G 11.1.1 (OWR)

UNCLASSIFIED

WEAPONS RESEARCH ESTABLISHMENT
MATHEMATICAL SERVICES GROUP

WREDAC PROGRAMME SPECIFICATION

A

REFERENCE : G 11.1.1

TITLE : Transposition of signs on paper tapes

AUTHOR : T.A.Reid VETTED : B.Higgins

DATE : 15/1/62 APPROVED : P.N.L.Goddard

PURPOSE : In the three columns of numbers output on paper tape from Boscar film readers the second and third are followed by signs. This programme transposes the signs to the front of the numbers so that the tapes can be used on the Librascope plotter. The telereader is able to punch the sign either before or after the number, but it is customarily placed after the number, for use in EG.1.22.

RESULTS : Output is of the same form as the input data, i.e. it consists of three columns of four figure numbers, the second and third columns having signs in front of them. (See B)

B

DATA REQUIREMENTS : The first character of the data tape may or may not be a β; data should then be punched in the sequences :

....xxxxβxxxx±βxxxx±βγβ....

or ....xxxxβxxxx±βxxxx±βγ....

or ....xxxxβxxxx±βxxxx±γβ....

or ....xxxxβxxxx±βxxxx±γ....

and should end with γz or γβz.

C

METHOD : (i) Input and output of blank tape at the beginning of the data tape is carried out until the first non-blank character is read, when it is punched. If this is β the next character will also be punched.

(ii) The next three digits and the following β are input and punched.

(iii) The following four digits and sign are input and stored.

(iv) The sign is punched

(v) The four digits in storage are punched

(vi) The next character is input and tested : if the data sequence has been upset and this is not β a dynamic stop occurs. If it is β, it is punched.

(vii) The next four digits and sign are input and stored.

(viii) The sign is punched.

(ix) The four digits in storage are punched.

(x) The following β's and γ are input and punched.

STORAGE DISTRIBUTION :

(i) B-lines used : B-line 1 is used.

(ii) High Speed Store

from	1/0	to	1/30	Master routine
from	1/60	to	2/0	Working locations

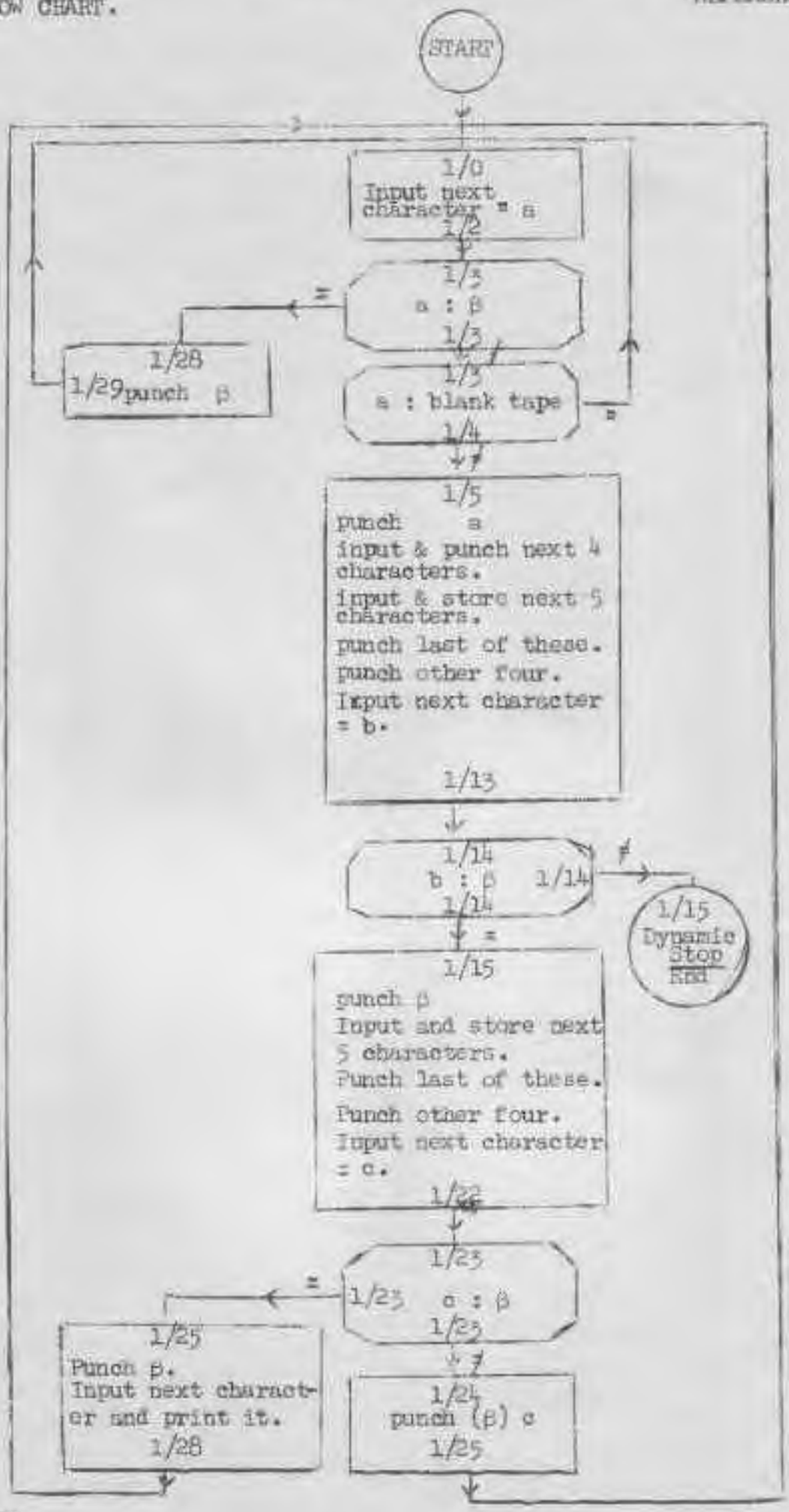
DATA STORAGE DETAILS : Data is not stored but is output immediately it has been input.

UNCLASSIFIED

WREDAC PROGRAMME SPECIFICATION

FLOW CHART.

REFERENCE : G 11.1.1



WR 18673

UNCLASSIFIED

WREDAC PROGRAMME SPECIFICATION

REFERENCE : G 11.1.1

PROGRAMME TAPE ASSEMBLY :

QA 64 ø

Master routine

QC ø | GE 64 a

D

INPUT/OUTPUT EQUIPMENT :

1 paper tape reader
1 paper tape punch

OPERATING TIME : 44 characters are read and output per second
i.e. 158 lines are processed a minute.

OPERATING INSTRUCTIONS :

(i) Setting up : none

(ii) Programme and Data Feed:
Read in programme to

OPSTOP 1 : Insert data tape and single shot.
Results are output as fast as data is input.

COMPUTATION ENDS ON GE 1/15 α

RESET TO OPSTOP 1 by obeying GE 1/1 α.

(iii) Output :
The output tape is of exactly the same form as the data tape but with the two signs transposed into the positions as shown:

....xxxxβ±xxxxβ±xxxxβγβ....

(iv) Programmed Halts :

Order Register	Sequence Control	Cause and Remedy
OPTIONAL STOPS :		
CH α	1/0	OPSTOP 1 as above
DYNAMIC STOPS :		
GE 1/15 α	1/15	(a) if end of data tape : end of computation. (b) if not end of data tape : sequence of data characters has been upset: move data tape to next γ and obey GE 1/22 α.

UNCLASSIFIED
WRE DIGITAL COMPUTER
PROGRAMME SHEET

REFERENCE : G 11.1.1

TITLE : Transposition of signs on paper tape.

QA 64 α

NO.	ORDERS (EVEN)			ORDERS (ODD)			NOTES
4,25, 28,29 → 0	CH		α	ST		α	
→ 1	ST		α	CL		α	
2	IM		∅	SA	30	Aα	tests for 1st characters
3	CH	28	Aα	AD	30	Aα	prints β if there + 1st character
4	OM		∅	CH	1	Aα	
5	SB	509	α	CL		α	← 7 outputs next 3 digits + β.
6	IM		∅	OM		∅	
7	JO	5	Aα	SB	508	α	
8	CL		α	IM		∅	← 9 124 = 1st digit
9	CL	128	β	JO	8	Aα	125 = 2nd "
							126 = 3rd "
							127 = 4th "
							128 = sign "
10	CA	128	α	OM		∅	outputs sign
11	SB	509	α	CA	127	β	← 12
12	OM		∅	JO	11	Aα	outputs 4 digits
13	CL		α	IM		∅	tests for and outputs β
14	SA	30	Aα	CH	15	Aα	
15 → 15	GE	15	Aα	AD	30	Aα	← 14
16	OM		∅	SB	508	α	
17	CL		α	IM		∅	← 18 stores 4 digits + sign
18	CL	128	β	JO	17	Aα	
19	CA	128	α	OM		∅	outputs sign
20	SB	509	α	CA	127	β	← 21
21	OM		∅	JO	20	Aα	outputs 4 digits
22	CL		α	IM		∅	
23	SA	30	Aα	CH	25	Aα	tests for β
24	AD	30	Aα	OM		∅	outputs next character, 7.
25	GE	1	Aα	AD	30	Aα	← 23
26	OM		∅	CL		α	outputs β 7.
27	IM		∅	OM		∅	
28	GE	1	Aα	AD	30	Aα	← 5 outputs β
29	OM		∅	GE	1	Aα	
30	CH		α	AD		α	