 would be stored as;-

0 0 \$70 \$56 \$34 \$12 3 5

Notice that the numbers are in reverse order to allow the high bits to represent the highest numbers and that if the numbers are viewed as hex numbers then they make some kind of sense. To view the contents of a real number try;-

```
LOCAL X,A%,B%
X=123.45123
A%=ADDR(X)
DO
PRINT HEX$(PEEKB(A%+B%))
B%=B%+1
GET
UNTIL B%=8
```

Thinking back to the example of string storage, the "address" of a string normally refers to the position of the leading count byte and a special version of the OPL command "USR" exists to return the string pointed to by the X register when the machine code program exits. The

Machine Code Page - 2

command is USR\$ and is a very useful command when wanting to view bits of the RAM. For instance if I want to find the name of the last procedure run then a simple 2 bytes of machine code will do the job:

```
LOCAL A%(1)
A%(1)=$1839
PRINT USR$(ADDR(A%()),$23D5)
GET
```

In response to my pleas for feedback, Bob Black sent a letter wondering if it is possible to open a file in OPL but access the component records as if they were an array. The obvious solution is to record your file in the first place with just one line per record and load the file into an array:

```
OPEN "TEST",A,X$
WHILE NOT EOF
  X%=X%+1
  Z$(X%)=A.X$
NEXT
ENDWH
```

but this can not always be done (if the structure of each record is more complex or the file already exists and the structure is unknown). The solution relies on the fact that a copy of the current record of an opened file is always kept in RAM in the buffers pointed to by address \$2016-201C (for files A,B,C and D) with each line of the record separated by character 9. The file buffers could therefore be copied to an array by simply transferring each line of the file record into the elements of the array. The completed program is:

```
FILE2RAM:
LOCAL A%(17),A%,X%,R%,Y%
LOCAL X$(16,100),N%,L%
[N%=16 :REM NUMBER OF ARRAY
ELEMENTS]
[L%=100 :REM LENGTH OF EACH
ELEMENT]
[X%=ADDR(X$()) :REM GET
ADDRESS OF RECEIVING ARRAY]
[A%=PEEKW($2016)+6 :REM GET
ADDRESS OF FILE BUFFER A]
[OPEN "A:MAIN",A,X$ :REM OPEN
THE FILE INTO BUFFER A POSITION
1 REM READING FIRST
RECORDS]
[DO A%(1)=$DD41 :REM STORE LEN
AT $41/42]
```

```
[A%(2)=$8609 :REM LOAD A WITH
DELIMITER CHARACTER 9]
[A%(3)=$C600+R% :REM LOAD B
WITH RECORD NUMBER (0=FIRST)]
[A%(4)=$01CE :REM LOAD X WITH
ADDR OF BUFFER]
A%(5)=A%+1
[A%(6)=$3F77 :REM SPLIT OUT
STRING]
[A%(7)=$250D :REM BRANCH IF
ERROR]
[A%(8)=$DD41 :REM STORE LENGTH
OF FIELD AT $41...]
[A%(9)=$01F7 A%(10)=X% :REM
...AND INTO ARRAY ADDRESS]
[A%(11)=$01CC :REM LOAD D WITH
DESTINATION]
[A%(12)=X%+1 A%(13)=$3F6D :REM
COPY BUFFER INTO ARRAY]
A%(14)=$39CE
A%(15)=0
A%(16)=$3900
Y%=USR(ADDR(A%()),PEEKB(A%))
R%=R%+1
X%=X%+L%+1
UNTIL Y%=0 OR R%>N%
X%=1
DO
  PRINT X$(X%)
  X%=X%+1
UNTIL GET=1
```

This program will read the first records of the MAIN file into the X\$ array, each line can then be accessed as X\$(1), X\$(2) etc NO MATTER what type of data is stored in the file. To move to another record just use the OPL "POSITION" command and use this program to read it into the X\$ array. It should be noted that values N% and L% (number of elements and length of each element) MUST be the same as the values used in the LOCAL line and that the maximum length of each element (L%) MUST be greater than the longest line otherwise a crash will occur.

This program is an extract from my "LZ TOOLKIT" Pak soon to be released via IPSO, watch this space! Please keep writing with ANY queries you may have, I will endeavour to answer them all on this page at some time.

Neil Draycott
168 Derby Road
Denby
DE5 8RD Tel 0332 880663 (9.00am-5.30pm)

IPSO Review - 1

Series 3

by Mike O'Regan

First of all, I believe that, wherever possible, a review of a machine should be written on the machine concerned, so I am writing this on my SERIES 3.

I also have a 3 LINK SERIAL INTERFACE, so that the text can be transferred to my PC for inclusion in IPSO FACTO. Also, this is the second attempt at writing a review. I started off describing all the features of the machine in great detail and then realised that anyone reading this review will either own the machine already, or at least have one of Psion's brochures which were distributed to all registered Organiser owners. I am, therefore, writing this review in the form of my personal impressions of the machine, which I have owned and used for about 4 weeks.

First Impressions

When I opened the small box containing the SERIES 3, I thought I had been sent a cardboard replica. The machine *appeared to be* tiny, fragile, and very light. All this was an illusion - the Series 3 is almost an inch longer and a half inch wider than the Organiser (both machines in closed position) and their weights including batteries are almost identical.

One point worth watching is that the Series 3 is very easy to **drop** when you first open it as the cantilever action is spring loaded. I managed to catch mine, but you have been warned.

Again, the Series 3 only gives the **appearance** of fragility. The case is very cleverly sculpted, so that the closed machine is **very pocketable**, with its rounded surfaces and corners. As a result, I find that I am carrying my Series 3 around with me much more than I do with my Organisers.

Powering Up

An excellent move on the new machine is in the power department. Organiser owners continue to struggle with a single, expensive, 9v battery with the constant danger of losing your precious data during a battery change. Psion have improved things in **TWO** ways on the Series 3. First, the main batteries are a pair of cheap, easily obtainable penlight batteries. Second, and even

more significant, is the inclusion of a lithium cell to maintain data safely while the main batteries are being changed. So data loss **should** be a thing of the past.

The main batteries are housed in the hinge and are very easy to access and change.

Display

The display on the Series 3 is enormous compared to the Organiser, although at about 8 lines of 40 characters it is about par for pocket computers, such as the Atari/DIP Portfolio. Not only is the display bigger, it is also **dot-addressable**, unlike the Organiser where the display is made up of a number of 8x5 matrices. This means that it is a relatively simple matter to design real graphics and different typefaces, etc. I look forward to some exciting software which takes full advantage of the screen.

Following the latest trends on bigger computers, the Series 3 sports a form of a GUI (graphics user interface). Not only do the built-in functions make use of this with pull-down menus, dialog boxes, etc., but all these facilities are available to the user through the new extensions to OPL, which is, of course, built in.

The "top level" menu consists of a row of "icons" (get used to that word if you don't already know it!). These match up with eight "softkeys" just below the screen. To access any function it is only necessary to press one of the softkeys. As the machine is "multi-tasking" (of which more later) it is possible to move between the various functions without closing down the one you are currently working with.

A small amount of memory is used to maintain all functions "live" and, if you are short of memory, you can "switch off" any unwanted functions temporarily by simply moving the cursor to the function and pressing the DELETE key. When functions are switched off in this way, they cannot be accessed from softkeys.

Most functions have approx. 25% of the screen occupied with a real-time (analogue or digital) clock along with the date and name of the current

IPSO Review - 2

function. This can be switched off to make the whole screen available if you wish.

Keyboard

With the horizontal format Psion have - for better or worse - introduced a QWERTY keyboard for the first time on one of their pocket computers. The relative pros and cons of QWERTY v. ABC have been mentioned more than once in this newsletter, so I will not go into this aspect any further.

Although the keys have a layout designed for touch-typing, using all fingers, the size and spacing of the Series 3 keys do not allow the use of more than 2 or three fingers on each hand. However, this still means that I can type two to three times faster than I can on the Organiser.

The keys themselves are only average for a pocket machine - the Portfolio keys are better - and the key-click is so quiet (and apparently not adjustable) that it is impossible to hear the click unless you are in a very quiet environment. The space bar is quite noisy.

One curious feature is that, in trying to keep the Series 3 slim, they keys actually touch the screen when the machine is closed (and leave a set of marks). It seems that the small rubber pads which are supposed to hold screen and keyboard apart are not quite high enough!

Among the keyboard's better points, at last we have a more or less full character set available directly from the keyboard, through the use of SHIFT, CONTROL, and a new PSION hotkey, in various combinations. However, I cannot see why the keys do not correspond to those on a standard desk-top. The positions of quite a few keys are quite confusing.

Now a quick look at the built-in features:

System

This is the hub around which all other functions revolve. This is where all the common functions, such as opening, changing, deleting files. What

you notice from the start is that all of the options from the pull-down menus have quick versions by means of "hot keys". Users of FNKEY will not only recognise the term "hot key", but will be familiar with its operation.

On the Series 3, the first hot key is the bottom left hand one marked with the PSION icon. This works in conjunction with a single alpha key (which is usually the first letter of the function e.g. PSION+S brings up the SOUND dialog box so that you can decide whether to switch on or off any of the SOUND options.

While we are talking of sound, it is a pity that the speaker is on the underneath of the case. There are times when the sound is difficult to hear, especially if the machine is standing on a soft surface.

Other important features enable you to FORMAT SSDs (get used to this term - it stands for Solid State Disks, both FLASHPAKS and RAMPAKS), install or remove APPLICATIONS (another new term) to the top-level menu.

There is also a facility to allocate a password and choose whether or not to have it operating. This is quite clever, as it is a safeguard against any unauthorised person setting a password without the owner's permission. You can even enter details of the Owner (although it is doubtful whether this would persuade anyone who found a lost machine to return it!

DATA

In many ways the new DATABASE function is a significant improvement on those of the Organiser. In particular the size of files and records has been increased so that even the most detailed files can be maintained. However, there are some notable omissions (which you are expected to provide for yourself using the new version of OPL). For instance, there is no inbuilt provision to do multiple or wildcard searches. Nor is any SORT facility available, although a simple alpha sort on the first field is listed in the Programming Manual. A welcome move is the ability to write in PROMPTS (called LABELS) for each field.

IPSO Review - 3

Another handy feature is that Phone Number fields can be labelled with a "phone icon" which marks the field as available for the automatic touch-tone dialler, which is yet another new feature.

An unusual word-wrap is also part of the database, so that long fields do not disappear off the right-hand side of the display.

WORD

The new word-processor on this machine is going to be one of its major selling points. At this time, there is no other pocket machine with so powerful a program for handling text. Most have no facilities at all. WORD is so extensive that I am going to make it the subject of some full length articles later on, so suffice it to say at this point that, apart from the lack of a Spell-Checker/Thesaurus (promised later as an add-on) most of the features of a full desktop computer word-processor are included (even on-screen BOLD and ITALICS).

One quibble I have is the curious choice of Printer Drivers provided for relatively unknown printers, while a standard LASER Driver is absent. This means that my HP Deskjet+ has to be satisfied with the "General" driver (until someone writes another driver).

AGENDA

This is a new name to Psioneers. Agenda is an appointment diary system which also incorporates a "Things to do" feature. The new larger screen is used to full advantage by AGENDA, as it is possible to show a full month calendar and indications of the next two week's appointments at the same time. Full facilities are provided to cater for extended meetings, etc. plus alarms of various kinds.

TIME

This is the only function which remains "live" (unless it is removed from the Application Menu). It consists of a large clock (analogue or digital) and room for 4 alarms, which may be set as single

or the usual repeat options. The display also shows the time to the next alarm in hours and minutes.

WORLD

This option is the most spectacular to show off the Series 3 to others. The world map, with flashing cursor for the currently accessed city is very impressive, and the distance (as the crow/albatross/carrier pigeon flies) between your home base and your choice of alternative city is shown in miles. A nice feature here is the ability to enter new locations, complete with map co-ordinates and phone dialling codes.

CALC

The Calculator has been extended to handle all the scientific functions which were omitted on the Organiser. (It would have been nice to have had two-way BINARY, HEX and OCTAL features, à la CASIO, to make things complete!). CALC remembers your last few calculations until you decide to dispose of them with a New File command. One nice touch is that you can give names to the CALC memories. For instance you can allocate 1.175 to M9 and then name it VAT. Thereafter if you wish to add VAT to an amount you only need to type, for instance "100*VAT" <ENTER> to get the answer 117.50.

PROGRAM

The inclusion of OPL has set Psion Pocket Computers on a plane above all the opposition since the Organiser II was introduced. The new version of OPL has commands to make full use of the Series 3's GUI. I will be running a series of articles in IPSO FACTO to acquaint Series 3 users with the full programming potential of the machine in future issues.

Available Add-Ons

At the time of writing this, the only available add-ons are from Psion. It is too early to expect third party items to have appeared, although no doubt many people out there are beavering away to produce the first goodies. Just now the following

IPSO Review - 4 (etc)

are available from most good dealers:

Serial Link
Parallel Link
Mains Adaptor
Flash Paks
RAM Paks

There should be a Spreadsheet available in early January, and a note in the handbook hints at a Spell Checker/Thesaurus to integrate with the word-processor, which is no doubt in the pipeline. Also in the near future we are promised a CHESS program and a FINANCE PAK (both from Psion)

Conclusions

I like the Series 3. Psion seem to have got it about 99% right this time. The Series 3 is a kind of "pocket MC", with most of the facilities of the bigger machine. I wish that the keyboard was better - you have to hit the keys quite hard for them to register - but the rest of the machine is pretty good.

First Book on the Series 3

As we go to press, the first book on the Series 3 is announced by Kuma. It is called "First Steps in Programming the Psion Series 3" by Mike Shaw. The press release says "With this book, anyone - with or without previous experience - will be able to tap into the incredible programming power built into the Psion Series 3 Pocket Computer"

The book is available, initially, direct from the publishers:

Kuma Computers Ltd
12 Horseshoe Park
Pangbourn
Berks
RG8 7JW

Tel: 0734 844335
Fax: 0734 844339

and later from good bookshops and Psion Dealers.

The price is £14.95

A review of this book will be in a future issue of IPSO FACTO. Ed.

Using the 3Link Serial Interface

There are one or two "funnies" with the Serial Interface at the moment, so I am writing this little guide, based on my own experiences with the device, and not a little frustration in the first instance.

I loaded the 3Link software into my PC only to find that the main program, MCLINK, just would not work. Obviously, by its name, the program was originally designed for the MC. Anyway, my version either just "hung-up" or returned me to the system immediately.

Luckily, there is another program provided, called SLINK, although there is no mention of this program in either the handbook or on the disk. (Come on PSION, surely you could have provided a README file at the very least!) This program is very easy to use, being almost like the CL program on the Organiser. It is very easy to transfer files in both directions, once the protocols have been mastered:

Transfer to PC

1. Connect the interface to both Series 3 and PC
2. Make sure that the file you wish to transfer is CLOSED
3. Use the SPECIAL pull down menu on the SYSTEM screen to switch the REMOTE LINK to ON.
4. HIGHLIGHT the file you wish to copy by moving the cursor to it.
5. Access COPY FILE on the FILE pull down menu of SYSTEM screen.
6. At this stage run SLINK on the PC
7. Allocate filename against "To file" on the Series 3
8. Use LEFT or RIGHT arrow keys to access REM::C: as disk
9. Press <ENTER> to transmit file

Transferring a database from the PC is rather more involved. If anyone has any problem with this, they can phone me. I will be writing more on the subject of Comms for the Series 3 in later issues. Ed.

Series 3 Program

Scrabble Scorer by Mike O'Regan

If you own a SLICE and play SCRABBLE, then this little application will take most of the work out of keeping score. As you can see I have used the four names "Garry, Jenny, Ulla and Mike". Substitute your own names here, not forgetting to alter the initial letters and proc names to match. The program allows you to enter letters only and it then works out the score for each move, displaying this on the left of the screen. Note that PREMIUM LETTERS (double or triple) should be entered thus: triple Z as ZZZ, double Q as QQ. Double and Triple WORDS are scored by adding 2 or 3 after the letters. If all letters are used, add a STAR (*) after the letters. At the end of a game remaining letters can be deducted by entering as a normal score and adding a MINUS after the letters. As an extra, a small analogue clock has been added to the display. The application uses four of the 10 CALC memories and there is a ZERO feature. The letter input length has been calculated to allow for most word combinations and any unusual overlong combinations can be scored as two entries.

The program is not only practical, it also illustrates some of the new OPL/w GRAPHICS commands, which may help you to include these in your own programs.

```
APP SCRABBLE
TYPE 0
ENDA

PROC score:
global
s$(15),l%,sc%,opt%,k%,h$(7),a$(7)
STATUSWIN ON
SCREEN 30,9,1,1
GSETWIN 0,0,179,79
CLS
h$="GJUMSZQ"
WHILE 1
  mINIT
  mCARD "Scores","Garry",
  %G,"Ulla",%U,"Jenny", %J,"Mike",
  %M,"Score",%S
  mCARD "Utilities","Zero",
  %Z,"Quit", %Q
  k%=MENU
  IF k%
    a$="proc"+CHR$(k%)
    @(a$):
  ENDIF
ENDWH
ENDP

PROC PROCg:
dINIT "Garry"
dEDIT s$,"Garry's LETTERS"
DIALOG
totup:
m0=m0+1%
ENDP

PROC PROCQ:
STOP
ENDP

PROC PROCJ:
dINIT "Jenny"
dEDIT s$,"Jenny's LETTERS"
DIALOG
totup:
m1=m1+1%
ENDP

PROC PROCu:
dINIT "Ulla"
```

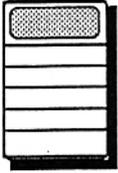
```
dEDIT s$,"Ulla's LETTERS"
DIALOG
totup:
m2=m2+1%
ENDP

PROC PROCm:
dINIT "Mike"
dEDIT s$,"Mike's LETTERS"
DIALOG
totup:
m3=m3+1%
ENDP

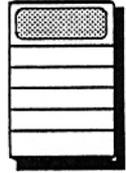
PROC PROCs:
CLS
gBORDER 3
AT 15,3 :PRINT "Garry", " ",m0
AT 15,4 :PRINT "Ulla ", " ",m2
AT 15,5 :PRINT "Jenny", " ",m1
AT 15,6 :PRINT "Mike ", " ",m3
PRINT
AT 15,8 :PRINT "Total", "
",m0+m1+m2+m3
GET
CLS
ENDP

PROC procz:
m0=0 :m1=0 :m2=0 :m3=0
BEEP 5,300
score:
ENDP

PROC totup:
LOCAL sc$(1),sl$(1),ct%
ct%=1
l%=0
DO
  sl$=UPPER$(MID$(s$,ct%,1))
  [IF sl$="A" OR sl$="E" OR sl$="I" OR
  sl$="L" OR sl$="N" OR sl$="O" OR
  sl$="R" OR sl$="S" OR sl$="T" OR
  sl$="U"]
  l%=l%+1
  ELSEIF sl$="D" OR sl$="G"
  l%=l%+2
  [ELSEIF sl$="B" OR sl$="C" OR
  sl$="M" OR sl$="P"]
  l%=l%+3
  [ELSEIF sl$="F" OR sl$="H" OR
  sl$="V" OR sl$="W" OR sl$="Y"]
  l%=l%+4
  ELSEIF sl$="K"
  l%=l%+5
  ELSEIF sl$="J" OR sl$="X"
  l%=l%+8
  ELSEIF sl$="Q" OR sl$="Z"
  l%=l%+10
  ELSEIF sl$="2"
  l%=l%*2
  ELSEIF sl$="3"
  l%=l%*3
  ELSEIF sl$="*"
  l%=l%+50
  ELSEIF sl$="-"
  l%=l%-(2*l%)
  ENDIF
  ct%=ct%+1
UNTIL CT%=LEN(S$)+1
PRINT l%
RETURN l%
ENDP
```



IPSO FACTO



Vol V

Dec 1991

No. 10

Editorial Office: 130 Stapleford Lane . Toton . Beeston . Nottingham . NG9 6GB
 Editor: Mike O'Regan Tel: (0602)___ 735482

*We wish all our friends at home
 and abroad
 A Merry Christmas and a
 Prosperous New-Year*

As 1991 draws to a close, it hardly seems possible that this newsletter has been going out to members in more than 45 countries for the almost 5 years, but it is so. The Organiser has built up a following of dedicated users, and long may this continue. There are many new owners who have taken advantage of the various Organisers on offer to either upgrade from a CM or XP to the Lizzy or buying one as their first Organiser. Whichever is the case, IPSO hopes to continue supporting the Organisers, in particular, and extending our support to the SLICE as things develop for the new machine.

CRISTY (of the floppy disk drive) have been in touch. They have not forgotten the Organiser - in fact they had a prototype which was shown at a recent pocket computer exhibition. Some Psioneer visitors to the show offered some constructive criticism (for which **CRISTY** are grateful) and the final system will incorporate the best of the suggestions. I will keep everyone informed.

File Translation Service

From Organiser data files to Series 3 or vice versa (no programs). Please send your datapak and/or flashcard and/or any size of disk to:

Neil Draycott
 168 Derby Road
 Denby DE5 8RD

Phone 0332 880663 9.00-17.30 (after Jan 5)
 Cost £10.00 (inc. return by next post)

Tales of Woe

I have had quite a few phone calls and letters about problems with the SLICE, just to balance all those who are "over the moon". The most common complaint is that the BATTERY LOW message appears for both the main and backup batteries. However, if this is checked, using <PSION

B>, the battery is seen to be good. A battery condition indicator is basically a good idea - if it works properly, otherwise it is worse than useless. This fault appears on the latest versions. There seem to be a number of faults connected with the 8 "softkeys" - from not working to the display disappearing altogether, particularly is the AGENDA softkey is pressed. Some of the "faults" are not true faults. The softkeys will only actually take you into a function if it is LIVE (i.e. in BOLD TYPE). If not, then the <ENTER> key must be pressed. Note that all functions, except TIME, can either be ON or OFF. More tips on using the SLICE will be in later newsletters.

STOP PRESS

Games Offer from HB

HB Computer Consultants have released a new Games Pak II, for the LZ. This is in addition to its already very popular Game Pak I (reviewed in Oct 1990). These games are written in Machine Code, and produce smoothly moving graphics. The new items on Games Pak II are **Poker**, **Bandit**, **Patience**, **Cubix** and **Robonim**. HB are offering BOTH paks with £10 off list price for Christmas. This offer is for order received before Christmas, so if you wish to take advantage call HB on 0279 600433, who will make every effort to have your paks delivered for Christmas. We will be reviewing Games Pak II in the January issue.

Contents

Beginners Pages	75
Procs & Progs	77
Machine Code	79
IPSO Reviews	80

Beginners Page - 1

by Mike O'Regan

Printers

I have had a few requests for information about suitable printers for both the Organiser and the Series 3, so here goes.

Why a printer?

Since my first involvement with computers (back in the misty '70s) I have always regarded a printer of some sort to be more or less essential. Printers can be used for a variety of tasks, from printing out program listings (an invaluable aid when developing programs and procedures), to printing out correspondence, labels, etc. Somehow it seems peculiar to have a machine which is capable of quite sophisticated word-processing and then not have the final link in the chain - the printer.

Types of Printer

Today the choice of printers is so great as to be bewildering, hence this article. Not only are there hundreds of printers available from many manufacturers, but there are quite a few different TYPES of printer, for various purposes. Let it be said at the outset that the Organisers (and Series 3) can drive *any* printer, from the smallest "till-roll" printer to the biggest Laser machine. I have successfully coupled my Organisers to many printers of all types.

Thermal Printers

These printers are usually made to work best with special thermal paper - indeed some (like the Psion Printer II) will not print on any other paper. This paper is quite expensive, compared with plain paper, as used by most other printers, and running costs are important considerations when buying any printer.

Some thermal printers use THERMAL RIBBONS to print on more-or-less plain paper. Output from thermal printers is about on a par with a dot-matrix printer operating in DRAFT MODE - in other words it is comparatively crude, with individual dots clearly visible. The only advantages of thermal printers are their quiet operation and low(ish) power consumption, which is important if working away from the mains for

long periods. I have mentioned that the Psion Printer II is a thermal device. This printer was designed specifically for the Organiser - it CANNOT BE USED WITH THE SERIES 3!).

A good example of a cheap, effective thermal printer is the EPSON P40, which is used by many IPSO members. It is suitable for both the Organiser and the Series 3. This printer is no longer produced, but comes up quite regularly on the 2nd hand market, at about £50. It uses the same type of paper as the Psion printer, but the quality of the printing is usually better.

Dot-Matrix Printers

These printers are, deservedly, the most popular types. Most are excellent value for money - from less than £100 upwards. Cheap dot-matrix printers usually have only 9 pins to do the printing, but nowadays most have a "near-letter-quality" (NLQ) mode, which gives better quality at the expense of some speed (the 9 pin head makes two passes to fill in the blank spaces between individual dots).

The attractive points with dot-matrix printers are their cheap running costs and their ability to use different types of plain paper. Most are supplied with a TRACTOR FEED - small toothed wheels which engage in the perforations of continuous paper. This can be by-passed so that single sheets of paper can be used. Many printers have a SHEET FEEDER available as an optional extra. This will take a stack of single sheets and feed them into (and out of) the printer automatically. This device can sometimes cost more than the printer itself! Ribbons for dot-matrix printers are quite cheap, and you can shop around for compatible ribbons, which are even cheaper. Ribbons are of two types - fabric and vinyl. Fabric ribbons are used over and over again until the print quality is no longer acceptable. Vinyl ribbons are used only once and then discarded. These produce a good black image which is sometimes lacking with fabric ribbons, except when they are new.

Inkjet Printers

These are relative newcomers in the printer market. The first inkjet printers were crude (and

Beginners Page ~ 2

quite expensive) but the latest models produce excellent output. This is for two main reasons. First, as the ink is squirted onto the paper from tiny jets, it is always top-quality, with none of the typical deterioration of a dot-matrix printer. The other reason is that the print head is actually part of a replaceable cartridge which contains the ink, so, each time you change the cartridge, you get a new print head.

Output from inkjet printers is comparable in quality to laser printers. Two drawbacks with inkjet printers are the cost of the cartridges and the lack of tractor mechanisms, which mean that you are restricted to single sheets of paper. The IPSO FACTO masters are produced on an inkjet printer (a HEWLETT-PACKARD DeskJet), so you can judge the quality.

Laser Printers

When laser printers first appeared they were *very* expensive. As with all popular computer peripherals the cost of the hardware has been dramatically reduced recently. However, the running costs are quite high compared with all other types of printer. Most laser printers need to have a large (and expensive) cartridge replaced after a set number of copies. Laser printers need to have their own MEMORY - typically 1 megabyte or more - as they print a whole sheet at a time (rather than line-by-line). A page of IPSO FACTO would require at least a megabyte of memory, as it is made up of 300 x 300 dots per inch graphics.

The TANDY CGP 115

This printer, which is now discontinued, is still seen regularly available 2nd hand and is a favourite with old-hand Psioneers. The CGP is different to all the above printers. In fact, strictly speaking, it is not a PRINTER at all. It's a PLOTTER, even when it is printing ordinary characters. Each character is "written" by a tiny ball-point pen. There are four such pens fitted to the CGP - in four different colours, each chosen by simple software commands. Printing (on 4 inch wide plain paper) can be in any of 60-odd sizes! and the direction can be changed to print along the length of the paper. Although the CGP itself is

no longer available, replacement pens are available from TANDY stores.

Portability - at a price

One consideration when choosing a printer for a pocket computer is whether or not the printer should also be pocketable. If you can do without carrying your printer around (and operating with no mains supply) your choice is much greater. The only printer which will fit in your pocket is the EPSON P40 mentioned above. It is about 8 x 5 x 1.1/2 inches, so you will still need a substantial pocket. Portable printers are usually quite heavy, because of the in-built NiCad cells.

Interfaces

The actual plugs, sockets, and associated cables which connect the Organiser to a printer (or another computer) are collectively known as the interface. Printers have two types of interface - SERIAL and PARALLEL. Most printers have a PARALLEL interface as standard, which is a bit awkward for the Organiser, which has only a SERIAL interface. However, one of our members came along and designed the PARALINK (which "fools" the Organiser into thinking that it has a parallel interface). This has long been the standard way of connecting the Organiser to a parallel printer. However, there is another option. The standard Psion Comms Link can be used with a SERIAL-PARALLEL CONVERTER (available from Transform). This is a good move if you wish to connect your Organiser to both a parallel printer OR another computer via the Comms Link.

Summary

As you will now be aware, there is no such thing as a single perfect printer for the Organiser. In a way, we are lucky in having a great choice of printers. Some of the opposition can only use a single printer made by the same company (and usually both restricted and expensive). Here at IPSO I have THREE printers, all of which are used with both Organisers and Series 3. They are the DeskJet and CGP 115 mentioned above and a rugged OLIVETTI DM100S dot-matrix printer which is used mainly for label printing.

Progs & Procs - 1

Yen

by Marcus Parker-Rhodes

The four arrow keys move you around a maze of squares. A black square blocks your way. A grey square can be passed through once, before becoming a black square. A HASH (#) can be collected to use as ammunition to clear a black square. This is done by pressing <MODE>, followed by the arrow key pointing to the block to be destroyed. The "C" key counts how much ammunition you are carrying (maximum of 5). Your start position is at the bottom of the maze. You must find your way to the top, collect a Yen, and go back down to the bottom line with it, to win.

```
yen:
[LOCAL sk%,fr%,amo%,
c%,k%lv%,r%,h$(1),n$(10),x$(29,
40),me$(1)]
[LOCAL a%,t%,ap%,p%,as%,
ts%,aps%,ps%]
KSTAT 1
n$="A:YENMAZE"
IF EXIST(n$)
  OPEN n$,a,x$
ELSE CREATE n$,a,x$
ENDIF
start::
me$="" :amo%=0 :sk%=0
x$(1)="***** YEN *****",
CLS :PRINT x$(1)
[k%=MENUN(2,"play,new
game,off,Easy game,QUIET")]
AT 1,4 :PRINT x$(1)
IF k%=0 :CLOSE :RETURN
ELSEIF k%=5 :quiet: :GOTO
start::
ELSEIF k%=2 :lv%=96
ELSEIF k%=4 :lv%=90
ELSEIF k%=3 :CLOSE :OFF :STOP
ELSEIF k%=1 AND COUNT=26
  FIRST :c%=1
  DO c%=c%+1
    x$(c%)=a.x$ :NEXT
  UNTIL EOF :GOTO play::
ELSE GOTO start::
ENDIF
CLOSE :DELETE(n$)
CREATE n$,a,x$
t%=1
DO t%=t%+1 :a%=0
  a.x$=CHR$(t%+$3f)
  DO a%=a%+1
    r%=RND*lv%
    IF r%>54 :h$=CHR$( $ff)
    ELSEIF r%=0 :h$=CHR$(35)
    ELSEIF r%<16 :h$=CHR$(245)
    ELSE h$=""
  ENDIF
  a.x$=a.x$+h$
```

```
UNTIL a%=38
  a.x$=a.x$+CHR$(t%+$3f)
  APPEND
  PRINT LEFT$(a.x$,20);
  x$(t%)=a.x$
UNTIL t%=27
PRINT"" :PAUSE 20
play::
x$(1)=REPT$(" Y ",5)
x$(28)=REPT$(" ",40)
x$(29)="Bring home a YEN"
x$(29)=x$(29)+REPT$("
",8)+x$(29)
a%=10 :t%=3 :ap%=1 :p%=26
top::
fr%=0
AT 1,1 :PRINT
MID$(x$(p%),ap%,20)
AT 1,2 :PRINT
MID$(x$(p%+1),ap%,20)
AT 1,3 :PRINT
MID$(x$(p%+2),ap%,20)
AT 1,4 :PRINT
MID$(x$(p%+3),ap%,20)
AT a%,t% :PRINT me$;
as%=a% :ts%=t% :aps%=ap%
:ps%=p%
IF t%=3 AND p%=26 AND
me$=CHR$( $be)
  sk%=sk%+1 :amo%=amo%+1
  [PRINT
CHR$(23);REPT$(CHR$(16),16),"
YOU HAVE WON",sk% :GET]
  me$="" :GOTO top::
ENDIF
kbd::
k%=GET
UNTIL KEY<2
IF k%=1 :GOTO start::
[ELSEIF k%=2 AND amo%>0 :fr%=1
:BEEP 5,555 :GOTO kbd::]
ELSEIF k%=3
  IF p%=1 AND t%>1 :t%=t%-1
  [ ELSEIF t%=2 :t%=3 :p%=p%-1
:ts%=t% :ps%=p%]
  ELSEIF t%=3 :p%=p%-1
  ENDIF
ELSEIF k%=4
  IF p%=26 :t%=3
  [ELSEIF t%=3 :t%=2 :p%=p%+1
:ts%=t% :ps%=p%]
  ELSEIF t%=2 :p%=p%+1
  ELSEIF t%=1 :t%=2
  ENDIF
ELSEIF k%=5 AND a%>2
  IF ap%=1 OR a%>7 :a%=a%-1
  ELSEIF ap%>1 :ap%=ap%-1
  ENDIF
ELSEIF k%=6 AND a%<19
  IF ap%=21 OR a%<14 :a%=a%+1
  ELSEIF ap%<21 :ap%=ap%+1
```

Progs & Procs - 2

```

ENDIF
ELSEIF k%=%C
  AT a%,t% :PRINT amo% :GOTO
kbd::
ELSE GOTO kbd::
ENDIF
c%=p%+t%-1
k%=a%+ap%-1
h$=MID$(x$(c%),k%,1)
IF h$=" " :GOTO top::
ELSEIF h$=CHR$(255) AND fr%=1
  fr%=0 :h$="." :amo%=amo%-1
  PRINT REPT$(CHR$(16),5)
ELSEIF h$=CHR$(255) :BEEP
20,20
  a%=as% :t%=ts% :ap%=aps%
:p%=ps%
[ELSEIF h$=CHR$(245)
:h$=CHR$(255) :BEEP 5,96]
[ELSEIF h$="Y" AND me$=""
:h$=" " :me$=CHR$(be) :BEEP
96,96]
[ELSEIF h$=CHR$(35) AND amo%<5
:h$=" "]
amo%=amo%+1 :BEEP 96,96
ENDIF
[x$(c%)=LEFT$(x$(c%),k%-
1)+h$+RIGHT$(x$(c%),40-k%)]
GOTO top::

```

Please note that some of the lines in the above program are too long to fit on a single column line. Such lines have been marked with square brackets [] at each end of the line. The square brackets are not part of the listing, and you should not enter them (even if you can!) Ed.

A Suite of TIMER Programs for the Organiser by Jamil Siddiq

These programs are designed to calculate hours worked in a FLEXITIME situation. The user simply enters the time in and time out for both morning and afternoon and the program returns the time worked. Times are entered in a pseudo-decimal form, so 9.30 am is entered as 9.30 and 2.30 pm as 14.30. If you have a whole hour (like 9 o'clock) then you can simply enter 9. The program loops allowing more than 1 calculation and to quit simply press <ON/CLEAR>. I used the machine code routines to save and restore the screen to allow the user to go back to an input if he had to. TOTHRs is another program which simply adds up the daily time totals to give a cumulative total of hours worked. Again, the time would be entered using a decimal point to separate minutes from hours. SECS is a sub-routine which converts time in hours and minutes, separated by a decimal point, into seconds. This could be used by other programs. TIME reverses this process, by taking times in seconds and converting them into hours and minutes, separated by a decimal point.

```

numin:
LOCAL x,g%,g$(1),ss%(2),sb%(2)
ss%(1)=$3F13
ss%(2)=$3900
sb%(1)=$3F12
sb%(2)=$3900
inp::
USR(ADDR(ss%),0)
TRAP INPUT x
IF ERR
  CLS
  PRINT"ENTRY ERROR!"
  PRINT"<R>etry <Q>uit"
DO
  g%=GET
  g$=UPPER$(CHR$(g%))
  UNTIL g$="R" OR g$="Q"
  IF g$="Q"
    STOP
  ELSE
    USR(ADDR(sb%),0)
    GOTO INP::
  ENDIF
ENDIF
RETURN x

```

```

addrhs:
LOCAL i(4),d(4),td,t,g%
DO
  PRINT"HOOR-CALCULATOR"
  PRINT"AM. IN >"; :i(1)=numin:
  d(1)=secs:(i(1))
  PRINT"AM. out >"; :i(2)=numin:
  d(2)=secs:(i(2))
  PRINT"PM. in >"; :i(3)=numin:
  d(3)=secs:(i(3))
  PRINT"PM. out >"; :i(4)=numin:
  d(4)=secs:(i(4))
  td=d(4)=d(2)-d(3)-d(1)
  t=time:(td)
  PRINT"Duration=";FIX$(t,2,5)
  g%=GET
  UNTIL g%=1

```

```

tothrs:
LOCAL h,s,ts,ct,g%
CLS
PRINT" *TIME-TALLIER*"
DO
  PRINT"HRS>";
  h=numin:
  h=secs:(h)
  ts=ts+h
  ct=time:(ts)
  PRINT"Cum-Tot>";
  PRINT FIX$(ct,2,6)
  g%=GET
  UNTIL g%=1

```

```

secs:(ti)
RETURN 60*INT(ti)+100*(ti-INT(ti))

time:(du)
LOCAL iv
iv=INT(du/60)
RETURN iv=(du-60*iv)/100

```

Machine Code Page

by Neil Draycott

When IPSO FACTO goes to press I will be thousands of miles away trying to avoid Terry Wogan, The Sound of Music and all the other trappings of Christmas, consequently this months offering was written *very* quickly.

Replies to recent enquiries.

I response to RENATO BUZZI's interesting letter from the PSITALY group:- It is not possible to change the actual sound used for alarms on any Organiser because the alarm sound is part of the Psion programs recorded on the internal ROM to which it is impossible to write. Some functions of the Organiser *can* be redirected to run your own programs, these include the keyboard controller and key translator, the OFF routine, the TRAP routine, the RESET routine and many others (all outlined in the Technical Reference Manual or Bill Aitkens book) but not the actual alarm sound. In order to back-up your alarms have a look at PEEKB(\$22F9) to PEEKB(\$2328). This is where the alarms are stored (6 bytes per alarm - I'll let you sort out what each byte represents). On the subject of the Organiser's accuracy try the following calculation:-

1.0000001**(2**27)

The result should be 674530.469953 but the Psion is out by several hundred! This is a function of the way numbers are stored and manipulated by the Hitachi chip and nothing can be done about it other than including checks within your software. Incidentally the Series 3 can cope with numbers much better and also includes long integers and much larger floating point numbers.

On the subject of the Series 3 I have now crashed mine 3 times without resorting to any machine code. Is anyone else experiencing such problems? *they sure are! Ed.*

To reply to JAMIL SIDDIQ:- Probably the neatest way to run machine code programs is via the use of "cells". An outline of the way this works is:-
Open a new cell (interrupt number 1).

Grow the cell big enough to include all your machine code (interrupt 2).
POKE the machine code bytes into the cell (it's address was returned by int 1).
Prepare to save the cell (interrupt 37).
Save the cell as a block file of any type to any Pak (interrupt 97).
Free the cell (interrupt 0).

To run a program saved in this manner:-

Open the block file (interrupt 36)
Open a new cell.
Grow the cell big enough to hold the contents of the block file.
Read the block file into the cell (interrupt 94).
Redirect the operating system to the cell (USR or USR\$)
Free the cell.

I have had several enquiries related to hardware interfacing of the top slot or one of the DataPak slots which I'm afraid are a little beyond my experience (my head is already overloaded with programming rubbish). Perhaps there is someone out there who could write a few lines on the subject for IPSO?

Lastly BOB BLACK was having difficulty loading a bit map image into a window in his Series 3. The correct method is:-

```
x%=gLOADBIT(filename)
y%=gCREATE(1,1,100,50,1)
[gUSE y% REM This line
not always required.]
gCOPY(x%,100,50,1,1,0)
GET
```

(Sorry Bob it worked first time for me!). The trick is to remember that the id number for bit images cannot be used in other types of drawables.

Again on the subject of the Series 3, I will be publishing any Machine Code news for the Series 3 as I get it. I am currently programming the HC (a very similar machine) using the Psion C developer which contains a great deal of technical information which might be of use within the Series 3. Has anyone has any information on the Series 3 and MC?

Neil will be on holiday until Jan 5 1992.

IPSO Review - 1

First Steps in Programming the Psion Series 3

by Mike Shaw

One thing you can say about Kuma is that they don't hang about when it comes to producing books for Psion computers. This book must have been in preparation *before* the Series 3 was released. The author says at the start that the machine used for the book was OS Version 1.58F (so is mine, Ed). There are notes at various points in the book which say that future versions may change how the machine handles various OPL functions. (At the time of writing this the current Operating System is V1.77F).

The new version of OPL in the Series 3 certainly needs a book to explain many of the new features, especially the GRAPHICS side of things, which is something completely new to previous Organiser users. One thing is rather sad in this respect and that is the disappearance of the UDG. A full set of programmable UDGs would have made graphics programming much simpler for many applications.

This book is divided into 25 chapters, called "Steps". Those who are already experienced in OPL programming can skip Step 1, and most of Step 2, but I would recommend that they study the other Steps, at least where there are major differences in OPL. The book is, of course ideal for first-time owners who can work through the book, from first principles to quite advanced programming concepts, all amply illustrated by example procedures. Unfortunately, some of the programs have bugs - I have not had time to check them ALL out at the time of going to press, but I will try to do this at a later date.

This book is quite a hefty volume (some 304 pages) and its three main sections, named The Basics, The Graphics, and Files & Data Handling have all been given pretty thorough treatment. To give you a good idea of the contents, I will now list the various Step (Chapter) headings:

Part 1 The Basics

1. How does it all work

2. Let's get started
3. Planning the program
4. The variables
5. The maths of programming
6. From keyboard to screen
7. Making decisions
8. Going round in circles
9. Strings & things
10. Converting variables
11. Mathematical functions
12. Dates & times
13. The sound of music
14. Errors & bugs

Part 2 The Graphics

15. Putting you in the picture
16. Creating menus
17. Time for a dialog
18. Formatted text
19. Drawing things
20. Windows & bitmaps
21. Clocks

Part 3 Files & Data Handling

22. All about files
23. Database principles
24. Database management
25. Handling files

EPILOG The last words

First Steps in Programming the Psion Series 3 costs £14.95 and should be now be available from good Psion dealers, bookshops, or direct from the publishers:

Kuma Computers Ltd
Unit 12, Horseshoe Park
Pangbourne
Berkshire RG8 7JW

Psion Wordcall Pager

Psion have recently released the long-awaited Pager for the Organiser. Below is a short evaluation written by John Scanlon.

The Psion Pager is almost identical in size to the Paralink, including power socket, and plugs into the top expansion socket.

IPSO Review - 2

Upon switching on you are presented with an extra option at the top level menu "PAGER", upon selecting pager, with on/clear which will inform you of the status of the pager. By pressing the exe key you are presented with a second menu, with a selection of 9 options.

Browse On Off
Auto Quiet Sound
Info Clear Setup

Browse: Browse through messages that you have received.

On: Switches on Pager overriding the automatic on/off control.

Off: Opposite of above.

Auto: Switches Pager back to automatic on/off control.

Quiet: Quieten all sound when messages arrive (handy in meetings) can be overridden so that priority messages will still bleep.

Sound: Switch on sound for all messages

Info: Information on number of messages received, and amount of free memory left to receive further messages.

Clear: Clear all the messages out of the message space, by filing them in a log file, putting them in the diary, putting them in the data file with other records or erasing them

Setup: Setup how Pager works, ie what times to switch off and on, what days to come on, days to stay off, which messages receive priority.

Messages are received as long as the Pager is fitted to the Psion, and is set to on, even if the Psion is off. The Psion switches on automatically when a message is received.

Messages may be up to 80 characters in length, and can be sent in many ways, via the Bureau Service or direct if you have access to a DTMF telephone or keypad and even via a computer with either a modem or telex attached.

When you receive the Pager complete with a 48 page manual which covers all the information you require to set up and operate the Pager, including a section on using OPL with the Pager, you also receive a form to subscribe to the Vodapage network, which you have a choice of which area of the network you wish to be able to receive messages in, having filled it in you return it your payment and wait for authorisation in the form of a subscriber number.

It was at this point, I had a spot of trouble, as the Pager I was issued with was the first off the production line it failed to connect to the Vodapage network. All credit to Psion here, on this discovery they phoned me informed me of the problem and

arranged for a replacement for the following morning, by which I mean it arrived by Business Post before 9 am, Psion then arranged for a message to be sent to verify that all was well, the second one worked fine.

I have now be using this Pager now for about ten weeks, and has been in use every day with an average of 20 messages a day, in which time only one message has been received corrupted, due to low power.

The advantages over other communication systems have become apparent over this period of time, as I work as mobile Computer Engineer, extensively in the South East, are unlike the prohibitive cost of a mobile phone which was prone not to be able to receive in the city of London because of tall buildings etc, and over other pagers is the ability of the Psion Pager to be able to move messages received into other applications which saves a great deal of typing.

This is just a very brief outline of the capabilities of the Pager. If anyone wishes to find out more before considering purchasing one they may either write to address enclosed or phone me on 0276 76024 reasonable hours! or page me by phoning 0399 1133 and quoting subscriber number "769415".

The only drawback to having the pager connected is that it can consume a great deal of power, also coupled with the fact that I make extensive use of the comms link and the paralink during the day. It was possible to drain a Duracell flat in less than 4 hours. This is rather excessive use compared to other users, it was for this reason I changed to *NiCad*s, and power adapters, one fitted in my van via the lighter socket, plus a mains adapter, and of course a spare *NiCad*.

During testing with average use with the pager connected it is possible to get 4 days life from the *NiCad* before charging was required.

Listed below are the items I use purchased from Maplins.

HW31J <i>NiCad</i> S PP3	6.25
YB23A AC ADAPTER	8.95
YN27E <i>NiCad</i> CHARGER	9.95
JY53H CAR ADAPTER	6.95

The Psion Wordcall Pager costs £169.95 (or less) - including VAT, etc.

IPSO Review - 3

Justex Word-Processor reviewed by Mike O'Regan

Justex - named for "justified text" is a new word-processor for the Organiser. As the name suggests, it is possible to have text which is justified at both ends of the line. The program also easily allows TABs to be set and used.

Justex comes on a 16k datapak, which features two versions - a two line one for the XP and a four line one for the Lizzy. The appropriate header program, either JST or JSX, must be entered manually on the top-level menu. Thereafter, it is only necessary to fill in a filename and then text can be entered.

Before entering text, if you want to enable the justified mode, it is necessary to enter J (JUSTIFIED then flashes on the display). The default mode is UNJUSTIFIED.

You can also set the line length (for printout), anything from 1 to 200 characters.

It is easy enough to enter text, once the absence of word-wrapping is accepted. The only niggling point is that there is no easy way of producing single Upper case letters - it's the SHIFT-CAP-LETTER-SHIFT-CAP sequence we all know. This is a case for using Tony Poole's KEYB2, which works very well.

The TAB function, which allows TABs to be set (and changed) for any position on the line is excellent for any column work. The example in the manual illustrates this quite well. There is an ingenious method of obtaining extra characters not normally available from the standard Organiser keyboard. The way this is done is to enter TWO of each designated character - for instance ",", (two commas) will produce "" (one apostrophe), "\$\$" (two dollar signs) make a "£" (pound), etc. You can reset these keys to give you other characters of your choice, including UDGs! (I can't see the point of this, as UDGs will not print out - the characters are used by printers for other purposes).

When you have finished a paragraph, pressing <ENTER> formats and saves the paragraph.

Justex has various other facilities, such as editing, cut-and-paste, centring lines, altering line lengths, and, of course, printing out the written text.

A general printer driver is included, and there is provision for writing a driver to suit your printer, if you wish. There are, however, no instructions in the manual to tell you how to do this.

Justex is available to IPSO MEMBERS at a special introductory price of £38 (inclusive). MHS offer, in addition, a full money-back guarantee, if not satisfied, within 28 days.

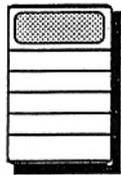
Justex is published by:

MHS
Box 449
2 Old Brompton Road
London SW7 3DQ

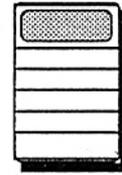
A New Service for Members

For a little while now, I have been operating a "For-Sale & Wanted" service for members. This takes the form of databases, which I keep on the Series 3. The service works as follows: Members inform me of the items they have for sale, or items they require. I keep details on my database, which is immediately accessible. Members can PHONE me at any time, if they are looking for any particular item, and I can tell them what is available. This has worked very well so far, with members who are selling items being able to find buyers much quicker than the old system (of publishing them in IPSO FACTO). A further advantage is that we don't take up valuable space in the newsletter with ephemeral items. There is one point I would like to make clear. Will those who are selling items please let me know when they are sold, otherwise I will keep sending them an infinite number of potential customers!

Mike O'Regan



IPSO FACTO



Vol V

Jan 1992

No. 11

Editorial Office: 130 Stapleford Lane . Toton . Beeston . Nottingham . NG9 6GB
Editor: Mike O'Regan Tel: (0602)___ 735482

Editorial

A Continuing Tale of Woe?

I am still getting a steady stream of horror stories about the SLICE (Series 3). It seems that, even after a few tries, Psion have still not got it quite right. Even some V1.77 machines are suffering from apparent hardware faults. Screens are reported as having display breaking up and suffering from Newtons rings. Softkey strips are either not operating at all or, in the worst cases, falling off. And the "Battery Low" messages are still giving duff information.

What is not certain is what proportion of the new machines are faulty. Although I have had a few letters of praise for the Slice, it could be that there is a silent majority out there who have faultless machines. Please use your Renewal Form to let me know if your SLICE is OK.

Personally, although my (V1.58) machine is giving me the "battery low" message, it is otherwise behaving impeccably. The whole of this newsletter, apart from the Machine Code Pages and the programs, was written on my SLICE!

It's Renewal Time Again

With this issue you will have a Renewal Form for the new year starting in March. As usual, I would ask you to renew promptly so that I can plan properly for Volume VI.

I would also like to assure Organiser owners that we will continue to support all models, from CM to LZ64, as long as there is a need. At the moment, there is not sufficient material for the Slice to make a separate newsletter possible, even if this is

desirable. Many Slice owners have retained their Organisers and there is clearly a need to support both machines at present.

Please note, also, that I have not increased subscriptions this year. It can only be hoped that there is not another substantial increase in postal rates during the year!

For Sale & Wanted Service

After my message about our FS & W database service in the last issue I have been inundated with phone calls connected with this. I am not complaining about this, as I consider it is all part of the service. However, I would ask members to try to phone during normal office hours where possible. New members may not realise that IPSO is a full-time business for me and are then thinking that I welcome calls late at night, even on Sundays. I would welcome your co-operation on this matter.

Contents

Beginners Page	84
Progs & Procs	85
Machine Code	86
IPSO Review	88
Page THREE	89
Produce News	91

Beginners Page

by Mike O'Regan

MORE ABOUT DATABASES

If you do nothing else at all with your Organiser, you probably use the database. Some people have been using SAVE and FIND for years without even realising that they are actually using a database. Maybe this is how it should be - with a system so simple and helpful that it isn't even necessary to mention difficult concepts like "database".

On any other computer it is usually quite obvious what is going on. Most databases require quite a lot of preparation before you can enter a single record. Some useful databases require you to master the equivalent of a new language before you can do anything significant.

Not so the Organiser. It is possible to enter data as soon as you have switched on for the first time. In fact data entry (SAVE) is so simple that it is possible to enter a lot of rubbish in a relatively short time, as I am sure you will all have found out!

From time to time, in these columns, I have stressed that it is best to have some kind of plan before you enter your data. For instance if you are entering names and addresses and you stop to think for a moment you may realise that the ORDER in which you enter the information can make the data much easier to read later. You can put the FIRST NAME and SURNAME in the first field (line), but it is generally a good plan to put the TELEPHONE NUMBER on the next line (before the rest of the address, if you keep it). This means that you can see NAME and PHONE NUMBER immediately you find it - even on a two line machine.

Using Wildcards

Wildcards seem to have had a fleeting life as far as Psion is concerned. The early models (CM and XP) couldn't handle them. Then came the LIZZY which could. Now we have the Series 3 which can't. I can only deduce that Psion have decided it isn't worth the effort.

If you have never used a wildcard with FIND, here's how they work. If you can remember part of a clue, for instance if you are looking for something beginning with L and ending in DS, but you can't remember the letters in between you can enter FIND L++DS, which will find all occurrences of LEEDS, LEADS, LENDS, etc.

Personally, I think that this is a handy feature to have available. If you use **'s instead of ++'s, you don't even have to know the right number of letters in between!

MULTIPLE SEARCHES

This is another feature of the LZ which is missing from the CM, XP and SLICE. This is not to say that such searches are impossible on those machines - just that some programming is needed to achieve them. Multiple searches mean that you can, for instance FIND all the LADIES in your database who live in LONDON and are single. This really is a useful feature, which only normally appears on quite powerful database programs on equally powerful computers.

SOME USES FOR DATABASES

This first one was first done for the Organiser by Neil Draycott, and while the data is simple, it is a valid and useful job for a database. This is a list of telephone dialling codes, along with the exchanges which they represent. I find this handy to check on adverts appearing in various magazines where only a phone number is given.

Another database of this type is a lexicon for one or more foreign languages. For this it is only necessary to enter the various words, so, for instance, if you enter:

STREET
STRASSE
CALLE
RUE

you can get the words for STREET in German, Spanish, and French. Of course, this works from the other languages also, so a French speaker can enter RUE and get the translations in the other three languages.

I hope this has given you some ideas to extend the use of FIND and SAVE without the need to write any programs. Next month I will look at some simple OPL routines to extend these facilities even further.

In the meantime, let me know if you have an unusual use for your database.

Progs & Procs

First an apology. There was a line missing in the excellent YEN game last month. I don't know what happened to it. Anyway, if you insert a DO on the line before "kbd:." (about half-way down column 2, page 77) the game will work. However, please do not choose the QUIET option from the Menu - the Author did not include the "quiet." procedure.

Xerox

LZ Only

by Marcus Parker-Rhodes

Many photocopiers will enlarge and reduce within a limited range in increments of 1%. This program will calculate the increments necessary to enlarge or reduce from one measurement to another.

On first using the program, input the maximum and minimum percent your machine will enlarge and reduce to. These figures are stored together in CALC memory 7

FROM> input the present measurement
TO> input the desired measurement

The program will display the percentage necessary to convert the first measurement into the second measurement. If the second measurement is too large or too small, the number of copies at the maximum or minimum setting, plus any extra, is displayed

```
xerox:
[LOCAL
cp,to,ans,MAX%,MIN%,xta%,USE
%,tot$(5),k%]
IF m7>99999 OR m7<14100
mem::
[CLS:PRINT"(Stored in
CALC 7)"]
PRINT"Maximum"
PRINT"Minimum"
AT 9,2:TRAP INPUT MAX%
IF ERR=206 OR
MAX%<100:RETURN
ENDIF
AT 9,3:INPUT MIN%
m7=(FLT(MAX%)*100)+MIN%
```

```
ELSE MAX%=INT(m7/100)
MIN%=m7-(FLT(MAX%)*100)
ENDIF
top::
xta%=0
CLS
[PRINT MIN%;"%;CHR$(127);
REPT$( "-",11);CHR$(126);
MAX%;"%;]
PRINT"COPY>"
PRINT"INTO>"
AT 7,2:TRAP INPUT cp
IF ERR=206:RETURN
ENDIF
AT 7,3:INPUT to
IF to=0:RETURN
ENDIF
CLS:PRINT"Copy",cp,"to",to
ans=to/(cp/100)
tot$=FIX$(ans,0,5)
IF ans>MAX%
DO xta%=xta%+1
cp=cp/100*MAX%
ans=to/(cp/100)
UNTIL ans<=MAX%
USE%=MAX%
ELSEIF ans<MIN%
DO xta%=xta%+1
cp=cp/100*MIN%
ans=to/(cp/100)
UNTIL ans>=MIN%
USE%=MIN%
ELSEIF cp>to:USE%=MIN%
ELSE USE%=MAX%
ENDIF
ans=VAL(FIX$(ans,0,5))
IF ans=100
ELSEIF ans<>MAX% AND
ans<>MIN%
[AT 1,3:PRINT"1
at",FIX$(ans,0,4);"%"]
ELSE xta%=xta%+1
ENDIF
ENDIF
IF xta%>0
AT 1,2:PRINT
xta%,"at",USE%;"%"
AT 1,4
:PRINT"Total",tot$;"%"
ENDIF
k%=GET
IF k%=1:RETURN
ELSEIF k%=2:GOTO mem::
ENDIF
GOTO top::
```

Machine Code Page - 1

by Neil Draycott

As the price of personal computers continues to fall many members are now using the PC as an extension of their Organisers (and even Series 3's), so perhaps a few comments on the relationship between the two would be relevant to those having just acquired a PC in the Christmas consumption or contemplating extending their computing power.

First a word of warning: COMPUTING IS ADDICTIVE! There never seems to be an end to the amount you can learn. All software requires time to become familiar and programming is only limited by your imagination. The combined result of these factors means you will not see your wife, husband, son, cat, TV or the local public bar as often as you used to unless like myself you manage to make a living from the electronic devils.

The first essential software to install is the Psion COMMS Link (or 3-Link or LINK depending on your Psion) supplied on disk with the relevant cable. As far as the COMMS link software is concerned a close study of the handbook is recommended. I receive many calls from folk who don't realise the potential of the COMMS software. You can import directory lists from a PC, create binary files on the PC (for producing compact back-up files?), read the contents of any file on the PC from the Organiser, have your Psion automatically switch on and store any incoming electronic mail, import/export ANY type of file or even use the Organiser keyboard in place of the PC keyboard.

Several OPL commands are added to the Psion via the use of the COMMS link and a machine code supplement is available from Psion covering the COMMS link software.

Accessing the COMMS driver device in the Organiser via machine code is very easy. One vector address is used for all calls and selection between them is made by setting a flag.

For both OPL and machine code programmers the Psion Developer is another very handy piece of software. For the OPL programmers it contains an emulator that allows OPL to be written on the PC with all the usual advantages (full 18 lines

shown at once, automatic indentation, search and replace facilities, on-line help etc.) and the produced programs can also actually be run on the computer in a little window that looks like the screen of an Organiser.

The ability to de-bug a program step by step and to follow the values of each variable (or even just list the variables used) is also included. For the MC programmer several utility programs are included that allow Datapaks to be dumped down byte-by-byte to the PC (and vice versa) and a program to allow Pak images to be built up with combinations of binary MC code, OB3 code, files and even Pak headers.

I use a shareware hex editor to then edit the produced files. This gives me direct control over EVERY byte in a DataPak and allows me to build bootable Datapaks that install my own devices into the Organiser when I press CLEAR or allows me to produce RamPaks that automatically back-up the A: drive during a system crash.

The ability to produce DataPaks that automatically install their own devices is essential for writing commercial quality programs, but a device (such as the COMMS or DICT software) must be written in RE-LOCATABLE machine code (code that only uses relative branching instructions and contains a list of all the branching codes so that it can be positioned anywhere in RAM and the list amended with the actual branch instructions. Lists of checksums and code lengths must also be included).

Although this can be performed manually it is much less error prone to use the Psion Assembler. Incidentally, I have tried writing machine code to produce bootable Paks without using a PC with only limited success (the system timer keeps getting in the way when writing the Pak header during "SIZING"). Has anyone managed to write to a Pak without using interrupts?. A prize is offered for the first submitted.

Apart from the very limited instructions, the Psion Assembler is the best bit of PC software available for the Organisers (after all the Diary, Alarms etc. were written using it). The Assembler will take a text file of instructions such as "LDA

Machine Code Page -2

A^#2" etc and produce binary or .OB3 or relocatable code for direct export to a Pak or into the RAM of a connected Organiser.

The software also contains a de-bug option that can directly "un-compile" parts of the Organiser RAM or any binary file. Using the later option I have downloaded the source code for the COMMS plug, the entire LZ operating system and the Spellchecker (surprisingly the spell-checker contains no actual words, the entire dictionary is encoded into bit patterns).

The instructions available with the Assembler are the briefest possible (and contain errors!), the best instruction comes from following the many examples given in the XP/LZ/COMMS Technical Reference Manuals, these are only available on disk from Psion (and they now charge for them) but can be printed out if you have the patience (and paper). With each disk of the Reference Manuals comes header files that can be incorporated in the Assembler to allow variables to be named instead of searching for actual addresses and also many examples that can be directly removed and used in the Assembler, it makes for fascinating reading and is an endless source of inspiration for new programming projects.

Through necessity I also now use the Psion C compiler, an expensive but very professional programming environment for the HC and Series 3 machines. Some of the utilities included with the kit include a program that can reduce images from desk top publishing software or CAD systems into bit maps for the HC or Series 3 screen (probably how the world map got in there) and file translation programs to convert between the various Psion formats.

The connection software supplied is top quality and allows operation from either end. The advantage of using C compilers is apparent in program size, on my Series 3 even a relatively small program very quickly comes up with "Out of system memory" errors and some of the programs happy to run on my XP come up with the same error on a Series 3.

In order to expand the scope of this page I will

welcome any listings of programs suitable for the Assembler (the source code makes interesting reading!) or even in C for the HC/Series 3.

Neil Draycott
Phone: 0332 880663 (09.00 - 17.30)

For Sale

Amstrad PC1512 (upgraded to 1640)
with 32MB hard disk added
1 extra 5.25" internal and 13.5" external floppy drive
Complete with Word-Processing Software
Psion Developer, Psion Comms, Psion Assembler
Psion Tech Ref Manuals (XP/LZ/COMMS)
Many other extras, incl. manuals etc.
Very good condition £450 ono

Apply to Neil Draycott on the above number

Hewlett-Packard Palmtop Computer
as new, in box with manuals
only a few weeks old
£350

Apply to Ian Nichols on 081 441 7954 (home)
or 081 945 2819 (office)

Sharp PC1360 Pocket Computer
c/w CE 126P Printer & Cassette Interface
£40 the set

Apply to David Wickers on 081 301 4766

For Sale & Wanted Service

Please note that the above items are only included because they are **non-Psion Items**.

The **For Sale and Wanted** database is going very well, with most prospective buyers and sellers exchanging equipment within days of submission. May I remind you that there are still people looking for XPs and LZs, so if you have any for sale let me know.

IPSO Review

HB GAMES 2

If you read my previous review of HB Games 1, you will have an idea that these paks are something special. I never cease to wonder what can be done with the Organiser's display when machine code is used for graphics.

As I mentioned last month, there are 6 games in the package (oops I only mentioned 5). All the games supplement those on HB Games 1. Let's have a closer look at the individual games.

STACKER

This is an excellent version of the very popular PC game *Tetris*. For those who are not familiar with the game it is deceptively simple. The idea is to fit together a large number of odd shapes. The game generates its own shapes at random and starts their journey across the screen. It is up to the player to fit the shapes together when they meet. To do this the <UP> and <DOWN> keys move the shape up and down and the <SPACE> key revolves the shape.

To say that this is all there is to the game is to play down its appeal. This game is definitely addictive - I have had to prise my wife off the machine in the early hours several times.

POKER

A graphic version of Poker, where you play the Organiser without the risk of using any real cash. The display has a good representation of the cards and, although I am not a poker player, I can see that it plays a good game.

BANDIT

This is a good fruit-machine game. As in real-life, there is not much that can be done to affect the outcome, but the normal nudges and holds are available. The sound is very realistic!

PATIENCE

This is one of our favourites. Very ingenious programming has enabled all the features of classic Patience to be included. The cards are very well

shuffled each game and it is quite difficult to finish a game.

We have a Patience game on our PC, but my wife prefers the Organiser version (thank goodness).

CUBIX

This is the most difficult of the games, but is nevertheless quite addictive. If you haven't got a Maths Degree when you start this game you will soon have one (or go crazy).

ROBONIM

I am a NIM fan, I must admit. Back in the distant past I actually wrote a version called NIMBLE for the Hewlett-Packard 41c, which is still available from their library.

NIM (for the uninitiated) is probably the first game which was successfully run on computers. There are many versions, but the HB version is a multi-pile game. The object is to play the computer by removing a number of objects from a row, with the winner being the last one to take (in this case) a robot. The game is very good and I only managed to win about a quarter of the games.

I would have liked to have the option of forcing the Organiser to take first, thus reducing the odds.

All games keep a "highest score" and there is an option to switch off the sound (including some tunes). All in all I would say that our favourite is STACKER, although it is nice to be able to try something less hectic from time to time.

HB Games 2 is thoroughly recommended. It costs £38.48 and is available from:

HB Consultants
Freepost
Sawbridgeworth
Herts CM21 9BR

Telephone Orders: (0279) 600433
Access/Visa/Mastercard

Page 3a

Slice News

Honours showered on Series 3

After the American BYTE Magazine named the Slice "best overseas product", this was followed up by Personal Computer World awarding "best Gadget" (whatever that means - I think the category was dreamed up especially for the Slice!). Then came What Micro, who judged the Slice to be the best of the top ten pocket computers (these included the Poqet, Sharp, and the H-P Palmtop. All aspects were taken into account, including value for money. Obviously none of the reviewers worked with the Slice long enough to get the dreaded (and useless) message "BACKUP BATTERY LOW", which still plagues us even with the latest operating system.

First Full-Function Software for Series 3

I have just received, for review, a very interesting (and comprehensive) Personal Finance Package designed by member Paul Cook. The package is currently being evaluated by Psion with a view to their marketing it. In any case, the package will be available shortly one way or another, so I will be featuring a full review in the next issue.

Using the 3-Link

I have had many calls to say that there are problems with the 3-Link. I am glad to say that most of these have been lack of information provided by Psion with the package rather than hardware or software faults. For instance when using MCPRINT, which lets you print directly from the Slice to a printer attached to your PC without detaching any cables. The message "device in use" - and a refusal to operate - appears when the Remote Link is enabled. The way around this is to disable the Remote Link (silly as this may seem) and MCPRINT will then work. This is the only application which works in this way. The Link should be enabled for all others.

I mentioned previously that I use SLINK for all my Comms between Slice and PC. This has given rise to quite a few enquiries about how

this works when importing files (especially as Psion provide no instructions whatever - not even a README file on the disk).

The easy way to do this is to open an appropriate file (either in WP or DATA) and then MERGE the file from the PC. You should find that this works every time. The secret is to start SLINK on the PC a few seconds before attempting the MERGE, otherwise you may find that the Slice shows no REM:: message, which should indicate that a connection has been established.

If you are importing files from a database on the PC, make sure that the FIELD and RECORD DELIMITERS match, otherwise you may get some peculiar results. Most PC databases use a COMMA as the field delimiter and a Carriage Return and Linefeed (CR/LF) as record delimiter. The Organiser is different - it uses a TAB (CHR\$(9)) as its field delimiter. The slice can be adjusted so that ANY character can be used for this purpose, to match the source file.

I have found it best to prepare to receive a database file by editing the LABELS to match the incoming records. The reason for doing this in advance is that any empty fields can be easily recognised later. The Slice doesn't indicate where blank fields are present until a record is updated.

Printer Drivers

I mentioned before that I was not impressed with the selection of printer drivers supplied with 3-Link. I was doing Psion an injustice, as several members pointed out. A sub-directory of printer drivers, including the HP Laserjet which I required, is on the disk.

Software for the Slice

The Spreadsheet package (which was promised for January) has not yet appeared. The last estimate for its availability is March. Nor is there any further news of the promised CHESS program. I will try to keep you informed as things develop.

Page 3b

A Handful of Program Bugs

Neither of the example programs on Pages 100 and 101 of the Programming Manual will work as listed. The last two lines of each should be altered so that the %N and %Y are in lower-case, thus %n and %y. The reason is that DIALOG only responds correctly to lower case variables.

The following are bugs in Mike Shaw's "First Steps in Programming the Psion Series 3": The program "Clocks" (on page 235) will only display 3 of the 4 clocks if entered as listed. The line after DO should be altered to read:
id%(c%)=gCREATE(60*(c%-1),0,58,70,1)

I have widened the windows slightly to allow longer City names, such as "Melbourne".

The "Music" program on page 128 will not allow the top note on the keyboard to be played unless the first UNTIL has c%=19. Also, for some reason, unless the line after the first DO starts f=420*2**(c%/12.0) the sounds produced will not be to "concert pitch" (i.e. A=440). It appears that the Slice's tone generator is wrongly pitched!

A Couple of Little Diversions

Wave by Simon Titterington

The following program produces sine and cosine wave patterns which then move across the screen. Try changing the parameters for different patterns

```
PROC wave:
GLOBAL a,b,c,d
d=0 : b=0 : d=d+1 : c=5 : a=40
DO
  a=SIN(c)*10
  d=COS(c+PI/6)*5
  gAT b,40
  gLINETO b,40
  gAT b,a+40
  gLINETO b,a+40
  gAT b,d+40
  gLINETO b,d+40
  gAT b,a+d+40
  gLINETO b,a+d+40
  c=c+.09
  IF b<239
```

```
    b=b+1
    ELSE b=239
    gSCROLL -1,0
  ENDIF
UNTIL KEY$="Q"
ENDP
```

Hilo by Mike O'Regan

The old hoary chestnut Number Guessing game again. Can anyone make it look better by using the Slice's special features, and add a "computer play" feature?

```
PROC HILO:
GLOBAL hi%,lo%,rand%,g%,count%
rand%=INT(RND*999)+1
count%=0
CLS
hi%=999 :lo%=1
DO
  [PRINT count%+1," ",lo%," -
",hi%,]
  INPUT g%
  count%=count%+1
  IF g%=0 :STOP :ENDIF
  IF g%<lo% or g%>hi%
  PRINT "YOU WASTED A GUESS"
  ENDIF
  IF g%>rand%
  high:
  ELSEIF g%<rand%
  low:
  ELSE right:
  ENDIF
UNTIL g%=rand%
ENDP
```

```
PROC high:
hi%=g%
ENDP
```

```
PROC low:
lo%=g%
ENDP
```

```
PROC right:
CLS
PRINT "RIGHT IN ";count%
PRINT "the number was ";rand%
IF count%<4 :print "PURE LUCK!"
  [ELSEIF count%<9 :print "VERY
GOOD"]
  [ELSEIF count%<14 :print "NOT
BAD"]
  [ELSEIF count%<18 :print "ONLY
FAIR"]
  ELSE PRINT "POOR"
ENDIF
GET
HILO:
ENDP
```

Product News

Justex

The author of Justex, Malcolm Harris, has let me know that, although the Justex pak is copy-protected it is not write-protected. Moreover, there is about 2k of free space on the pak, enough room to store a small printer-driver or standard address.

Yet another Word-Processor for the Organiser

I have had a very innovative word-processor from member Percy Johansson in Sweden. There seems to be a whole crop of word and text handling programs appearing just now for the Organiser. There was a time when there was only AutoScribe (not counting a rather poor program called Letter Organiser from Harvester - who are no longer with us).

Later I will probably do a comparison between all the available systems, but for now what is so different about Percy Johansson's word-processor. While it has all the usual features, WORDFAST also has a unique ASSIST. When you are entering text, any words longer than 6 characters are automatically stored in an ASSIST file. Then, again automatically, if you begin to key in the same word, WORDFAST fills in the whole word for you.

This must be seen to be appreciated. Let me give an example. If you, for instance, key in the word "organisation", this is stored in the ASSIST file. Now if you start to key in the same word, after the first letters "org", WORDFAST fills in the rest of the word and shows "organisation" in full.

The clever part is that, if you continue to key in, say, just the "an" to complete the word "organ" then this cancels the "isation" bit. ASSIST mode may be switched on and off as required and you may even enter your own words or even groups of words directly into the ASSIST file. So I could enter "IPSO FACTO" which would come up in full if I keyed in just "IP".

Several ASSIST files can be kept for different purposes. Percy claims that this feature alone

speeds up text entry dramatically and cuts down typing errors. After trying the program out extensively, I can confirm that this is so.

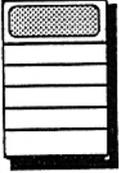
For more details on WORDFAST contact:
Percy Johansson
Nämndemannavägen 170
14557 Norsborg
Sweden

GOLF SCORER Pro

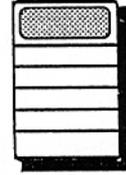
This is a professional scorer system which is available in two versions - for either XP or LZ. GOLF SCORER Pro can be used to save up to fifty games, storing information such as players names, course par, handicaps, hole pars, distances, stroke indexes, type of competition, date, players strokes. GOLF SCORER Pro will calculate your handicap and keep score using strokeplay, matchplay and stableford scoring systems. It will automatically add up your strokes for 9 out, 9 in and total, as you play. You can then SAVE all details of the game for as many courses as you like, up to the 50 limit. For details on how to order your copy contact:

David Wickers
117 Lion Road
Bexleyheath
Kent DA6 8PG
Tel: 081 301 4766

Please renew your
subscription
NOW



IPSO FACTO



Vol V

Feb 1992

No. 12

Editorial Office: 130 Stapleford Lane . Toton . Beeston . Nottingham . NG9 6GB
 Editor: Mike O'Regan Tel: (0602)___ 735482

Editorial

As the Membership renewals arrive, I am carefully noting which machines are owned by the membership. So far the proportion of Organiser to Slice owners is 66% to 8%, with 26% owning both. Most members want to keep IPSO FACTO as a combined magazine for both models, and that is how we will keep things, at least for the time being.

Disk Drives...

*As you will see from our Mini-Review, the **Cristy Handydisc** has at last appeared with a suitable driver for the Organiser. The price of the hardware compares very favourably with any other method of mass storage for Organiser data. The Handydisc should open a new era for Organiser owners who need to have access to large numbers of files while travelling, and especially for those who do not have the advantage of an accessible PC.*

...and Printers

I have managed to obtain a small number of Epson P40 printers with serial interfaces. This printer is ideal for the Organiser, as it is both versatile and portable. The output is on 5" thermal paper (identical to that for the Psion), but there are more options when it comes to type styles and graphics, etc. The printers are new, complete with charger/mains adaptor, handbook, and

coupling cable for the Comms Link. I have only a very small number for sale, priced £45 (inclusive), so please phone me before sending any cheques.

Cases for the Slice

I have bought a beautiful padded zip-case for my Slice. It is exactly the right size, has both belt and hand loops and is even in Psion grey. The price is £2.95 from any branch of SuperSnaps.

If you have not renewed your membership, this is your last issue!

Contents

Beginners Page	93
Machine Code	94
Progs & Procs	96
IPSO Review	98
Page Three	99

Beginners Page

MORE ABOUT DATABASES - II

by Mike O'Regan

Last month we had a look at the built-in features of all Organisers FIND and SAVE together with one or two tips to make the most of these. This month I am printing a listing of a short program which will add an extra facility to the CM or XP machines - a multiple FIND. As explained last month this is a built-in feature of the LZ machines, so there is no point in using this procedure on an LZ.

```
mltfind: CM or XP
LOCAL
a$(8),b$(8),c$(8),n$(16)
OPEN "A:MAIN",A,r$
PRINT "1st FIND Clue",
INPUT a$
PRINT "2nd FIND Clue",
INPUT b$
PRINT "3rd FIND Clue",
INPUT c$
CLS
FIRST
DO
IF FIND(a$) AND FIND(b$)
AND FIND(c$)
DISP(-1,n$)
ENDIF
NEXT
UNTIL EOF
CLS
PRINT "... NO MORE"
GET
```

Here is a "line-by-line" explanation of this program:

Line 1. - title, short for MULTIFIND only 8 characters allowed in procedure titles

Line 2. - declaring variables used in procedure. Note that "R\$" used in the OPEN line is NOT DECLARED. The "8"s in brackets mean that you may enter a clue of up to 8 characters. The "n\$" (which is used later in the DISP line) needs only a single character, as DISP ensures that the whole of each field is DISPLAYed, whatever the length.

Line 3. - this line OPENS the MAIN file in A: (the internal memory. If you want to use the program to

MULTIFIND in a data or RAMPak, then you will have to alter the A: to B: or C: depending in where the pak is. If you wish you could easily add a couple of lines to the program to allow you to choose which device A:, B:, or C:.

Line 4. - is the message coupled to the next line (INPUT). The final comma means that your FIND clue will appear on the same line as this message.

Line 5. - the INPUT line

Lines 6 to 9 - as for Lines 4 and 5 above.

Line 10. - clears the screen, keeps things tidy.

Line 11. - positions a pointer at the FIRST record in the file. This ensures that all records will be examined.

Line 12. - starts a LOOP

Line 13. - this is the line which does all the "clever stuff". The "AND"s are called BOOLEAN OPERATORS (you don't have to know why, it's a long story!). The really clever bit is that you can use 0, 1, 2 or 3 FIND clues. Just press <EXE> if you want to leave any of the clues blank.

Line 14. - another "clever" line. DISP with -1 in the following brackets will allow you to examine each record in the normal way (by using the UP and DOWN arrow keys) before pressing <EXE> to move to the next record.

Line 15. - an IF line needs an ENDIF.

Line 16. - this moves to the NEXT record which contains the FIND clues.

Line 17. - a DO line needs an UNTIL. This tells the Organiser to keep looking for records UNTIL EOF (End Of File).

Line 18. - clear screen

Line 19. - Print a "... NO MORE" message

Line 20. - keep this message on screen until any other key is pressed. This message will be the only thing you see if there are no records with your FIND clue.

Machine Code Page - 1

by Neil Draycott

THE FORMAT CONTROL STRING

When using machine code calls to display a string the use of the FORMAT CONTROL STRING is more than usefull and tends to get overlooked. By inclusion of special descriptor characters within the string to be displayed numbers and letters can be displayed in a specified way. In the simplest case, these descriptors are prefixed by a '%' character followed by the type-specifier, in which case the text is displayed left justified at the cursor position.

Descriptors used;-
descriptor

type to be displayed

%a	ASCII coded character
%i	signed integer word value
%j	signed integer byte value
%u	unsigned integer word value
%v	unsigned integer byte value
%x	unsigned integer word value in HEX
%y	unsigned integer byte value in HEX
%s	string that has a leading byte count
%b	text buffer (address and length byte given)
%f	fill field (for this type a field width must be included; see below)

Optionally, the programmer can justify the text within a field of chosen width, where the field is filled with a specified character. A number after the '%' signifies the field width within which the text is to be left justified with the SPACE fill character. Instead of '%', '+' can be used for left and '-' for right justification, followed by the mandatory fill character and field width.

The maximum field width is 99 and vertical scrolling will begin after the text fills the whole LCD display. If the field is not wide enough, the text is truncated on the side opposite to the justification specified (eg. right justification causes truncation on the left).

The required format for a descriptor field is therefore

%[<field width>]<type specifier>

or

+<fill character><field width><type specifier>

or

-<fill character><field width><type specifier>.

Some examples:

"%x" - left justified HEX representation of word integer.

"%6x" - left justified HEX representation of word integer, filling to the right with spaces in field width of 6.

"-06x" - right justified HEX representation of word integer, filling to the left with zeroes.

"-★14i" - right justification of a signed word integer parameter in a 14-byte field, filled to the left with stars.

"%18f" - 18 spaces.

"+★18f" - 18 stars ('+' needed only to specify the star).

Machine Code Page - 2

All display is done through interrupts 111 & 110.

The characters '%', '+', '-' and ')' themselves can be displayed by preceding them by an extra '%' character.

The actual variables to be displayed using the FORMAT CONTROL STRING must be pushed onto the machine stack in reverse order to that in which they will be displayed. For a buffer parameter, the length byte must be pushed before the address.

AN ACTUAL EXAMPLE;-

To display an unsigned word variable;-

```
LOCAL A%(8)
A%(1)=$CEFF          REM   LDX with value to
display (65535)
A%(2)=$FF3C          REM   PSHX
A%(3)=$3F6F          REM   OS UT$DISP
                      REM   The format control

string;-
A%(4)=$5641          REM   "VA"
A%(5)=$4C55          REM   "LU"
A%(6)=$453D          REM   "E="
A%(7)=$2575          REM   "%u"
A%(8)=$3900          REM   RTS
USR(ADDR(A%()),0)
GET
```

If anyone can explain where the extra 9 comes from or why this will not run from the main menu please give me a call.

For Sale:

Amstrad PC1512 XT PC with 32Mb Hard disk,
2 x 5.25" internal floppy drives
and 1 x 3.5" external floppy drive.
Over 20M of commercial software
including word processing
and many Psion utilities.
Upgraded to V50 fast chips and 640K RAM.
Psion Series 3 (128K) included
£425.00 o.n.o.
Phone 0332 880663 9.00am - 5.30pm.

Progs & Procs - 1

Wall by Marcus Parker-Rhodes

If you liked Marcus' YEN, you will like this one. Wall is a simplified version of TETRIS which is usually played on a desktop. It is nevertheless very challenging and may give you a taste which is hard to resist. The game is deceptively simple - L shaped pieces travel at different speeds across the screen. You use the arrow keys to rotate and move them up and down, and the object is to make them fit together where they meet. Full lines of four blocks disappear

```

WALL:
LOCAL m%,cc%,a%,t%,f%,c%
LOCAL e%,k%,x%,y%,z%,p%,r%
LOCAL b$(1),r$(2,20)
LOCAL s$(4,20)
[UDG 0,31,17,17,17,
17,17,17,31]
e%=1
start::
CLS
[PRINT CHR$(24);
REPT$("*",20)]
AT 9,1 :PRINT"WALL"
menu::
IF e% :AT 16,1
PRINT"sound"
ENDIF
k%=0
IF E% :BEEP 5,96
ENDIF
AT 1,3
[m%=MENUN(2,"tryout,easy,
medium,fast,hard,sound,off
")]
s$(1)="" :s$(2)=""
s$(3)="" :s$(4)=""
DO UNTIL KEY=0
c%=0
cc%=m%+2 :r%=0
IF m%=0 :RETURN
ELSEIF m%=1 :p%=-8 :cc%=0
ELSEIF m%=2 :p%=-6
ELSEIF m%=3 :p%=-4 :r%=8
ELSEIF m%=4 :p%=-1 :r%=6
ELSEIF m%=5 :p%=-3
r%=4 :cc%=4
ELSEIF m%=6 :e%=(e%=0)

```

```

GOTO start::
ELSEIF m%=7 :OFF :STOP
ENDIF
t%=1 :f%=1
top::
[IF r%>0 AND cc%=0 AND
INT(RND*r%)=1 AND a%<9]
cc%=1
ENDIF
IF cc%>0 :b$=CHR$(0)
ELSE b$=CHR$(255)
ENDIF
a%=19
f%=INT(RND*4)+1
t%=INT(RND*3)+1
REM**FIND WIN**
IF c%<>0
[IF s$(1)+s$(2)+
s$(3)+s$(4)="" ]
IF e% :BEEP 96,96
ENDIF
CLS
[PRINT CHR$(24);
"YOU HAVE WON"]
GOTO menu::
ENDIF
ENDIF
REM**PRUNE BLANKS**
c%=0
DO c%=c%+1
z%=LEN(s$(c%))
IF RIGHT$(s$(c%),1)=""
s$(c%)=left$(s$(c%),z%-1)
c%=0
ENDIF
UNTIL c%=4
DO
CLS :PRINT s$(1)
PRINT s$(2) :PRINT s$(3)
PRINT s$(4)
AT a%,t% :PRINT b$;b$
AT a%,t%+1 :PRINT b$;b$
IF f%=1 :AT a%,t%
ELSEIF f%=2 :AT a%+1,t%
ELSEIF f%=3 :AT a%+1,t%+1
ELSEIF f%=4 :AT a%,t%+1
ENDIF
PRINT" "
IF cc%=0
PAUSE p% :k%=KEY
DO UNTIL KEY=0

```

Progs & Procs - 2

```

ELSEIF e% :BEEP 5,a%*4
  IF KEY=13 :GOTO start::
  ENDIF
ENDIF
IF k%=13
  GOTO start::
ELSEIF k%=%S OR k%=%s
e%=(e%=0)
[ELSEIF k%=%A OR k%=%a
AND cc%=0 :cc%=1]
ELSEIF k%=3 AND t%>1
t%=t%-1
ELSEIF k%=4 AND t%<3
t%=t%+1
ELSEIF k%=5 :f%=f%-1
ELSEIF k%=6 :f%=f%+1
ENDIF
k%=0
  if f%=0 :f%=4
ELSEIF f%=5 :f%=1
  ENDIF
x%=LEN(s$(t%))
y%=LEN(s$(t%+1))
a%=a%-1
[UNTIL a%<=1 OR a%<=x%
OR a%<=y%]
REM***ADD TO FILE***
if e% :BEEP 5,200
ENDIF
if cc%>0 :cc%=cc%-1
ENDIF
z%=0
  IF f%=1 AND x%>y%
r$(1)=b$ :r$(2)=b$+b$
z%=-1
ELSEIF f%=4 AND y%>x%
r$(1)=b$+b$ :r$(2)=b$
z%=-1
ELSEIF f%=1 :r$(1)=" "+b$
r$(2)=b$+b$
ELSEIF f%=4 :r$(1)=b$+b$
r$(2)=" "+b$
ELSEIF f%=2 :r$(1)=b$
r$(2)=b$+b$
ELSEIF f%=3 :r$(1)=b$+b$
r$(2)=b$
ENDIF
IF x%+1<y%
[r$(1)=REPT$(" ",y%
-x%+z%)+r$(1)]
ELSEIF y%+1<x%

```

```

[r$(2)=REPT$(" ",x%
-y%+z%)+r$(2)]
ELSEIF y%+1=x% AND f%<>1
r$(2)=" "+r$(2)
ELSEIF x%+1=y% AND f%<>4
r$(1)=" "+r$(1)
ENDIF
[IF LEN(s$(t%)+r$(1))>19
OR LEN(s$(t%+1)+r$(2))>19]
IF e% :BEEP 96,96
ENDIF
CLS
[PRINT CHR$(24);
"YOU HAVE LOST"]
GOTO MENU::
ENDIF
s$(t%)=s$(t%)+r$(1)
s$(t%+1)=s$(t%+1)+r$(2)
REM*PRUNE*FULL*LINES
y%=0
DO y%=y%+1
x%=0 :z%=0
DO x%=x%+1
  IF LEN(s$(x%))<y%
GOTO top::
  [ELSEIF MID$(s$(x%),
y%,1)<>" "]
  z%=z%+1
  ENDIF
UNTIL x%=4
IF z%=4
c%=0 :CLS
DO c%=c%+1
z%=LEN(s$(c%))
r$(1)=LEFT$(s$(c%),y%-1)
r$(2)=RIGHT$(s$(c%),z%-y%)
PRINT
r$(1)+CHR$(245)+r$(2)
s$(c%)=r$(1)+r$(2)
UNTIL c%=4
  IF e% :BEEP 100,10000
  ENDIF
PAUSE 1
y%=y%-1
ENDIF
UNTIL y%>=a%+2
GOTO top::

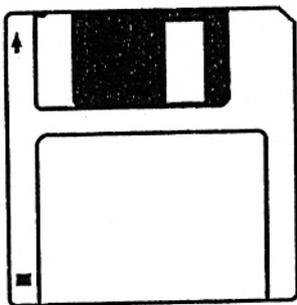
```

Note that all long lines are marked with square brackets.

IPSO Mini-Review

CRISTIE HANDYDISC

reviewed by Mike O'Regan



The Handydisc package consists of the drive itself, (measuring 6.5" x 5" x 1.75" and weighing in at a hefty 2lbs plus), a datapak containing the Organiser-to-Handydisc software, and an adaptor to fit between the end of the Comms Link cable (Comms Link is not provided). The review pack was for the Organisers (all models) with a version for the Series 3 promised soon. There are also comprehensive handbooks provided.

Setting up couldn't be easier. The datapak is mounted in slot C and the <ON/CLEAR> pressed twice. The pak does not autoboot fully, so it is necessary to enter DISK to the top-level menu manually, but it does set the Comms Link parameters automatically to 4800 Baud, 8 Data Bits, 1 Stop Bit, no parity. It is then only necessary to check that the appropriate DIP switches have been set on the drive. When all the attachments have been made, calling DISK gives you a menu as follows:

DISPLAY DIR	SHOW FREE SPACE
BACKUP	RESTORE
VERIFY	RENAME
DELETE	MAKE DIR
REMOVE DIR	CHANGE DIR
FORMAT	VERSION NO.

All file operations follow the protocols of a standard DOS setup, but don't let this worry you if you are not familiar with DOS machines - it is easy to follow.

Handydisc uses standard 3.5" disks. When formatting disks you can choose between double and high density disks (720k or 1.4mbyte). With 720k disks costing around 30p and even good quality 1.4mbyte disks costing less than £1, the Handydisc has to be the most cost effective storage system yet to appear for the Organiser (once the hardware costs have been covered) and, what is more, it is a feasible proposition to use it for the Series 3 in addition.

As you can see from the menu above you can keep all your files in order by using standard directories, sub-directories, etc. and wildcards may be used freely for all file-handling operations.

The Handydisc works either from a 9v mains adaptor or from 6 AA size batteries. Cristie say that a set of batteries should last for 4 hours continuous use, or 3 to 4 weeks in typical applications. This is possible because the Handydisc powers down when it is not being addressed to save power.

I will write more about this important addition to the Organiser arsenal when I have had time for a full evaluation.

The Handydisc costs £199, plus £39 for the Organiser Driver Pak and is available from all good dealers or direct from the makers:

Cristie Electronics Limited
Bonds Mill
Bristol Road
Stonehouse
Glos GL10 3RG

Tel: 0453 823611
Fax: 0453 825768

Page Three - a

Convert by R.J.N. Sims

This is a clever and comprehensive conversion program, which uses a principle established earlier in an Organiser version, and takes this further to make the output suit the input. The program, like all the best, needs no further explanation. It makes excellent use of the Slice's pull-down menus and dialog boxes

```
PROC convert:
  LOCAL
  a,b,c,b1%,b2%,cc%,m%
  LOCAL a$(7),b$(12),c$(12)
  LOCAL d$(5),e$(5)
  LOCAL d2$(10),e2$(10)
  l1::
  d2$="" :e2$=""
  b1%=0 :b2%=0
  m%=0
  mINIT
  mCARD "Temp","Temp",%T
  [mCARD
  "Distance","Mile/Km",
  %M,"Inch/mm",%I]
  [mCARD
  "Weight","Oz/Gram",
  %O,"lbs/Kg",%L]
  [mCARD
  "Volume","Pint/Ltr",
  %P,"Gal/Ltr",%G,"Cu
  ft/M3",%C]
  [mCARD "Area","Sq ft/M2",
  %S,"Quit",%Q]
  m%=MENU
  IF m%=0 :RETURN
  ENDIF
  dINIT
  [dFLOAT a,"Number to be
  converted",0,100000]
  DIALOG
  IF m%=%t
  REM temp
  b=(a-32)*5/9
  c=a*9/5+32
  b$=FIX$(b,2,-7)
  c$=FIX$(c,2,-8)
  d$=" degF"
```

```
e$=" degC"
ELSEIF m%=%m
REM miles to Km
b$=FIX$(a/1.6093,2,-7)
c$=FIX$(a*1.6093,2,-8)
d$="km"
e$="Miles"
ELSEIF m%=%i
REM inches to mm
b=a/25.4
c=a*25.4
b$=FIX$(b,2,-7)
c$=FIX$(c,2,-8)
d$="mm"
e$="in"
IF c/1000>1
c=c/1000
c$=FIX$(c,3,-9)
d$="Metre"
d2$="mm"
ENDIF
IF b/12>1
b1%=b
b2%=b1%/12
b=b-(b2%*12)
[b$=NUM$(b2%,5)+CHR$(39)
+FIX$(b,2,-4)+CHR$(34)]
e2$="ft in"
ENDIF
ELSEIF m%=%o
REM ounces to grams
b=a/28
c=a*28
b$=FIX$(b,2,-9)
c$=FIX$(c,2,-9)
d$="Gram"
e$="oz"
IF c/1000>1
c$=FIX$(c/1000,2,-9)
d$="Kg"
d2$="Grams"
ENDIF
ELSEIF m%=%l
REM Pounds to kgs
c=a*.4536
b=a*2.2046
b$=FIX$(b,3,-9)
c$=FIX$(c,3,-9)
d$="Kgs"
e$="lbs"
IF b/2240>1
```

Page Three - b

```
b1%=b
b2%=b/2240
b=b-(b2%*2240)
[b$=NUM$(b2%,-3)+" "
+FIX$(b,0,-4)]
e2$="Ton lbs"
ENDIF
ELSEIF m%=%p
REM pints to litres
b$=FIX$(a/.57,2,-9)
c$=FIX$(a*.57,2,-9)
d$="Litre"
e$="Pint"
ELSEIF m%=%g
REM gals to litres
b$=FIX$(a*4.546,2,-9)
c$=FIX$(a/4.546,2,-9)
d$="Gal."
e$="Litre"
ELSEIF m%=%s
REM sq ft to M2
b$=FIX$(a*0.0929,3,-9)
c$=FIX$(a/0.0929,3,-9)
d$="sq ft"
e$="M2"
ELSEIF m%=%c
REM cu ft to M3
b$=FIX$(a/35.3147,3,-9)
c$=FIX$(a*35.3147,3,-9)
d$="Cu ft"
e$=" M3"
ELSEIF m%=%q
STOP
ENDIF
IF d2$=""
d2$=d$
ENDIF
IF e2$=""
e2$=e$
ENDIF
REM printout section
AT 4,4 :PRINT e$
AT 10,4 :PRINT "/"
AT 12,4 :PRINT d$
[PRINT FIX$(a,2,-8)+" ="
+LEFT$(c$,9)]
AT 4,7 :PRINT d2$
AT 10,7 :PRINT "/"
AT 12,7 :PRINT e2$
[PRINT FIX$(a,2,-8)+" ="
+LEFT$(b$,9);]
```

```
GET
CLS
GOTO L1::
ENDP
```

Series 3 Applications Personal Finance Pak,

The first full-scale application for the Slice, mentioned last month has now been completed and is available from:

Widget Software
Tel: 0438 615444

I hope to be able to do the promised full review in next months issue.

Notepad for the Slice

A Notepad program with many features, such as open files, transfer or copy records, sort, calculate etc., is now available at the reasonable price of £8.00 (incl.). When you order, please say whether you would like the package on a floppy disk or wish to send a flashpak to have it transferred. Notepad is available from the author:

Simon Titterington
24 The Rise
Kirkstall
Leeds
LS5 3EP

Tel:(0532) 785178