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STAFFORD

DEUCE Subroutine No. 161 (B02/1)

Report No. NS t 126

Date 15.10.56.

Reference

Order No.

Report by R.A.E.

Front Sheet.

Data Sheets 1.

Figure Sheet S6/10453.

SUMMARY.

The attached document contains details of a DEUCE Subroutine which has been prepared and tested by R.A.E.

MATHEMATICAL PHYSICS LABORATORY.

NELSON RESEARCH LABORATORIES  
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NS t 326

Sheet No.:1.

Description.

This is a subroutine to be placed in D.L.1. Given  $N, m, T$ , where  $m$  is the number of a track on the drum, this routine will either read from or write on that track and take its next instruction from D.L.N., m.c. T.  
 For reading track  $m, N.P._2 + m.P_5 + T.P_{26}$   
 For writing on track  $m, N.P._2 + m.P_5 + (P_{15} + P_{19}) + T.P_{26}$  } is  
 placed in T.S.15 and the routine entered in 1<sub>11</sub>.

The routine includes a recoded version of 'Fetch and Store' (DEUCE Subroutine 19, B.01), which nevertheless preserves the entries to B01.

Instructions for Use.

Stores Used.	13	14	15
Contents at Entry.	-	-	N, m, T
Contents at Exit.	-	-	-
Occupies.	D.L. 1.	m.c. 11 - 28.	
Entry.	1 <sub>11</sub>		
Constants available.	0	13-0	0 0 in 1 <sub>28</sub> .

Magnetic Batch and Store...

D.L.		Track						
Card No.								
mc	ms	s	D	C	W	T		
							Y	
							X	
							0	
							1	
0							2	
1							3	
2							4	
3							5	
4							6	
5							7	
6							8	
7							9	
8							Y	
9							X	
10							0	
11	1	1	13	0	1		1	
12	1	1	13	4	8		2	
13	1	0	31	0	12		3	
14	1	1	14	0	1		4	
15	1	24	14	1	1	4	5	
16		$P_9 - P_2$	$P_9$				6	
17	1	25	14	0	0		7	
18	0	0	30	0	0		8	
19	1	26	15	0	0		9	
20	1	24	14	1	1	4	Y	
21	1	23	14	1	0	3	X	
22	1	15	25	0	4		0	
23	1	14	25	0	0		1	
24	1	14	25	0	1		2	
25	1	23	14	1	0	20	3	
26	1	14	25	0	0		4	
27	1	23	14	1	3	23	5	
28	0	13	0	0	0		6	
29							7	
30							8	
31							9	

$$I_{11} \quad I_{13} \quad - \quad 13 \quad [ \quad 1 \quad 0 \quad - \quad 31 \quad 0 \quad 12 ]$$

$$I_{14} \quad I_{16} \quad - \quad 14 \quad [ \quad P_9 \quad - \quad P_{12} \quad P_{14} ]$$

$$I_{17} \quad 25 \quad - \quad 14$$

$$I_{19} \quad 26 \quad - \quad 15$$

$$I_{21} \quad 23 \quad - \quad 14 \quad (4 \text{ mc})$$

$$I_{24} \quad 14 \quad - \quad 25$$

$$I_{28} \quad 13 \quad - \quad 0$$

$$Q_{30} \quad (I_{13} \quad a \quad - \quad 31) .$$

$$I_{12} \quad I_{18} \quad - \quad 13 \quad [ \quad 0 \quad 0 \quad - \quad 30 \quad 0 \quad 0 ]$$

$$I_{22} \quad 15 \quad - \quad 25$$

$$I_{24} \quad 13 \quad - \quad 0$$

$$Q_{30} \quad (I_{18} \quad b \quad - \quad 30)$$

TS 15 contains N, m,  $\delta$  ( $P_{15} + P_{14}$ ), T  
 $\delta \begin{cases} = 0 & \text{Read} \\ = 1 & \text{Write} \end{cases}$

FETCH

$$I_{24} \quad 14 \quad - \quad 25$$

$$I_{27} \quad 23 \quad - \quad 14 \quad (21 \text{ mc})$$

$$I_{20} \quad 24 \quad - \quad 14 \quad (4 \text{ mc})$$

$$I_{26} \quad 14 \quad - \quad 25$$

$$I_{28} \quad 13 \quad - \quad 0$$

$Q_{30}$

STORE

$$I_{23} \quad 14 \quad - \quad 25$$

$$I_{25} \quad 23 \quad - \quad 14 \quad (21 \text{ mc})$$

$$I_{15} \quad 24 \quad - \quad 14 \quad (9 \text{ mc})$$

$$I_{26} \quad 14 \quad - \quad 25$$

$$I_{28} \quad 13 \quad - \quad 0$$

$Q_{30}$

MODIFY

$$I_{26} \quad 14 \quad - \quad 25$$

$$I_{28} \quad 13 \quad - \quad 0$$

$Q_{30}$

SLOW DIAGRAM AND LOADING FOR DEUCE SUBROUTINE  
 No: 161 802/1

Magnetic Batch and Store.

Date

File Ref.