

Examples of how to fill in and punch questionnaire.

		YES/NO	Data Type	
(1)	Paper tape input	YES		2
(2)	Paper tape output	NO		<del>2</del>
(3)	Card input	YES		4
(4)	Card output	YES		5
(5)	'Uptime' card reader	NO		<del>16</del>
(6)	Autolector	NO		<del>30</del>
(7)	MICR Cheque-Reader-Sorter	NO		<del>40</del>
(8)	Data Transmission input	YES		56
(9)	Data Transmission output	NO		<del>82</del>
(10)	Special Printer Assembler	YES		214
(11)	'Old' Log typewriter (at present III/2, 3, 4 and 5)	NO		<del>35</del>

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

This page and the previous page should each be punched as one block. On paper tape they would be punched as:-

2	2	4	5	56	<u>214</u>
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2	8	<u>11</u>	<u>12</u>	41
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and on cards they would be:-

Card 1

Col. 5	2
Col. 10	2
Col. 15	4
Col. 20	5
Col. 24	5
Col. 25	6
Col. 29	2
Col. 30	6 and 8

Card 2

Col. 5	2
Col. 10	8
Col. 15	<u>11</u>
Col. 20	4 and 8
Col. 24	4
Col. 25	1

ROUTE USAGE REQUIREMENTS - As in Basic Master

	DT	0	1	2	3	4	5	6	7
CHANNEL 0	3	10	7	7	7	17	17	17	10
CHANNEL 1	3	18	18	18	8	8	8	8	18
CHANNEL 2	3	0	0	0	0	3	3	0	0
CHANNEL 3	3	15	5	5	5	6	10	6	10
CHANNEL 4	3	19	9	9	0	0	0	0	0
CHANNEL 5	3	0	0	0	0	0	0	0	0
CHANNEL 6	3	0	0	0	0	0	0	0	0
CHANNEL 7	3	1	1	10	10	10	10	10	10

APPENDIX B : THE GENERATION PROCESS1) List of required facilities

Each available facility in the Master Routine has associated with it a code number. This is the number shown against the facility in the Questionnaire in Appendix A. The numbers of the required facilities comprise data type 2.

A bit pattern is set up from this data, 16 bits to each control word, e.g. if 2 $\overline{10}$  is submitted, bit 10 of the third control word is set up. If 13 is submitted, bit 3 of the second control word is set up, and so on. The appropriate number is then said to be "active".

2) Indicators in the Annotation of the Basic Master Routine.

The presence of an indicator is recognised by the presence of an asterisk as the first character of the annotation. The indicators following are 3-digit binary numbers. The first two digits in each case are the code number relating to the facility in question, the third digit determines what type of amendment, if any, is to be produced.

More than one indicator may appear on a line, and these may or may not be separated by asterisks, depending on their function. If they are not separated, action will be taken if all numbers are active.

3) Types of Amendment.

The last digit of each indicator specifies the type of amendment which is produced.

1. Delete this line if the code number is active.
2. Delete from this line to the next line bearing the same indicator, or the end of the section, whichever is reached first - if the code number is active.
3. Replace this line by the first stored dummy bearing the same indicator - if the code number is active.
4. Replace the item of this instruction by five digits taken from the commentary - if the code number is active.
6. Replace the reference of this line by the reference of the first dummy bearing the same indicator - if the code number is active.
9.  $\overline{14}$  as for types 1-6, but carried out provided the code number is inactive. Numbers 0, 5, 7, 8, 13, 15 are not used.

Special Indicators

These are the 3-digit numbers which begin  $\overline{15} \overline{15}$ . Action is taken as follows:

- $\overline{15} \overline{15} 0$  Store ten dummy lines from here onwards.
- $\overline{15} \overline{15} 1$  Delete this line.
- $\overline{15} \overline{15} 2$  Delete from this line to the next bearing the same indicator, or to the end of the section, whichever is reached first.
- $\overline{15} \overline{15} 3$  Replace this line by zero (if an action, by a 100/0/0 action with zero address).
- $\overline{15} \overline{15} 8$  Beginning of Master Routine routes table (see next page).

Amendments to the Master Routine Routes Table

These are controlled by control data type 3. The appropriate routine is entered when the indicator 15 15 8 is found.

Control data type 3 is now stored. It consists of one word for each input/output route on the machine. If a change to any route is specified the appropriate amendment is generated. When the program END sign is reached, the amendment file is terminated, and Pass 1 of the translator entered.

e.g. 1. The indicator: \* $\overline{15}$   $\overline{15}$  0\* $\overline{15}$   $\overline{15}$  1\* $\overline{7103}$ \* $\overline{4311}$ \* $\overline{1634211}$

will initiate the following action:

- a) The next ten lines, or the remainder of the section, whichever is least, will be stored as dummy lines.
- b) This line itself will be deleted.
- c) The action will be used to replace lines later in the Master Routine:
  - (i) Lines bearing the indicator \* $\overline{7103}$ , provided  $\overline{710}$  is set active in this run.
  - (ii) Lines bearing the indicator \* $\overline{4311}$ , provided 43 is not set active in this run.
  - (iii) Lines bearing the indicator \* $\overline{1634211}$ , provided 16 is set active and 42 inactive, (note that lines bearing the indicator \* $\overline{4211163}$  will not be affected) until the next line bearing \* $\overline{15}$   $\overline{15}$  0 among its indicators is reached, at which stage the stored dummies will be overwritten by new dummies.

2. The line:

14708            101            1732 1 3            \* $\overline{4104}$ \* $\overline{6312}$             0113400600

will be replaced by

14708            101            1134 1 3            if  $\overline{410}$  is active.

or by

14708            101            600 1 3            if 63 is inactive.

If both apply i.e.  $\overline{410}$  is active and 63 inactive, the first indicator will be used.

APPENDIX C : MASTER ROUTINE INPUT SEQUENCES

The Master Routine Input Sequences are incorporated in the Generator, and are called by taking option 3 to the end alarm. The effect is the same as that of allocating the input sequences. If it is intended to enter the input sequences 08004 must not be timesharing when option 3 is taken and must have tag 1.

The input sequences can be allocated directly by allocating 08004 with (B) equal to "09000". A machine code copy of the generated master will automatically have been made. This tape should be reloaded by the operator on the appropriate route. Non-standard paper tape or card control data, exactly as specified for the input sequences (see Part III Section 1) should be given, followed by standard control data. Operating instructions are as given for the input sequences.



Steps 1, 2, 3, If control data IS to be submitted.

1. Place control data on route 0 of Paper Tape Input Assembler (or if no paper tape input, on route 4 of Card Input Assembler).

Layout of control data blocks is given in Appendix A.

2. To load Master Program (Pass 3 output)

Place Master Program (Pass 3 output) on any M.T. route.

To feed Interim Modifications

Place Interim Modifications on route 1 of Paper Tape Input Assembler (or if no paper tape input, on route 6 of Card Input Assembler).

To make copies of the Master Program.

Place first tape for copy on any M.T. route and second, if required, on any M.T. route.

3. If the Tape Start tape contains the first program to be allocated, take option 4. Otherwise take option 2.

Step 4. When the Master Program is entered, it is ready for command when the green light goes on.

#### C.4 Alarms, Halts and Warnings

##### C.4.1 Halts in the Primary and Secondary Input Sequences

Halt	1/0/3	Route closed
Halt	1/0/5	Doubtful block
Halt	1/0/14	Identification failure

If either of the latter two occur, the program must be abandoned.

##### C.4.2 Initial Alarm

\*77 (program no.) (serial no.) (interim mod. no.)

OPTION 1 - Stack date and enter Master Program

OPTION 2 - Feed control data

OPTION 3 - As option 1 but without unloading the route 0 tape.

OPTION 4 - As option 2 but without unloading the route 0 tape.

OPTIONS 5-13

This stacks (option no. -4) in compartment 180 of division 0 and returns to \*77. This is the machine number to be printed, instead of the time, with red log comments if the Master has optional facility 34.

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Appendix C (Cont'd)

OPTION 14 - This alters the Master Routine store tables to prevent the on-line store dump (see Part 1, Section 10), contained on the first five hundred locations of division 1 being overwritten. Then as Option 1.

OPTION 15 - As Option 14 except that it continues as Option 2.

C.4.3

Special Operator Warning Lights

Amber Lit      Option Outstanding.  
Red Lit        Typewriter Route Closed.

1.4 Results

- (i) The copied magnetic tape reel(s)
- (ii) A log comment of the form:  
 '06091 COPY (program identity) (file identity) RUN  
 (run + rerun) FILE'.  
 if the entire file is copied; or  
 '06091 COPY (program identity) (file identity) RUN  
 (run + rerun) REEL (input reel) TO (output reel)'  
 if single reels are being copied.
- (iii) when a program tape (08000 file A2) is copied an  
 additional log comment of the form:-  
 '06091 COPY (program identity) (serial no.)'

1.5 Operating Notes1.5.1 Allocation Details

- (i) Chapter lengths:
 

Chapter 1	2446 locations
Chapter 2	4212 locations
- (ii) Files in allocated order:
 

Input MT	Channel 0 (18 if available)
Output MT	Channel 1 (if available)

1.5.2 Alarms and Options

- \* 01 End of copying a file. The output reel numbers will be consecutive beginning at 1, and there will in general be as many output as input reels (except for the case noted in 1.3 where short output tapes have been used).  
 OPTION 1 - End program.  
 OPTION 2 - Re-enter, to copy the next input reel, i.e. reel number one more than the reel just copied, with next output reel number one more than the last reel output.  
 OPTION 3 - Re-enter, to copy next input reel, i.e. reel number one more than the reel just copied onto the same output reel.