

3. MASTER ROUTINE GENERATOR (08004)

3.1 Purpose and Scope

The program produces a 'tailor-made' Master Routine from a given BASIC version, according to control data specifying the facilities required.

3.2 Data

- (i) Input magnetic tape. This must be the current Basic Master Routine, as output by the Intercode Translator. (e.g. program 09001, serial 600xx, file A2.)
- (ii) Paper tape or card parameter file. (See Appendix A.)

3.3 Results

- (i) Magnetic Tape containing Pass 1 (Intercode) and Pass 3 (Machine Code) of the generated Master Routine, in the form as produced by the Intercode Translator.
- (ii) Magnetic Tape containing a copy of Pass 3.
- (iii) A print out of the parameters, the generated amendments and the generated Master Routine. This file may be printed off-line by allocating the Generator with (A) non-zero. This file is then printed using 08002 with control data "09001 INTER".

3.4 Procedure

The control data is used to set up a list of required facilities. The Basic Master Routine carries indicators in the annotation which are compared with the list in store to determine whether an amendment is required.

Amendments are written onto a working tape as they are produced. When the end of the Basic Master Routine is reached, this tape is rewound, and Pass 1 of the Intercode Translator is entered. The generation process is described in greater detail in Appendix B.

3.5 Operating Notes

3.5.1 Allocation Details

- (i) Chapter Lengths:-
 - Chapter 1 3906 Locations
 - Chapter 2 8072 Locations
 - Special Chapter 512 Locations

- (ii) Files in order of Allocation:-
- D1 Printer
 - B1 Paper tape/card control data
 - A1 Basic Master Routine Input
 - A2 Intercode + Machine Code Output
 - A6 Working tape and Machine Code copy

3.5.2 Log Comments

- a. 08004 AMEND 09001 (Serial)

This is typed as soon as the input has been checked and accepted.

- b. (i) 08004 NO DUMMY (Line Serial)
(ii) 08004 INDICATOR WRONG (Line Serial)

These reports both indicate errors in the Basic Master Routine. In either case alarm 13 is offered, and the recommended procedure should be followed.

- c. 08004 PROG OUT 09001 (New Serial)
d. 08004 MAKES PASS 3 COPY ON (Spool No.)

These reports are produced as in the translator, before the final alarm.

- e. 08004 ALLOCATED EXTRA ROUTE (Ch. Ch. Rte)

This report is produced as in the translator when a change in the print medium occurs.

3.5.3 Alarms

- *02 Input tape does not contain a Basic Master Routine.
- Option 1 Unload
- Option 2 Open a new input tape.
- *03 The parameter file does not have data type 1 on the first block.
- Option 1 Unload
- Option 2 Re-enter at the beginning of the Generator.

*06 and
*07 End of Generation Alarm. Alarm 7 is offered if the printing is off-line; and the program bears errors, or if a reference is made before a chapter start (see Alarm 13).

Option 1 Unload

Option 2 Re-enter Generator, printing on-line.
(i,e, Make another master.)

Option 3 Enter the Master Routine Input sequences to make a tape start version of the generated Master Routine.

Option 4 Re-enter Generator, printing off-line.

Note:- When Option 3 is taken the Generator must not be time-sharing and must have tag 1.

*10 The requested print medium is not available.

Option 1 Unload

Option 2 Attempt allocation of the required print medium again (A route should be set available by command before this option is taken).

Option 3 Continue, using the present print medium.

*13 Error in the basic master routine, as specified in the preceeding log comment.

Option 1 Unload

Option 2 Re-enter at the beginning.

Option 3 Continue, ignoring such errors.

Option 4 Continue, reporting such errors. Alarm 13 will be offered after each report in this case.

Note:- The recommended procedure is to take option 4 and continue generating. When end is reached, send all details to the Company for investigation. (Log, parameters and print-out.)

APPENDIX A : CONTROL DATA

The paper tape/card parameters for the Master Routine Generator consists of three data types and the end sign "END". In the case of paper tape, data is punched in variable field format. When using card parameters the data is punched as follows:-

- (i) Each card has the data type punched in column 5 (END in 3-5).
- (ii) Each item of data is assigned a 5 column field and is right aligned in the field. No number ends are punched. Zero items must NOT be punched, otherwise following items will be ignored.

Data type 1.

This specifies the required version number of the master routine to be generated, (this will generally be the machine number, e.g. 45 for III/45).

Data type 2.

These specify the facilities required in the master routine to be generated. One number is submitted for each facility. The sample data forms are designed to facilitate punching of control data. Instructions are included on the sheets, and notes on each optional facility will be found in Appendix A2, and should be studied before attempting to use the parameter forms.

Data type 3.

This data type specifies the intended use of each input/output route. One block is submitted for each channel. The form of the data is described on the appropriate sheet. If no data type 3 is submitted, no change will be made to the form of routes in the basic master routine, but if any data type 3 is submitted, all channels must be specified.

The routes as in the basic master routine are shown in Appendix A4.

Sample Data Forms

GENERATOR HEADING SHEET

/// // 08000 B 1 1 0 1

(Data Type) (Version No. Enter 2 digit Machine No.)

1	..
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		YES/NO	Data Type	
(1)	Do you require the "Prefer PT" and "Prefer Card" Commands?			2 7
(2)	Do you require the "Type Priority Queue" Command?			8
(3)	Do you require the facility to start and stop timings?			9
(4)	Do you require the "Interchange Priorities" Command?			11
(5)	Do you require the "Change Run No." Command?			12
(6)	Do you require the "Open" and "Close Program" Commands?			13
(7)	Do you wish to be able to optionally specify the program in commands by its Tag?			61
(8)	Do you require the "Dump Store" Command?			41
(9)	Do you require the "Change Route" Command?			11
(10)	Do you require the facility to amend the routes availability table?			12

Read Appendix A2 before answering questions.

Answer all questions YES or NO. Wherever the answer is NO, block out the number and box opposite the question. Those numbers then remaining should be submitted to the generator. If no numbers remain, the sheet in question may be omitted (i.e. blank blocks may be omitted). Non significant number ends must NOT be punched. For examples see Appendix A3.

		Data Type	2
(11)	Do you wish to specify Channel and Route on the Indicators for the above Command?		515
(12)	Do you require the Intercode action "Release Route"		13
(13)	Do you require the availability of the Abandon Option to Master Routine alarms 1, 2 and 3?		14
(14)	Do you require the facility to defer answers to options?		46
(15)	Do you require the availability of alternate routes, when requested by program?	(1) on MT	17
		(2) on PT	18
(16)	Do you require the Intercode action "Select Reel Counter"?		19
(17)	Do you require the Intercode action "Step Forward"?		111
(18)	Do you require options for realignment following a doubtful block on PT or card input?		42
(19)	Do you require the option to "Change Deck" following a doubtful block or misalignment alarm on MT?		512

		Data Type	2
(20)	Do you wish the Master Routine to punch a 'Librarian Card' when opening an output magnetic tape file?		25
(21)	Do you require a shortened 'Released Tapes Index' of 24 locations?		413
(22)	Do you require the facility for allotting a serial number to each RTI?		614
(23)	Do you wish the Master Routine to input magnetic tape via a single annex?		10
(24)	Do you wish to use non-standard paper tape output?		28
(25)	How many program switches do you require? N.B. Only select one number: e.g. for 4 switches <u>select key</u> number 38 NOT 114, 113, 115, 38	1	114
		2	113
		3	115
		4	38
		5	39
		6	414
		7	510
		8	511
(26)	Do you wish the Master Routine to type 'EDG' when a program closes file prematurely?		110
(27)	Do you wish the Master Routine to type 'DB' on curing a doubtful block on magnetic tape?		43
(28)	If you have DB comments, do you wish this to be restricted to every fifteenth occurrence of the condition on output files?		51
(29)	Do you wish the Master Routine to type 'SER' on curing serial number failure?		50
(30)	Do you require the 'Omit Category Typing' Commands?		513

		Data Type	2
(31)	Do you require shortened comments for Lockout and Overflow?		34
(32)	Do you require shortened 'Command rejected' comments?		36
(33)	Do you wish the Master Routine type a serial number against "LOP" and "HOP" comments?		<u>315</u>
(34)	Do you wish the Master Routine to type a machine number, in place of the time for all comments typed in red?		58
(35)	Do you wish the Master Routine to type 'hours and minutes' about every 15 black comments (i.e. about one per page)?		<u>611</u>
(36)	Do you require the 'Overwrite Allocate' command to allocate programs in place of the Master Routine allocation routines?		40
(37)	Do you require the facility for sharing Modification groups by two or more programs?		59
(38)	Do you wish to be able to allocate on any channel or route? (i.e. Multiroute loading)		57
(39)	Do you require the ineffective time counter?		<u>215</u>
(40)	Do you wish the Master Routines preferred route type to be paper tape?		<u>314</u>
(41)	Do you wish to use PTS?		60
(42)	Do you wish all PTS dumps to be printed on-line at the end of the trial?		54
(43)	Do you wish comparison dumps only to be printed on-line by PTS?		44
(44)	Do you wish the Master Routine to check the suite of input files against that of the program?		48
(45)	Do you wish the control data route to be closed after allocation?		20

		Data type	2
(46)	Do you wish to use Channel 0 route 7 as an available route for 'programs'?		45
(47)	Do you wish to vary the area of a card which is to be checked during option 8 realignment following a doubtful block?		66
(48)	Do you require the 'Type Available Storage' command?		67
(49)	Do you require the 'Type Available Routes' command?		68
(50)	Do you require the 'Rewind' or 'Unload Program Tape' commands?		69
(51)	Do you wish the program identity written on the magnetic tape to be typed in LIP, HIP, LOP and HOP comments (in addition to the identity of the program handling the file)?		71
(52)	Do you wish 'RC' comments to be delayed by about 12 seconds, preventing time wasting by typing?		615
(53)	Do you wish the 500 millisecond delay in changing direction on Magnetic Tapes to be interruptible		514
(54)	Have you a mixture of high and low density channels on magnetic tape?		72
(55)	Do you wish to allocate specifying program identity only?		70

Appendix A1 (08004) (Cont'd)

	YES/NO	Data Type	2
(1) Paper tape input			2
(2) Paper tape output			3
(3) Card input			4
(4) Card output			5
(5) 'Uptime' card reader			16
(6) Two 'Uptime' card readers			85
(7) Autolector			30
(8) MICR Cheque-Reader-Sorter			49
(9) Data Transmission input			56
(10) Data Transmission output			82
(11) Special Printer Assembler			214
(12) Both types of Printer (i.e. GP and SP)			86
(13) 'Old' log typewriter (at present III/2, 3 4 and 5)			35
(14) Saxby Clock			31
(15) Millisecond Timer			312
(16) Have you paper tape input on channel 2?			53
(17) Have you paper tape input on channel 4?			10
(18) To which type of assembler is the Log typewriter connected?	GP Assr PT O/P		29 26
(19) Have you both a GP assembler and a special paper tape output assembler?			55
(20) Is this the speed of your machine?	LEO III		310
	LEO 326		411
	LEO 360		412
(21) Has the machine more than one store?			311
(22) Has the machine a 160 column printer?			62

Appendix A1 (08004) (Cont'd)

	Data Type	2
(23) Do you require extra annex start locations? (i.e. are most of the input/output routes on your machine allotted to actual equipment?). N.B. This applies to 326's and 360's only		415
(24) Have you High Density Magnetic Tape Decks?		1
(25) What type of magnetic tape decks have you?	III/1	212
	III/2	213
	TM 2	211
	TM 4	210
	POTTER	210
(26) Have you 'Fast Channels' (16, 17, 18)?		313
(27) How many magnetic tape channels have you?	1	22
	2	23
	3	24
(28) Does your machine have the hardware "Compare" action?		80
(29) Non standard 5-8 hold paper tape output.		81
(30) Non standard 5-8 hole paper tape input.		83