

MF-PRINT User Guide

Introduction

MF-PRINT is an extension to MASTERFILE which allows the printing of full-width reports on any printer which can be connected to a ZX Spectrum. Without MF-PRINT, printing is limited to screen copies. But other benefits of MF-PRINT are advanced data editing (e.g. 12345 becomes £12,345.00), easy forms synchronization (e.g. keeping in step with peel-off labels), and multiple column totals.

A prerequisite is MASTERFILE version 09 or higher.

Summary of operation

A separate Basic utility **MFP Util** is used to design and modify print formats. The utility saves all the information as a 'specification' file which is used by MASTERFILE. Once your print formats are finalised, the utility is no longer needed.

MASTERFILE's machine code is partially overlaid by **MFP Ovly** machine code. This code (59770 for 1742 bytes) replaces the EDIT mode function and is used to process selected records against a specification (provided by MFP Util) to produce the printed report. While MFP Ovly is loaded, EDIT mode is not available, but all other MASTERFILE functions are usable. The overlay method is designed so as to consume as little additional RAM as possible.

MF-PRINT sends all print data through stream #3, so it can be used with most of the popular printer interfaces, including Interface 1 RS232. Software-driven interfaces must have their code loaded below MASTERFILE's CLEAR address, preferably in the buffer at 23296. The TASMAN Centronics interface does not need driver code loaded, this being built into MFP Ovly.

Report Layout

Each page of a printed report consists of a *Heading Area* followed by one or more *Record Areas*. The Heading Area is reserved for static headings, and need not be present. Each Record Area is used to display data from one selected record but it can also show static text as well. Each page can have an overall left-hand margin.

Overall page length is specified so as to synchronize with forms perforations or peel-off labels. Headings are repeated at the top of each page, but you can also elect to have an infinite page with headings once only. (The latter is done by specifying 255 records per page.)

Data from selected records can be shown in a variety of formats, with similar word-processing to that used in screen reports. For numeric data especially, there are several display options.

Finally, any numeric data can generate a column total.

Using program MFP Util

LOAD "MFP Util" and the very first thing it does is to invite you to SAVE it on cartridge. Ideally, you should store it on the same cartridge as MASTERFILE proper. You can also take a cassette copy via **BREAK** and **SAVE "MFP Util" LINE 100**.

The utility starts processing with the prompt **New Report Y/N** and you press **Y** first time. (Use **N** another time to load an existing spec. to alter it.) The utility starts by displaying the 'geometry' of the report. For a new report, all the values shown are defaults - press **Y** when prompted **Replace any of these Y/N** and enter required values at the > cursor. To leave a value unchanged, just press ENTER to advance the cursor. You cannot make the > cursor go backwards, but you can go round again any number of times. The values which make up the geometry are as follows:

Report number: 1-255, an optional means of identifying the report. The number is displayed by MF but not printed.
Left margin: number of spaces printed before heading and record areas.
Heading depth: number of lines depth (0-n) of Heading Area.
Lines per record: number of lines depth (1-n) of the record areas.
Records per page: 1-255. If 255, just one 'infinite' page.
Total form depth: number of lines per page, used to keep step with labels or perforations.
Sequence data ref: governs sequence in which selected records are printed. Leave as "-" if no sequence required.
Printer code for £: code of £ symbol recognised by your printer. (N.B. Some interfaces already compensate for this.)
Printer code for copyright symbol: e.g. use @ instead.

Once you elect to make no further changes to the geometry section, the utility then invites you to insert heading specs. and data specs. Or, if reviewing an existing format, you are presented with each of these in turn, and invited to alter or erase them. There is no importance to the order in which heading and data specs. are inserted, and you may have any number of either of these. A heading spec. defines a static text to appear within the Heading Area. A data spec. defines how a data item is to appear within its Record Area.

When inserting a heading or data spec., you are presented with a default set of values which you then proceed to replace. Both kinds of spec. offer a means of inserting up to 10 printer control codes which are used at the start of the line. For the most part you may leave them as do-nothing zeros, but they may be used to turn on double-width, alternative pitch, alternative line feed rates, etc., whatever your printer supports.

The information contained in a heading spec. is as follows:

Line: line number within Heading Area. 1st line is 0.
Column: start column, not counting any overall margin.
Text: up to 200 characters.
Up to 10 printer control codes.

Information contained in a data spec. is as follows:

Data ref: that of item to be retrieved from a record and printed at . . .
Line and column: both are relative to top left of the Record Area.
Width: maximum no. of characters across.
Depth: maximum no. of lines. (You can display an item as a paragraph, just as with screen formats.)
Text if no data: filler in place of data absent from a record. By using an unused data ref, e.g. '@', you can use this to force a short heading. (10 characters max.)
Right justify: Y or N.

Edit numeric data: Y or N. (If N, the next 3 functions are ignored.)

Leading symbol: an optional prefix, e.g. £ or \$.

Two decimal places: Y for x . . . x x . x x N for integer.

Thousands commas: Y or N. Y yields x x , x x x , x x

Column total: Y or N. If Y, any non-numeric data is treated as zero.

Up to 10 printer control codes.

Sometimes the utility will refuse a value, and beep. This will be because the value is illogical or beyond range. For example, you cannot specify line 2 in a record area only 1 line deep. Any BREAK or Basic error halt can be recovered by **GO TO 1**.

When the entire specification is completed, you are invited to save it to cassette or microdrive. The save name you give here is the name by which MASTERFILE proper loads it. It is also the name by which you can re-load it into the utility for further changes if required. A specification is saved from character array P\$.

When you have finished with the utility session, it offers to load MASTERFILE from drive 1. Alternatively, it can STOP.

Adapting MASTERFILE

If your MASTERFILE was bought with this MF-PRINT, or if it already has line 4200 present, then skip this paragraph. Otherwise, you must load your MASTERFILE, break into Basic, and **MERGE "MFM"** to merge a few extra lines into the Basic. MFM is the last component on your MFP cassette.

One part of MASTERFILE Basic you must still insert yourself is line 4210, because this varies according to which printer interface you intend to use.

Line 4210 is there to initialize your interface, if required, and takes the form of one of the following:

4210 FORMAT "b"; (baud rate): **OPEN #3;"b": GO TO USR R**

Above used with Interface 1 RS232.

4210 RANDOMIZE USR 59772: GO TO USR R

Above used with Tasman parallel interface. It is not necessary to load Tasman interface code since this is built into MFP Ovly.

4210 GO TO USR R

Above used if no initialization needed, as with some EPROM systems, or if already initialized at load, e.g. Kempston's BUFF1.

You can insert any other initialization statements in lines 4210 to 4280, but always finish with **GO TO USR R**. Line 4210 gets used every time a report print is solicited.

Line 4290 is used everytime a report print finishes. It contains a CLOSE of stream 3, which is harmless if not using the Interface 1 method.

Microdrive users should now erase **MF**, **GO TO 1**, and use **V P MF** to re-install the tailored Basic component of MASTERFILE. Cassette users can also do a full save now, or wait until the overlay code has been loaded and tailored.

MFP Ovly

This is machine code which must be loaded after MASTERFILE has been loaded. In fact it overwrites the Edit Format Def code within MF mcode, and although main menu still shows **Edit E**, pressing **E** is how you invoke MFP once the overlay has been loaded.

To load the overlay from cassette, break out of main menu via **L** and **CAPS SHIFT 6**, then:

LOAD "MFP Ovly" CODE

and play the MFP cassette. Resume main menu via **GO TO 1**, but first you may need to **POKE** some changes.

If you are using Tasman "B" interface, **POKE 59775,1**.

If you are using Interface 1 RS232 and a printer which does not have automatic line feed (LF) at carriage return (CR), then you need to tell MFP to send LF coded, via **POKE 60630,0**. Indeed, if your print-out lines just overwrite each other without advancing the paper, make this **POKE** to cure.

You can re-SAVE your overlay code, **POKE'd** as required, via:

SAVE "MFP Ovly" CODE 59770,1742

If you are using microdrive, we suggest in any case to save the overlay to your MASTERFILE start-up cartridge, via:

SAVE *"M";1;"MFP Ovly" CODE 59770,1742

If you are using only cassettes, you may wish to keep a version of MASTERFILE with MF mcode already overlaid with the MFP Ovly code, which would make it easier to use. However, you would need to re-load the original MF mcode in order to be able to use Edit Report Def function.

Using the system

Initially, you must create a report specification via MFP Util, and save the resulting P\$. Then load up MASTERFILE and if this does not yet include the overlay code, you must break into Basic and load MFP Ovly. A quick way for microdrive users is simply via **GO TO 3**. The full list of **GO TO** lines is as follows:

- GO TO 1** to main menu.
- GO TO 2** to load the MFP Util program from drive 1, to design or modify a specification.
- GO TO 3** to bring in the MFP Ovly overlay code from drive 1 and return to main menu.
- GO TO 4** to re-load the original MF mcode, enabling Edit mode, and return to main menu.

(You can insert your own lines 6,7 etc. to **GO TO** to load anyother programs.)

Once you have created a specification using MFP Util, and saved it, bring up MASTERFILE and then load the MFP Ovly. Then use main menu option **E** to invoke MFP. If no P\$ is yet loaded, you are prompted to load a print spec. from cassette or cartridge. The report reference number is displayed in white, and the following menu appears:

L to load a print specification
P to print selected records
M return to main menu

Use **P** to print the selected records. Printing starts. You can prematurely end this using the **Q** (QUIT) key - but note that any column totals always reflect all selected records, printed or not.

You can also load another report spec. by pressing **L** (if you then wish to back out to main menu, just press ENTER).

If a **P\$** is already present when you use main menu **E**, then the above menu comes up immediately.

You can save the program with **P\$** spec. already present, if this will save time later. But note that there can be only one P\$ spec. in the computer at one time.

Further notes

Screen report formats are always an integral part of file, being stored within F\$. In contrast, MFP print formats are held independently within P\$. Thus the same P\$ can be used for many different files, and loading a fresh file does not affect any P\$ already loaded.

Microdrive users: we suggest that P\$ specs. are saved initially onto cassette, until fully debugged. Then save to cartridge. This avoids having to erase intermediate versions.

Microdrive users: you can save and load MASTERFILE files and MFP Print formats using any drive number. But your 'system' cartridge on drive 1 should contain:

MF, MF mcode, MFP Ovly, MFP Util, run

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CAMPBELL SYSTEMS

57 Trap's Hill, Loughton, Essex IG10 1TD, England.

Tel: 01-508 5058