

THE ENGLISH ELECTRIC CO., LTD.

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Reference

Order No.

Front Sheet.

Data Sheet 1

Figure Sheet S6/10838.

DEUCE Subroutine No. 210 (B09)

Report by
P.J.Landin

SUMMARY

The attached document contains details of a DEUCE Subroutine which has been prepared and tested by L.C.S.

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Description.

This subroutine enables the drum to be addressed as a consecutive store of 8192 words with addresses $0/0_0, 0/0_1, \dots, 0/0_{31}, 0/1_0, \dots, 15/15_{31}$. The word p/h_m is specified by the 13 bit number (m, h, p) . There are three possible entry points. Each of these transfers a word or two words or a block of up to 32 words ending in mc 31 from some address to some other address that is in phase with it. **FETCH** transfers from a tank to a tank. **COARSE STORE** transfers from a tank to a track overwriting the rest of the track with whatever is found in DL11. **STORE** transfers from a tank to a track preserving the rest of the track. First Order.

Data.

<u>FETCH</u>	<u>COARSE STORE</u>	<u>STORE</u>
$N=(p/h_m)$ ($0 \leq N < 8192$) Link $11-\alpha(o), 0, T$	$N=(p/h_m)$ ($0 \leq N < 8192$) Link $\alpha-11(c), 0, T$	$N=(p/h_m)$ ($0 \leq N < 8192$) Link $\alpha-11(c), 0, T$

Result.

A link of the form A

Track p/h is put in DL11	$\alpha-11(c), m, 31$ is obeyed	Track p/h is put in DL11
$11-\alpha(o), m, T$ is obeyed where A_p is the next following the link.	DL11 is put in track p/h	$\alpha-11(c), m, 31$ is obeyed
		DL11 is put in track p/h

α can take any value except 13, 14 or 15.

Result.

- The link has two jobs:-
- (1) specifying the mercury store involved in the transfer and the characteristic of the transfer (and in the case of **FETCH** the final mc of a long transfer in which case T must be 31).
 - (2) leading out of the subroutine in the normal way.

Instructions for Use.

Stores Used.	13	14	15	DL11 ₀₋₃₁
Contents at entry.	Link	N x P17	-	-
Contents at exit.	-	-	-	-
Uses.	13-0, 0, 0 in 1 ₂₈			
Occupies.	mcs 0-31			
Entry.	FETCH mc 22.	COARSE STORE mc 18.	STORE mc 29.	
Time.	FETCH	c.18 ms)	excluding any head-shifts necessary.	
	COARSE STORE	c.18 ms)		
	STORE	c.38 ms)		

D.L. 2		Track					
Card Nos. 1-3							
mc	NIS	S	D	C	W	T	
							Y
							X
							0
							1
0	2	14 - 13			0	0	2
1	2	P - 31			0	8	3
2	2	2 - 14			0	1	4
3	2	23 - 14		1	1	21	5
4		$-P_5 + P_{26}$					6
5	2	25 - 15			0	0	7
6	2	2 - 13			4	5	8
7	2	13 - 14			0	0	9
8	2	2 - 13			0	11	Y
9	2	15 - 13			0	0	X
10	1	h - 30			0	30	0
11	2	2 - 15			2	10	1
12		storing link					2
13	2	2 - 14			1	3	3
14	2	14 - 2			0	1	4
15		$15P_5 + P_{15}$					5
16							6
17	2	2 - 13			0	3	7
18	2	29 - 15			0	0	8
19	2	11 - 11			0	6	9
20	2	26 - 14			0	0	Y
21	2	24 - 14		1	0	3	X
22	2	2 - 15			0	1	0
23	1	2 - 25			3	3	1
24		31P ₁₇					2
25	2	25 - 25			0	0	3
26	1	25 - 25			0	0	4
27	2	13 - 1			1	1	5
28	2	0 - 0			0	31	6
29	2	13 - 2			13	15	7
30	2	13 - 15			0	0	8
31	2	2 - 13			0	2	9

STORE → 2₂₉ 13 - 2₁₂ Store link
 2₁₄ 14 - 2₁₆ N
 2₁₇ 2₁₉ - 13
 2₂₂ **FETCH**
 Q₃₀ (11 - 11)
 2₆ 2₁₂ - 13 Store link
 2₁₃ 2₁₆ - 14 N
 2₁₆ **COARSE STORE**
 Q₃₀ (α - 11)

COARSE STORE → 2₁₈ 29 - 15
 2₂₀ 26 - 14
FETCH → 2₂₂ 2₂₄ - 15 [31P₁₇]
 2₂₅ 25 - 25
 2₂₇ 13 - 1₃₀
 2₃₀ 13 - 15
 2₀ 14 - 13
 2₂ 2₄ - 14 [-P₅ + P₂₆]
 2₅ 25 - 15
 2₇ 13 - 14
 2₉ 15 - 13
 2₁₁ 2₁₅ - 15 [15P₅ + P₁₅]
 2₂₃ 2₂₈ - 25 [2, 0 - 0, 0 31]
 1₂₈ 13 - 0
 Q₃₀ (11 - α or α - 11)
 2₃₁ 2₁ - 13 (P)
 2₃ 23 - 14 (21 m.c.)
 2₂₆ 25 - 25
 1₂₈ 13 - 0
 Q₃₀ (P - 31)
 2₈ 2₁₀ - 13 (H)
 2₂₁ 24 - 14 (14 m.c.)
 2₂₆ 25 - 25
 1₂₈ 13 - 0
 Q₃₀ (h - 30)
 1₃₀ (11 - α or α - 11)

FLOW DIAGRAM AND CODING FOR SUBROUTINE No. 210 (809)

Drum Fetch and Store

Date

File Ref.

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