

PROTEXT OFFICE and PROTEXT FILER

IBM PC XT/AT and Compatibles

Amstrad PCW8256/8512,9512

Amstrad CPC464/664,6128

Atari ST

Commodore Amiga



PROTEXT OFFICE
and
PROTEXT FILER

IBM PC XT/AT and Compatibles
Amstrad PCW8256/8512,9512
Amstrad CPC464/664,6128
Atari ST
Commodore Amiga

Copyright (c) Arnor Ltd., 1988

Issue 1, 1988

All rights reserved. It is illegal to reproduce or transmit either this manual or the accompanying computer program in any form without the written permission of the copyright holder. Software piracy is theft.

AMIGA is a trademark of Commodore-Amiga Inc.
AMSTRAD is a trademark of Amstrad plc.
ATARI and ST are trademarks of Atari Corp.
COMMODORE is a trademark of Commodore Electronics Limited.
IBM is a trademark of International Business Machines Corp.
MS-DOS is a trademark of Microsoft Corp.

This manual was written using PROTEXT and printed from camera-ready copy produced by PROTEXT on a KYOCERA F1010 laser printer.

Arnor Ltd., Protex House, Wainman Road, Peterborough PE2 0BU. (0733) 239011

CONTENTS

1. Introduction	4
(a) Protexit, Protexit Filer and Protexit Office	4
(b) System requirements	4
(c) Make a backup disc first	5
(d) Using Protexit Filer on a floppy disc system	7
(e) Hard disc installation	8
(f) About this manual	9
2. Protexit Filer tutorial	10
(a) A few terms explained	10
(b) Setting up a datafile	11
(c) Entering the data	12
(d) Menu or manual operation	13
(e) Worked example covering use of Filer menu	13
3. The Protexit Filer menu	21
(a) Calling up the menu	21
(b) A few general notes	21
(c) Explanation of all menu options	23
4. Sorting files using FSORT	30
(a) Running FSORT from Protexit command mode	30
(b) Running FSORT as a stand alone program	31
(c) Sorting options	32
(d) Some examples of using FSORT	37
(e) Using FSORT from the Filer menu	38
5. INVGEN, The Invoice generator	39
(a) Introduction	39
(b) Installing INVGEN (Amstrad CPC & CP/M versions)	39
(c) The Protexit Office menu	40
Appendix - EXEC for Amstrad CPC users	58

1. Introduction

(a) Prottext, Prottext Filer and Prottext Office

Prottext is available on a wide range of computers, including the IBM PC XT, AT and all compatibles; all Amstrad computers from the CPC range and the PCW machines, through to the PC and PPC; and for the Atari ST and Commodore Amiga.

From the start, Prottext was designed to allow add on programs to be used. By combining the mail merge commands and the exec file and macro facilities it is possible to automate many applications. At Arnor we have used an invoice generator working from inside Prottext for two years. Other applications that we have heard about include automated conversion of Prottext files to typesetting codes, processing of data from car speed trials, calculating prices and discounts for catalogues.

Prottext Filer and Office are designed to work in exactly the same way with all versions of Prottext (CPC users need Promerge as well). This manual covers all computers and all versions. Any minor differences are noted. These will mainly apply to Amstrad CPC users and are due to limitations of the Amsdos disc operating system.

Prottext Filer consists of a menu-driven datafile management system and a very sophisticated file sorting program. The file sorter can be used from within Prottext, or as a stand alone program. The datafile management system uses Prottext's mail merge and exec file facilities to provide an easy to use filing system that works from within Prottext.

Prottext Office contains all of the above, plus the invoice generator and associated facilities. Again, this works from within Prottext.

(b) System requirements

Prottext Filer and Prottext Office will work with any of the following combinations of computer and Prottext software:

IBM PC or compatible with Prottext v3.03 or later. If you have an earlier version a free upgrade is available.

Amstrad PCW8256, PCW8512 or PCW9512 or CPC6128 with CP/M Prottext or Prowort (German Prottext). The version number of Prottext must be 2.04 or later. If you have an earlier version a free upgrade is available. Pocket Prottext is not sufficient, an upgrade to the full version is available. Please contact Arnor for the current price.

Amstrad CPC464, CPC664, or CPC6128 with Prottext (ROM or disc) and Promerge (ROM or disc). The version of Promerge should be 1.02 or greater. If you have an earlier version a free upgrade is available from Arnor.

Atari ST with Prottext.

Commodore Amiga with Prottext.

Note: upgrades are only available direct from Arnor, at the address shown at the front of the manual.

(c) Make a backup disc first

One disc is supplied containing all the programs and example datafiles. Two copies of this should be taken immediately. Ensure that the disc is write protected before copying it. Label the two copies 'Prottext Filer working disc' and 'Prottext Filer backup disc'. These will be used to store datafiles. The latter disc will not be mentioned again, but should be used to backup the working disc regularly. Retain the supplied disc unmodified, as a backup of the original programs.

(i) IBM PC and compatibles

On a floppy disc system put the DOS system disc in A.

Type:

DISKCOPY A: B:

Put the supplied disc in drive A. On machines with 2 floppy drives put a blank disc in B, otherwise DOS will prompt when the disc should be inserted.

(ii) Amstrad PCW8256 with one drive & CPC6128 using CP/M Prottext

Load CP/M, put your Prottext disc in A and type:

DCOPY

Follow the on screen instructions.

Note: PCW users MUST NOT use DISCKIT. It will not copy the supplied disc.

(iii) Amstrad PCW9512, PCW8512, PCW8256 with 2 drives

Load Protext. Using drive A on the 9512, or drive B on the 8256/8512, format a disc with the command:

DFORM A (9512)
or DFORM B

Take out the newly formatted disc, type the command:

ERA M:*. * (ignore any error message)

Insert the Prottext Filer or Prottext Office master disc in drive A and type:

COPY A:*. * M

Remove the master disc and insert the newly formatted disc in drive A (9512) or drive B (8256,8512). Type:

COPY M:*. * A on the PCW9512
COPY M:*. * B on the PCW8256/8512

(iv) Atari ST

Put the supplied disc in A, drag the drive A icon onto the drive B icon and follow the on screen instructions.

(v) Commodore Amiga

With the Workbench disk in drive df0:, select the Workbench disk icon, then choose 'Duplicate' from the 'Workbench' menu. Insert the supplied disc in drive df0: when the requester prompts for the '(FROM disk)' and replace it with the blank disk when asked to insert the disk to receive copy, until the disk has been copied. If a second drive is installed, the supplied disk should be inserted into drive df0: and the blank disk into df1: and there will be no further requests to insert disks.

(vi) Amstrad CPC users

With Utopia, type:

|DISCCOPY

and follow the prompts.

Otherwise, insert the CP/M system disc and type:

|CPM

When CP/M has loaded, type one of the following:

DISCCOPY	(CPC464/664 users, 1 drive)
COPYDISC	(CPC464/664 users, 2 drives)
DISCKIT3	(CPC6128 users)

Follow the on screen instructions.

(d) Using Prottext Filer on a floppy disc system

(i) Amstrad CPC users (except CP/M Prottext)

Before loading Prottext, put the Filer working disc in drive A and type:

RUN "EXEC"

This will load a resident system extension, which is used by Prottext Filer. (It adds the EXEC command to Prottext - see the appendix for details).

Then load or call Prottext and proceed as (i) or (ii) above. Alternatively, except if using Promerge on disc, type:

RUN "DISC"

This will load EXEC and FSORT into memory and call up the Prottext Filer menu.

(ii) Two drive systems, all computers

First, load Prottext. The Filer working disc should be used from drive A, except on a PCW8512 (or two drive 8256 or 6128) when drive B is used. The drive being used should be selected as the current drive by typing its letter from command mode. To run Prottext Filer, type:

EXEC FM

Note: PCW8512, PCW8256 with two drives, CPC6128 with two drives under CP/M Plus: leave the Prottext Start of Day disc in drive A, as this will be needed for certain options.

(iii) One drive systems, all computers

Load Prottext and remove the program disc. Insert the Filer working disc in the drive and type:

```
EXEC FM
```

(e) Hard disc installation

(i) IBM PC and compatibles, Atari ST, Commodore Amiga

First load Prottext. A new directory should be created and all files copied into that directory. Do this by typing:

```
MD \OFFICE  
COPY A:*. * \OFFICE
```

To use Prottext Office, load Prottext first and type:

```
CD \OFFICE  
EXEC FM
```

FSORT.EXE should be copied to a directory that is on the search path, if it is required to use it from other directories.

Don't forget to backup the datafiles onto floppy discs. This can be done with the command:

```
COPY *. * A:
```

(ii) Amstrad PCW

All the files should be copied into a group (user area) of their own. For example:

```
COPY A:*. * 2
```

To use Prottext Office, load Prottext first and type:

```
GROUP 2  
EXEC FM
```

Don't forget to backup the datafiles onto floppy discs. This can be done with the command:

```
COPY *. * A:
```

Alternatively use the following from CP/M, which copies only those files that have been changed since the last time they were backed up. This command should be used if the files being copied do not fit on a single floppy disc.

```
PIP A:=*.* [A
```

(f) About this manual

Chapter 2 is a tutorial guide to using Protex Filer, which explains a few words and concepts and gives a step by step guide to using the menu options. It is recommended that this is read even by those familiar with the subject because the worked example is full of hints and useful comments.

Chapter 3 explains each of the menu options in detail.

Chapter 4 covers the FSORT program and explains all the sorting options.

Chapter 5 covers INVGEN, the invoice generator and use of the Protex Office menu. This is not relevant to users of Protex Filer. An upgrade to the full Protex Office is available from Arnor, if these facilities are required.

The appendix covers the EXEC command for Amstrad CPC users. This command is already included in all other versions of Protex.

Notes:

(i) Quotes

When something that has to be typed as shown in the text it is enclosed in single quotes. These quotes should not be typed. Wherever double quotes are used, they should be typed.

(ii) ESC and STOP

Reference is made to the 'ESC or STOP' key. Some computers will have a key marked 'ESC' or 'Escape', some will have one marked 'STOP'. The effect described is the same whichever key is present.

2. Protex Filer tutorial

(a) A few terms explained

Records and fields

A 'field' is one item of data, such as a name or the line of an address containing the town. Fields can be selected as sort keys, so for example it is possible to sort alphabetically by town. For the moment it is best to think of a field as equivalent to a line, though this need not be the case. In other words, a carriage return marks the end of a field. A comma is also taken to be the end of a field, and so any field containing a comma must be enclosed in quotes.

A 'record' is a collection of fields that all relate to one subject. For example in a file of names and addresses each line is a field, the whole thing for each individual is a record.

Fixed and variable length records

A datafile will either use fixed or variable records. A fixed record file will contain the same number of fields for each record. If an address file is stored in this way, say with 6 lines per record, it will mean that addresses with less than 6 lines will need blank lines to bring the total up to 6. Also, if an address had 7 lines a line would have to be omitted.

This is clearly inconvenient for entering and maintaining datafiles, so addresses would normally be stored in a variable record file. In this type of file the end of a record is marked by an extra blank line in the file. There is no need to count the number of lines when entering data and there is no limit to the number of lines.

Strings

The term 'string' is often used in relation to searching datafiles. It simply means any part of the text of a record that is to be searched for. Thus a string can be a word, group of words, part of a word, or any other group of letter, digits or other symbols.

(b) Setting up a datafile

First, it is necessary to choose the most suitable file format. Variable or fixed record? As a general rule, files of names and addresses, or files that include names and addresses will normally be variable record files. Fixed record files will be used when the data is such that every field must be present.

Two examples should clarify this. These two examples, one of a variable record file and the other of a fixed record file will recur throughout the manual to illustrate the use of various facilities.

Sample datafiles for these examples are included on the disc.

(i) Address list.

The information needed for each member is as follows:

1. Name
2. Address (between 1 and 6 lines)
3. Telephone number

Since the address is a variable number of lines, this should be put at the end of the record, which could therefore be stored thus:

Field 1	name
Field 2	telephone number
Fields 3,4,...	address

All fields are stored as strings in Protex, but numerical sorting is possible, as we shall see later.

(ii) Music collection catalogue

The information needed is:

Field 1	artist name or composer
Field 2	title of album
Field 3	medium - CD, record, or cassette
Field 4	year that recording was made
Field 5	orchestra/performer (classical only)
Field 6	conductor (classical only)
Field 7	blank

This will use the fixed record format with 7 fields per record. Field 7 will always be blank, simply to make it easier to enter and view the data. The data stored will allow many different reports to be produced, including:

- sorted list by artist and composer
- separate lists of classical and popular albums
- list CDs only
- list number of albums by year they were released

(c) Entering the data

The simplest way to enter data, particularly when there is a lot to type (as when initially setting up the datafile), is simply to use Protex and type it in.

With a variable record file simply leave an extra blank line after each record. With a fixed record file ensure that exactly the right number of lines are used. It is generally a good idea to leave an extra blank field as suggested above, simply so it is easier to see where each record ends. This blank line does not mark the end of a fixed length record, so if the last used field is blank there must be two blank lines.

It is very important to note that commas should not be typed into the file, except on a line that is wholly enclosed in quotes.

Note that there is no difference between the two types of datafile as far as Protex is concerned. The only difference is the interpretation and the next section will explain how to tell Protex Filer how each file should be interpreted. The information about the type of datafile will be stored separately in an information file.

(d) Menu or manual operation

As will be seen, there is often a choice between using the menu to do something, or directly editing the files.

For example, records can be added either by using the A option in the menu, or by editing the main datafile in Prottext. To find a single record, either use the 'F' option in the menu, or load the datafile into Prottext and use the FIND command.

The choice of which method to use will depend on the circumstances and the individual. Many will prefer to use the menus for most operations because it is easier. Using the menus, everything can be done by selecting the appropriate option and answering a few questions.

(e) Worked example covering use of Filer menu

The example we will use is the address list, introduced above. It will be seen that some functions are used from the menu and some by using Prottext directly.

1. Enter the initial data

The first thing is to type in the names and addresses that you already know. This is most easily done by simply typing into Prottext, taking care to include the correct number of lines for each record (remember to type a blank line after each address).

To save time, the file 'ADDRESS' on the supplied disc can be used to follow this tutorial. Later you can replace it with your own data. This file is a good example to look at if you are unsure how the data should be entered. Note the use of double quotes to enclose lines containing either a comma, or single quotes.

It should be stressed that the datafile is a perfectly ordinary Prottext file and may be edited like any other file.

2. Editing or Deleting records

These functions are best performed by simply loading the datafile (in this case 'ADDRESS') into Prottext and editing it.

Prottext's FIND command is very useful to locate the record to be edited or deleted.

3. Using the Prottext Filer menu

First, load Prottext. If you have a floppy disc system put the Filer working disc in one of the drives and select that as the current drive.

To call up the menu, type:

EXEC FM

IMPORTANT WARNING: this command will CLEAR the current text, so make sure any text being edited has been saved beforehand.

This will present a number of options, as follows:

- F - Find single record
- S - Select records
- P - Print/display records
- M - Mail merge
- Z - Sort file
- C - Count records
- A - Add new records to update file
- U - Merge update file into main file
- L - List current file information
- E - Edit current file information
- D - Change current datafile
- I - Initialise datafile
- Q - Quit

4. Tell Prottext Filer about the new datafile

The option 'T' will be used. Type 'T' and you will be asked for the name of the new datafile. Type 'ADDRESS'. Prottext Filer will now use the ADDRESS datafile for all operations until this is changed.

You will then be asked to supply information about the datafile.

Fixed or variable length records: type 'V'

Maximum number of fields type '8'

(This number, 8, is the maximum number of lines permitted in a record. Of course, if you need more than that give a higher number).

Field names

Field 1:	type NAME
Field 2:	press RETURN
Field 3:	type ADDRESS LINE 1
Field 4:	type ADDRESS LINE 2
Field 5:	type ADDRESS LINE 3
Field 6:	type ADDRESS LINE 4
Field 7:	type ADDRESS LINE 5
Field 8:	press RETURN

First field number for sorting on [1]:	press RETURN
Sort type [A/z/p/w/l/n/d]:	type 'P'
Second field number for sorting on:	press RETURN
Enter other FSORT options:	press RETURN

5. Check that the file has been correctly initialised

Select option 'L' from the menu to check the settings you have just entered. You notice that field 2 has no name and it should be named 'TELEPHONE'. Press RETURN to go back to the menu.

6. Edit the file information

Select option 'E'. This will operate in a similar way to option 'T' (described above), except that the settings you just typed in will be displayed. Pressing RETURN at any prompt leaves the value unchanged.

Press RETURN until 'Field 2:' is displayed. This will have no current setting, because it was left blank. Type 'TELEPHONE' and press RETURN in response to the remaining questions.

Use option 'L' again to check. This time everything is perfect and we are ready to use the select and print facilities.

7. Find a single record

This can be used to find a single address. Select option 'F' and 'M' for main file.

This will respond with:

Enter data string to search for: type 'ARNOR'
Enter field to search on [f1]: press RETURN

Within a second or two, Arnor's address will appear. Type 'y' to say that this is correct and Protex Filer will return you to edit mode with the address in the text as a marked block. This is useful for extracting a single address from the datafile for use in a document.

To continue with this tutorial type 'X FM' from command mode to re-enter the menu.

Let us now suppose we want to find the address of someone in Peterborough, but cannot remember the person's name. Select option 'F' and 'M' for main file.

This will respond:

Enter data string to search for: type 'PETERBOROUGH'
Enter field to search on [f1]: type '*'

'*' means search on any field.

The file will now be searched for any records containing the word 'Peterborough'. Note that this will match either upper or lower case. As each one is found you can press 'n' to continue the search, or 'y' to load the address into Protex and mark it as a block.

8. Select records from file

This option is similar to find record, but is far more flexible. It allows multiple conditions to be used and creates a file containing all the matching records. This is called the 'selection file'.

As an example, let us select all people with Peterborough or Cambridge phone numbers.

Select option 'S'.

You will then be asked which type of selection to use, from the following list.

- 1 - cond1 (simple)
- 2 - cond1 OR cond2
- 3 - cond1 OR cond2 OR cond3
- 4 - cond1 AND cond2
- 5 - cond1 AND cond2 AND cond3
- 6 - (cond1 OR cond2) AND cond3
- 7 - (cond1 AND cond2) OR cond3

For this example we need to use type 2 (Peterborough phone number OR Cambridge phone number).

Next select 'M' for the main file and you will be asked to enter the conditions.

Condition 1: type: f2[1:4] = "0733"
Condition 2: type: f2[1:4] = "0223"

Note here that the condition may use any valid Protext expression as explained in the mail merge documentation.

The records that are found will not be shown on the screen. They will be stored in the selection file and the total number found will be displayed.

9. Print/display records

Now that some records have been selected, we can look at them. Select option 'P', then 'S' for selection file, then 'S' for display on screen. Press return when asked whether to display all fields and you will see the selected records appear.

Now repeat this, but type 'n' to the last question. This enables you to select which fields are to be displayed. Reply 'y' to the first two fields and 'n' (or press return) to the rest. This time just the names and telephone numbers will be listed.

This option can also be used to print the results or send them to a file. If the file option is used you will be asked to type in a filename.

10. Add new records

As mentioned earlier, the easiest way to enter new records is to type them into the file directly just using Protext. However it can be convenient to add a few records from the menu. This is done with the 'A' option. The records that are added are stored in the update file.

Try this by typing two or three names and addresses. If you do not know the telephone number, that field will have to be left blank. As a blank line indicates the end of a variable length record a special method is used to do this. To leave a field blank type a single dollar sign (\$).

Note: On the Amstrad CPC version using this option a second time overwrites the current contents of the update file, so any records previously entered must be merged into the main file before repeating the option (see below). On all other versions this option can be used any number of times and the records are appended to the update file.

11. Mail merge labels

Now the new records are stored in the update file, any operations that need to be performed on just the new records, can be done. For example, we can print out address labels. This is done by selecting the mail merge option 'M', then 'U' for update file, 'P' for print (use 'S' if you don't have a printer connected).

A list of mail merge templates will then appear. Several of these are supplied with Protext Filer. It is explained later how to add your own templates to this list.

This time we will print one across labels, so type 'LABEL1'.

In a real example you may wish to print a standard letter to all the names in the update file and this can be done in the same way.

12. Merge update file into main file

When we have done everything we need to with the update file, we should use option 'U' to merge it into the main file. The records from the update file are added to the end of the main file.

13. Sort file

The file may now be sorted to put the new records in the correct place. Option 'Z' will sort the file. This will use the sort options defined earlier, so just press return to all questions.

To check that it has sorted use option 'P' (print/display) and just display field 1. You will see that the sort option we used ('-P') has correctly sorted the names by surname.

14. Change to a different datafile

The datafile 'MUSIC' is supplied on the disc and has been initialised for you.

Select option 'D' and type the name 'MUSIC'. You will see that the name of the current datafile displayed at the top of the menu will be changed.

15. Count records

Option 'C' will count the records in the datafile and display the number on the screen. In this case it will tell us how many recordings are listed in our music catalogue.

16. Producing reports

We will produce two reports from this datafile. This will be done by first selecting records satisfying certain conditions, then printing out the fields we require.

(i) All classical CDs

Use 'S' to select records, 'M' for main file.

We can distinguish between classical and non-classical music by examining the orchestra/performer field. If this is blank it is not classical.

This is a type 4 condition (classical AND CD).

Use 'select records' and choose type 4.

For condition 1 type: f5 < > ""
For condition 2 type: "cd" in f3

(Notice that "cd" in f3' is used, rather than 'f3="cd"' so it will still match if there is an extra space in the data).

When this is done, use the print option to print out all the fields. Don't forget to type 'S' for selection file.

(ii) All non-classical albums released before 1980 and all albums by Dire Straits.

Again use 'S' to select records, 'M' for main file.

This is a type 6 condition: (before 1980 OR by Dire Straits) AND not classical

For condition 1 type: f4 < 1980
For condition 2 type: "dire" in f1
For condition 3 type: f5 = ""

This time we are only interested in the artist and title.

Select 'P' (print/display), 'S' for selection file and 'F' to print to a file. Give the filename 'PRE80'.

Type 'n' to the question 'Display all fields?' and 'y' to field 1 and field 2. Reply 'y' to 'Leave a blank line after each record'.

This will create a file containing the required information. Quit from the menu and load the file 'PRE80'. The information is not in a particularly good form for a concise printout, but fortunately Protex can sort it out. Type the following commands:

```
R !. @ ag
R !. ">" ag    NB: → means press the TAB key
R @ !. ag
```

The effect of these commands will be to change single carriage returns into tabs, and double carriage returns into single ones. Finally put a ruler line on line 1 with just a single tab stop half-way across the screen. Voilà, a nicely formatted summary.

This tutorial has covered the use of most aspects of Protex Filer. The scope and flexibility of Protex allows far more to be done. If you have followed the worked examples you should be ready to create your own applications.

3. The Protex Filer menu

(a) Calling up the menu

Floppy disc users should place the Protex Filer working disc in the appropriate drive (see the first chapter) and make sure that is the currently selected drive. To call up the menu type the command:

EXEC FM

This command can be abbreviated to 'X FM'.

IMPORTANT WARNING: this command will CLEAR the current text, so make sure any text being edited has been saved beforehand.

(b) A few general notes

1. Conventions used in the Filer menu

All menu options are selected by typing a letter and pressing RETURN.

When a prompt is given, there will sometimes be a string shown in brackets. This is the default response which will be used if RETURN is pressed by itself. Sometimes two possible responses are given, (e.g. 'Y/n'). In this case the default option is the one shown in capitals. If neither is in capitals there is no default response and one of two alternatives must be given. If nothing is shown in brackets pressing RETURN will either enter a null string (blank line), or will exit from the selected option (depending on the situation).

Pressing ESC or STOP at any time will break out of Protex Filer and return to Protex command mode. Filer can be resumed by typing 'X FM'.

2. The main file, the update file and the selection file

Protex Filer makes extensive use of two temporary files for storing data records - the update file and the selection file.

Many of the Protex Filer options will work on any one of these 3 files and will start by asking which file should be used. Type 'M', 'U' or 'S' as appropriate.

(i) The main file is the datafile itself.

(ii) The update file contains any records that have been added via the menu, but not yet merged into the main file. There are two reasons for using this file to store new records temporarily; it is much faster and it allows the new names to be checked or processed in some way (e.g. print labels) before adding to the main datafile.

(iii) The selection file contains records that have been extracted from the main file according to some criterion. For example, this will be used when performing a conditional mail merge. The menu search file option can be used to extract all addresses in London, say. These will be put into the selection file.

The use of the selection file is explained fully under 'select record'.

When entering new data, it is initially stored in the update file and may be added (or not) to the main file later.

When selecting records based on a specified search criterion, these records are placed into the selection file. From there they can later be (a) displayed on the screen, (b) printed in one of many forms, (c) sorted.

3. PFI files

Each datafile has an associated file that contains information defining the type of file, as well as certain other things. This file has an extension 'PFI' (Protex File Information) and will henceforth be referred to as a PFI file. The options 'I' and 'E' may be used to create and edit this file. With care, it may also be edited directly using Protex.

4. A small tip

To ensure the fastest access of data, it is best to position the most commonly used records near the start of the file. This is particularly important for Protex Office users to obtain the best performance from the invoice generator.

Similarly, it is best to keep datafiles to a moderate size to obtain the best results. A large datafile can be split in two either by loading into Protex and saving two blocks, or by using the SPLIT command (some versions only).

(c) Explanation of all menu options

A - Add new records to update file

Each field name will be prompted and new records may be entered. These are stored in the update file. After each record is entered the screen will be cleared and the complete list of field names shown at the top. This is to make it clear how many records are available.

When using variable length records, it will sometimes be necessary to leave a field blank. Since a blank line marks the end of a record, this is done by typing '\$'.

Note: On the Amstrad CPC version using this option a second time overwrites the current contents of the update file, so any records previously entered must be merged into the main file before repeating the option (see below). On all other versions this option can be used any number of times and the records are appended to the update file.

C - Count records

Counts the number of records in the current datafile, update file, or selection file and displays the number on the screen.

D - Change current datafile

When starting to use a datafile, select this option. Enter the name of the datafile. This must be a previously initialised datafile (i.e. the 'I' option must have been used to create the PFI file). The selected name will be remembered and this datafile used, until either this option or option 'I' is used again. The name is stored on disc, so switching off does not cancel the setting.

If the datafile is on a different disc, include the drive letter, or (on some computers) the path specification in the name, e.g. 'B:NAMES'.

If only one datafile is to be used, then this option will not be needed. It may be convenient anyway to keep large datafiles on separate discs, or in separate directories.

E - Edit current file information

This enables alterations to be made to the information held in the PFI file. The information will be prompted for in the same way as option 'I', above. The current settings will be displayed in brackets. To leave any item unchanged, simply press RETURN.

F - Find single record

A simplified version of 'select record', this allows just the simple condition of the form 'string IN field'. The string should be typed in quotes, otherwise Protex will assume it is a variable name. Numbers need not be typed in quotes. The field number may be typed with or without a preceding 'f', e.g. '3' or 'f3'.

It is also possible to find the string if it appears anywhere in the record. To do this type '*' or 'f*' for the field number and all fields will be searched.

When a record is found, the question 'Correct (y/n)?' is asked. Replying 'y' will place the record into Protex's memory as a marked block suitable for merging into the other document. This is invaluable for finding an address to put into a letter. When writing the letter SWAP to the other file before using Protex Filer and when it returns swap back and copy the block over.

I - Initialise new datafile

This option should only be used when a new datafile has been created. For safety reasons a new datafile can only be created by saving a file from Protex. It should contain at least one record.

The option to initialise a new datafile creates the PFI file by prompting for the various information that is required. It also selects the new datafile for use, so option 'D' is not required as well. The information asked for is:

Datafile name

- If the datafile is to be kept on a drive other than that the Protex Filer working disc, include a drive letter in the filename, e.g. 'B:NAMES'. When selecting this datafile with the 'D' option, remember to include the drive letter and colon in the name. If paths are supported, for example under MS-DOS or on the Atari ST, the datafile name may be a full pathname, e.g. '\PROTEXT\DATA\NAMES'.

Fixed or variable

For fixed records:

Number of fields

Whether the last field is always to be blank. Usually this is the case.

For variable records:

Maximum number of fields

Field names

- A name of up to 40 characters may be used to describe each field. Any field name may be left blank.

Sort fields & types

- This defines which fields will normally be used to sort the database. After typing a field number the sort type will be requested. This can be one of 'A','Z','P','L','W','N','D' as explained in the FSORT section. The most common types are 'A' (alphabetic sort), 'N' (numerical sort) and 'P' (personal name sort).
- Any number of sort fields may be entered. The second sort field is used to separate records when the first sort fields match. The third is used if the first two match and so on. Each sort field may have a different sort type.
- The default is just field 1 with type 'A'.

Other sort options

- This may be used to give any other sort options that are required. For example Amstrad CPC users working in French will need the option '-C1'. See FSORT for details.

Note: The sort options set up here may be overridden when the sort option is selected from the menu (see below).

L - List current file information

This option simply shows on the screen the information stored in the PFI file. See 'I', above for details.

M - Mail merge

Protex includes perhaps the most powerful and flexible mail merging facilities of any word processor. This has made it a daunting prospect for many Protex users, until now.

The 'M' option makes the use of mail merging extremely easy. It operates in a similar way to print/display records, but instead of simply printing them it uses a template file.

As with print any of the three files can be used and the output can be to screen, printer or disc.

When these options have been selected a list of available template files will appear on the screen. Type the required name to choose one.

Note that the files listed all have the extension 'PMM' (Protex Mail Merge). These need not be typed.

The templates originally provided are:

LABEL1	print labels, one across
LABEL2	print labels, two across
LABEL3	print labels, three across
LETTER	a standard letter

The label printing templates prompt for the size of the labels (height in lines and width in characters). If the addresses are not printing in the correct place enter different values as appropriate. The default values of these can be changed in the label template file.

Near the start of each of the label files there is a line something like:

```
>SV pl=9 lw=26 lm=0
```

These are the default values for number of lines from the top of one label to the top of the next, number of characters from the left of one label to the left of the next and left margin to be used.

How to create new mail merge templates

The file 'LETTER.PMM' is the best place to start. The text of this can be altered as required to produce a customised standard letter. That is the easiest way to create a new template.

For other applications, there are just three rules:

(i) Start by loading 'LETTER.PMM'. This contains all the 'administration' required for Protex to do the mail merge. It is not necessary to understand this if it is not changed.

(ii) Save the file with a new name, ensuring it still has the extension 'PMM'.

(iii) Type in the required text as shown by the example in 'LETTER.PMM'. The data fields are named 'f1', 'f2', 'f3', etc, up to the maximum number of fields. At the points in the template where the data is to be inserted type &f1&, &f2&, &f3&, etc. (!f1! can also be used - see Protex mail merge documentation).

S - Select records

Various different types of conditions can be used to extract data from any of the three files and put it in the selection file.

The previous contents of the selection file, if any, will be lost. It is possible to select from the selection file, though, as the old version will not be overwritten until it has finished.

The following conditions can be used:

- 1 - cond1 (simple)
- 2 - cond1 OR cond2
- 3 - cond1 OR cond2 OR cond3
- 4 - cond1 AND cond2
- 5 - cond1 AND cond2 AND cond3
- 6 - (cond1 OR cond2) AND cond3
- 7 - (cond1 AND cond2) OR cond3

In the conditions, strings must be enclosed in quotes. Field numbers are referred to as 'f1', 'f2', 'f3' etc. The 'f' may not be omitted since numbers may be used in conditions. 'f*' has a special meaning which is relevant only to the 'in' and 'notin' operators. It means 'scan all fields for the string'. For example "mrs" in f* will find all records containing "mrs", whichever field it appears in. Note that the comparison is not case sensitive, so "mrs" will match "mrs", "Mrs" and "MRS".

In each case, cond1 cond2 and cond3 may be any valid Protex expression (either string or numeric). See the mail merge documentation of the Protex manual for details (Amstrad CPC: Promerge manual).

P - Print/display records

As usual, the main file, update file, or selection file can be used.

Three options are available - print to screen, printer or file. These correspond to Protex's PS, P and PF commands.

Either all fields, or any selection of fields can be printed. Optionally a blank line can be printed after each record. Apart from the obvious use of making the printout clearer this blank line has a very important use which is illustrated in the tutorial, section 16(ii) which explains how to change the carriage returns at the end of fields to tabs, but not those at the end of records.

Q - Quit Protex Filer

Exits from the menu and returns to Protex command mode. ESC (or STOP) will do the same.

U - Merge update file into main file

The records that have been added using the 'A' option are appended to the main datafile and the update file is cleared.

Amstrad CPC disc Protex users: There may not be enough memory to use this option, depending on the size of the datafile. If an 'out of memory' error occurs, run Protex by itself, load the main datafile and merge in the file with the same name but the extension 'NEW'. For large datafiles, the ROM system or CP/M Protex is recommended.

Z - Sort file

This will call FSORT to sort the datafile.

As with many options, the first question will be whether to use the main, update, or selection file. Type 'M', 'U', or 'S', as required.

Secondly, the question 'Use query option?' will be asked. Replying 'Y' to this will make use of the facility in FSORT to check for duplicate data. For details see the FSORT section.

Finally, the selected options will be shown. This will have been taken from the PFI file. Press RETURN to use those options, or override them by typing different options.

Amstrad CPC users: If FSORT is to be used it must have been previously installed. See the section on FSORT. Users of the disc versions of Protex and Promerge will not be able to use FSORT from the menu because there is insufficient memory and so would have to run FSORT separately. An upgrade to the ROM system is available from Arnor.

Amstrad CPC6128 with CP/M version and 1 drive: FSORT can be run from the menu, but, after sorting, the disc will need to be removed and the Protex disc inserted. When Protex has loaded again, put in the Protex Filer working disc and type 'EXEC FM'.

4. Sorting files using FSORT

This program will sort the contents of a file any of several ways. It was designed with the specific requirements of sorting datafiles containing names and addresses, but is of more general use.

FSORT can be used in one of two ways: directly from Protex command mode (or outside Protex, depending on the available memory); or from the Filer menu. There are more options available when used directly, but the menu is perhaps easier to use.

(a) Running FSORT from Protex command mode

(i) IBM PC, Atari ST, Commodore Amiga:

Ensure that the FSORT program is on the disc in the current drive or on the search path and type:

```
FSORT <input filename> <output filename> <options>
```

(ii) Amstrad PCW, 6128 CP/M:

Ensure that FSORT.COM is on a disc in one of the drives (or on the memory drive). From Protex command mode type:

```
*FSORT <input filename> <output filename> <options>
```

Or, from CP/M type:

```
FSORT <input filename> <output filename> <options>
```

(iii) Amstrad CPC with Protex on ROM:

FSORT takes the form of a resident system extension (RSX) and must be loaded before use. Insert the disc containing FSORT in drive A and type:

```
RUN "FSORT"
```

Once loaded (Utopia owners can check by typing |HELPR), use the file sorter by typing the following from Protex command mode:

```
FSORT <input filename> <output filename> <options>
```

(iv) Amstrad CPC with Protex on disc:

The instructions are the same as for ROM users, but there may be insufficient memory to sort a file with Protex loaded. It will not be possible to load Protex, Promerge and FSORT together, so if Protex and Promerge are both loaded it will be necessary to reset (press SHIFT-CTRL-ESC) and load FSORT by itself. To use FSORT from Basic type:

```
|FSORT
```

FSORT will then prompt for parameters.

It is possible to load Protex and FSORT but the size of file that can be sorted will be limited to the remaining free memory. To sort larger files it will be necessary to load FSORT by itself.

< input filename > is the name of the file which is to be sorted.

< output filename > is the name under which the sorted version of the file will be saved. If this is omitted, the input filename will be used and the original file will remain intact with its extension changed to 'BAK'.

< options > are used to specify the method of sorting to be used. They consist of a letter preceded by a minus sign (-) and sometimes followed by a number. The options available are described below.

(b) Running FSORT as a stand alone program

FSORT is a very useful program in its own right, and may be used independently from Protex. This may be necessary if a message appears indicating that there is insufficient memory. On an IBM PC or compatible it can be used in the same way from the DOS command prompt. On an Atari ST it can be used from the GEM desktop by double clicking on FSORT.PRG and typing the filename and options in response to the prompt. On an Amiga it can be used from the Workbench by double clicking on the FSORT icon, or by typing 'FSORT' from the command line interpreter. On an Amstrad CPC with disc Protex, to sort larger files it may be necessary to run FSORT without Protex in memory.

(c) Sorting options

(i) Options that define the type of file record

-Fn fixed record of length n
-V variable record length
-T fields delimited by tab

The first thing to note is whether the data is stored with fixed or variable length records.

Variable record files:

Use the option: -V

Fixed record files:

Use the option: -Fn

Replace n by the number of fields in a record, so for a file with records of 7 lines, use '-F7'. If a blank line has been left at the end of each record it must be counted in the number of lines.

Default option:

If neither '-F' nor '-V' are used, FSORT will assume variable record files.

(ii) Option to specify the field or fields on which to sort

-Sa,b,c,... sort on fields a,b,c,...

Here, 'a', 'b', and 'c' will be replaced by field numbers.

Unless otherwise specified, the records will be sorted using the first field. If a sort using a different field is required, the 'S' option should be used. This works in the same way whether fixed or variable record files are used.

To sort on the second field use '-S2'.

If a negative field number is used, it means count the fields backwards from the end of the record. For example, to sort on the last field in a variable record file, use '-S-1'.

Secondary sort fields can also be specified, to be used to order records when the first sort field is identical. For example, to sort on the penultimate field and if that is the same on the third field, use '-S-2,3'.

The field numbers should be separated by commas with no intervening spaces. Any number of sort fields may be specified, e.g. '-S1,2,3,4,5'.

Default option: If '-S' is not used, FSORT will assume '-S1'.

(iii) Options that define the method of sorting

- A alphabetic sort
- Z reverse alphabetic sort
- P personal name sort
- W sort on first word
- L sort on last word
- N numeric sort
- D decreasing numeric sort

There are many different ways of sorting provided which cater for a wide range of applications. These options may all have field numbers specified as parameters (see below). The options are:

A - Simple alphabetic sort

Z - Reverse alphabetic sort

These are straightforward alphabetic comparisons.

P - Personal name sort

This takes the last word on a line and puts it at the start before comparing. This is the sort method needed for sorting individual names. For example when asked to compare 'Alan J Brown' and 'J W Bell' it will switch them round and compare 'Brown Alan J' with 'Bell J W'.

Often, names of organisations will be mixed with individual names, e.g. 'Arnor Ltd'. If the method described above was used this would be sorted as 'Ltd Arnor' which is obviously not intended. To avoid this FSORT recognises a convention to say 'sort this field using simple sort'. This is indicated by putting a marker at the start of the line in the datafile by typing CTRL-@ ?. (Amstrad CPC users should type CTRL-X Z instead).

W - First word

This is similar to simple sort, but if the first words in the fields are the same it considers the fields to be equal and doesn't look any further. In other words it cuts off the fields being compared at the first space. This is mainly useful in conjunction with the 'Q' option.

L - Last word

Similar to first word sorting, this compares just the last word on a line.

N - Numeric sort

B - Backwards numeric sort

These are self explanatory. The number at the start of the field is used and any subsequent text is ignored. If the field being sorted does not start with a number it is sorted as if it contained zero.

Using different sort methods for different fields:

If secondary sort fields are specified it is possible to use a different sort method for each one. If one of the options 'A', 'Z', 'P', 'L', 'W', 'N' or 'D' is used with no following number, then all fields will be sorted using that method. Otherwise, numbers may be given with these options to specify the fields that use that type of sort.

For example, to sort a variable record address file using a personal name sort on field 1 with the last word of the last field (the postcode?) as the second sort field, use '-V -S1,-1 -P1 -L-1'.

(iv) Miscellaneous options

- T sort tabulated columns
- Cn country n (Amstrad CPC only)
- H list options
- Qn query if n fields match

Help option

Typing either of the following will list the available options:

```
FSORT -H
FSORT ?
```

Sorting tabulated columns

The 'T' option causes FSORT to take a tab character as a field delimiter. Otherwise, fields are only delimited by the end of a line. This option allows files containing tabulated columns to be sorted using any column. Each record occupies exactly one line.

Using accented characters

In all versions except Amstrad CPC, all the characters supported by Protex will be correctly sorted and can be freely used.

On the Amstrad CPC version the accented characters do not have separate codes, which is why Protex has the language commands to select a particular language. Issuing a language command in Protex causes certain punctuation symbols to be displayed as accented letters. The codes used follow the standard Epson printer international character sets. The 'C' option is provided to tell FSORT to treat these codes as accented letters and sort them accordingly. A number must be specified which corresponds to the Epson character set number. The options provided are:

```
-C1   French
-C2   German
-C4   Danish
-C5   Swedish
-C6   Italian
-C7   Spanish
```

Note that the 'C' option is only provided on the Amstrad CPC version. All other versions allow all languages to be freely mixed.

Checking for duplicates

Taking the example of an address file, as used in the tutorial, it is very useful to be able to check that records being entered are not already present, so an option is provided to give assistance with this. It is slightly tricky because the same name may be typed in slightly different ways and so will appear different.

The 'Q' option will query any pair of records, which appear to be the same. The criterion for 'appear to be the same' depends on the sorting options chosen, as we shall see. When two records are compared during the sort process and they are sufficiently similar, the two records will be displayed on the screen. Either one can be then be deleted by typing '1' or '2', or they can both be left (type RETURN).

So what is 'sufficiently similar'? In the simplest case, it means that the first sort fields are exactly the same according to the selected sort method. For example, using the options '-S2 -L2 -Q', any pair of records with the last word on the second line being the same, will be queried.

The 'Q' option may take a parameter to extend this. If '-Q2' is used, the first sort fields must be the same and also the secondary sort field. For example, using the options '-S1,-2 -L1 -W-2 -Q2', a pair of records will be queried if the last words on the first lines are the same and the first words on the penultimate lines.

This is where the options for sorting on first or last word are very useful for sifting out duplicated entries which have been entered slightly differently, e.g. an extra initial or space. The records are displayed on screen allowing a visual check.

This test for duplication is very much a heuristic process, and there is no guarantee that all duplicates will be found. It is possible that certain records that would match will not be found, or that some matches will be queried more than once. The reason for this is that it depends on the sort algorithm - duplicates will only be queried when the sort algorithm compares them. Comparing every pair of records would be so inefficient that it cannot be considered. If this limitation is borne in mind, the 'Q' option is a very useful, practical means for checking for duplicate data.

Important note:

When using the 'Q' option, the file is not guaranteed to be sorted correctly for the reasons just discussed. After removing duplicates the file should always be re-sorted without the 'Q' option.

(d) Some examples of using FSORT

(i) To sort a file called 'WORDS' which consists of a list of words, one per line.

```
FSORT WORDS -F1 -S1  
or FSORT WORDS
```

(ii) To sort a file called 'NAMES' which contains a list of names and addresses separated by a blank line after each address.

Thus,

```
FSORT NAMES -V -P will sort by name, surname first  
FSORT NAMES -V -S2 will sort by the first address line
```

(iii) To sort a file called 'DATA' containing a set of data items, each 7 lines long, sorting by the last word on the fifth line:

```
FSORT DATA -F7 -S5 -L
```

(iv) To sort a file called 'ADDRESS' into a new file called 'NEWADDRS', sorting by postcode (last word on the last line), followed by name if the postcode is the same and query any pair of records with the same postcode to allow duplicates to be removed:

```
FSORT ADDRESS NEWADDRS -V -S-1,1 -L-1 -P1 -Q1
```

(e) Using FSORT from the Filer menu

Using FSORT is generally much easier from the menu, because the options are taken care of by the Prottext Filer program. The record type is defined in the datafile information file and the sort fields and methods can also be configured and stored here. These can be selected by using the 'change settings' option on the menu.

Using FSORT from the menu will always sort the current datafile, or the update or selection file.

Note: Amstrad CPC users with Prottext and Promerge on disc will not have enough memory to load FSORT as well and so cannot sort files from the menu.

5. INVGEN, The Invoice generator

(a) Introduction

INVGEN can be used in different ways, depending on your requirements. Datafiles are used to store addresses of account holders and also product information. The product information file contains descriptions, product codes and prices. For businesses that have a very large number of different products it may not be practical to use a product information file, so for these cases an alternative method of use is available, as will be seen.

Since INVGEN is designed to be used in many different situations there is an extensive configuration program. This configuration can include the size and layout of the invoice itself, whether to use a product file and whether to assume various configured settings.

Other configuration options relate to the calculation of prices and include the option for different VAT codes and rates and different discount codes. Invoice numbering can be made automatic if desired, copy invoices can be saved to disc and a summary file of invoices can be updated each time an invoice is printed (the latter is not available on the Amstrad CPC version).

Your business name and address can be printed or not, depending on whether you are using printed invoice stationery. The address of the invoicee can optionally be taken from the datafile.

(b) Installing INVGEN (Amstrad CPC & CP/M versions)

As supplied, Prottext Office contains the filer menu and office menu programs on the same side of one disc. The number of files supplied with Prottext Office is approximately 60. In some cases this leaves little scope for creating new datafiles or saving invoices. A few notes here suggest different methods for avoiding this problem depending on the hardware configuration of your computer.

In the case of the Amstrad CPC and CP/M (PCW) versions there is a limit of 64 files on a CF2 disc. On an IBM PC 5¼ inch disc, the limit is 112 files. Other discs may have different limits.

(i) Hard disc users. There should be no problem, as all the files will have been copied onto the hard disc. If you do have a problem with 'disc full' or 'directory full' messages, then some files will have to be removed from the hard disc.

(ii) Amstrad PCW users with a CF2DD disc drive (either PCW8256/8512 users with drive B, or PCW9512 users). The Protext Filer working disc will be on a CF2DD format disc, which will take 256 files, so there should be no problem.

(iii) Amstrad CPC6128 users with 2 disc drives. Protext Office can be configured to save invoices and look for datafiles on a different drive. This is explained below. Protext Filer can be told to look for datafiles on a different drive by including a drive letter in the name, e.g. 'B:ADDRESS'.

(iv) Amstrad CPC6128 or PCW8256 with 1 drive, Atari 520ST with single sided drive. The Protext Office menu programs will need to be separated from the Filer menu functions. The easiest way to do this is to make two copies of the working disc (as explained in chapter 1), label one of them 'Protext Filer working disc' and the other 'Protext Office working disc'. Put the Filer working disc into the drive and (from Protext command mode) type the command 'ERA OM*.*'. Put the Office working disc into the drive and type the command 'ERA FM*.*'.

(c) The Protext Office menu

This may be called up from the Protext Filer menu by selecting option 'O'. The Protext Office menu has the following options:

- I - Print an Invoice
- C - Print a Credit note
- S - Print a Statement
- D - Set current Date
- N - Set the invoice Number
- R - Reprint document
- L - List invoice summary file
- E - Edit configuration settings
- F - Filer menu
- Q - Return to Protext

Alternatively the Protext Office menu can be called directly by:

EXEC OM
or X OM

The menu options are described in the order that you will need to use them initially.

E - Edit configuration settings

Select the option 'E' to edit configuration settings. This will offer a wide range of configuration options. In each case the default or previously selected value will be shown in brackets. Pressing RETURN will leave it unchanged.

(i) Business name and address

First you will be asked for your business name and address. If you are using printed invoice stationery this will not be used and may be left blank.

(ii) Name of address datafile

This is the file that will be used for keeping addresses of account holders. The file will be assumed to be on the Protex Office working disc, unless a drive letter is specified in the name, e.g. 'B:ADDRESS'. You will then be asked whether the address file contains telephone numbers on line 2 (of each record). The example file on the disc does contain telephone numbers, so reply 'y' to use this. If you set up a datafile with addresses only, then change this to 'n'.

It will be seen later that it is possible to enter the addresses for one-off invoices when printing the invoice. The address datafile would hold the addresses of regular customers.

(iii) Drive/path used for storing invoices

When an invoice is generated, it is stored on disc. On some floppy disc systems there is a limit to the number of files that may be stored on a disc, so even though they may be free space on the Protex Office working disc it may not be possible to use it. On a two drive system, this can be avoided by specifying a different drive for storing the invoices.

On the Amstrad CPC and Amstrad CP/M versions, this option can be set to a drive letter.

On all other versions, any combination of drive and path may be specified, e.g. '\OFFICE\INV', 'B:'.

(iv) Do you wish to use a product file?

The next question is "Do you wish to use a product file?". If 'y' is typed, the name of the product file can be entered. The file will be assumed to be on the Protex Office working disc, unless a drive letter is specified in the name, e.g. 'B:PRODUCTS.INF'.

When to use or not use a product file

The product file is suitable for a fairly small number of products. For any invoice the option is given to enter additional items manually at the time of printing. In many cases the best way to use INVGEN will be to store a few top selling products in the product file and enter others manually.

If there are no products that appear regularly on invoices, for example in the case of a business providing a service when every job undertaken is different, then reply 'n' to this question. The question of the product file can then be ignored completely.

Amstrad CPC users with Protex and Promerge on disc: Due to the limited amount of memory available it will be possible to use only a small product file. If too large a product file is created, the error 'Out of memory' will appear. Removing some of the products will cure the problem.

(v) Do you want your name and address printed on the invoices?

Reply 'n' if using printed invoice stationery, otherwise 'y'.

(vi) Is your business registered for VAT?

Reply 'y' or 'n'. If the reply is 'n', the later options concerning VAT will not appear. If you have replied 'y' to the last two questions, you will then be asked to enter your company VAT number, which will be printed at the foot of invoices.

(vii) Do you wish to enter prices ex VAT or inc VAT?

For VAT registered businesses only. Once set, this option applies to prices stored in the product file as well as any prices entered manually. The option selected should be the way that prices are quoted to the customer.

If prices are to be entered excluding VAT type 'x', if prices will include VAT type 'i'.

If prices are quoted inclusive of VAT, but entered without VAT it will be noticed that on multiple purchases the total price may be slightly different to that expected by multiplying the quoted inc VAT price.

An example will make this clear:

Prospell for the PCW9512 is quoted at £29.95 inc VAT.
Taking a VAT rate of 15%, the ex VAT price is $29.95/1.15 = £26.043$
This is entered to the nearest penny as £26.04

If just one item is ordered, there is no problem. The figures are:

ex VAT price:	£26.04
VAT @ 15% ($26.04 * .15 = 3.906$)	£ 3.91
total price:	£29.95

But suppose 10 items are ordered. The figures become:

ex VAT price:	£260.40
VAT @ 15% ($260.40 * .15 = 39.06$)	£ 39.06
total price:	£299.46

There is a 4p difference to the figure obtained by multiplying £29.95 by 10. This is due to rounding errors and is unavoidable with the way the figures were entered.

Now suppose the same 10 items were ordered, but the price was stored in the product file as £29.95, the 'inc VAT' option having been selected. The ex VAT price shown on the invoice will now be calculated by dividing the total price (£299.50) by 1.15. The figures become:

ex VAT price:	£260.43
VAT @ 15% ($260.43 * .15 = 39.06$)	£ 39.07
total price:	£299.50

Note that in this case the ex VAT unit price will still be shown (on some versions of INVGEN) as £26.04, which appears to conflict with the total for 10 items being £260.43. It does not, though, because the unit price is really £26.043.

Whichever convention for entering prices is used must be used throughout.

(viii) Do you want to be asked for footnote each time?

The footnote is the message printed at the bottom of the invoice. This will usually be a standard message such as 'Terms strictly 30 days net'. INVGEN will normally give the option on each invoice to print a different message, such as 'This account is due immediately', or 'Copy invoice. The account has been passed to Thugg & Co., debt collectors'. If there is never a need for different messages, reply 'n' to this option and the question will never be asked. Otherwise, reply 'y'.

The default messages for invoices and credit notes may need to be changed, for example if 14 days is the usual account terms. This can be done very easily by changing the message in the file 'OMINVGEN'. Both messages can be found near the end of this file.

(ix) Do you want to be asked for carriage each time?

INVGEN allows an amount for carriage to be added to each invoice. If carriage is never charged, reply 'n' to this option and the question will never be asked.

(x) Configuring INVGEN for printed stationery

Using blank paper

It is possible to use INVGEN on blank paper, or pre-printed stationery. If blank A4 or 11x9 stationery is to be used, press RETURN in response to all the questions in this section. Settings can be altered to use wider paper.

Using printed stationery

Included with Protex Office is a sample piece of paper, ruled in such a way as to suit the default invoice layout. It is otherwise blank and so is suitable for invoices, credit notes and statements. There is no company name, so it can be used as it is.

The first alternative is simply to print invoices on photocopies of the supplied paper.

An improvement would be to use headed stationery which incorporates the same ruled lines, but with your business name and logo at the top. Any printing company would be able to work from the supplied blank sheet. Depending on the printer connected to the computer, it may be convenient to use continuous stationery.

We have allowed many variations in the possible layout of invoices, to attempt to cater for existing printed stationery. The information printed will always be the same (unless the program 'OMINVEN' is altered), but all the heights and widths are configurable. The following diagram illustrates the various numbers used. It is to be expected that a fair amount of trial and error will be needed, but of course this only needs to be done once.

The letters along the top refer to column numbers.

side margin	= a
width of 'code' column	= b-a
width of 'description' column	= c-b
width of 'quantity' column	= d-c
width of 'unit price' column	= e-d
width of 'total' column	= f-e

Thus the total width of the printout is 'f' columns and this can be changed by changing the 6 separate widths which add up to the total.

The letters down the side refer to line numbers at which various parts of the invoice are printed.

company address line	= g
recipient's address line	= h
titles line	= i
totals line	= j

a

b

c

d

e

f

g

Your name
& address
printed here

h

Invoicee's
name & addr
printed here

INVOICE

Number

Date

Order Ref

i

CODE	DESCRIPTION	QUANTITY	UNIT PRICE	TOTAL
xxxx	xxxxxxxxxxxxx	nnn	£.pp	£££.pp
yyy	yyyyy yyyyyy	n	££££.pp	££££.pp

j

GOODS TOTAL
Carriage
NET TOTAL
VAT
AMOUNT DUE

Footnote printed here
E. & O.E.

(xi) Configuring the VAT codes

For VAT registered businesses only. At the time of writing there are only two different VAT rates applicable in the U.K., 15% and 0%. This may change, however, especially when the European Community 'single market' comes into being in 1992. For this reason, up to 5 different VAT rates may be defined.

By default VAT code 1 is a 15% VAT rate and the others are all zero. Code 0 is not configurable and always represents zero VAT.

(xii) Product and customer discount codes

This is relevant only if using a product file and will otherwise not be asked.

A 'two-dimensional' system of discount codes is provided for. There can be up to 5 different discount schemes, identified by the letters 'A' to 'E'. Each discount scheme consists of a number of discount rates (as percentages) numbered 1,2,3 etc. These numbers relate to the 'product discount codes' stored in the product file. Each discount scheme that is going to be used ('A' to 'E') must have the same number of discounts and they must relate to the same product codes.

An example should make that clear.

Suppose a computer company sells three types of product (software which they manufacture, software which they buy in and distribute and hardware). The discount available to trade customers depends on the type of item.

Suppose also that the company has 4 types of customer - distributor, retailer, educational and individual. The individual customer receives no discount, the various account holders receive varying discount.

The company sets the discount rates as follows (the figures are fictitious examples and do not relate to any real software company):

	Distributor	Retailer	Educational
Their own software	45%	30%	20%
Bought in software	40%	25%	20%
Hardware	30%	15%	10%

Three discount schemes will be defined. 'A' will be the distributor discount scheme, 'B' the retailer scheme and 'C' the educational discount scheme.

Type the following responses to the questions:

% Discounts for A:	45 40 30
% Discounts for B:	30 25 15
% Discounts for C:	20 20 10

Note that zero discount will be specified by the number '0'.

(xiii) The most used discount code

This can be set to '0' (for no discount) or any of the discount letters. It sets the default discount to be used by INVGEN.

(xiv) Setting up the address and product files

We have now reached the end of the 'Edit configuration' option. Before printing invoices we just need to set up the address and product data files. If either one of these is not being used, then skip that section.

The address datafile set up as an example in 'Protex Filer' is suitable for INVGEN. Type in the names of your account customers into the file 'ADDRESS' either in Protex, or via the Protex Filer 'Add new records' option. It is best to enter the most commonly used addresses near the start of the file (and not sort the file!) because these will be found most quickly.

You will need to quit from the menu to create or edit the product file. The file 'PRODUCTS.INF' included on the disc shows some example details, including an example of a product that is zero rated for VAT. It is recommended that this file is loaded into Protex and your own product details entered. When you are happy that it is correct, delete the example lines that were in the file initially.

A product file contains the following information for each product:

Description
Price
Product code
VAT code
Discount code

The information is stored on one line for each product, in the order listed above, with commas separating the 5 items. For reasons that will be seen later, it is best to list the products in approximate order of sales, with the most popular products near the top.

The description can be any string of text, though it should not be too long in order to keep the printout tidy.

The price should be either inclusive or exclusive of VAT depending on the option selected earlier. If the convention used does not match that selected when configuring, the invoice total will be calculated incorrectly. The 'E' option from the menu can be used at any time to alter the convention used.

The product code can be any letter or number code, such as a catalogue number or abbreviation for the product name. It is not used for any other purpose than to be printed on the invoice as a reference code. If product codes are not required, type two successive commas.

The VAT code is a number between 0 and 5, as discussed above. The codes most commonly used will be '1' for the standard VAT rate and '0' for items exempt from VAT or zero rated.

The discount code is a number, 1 or more. The number represents the position in the discount scheme list that gives the discount for the product. For the example discussed above, the company's own software is '1', the bought-in software is '2' and hardware is '3'.

N - Set invoice Number

INVGEN will automatically increment the invoice number each time an invoice or credit note is produced, so it should initially be set to the first number to be used. Select option N and type the number to be used for the first invoice.

When an invoice is produced it is possible to override this automatic numbering and specify the invoice number. This enables invoices to be produced out of order.

D - Set current Date (some versions only)

This allows the date to be set which will be used on all invoices by default. It is possible to override this for any individual invoice and use a different date. The date should be set at the start of a day's invoicing session.

If this option does not appear on the menu, the date will be taken automatically from the system date.

I - Print an Invoice

(i) Introduction

When the 'print invoice' option is selected, you will first be asked for the details of the invoice. The invoice will be stored in a file, called 'Innnn.POI' where 'nnnn' is the invoice number. 'POI' stands for 'Protext Office Invoice'. The invoice can then be printed, or displayed on the screen.

There are two good reasons for storing the invoice in a file rather than printing it directly; it saves wasting paper if an error is made in entering the details and it provides a permanent copy of the invoice on disc.

Any invoice can be printed from the disc later using the 'R' (reprint document) option. It may therefore be convenient to type in the details of all the day's invoices and print them to the screen to check them. The invoices can then be printed later. This enables the details to be entered if there is no printer connected.

(ii) Search datafile?

If 'y' is replied to this question, you will be asked for an account name. INVGEN will then search the address datafile for this name. It is not necessary to type the whole name. For example if the account name is 'Bifur, Bofur and Bombur Supplies Ltd.', just type 'bifur'. It does not matter whether you use upper or lower case. It may be that this will match more than one account name. Suppose, for example, there is also an account called 'Bifur Metals'. If this is found, a question will appear, asking whether this is the correct account name. Reply 'n' and the search will resume for the correct name. Try searching for 'Arnor' using the supplied datafile, 'ADDRESS'.

If you elect not to search the address datafile, or if the account name is not in the file, then you will be asked to enter the name and address for the invoice. Pressing RETURN at the 'Name' prompt will cancel the invoice and return you to the menu.

(iii) Invoice number

Pressing RETURN will accept the invoice number shown. This number will increment automatically with each invoice. The number can be set using the 'N' option, described above.

If a different invoice number is required for any reason, enter it at this point. If this is done the stored invoice number will not be incremented.

(iv) Invoice date

Press RETURN to accept the date shown, or enter the date if a different date is required.

(v) Order reference

Enter the customer's order number or other reference. This will be printed on the invoice under the date. To leave this blank just press RETURN.

(vi) Discount type (0 = full price) (only if using a product file)

Enter the customer's discount code. Type '0' if no discount is being allowed, or a letter between 'A' and 'E' to use one of the discount schemes as explained above. Pressing RETURN will use the default setting that was specified when configuring.

(vii) Carriage

Unless you have elected not to be asked for carriage, an amount can be entered as a charge for carriage. Pressing RETURN will set the amount to zero.

Important note: carriage is assumed to be charged at VAT rate 1.

(viii) Footnote

A message to be printed at the bottom of the invoice in place of the standard footnote. Pressing RETURN will cause the standard message to be printed.

(ix) Is VAT chargeable? (VAT registered businesses only)

Usually, just press RETURN here because VAT is chargeable. Reply 'n' on orders for export. If VAT is charged on some items only, reply 'y' or press RETURN.

(x) Enter quantities for each product (only if using a product file)

Each of the product descriptions in turn will be prompted. Type the number of items of that product that are on the invoice. If there are no items, press RETURN. If all the relevant products have been entered, typing 'E' will skip the remaining products. It is best, therefore, when editing the product file, to list the most commonly invoiced products first.

After entering the quantities, you are given the option of re-entering them, so if a mistake is made it is not necessary to start from scratch.

(xi) Enter details of products manually

If you are not using a product file, all items are entered in this way. If using a product file, you have the option to enter additional items that are not covered by the product file. Press RETURN at the 'Product code' prompt when all items have been entered, or if there are no additional items.

The prompts here are:

Product code: Enter the catalogue number or product abbreviation. To leave it blank type a space and press RETURN (since pressing RETURN by itself indicates that you have finished).

Description: The description of the product.

Quantity: The number of items ordered. If anything other than a number is entered, you will be asked to enter the product details again. If anything other than a number is entered, you will be asked to enter the product details again.

Unit price: The price for one item. For VAT registered businesses this price should be inclusive or exclusive of VAT according to the convention specified when configuring. If anything other than a number is entered, you will be asked to enter the product details again.

VAT code: VAT registered businesses only. Pressing RETURN cause VAT rate 1 to be used (the standard rate). Type '0' for a product that is zero rated, or another number as appropriate.

Press RETURN at the 'Product code' prompt when all items have been entered. The invoice totals will then be calculated and the invoice stored in a file called 'Innnn.POI' where 'nnnn' is the invoice number.

(xii) Send to printer or screen?

Select 'p' or just press RETURN to print the invoice. Select 's' to show it on screen if you are not ready to print it. The disc file containing the invoice will remain on the disc so it can be printed later. The name of the file will be of the form 'Innnn.POI' where 'nnnn' is the invoice number. For example, if the invoice number was '1234' the invoice will be stored in the file 'I1234.POI'. When printing to the screen, ESC (or STOP) can be used to pause the display.

C - Print a Credit note

Creating a credit note works in exactly the same way as creating an invoice. The differences may easily be summarised:

(i) The credit note is stored in a file with name of the form 'Cnnnn.POI', where 'nnnn' is the credit note number.

(ii) The invoice number will increment itself in the same way. A common convention with credit notes is to use the number of the invoice to which the credit applies, perhaps with a prefix, such as 'CN'. To do this, simply type the required number (or letters and number) when the 'Invoice number' prompt appears.

(iii) The words 'CREDIT NOTE' will be shown on the printout in place of 'INVOICE'. The standard footnote is 'This amount has been credited to your account'.

S - Print a Statement

This works in a very similar way to the options 'I' and 'C'.

Statements are printed using the same layout as invoices and credit notes. This means that the same printed stationery can be used. Protext Office will print the relevant title ('INVOICE', 'CREDIT NOTE' or 'STATEMENT').

You will first be asked whether to print the statement directly, or store it in a file. Unlike invoices, statements are not automatically saved on disc, since on many systems this would restrict the number of directory entries available for invoices. It is possible, though, to store all statements on disc. Hard disc users in particular may want to do this. Reply 'P' to do this and supply a file name. Statement files will always be stored with the extension '.POS' (Protect Office Statement), so the name entered can be up to 8 letters. This would most usefully relate to the account name.

Selecting the account name, setting the statement date and the footnote work in exactly the same way as for invoices. The standard footnote message is 'The amount due is the last figure in the BALANCE column'.

Entering the statement details

You will first be asked to enter the opening balance. Normally all outstanding invoices will be shown on the statement, so the opening balance will not be used. In this case just press RETURN. There may be occasions when an account is in credit (that is, the customer has paid too much, or paid something in advance). This can be shown as a transaction on the statement, or just shown as a balance carried forward.

All credits are entered as negative numbers. Type a minus sign (-) followed by the number. This includes the opening balance, so if an account is £500 in credit, type '-500'. If the account has £500 owing and you do not want to show all the transactions that were listed on the last statement, type '500'.

You will then be asked to enter the details of all the transactions to be shown on the statement. They would normally be entered in date order and would include all outstanding invoices and any payments made since the last statement. For each transaction the following details will be needed:

Transaction date: The date of the original invoice, or the date that a payment was received. Press RETURN at this point when all transactions have been entered.

Invoice number: The number of the outstanding invoice or, if entering a payment, the invoice number to which the payment relates.

Amount: The invoice total or amount received. Remember to type amounts received as negative numbers. For example if a cheque for "£245.78" is received enter this as '-245.78'.

When all transactions have been entered press RETURN at the 'Transaction date' prompt. If the statement is being printed to a file the option to print it immediately or display it on screen is given and works in the same way as for invoices. Otherwise the statement will be printed out directly.

R - Reprint document

This is the option used to print invoices, credit notes, or statements that have been stored earlier. First you will be asked to type 'i', 'c' or 's' to select the type of document. A list of the relevant files will then be displayed. Select the required file by typing its name, which will be in the form 'Innnn' or 'Cnnnn' in the cases of invoices and credit notes. There is no need to type the '.POI' extension, this will be assumed.

The invoice can be printed on the printer or screen. When printing to the screen, ESC (or STOP) can be used to pause the display.

The invoice files remain on disc after printing, so may be printed again at any later time. The files are also available as a reference (though of course it is strongly recommended that a printed copy is kept as well).

'Directory full'

After a number of invoices have been stored, the disc directory will become full on some computers. The message 'Directory full' will appear. You will then need to copy the invoices already stored onto another disc and delete them from the working disc. This should be done from Protex command mode, using 'COPY' to copy the files and 'ERASE' (Amstrad CPC: 'ERA') to delete them.

How to reprint an invoice when a slight alteration is needed

If an invoice is slightly wrong, for example the wrong order reference has been entered, it is not necessary to re-do the entire invoice. Simply load the relevant file into Protex (remembering that you need to type the '.POI' this time) and edit it to correct the mistake. The invoice can then be printed with the Protex 'PRINT' command, or via the menu 'R' option.

L - List invoice summary file (not Amstrad CPC version)

When an invoice or credit note is created, a summary of the details is appended to a file called 'OMINVSUM'. This file contains one line for each invoice or credit note and the information given is:

- Invoice number
- Invoice date
- Account name
- Invoice total

The 'L' option simply displays this file on the screen, or prints it. ESC (or STOP) can be used to pause the display when printing to the screen.

F - Filer menu

This option simply calls up the Protex Filer menu, if it is on the same disc.

Q - Quit

'Q' will quit to Protex command mode.

Appendix - EXEC for Amstrad CPC users

Protex Filer makes extensive use of the EXEC command for executing a file of commands. EXEC is present as a command in all versions of Protex except the Amstrad CPC version, so in this case it is provided with Protex Filer as an RSX. Further details are given here, because there are many applications of EXEC for automating functions within Protex.

The EXEC RSX is installed by the command:

```
RUN "EXEC"           type this from Basic
```

Users of the disc version of Protex should install EXEC before loading Protex.

If Utopia is fitted, EXEC may be installed from Protex command mode, with:

```
RUN EXEC.REL
```

Language commands and character redefinitions

When using the language commands of Protex, or when characters are redefined using the 'SYMBOL' command, the following Basic command must be executed before loading EXEC or FSORT:

```
SYMBOL AFTER 256
```

About EXEC files

An EXEC file is a file that may contain text, commands and codes and which, when called with the EXEC command, will be read by PROTEXT and the contents treated and acted on, as if they had been typed in at the keyboard.

Creating an EXEC file is extremely simple and is done by typing the required text and control codes in, as would be done with any document. PROTEXT will understand the control codes to be instructions to carry out the commands.

In addition to ordinary text, any of PROTEXT's command mode commands may be used. Each of PROTEXT's edit mode commands, such as CTRL-F to format a paragraph and CTRL-<, to jump to the start of the paragraph, have their own code values, as do all the characters which appear on the screen when a key is pressed. Codes must be entered in a special way, otherwise PROTEXT will consider them to be ordinary text. A special 'Escape character' is used to tell PROTEXT that the character(s) which follow is/are a code and the escape character used is the vertical bar (|). The escape character must appear before and after the code. The codes are listed in the Prottext manual, page 51.

For example the following sequence of codes will simulate pressing ESC, moving to the end of the text, pressing RETURN, pressing ESC again and merging a file called 'DATA':

```
|252| |29| |13| |252|M DATA|13|
```

Using EXEC

The EXEC RSX provides 5 new external commands.

EXEC - execute a file of commands

Usage: EXEC <filename >

This causes keyboard input to be taken from the specified file until the end of file is reached. Pressing ESC will abort the exec file at the next line end. The contents of the exec file are loaded into memory when the EXEC command is issued, to avoid the problem of trying to have two input files open (which Amsdos does not support). To minimise the amount of memory used, the size of an exec file is limited to 256 bytes. To string more commands together either include another EXEC command in the file to chain to the next file.

XS - execute a string of commands

Usage: XS <string >

This causes the keyboard input to be read from the supplied string until the end of the line is reached.

X - the same as EXEC

PAUSE- wait for a key press. ESC aborts the EXEC file.

; - echo line to screen

These commands allow prompts to be put in EXEC files, for example:

```
; Change the disc in drive A and press a key  
PAUSE
```