S.R.43

THE ENGLISH ELECTRIC CO., LTD

NELSON RESEARCH LABORATORIES
STAFFORD
MATHEMATICAL PHYSICS LABORATORY.

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DEUCE Subroutine No.130. (P14)

Report by
R.A.E.

SUMMARY.

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

MATHEMATICAL PHYSICS LABORATORY.

HEF

Description.

At each entry the machine will convert a single number to decimal, storing the pattern of digits found in 3_{0-11} ready to be punched out from there. Successive entries put the digits found into different 'columns' in 3_{0-11}, and when a given number of numbers has been converted the machine will punch out a card.
The No. of digits in each number converted, and the position of these digits on the card is controlled by a layout parameter, stored in 3_{14}. The various numbers may be punched to different numbers of decimal places.

Data.

The number (a) to be punched, ($|a| < 10$,) to p.b.p.

Result.

The converted numbers punched in a given layout on the card. The signs are punched in the same column as the 1st digit of the number. The decimal point comes between 1st and 2nd digits punched.

Uses

13 - 0 0 0 in 1_{28}

Instructions for Use.

Stores used.	13	1[illegible]	15	20	21	T.C.B
Contents at Entry.	a	-	link	-	-	OFF
Contents at Exit.	-	-	-	-	-	OFF

Occupies.

2_{0-31}, 3_{12-18}, Also uses 3_{0-11} for working. These locations must be clear at the first entry, and must not be disturbed until the numbers have been punched, when they are left clear. All will thus be well if these locations are never used in the programme, but they may in certain cases be used. There is no instruction to clear the punch, in the routine.

Entry.

2_{15}

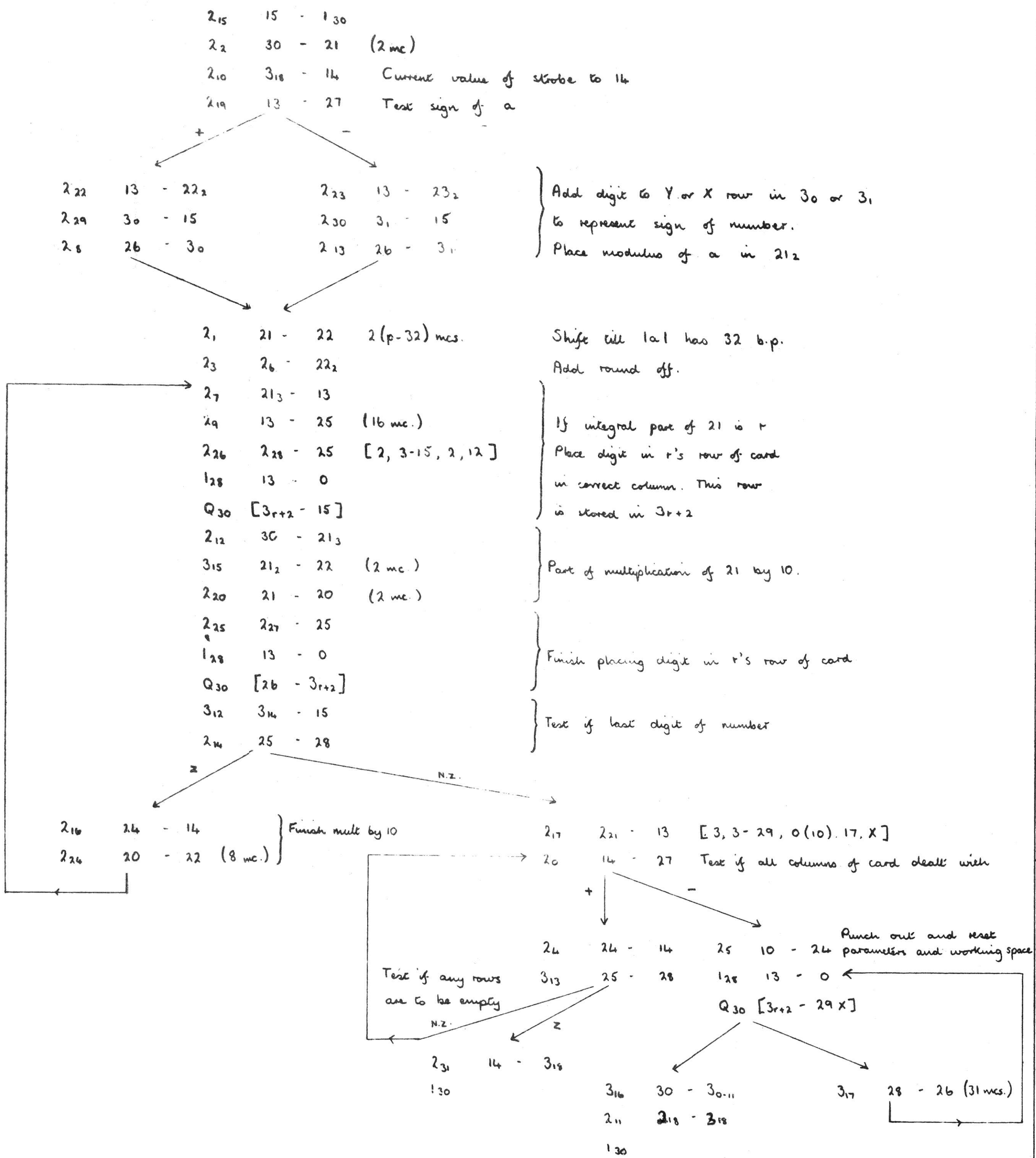
Parameters.

1. P_r in 2_{18} and 3_{18}, when the 1st digit is to be punched in column (r + 20).
2. A 'one' punched in 3_{14} in the position corresponding to the last digit of each number punched, and also in the position corresponding to each blank column of the card.
3. Round off constant in 2_6 to 32 b.p.
4. Wait number of (2p-31) in 2_1.

Time.

$4\frac{1}{2}$ n + 3d + 1s + 1 m.s. before the first one shot.
Where n numbers are to be punched, d the number of decimal digits, and s the number of blank columns left, not counting those before the first number.
This time, together with the time taken between the various entries to the routine must not exceed 116 m.s. if the punch is to run continuously.

D. L. 2	Track							D.L. 3	Track							
Card Nos.								Card Nos.								
mc	NIS	S	D	C	W	T		mc	NIS	S	D	C	W	T		
																Y
																X
																0
																1
0	2	14	27		0	2		0								2
1	2	21	22	1	(2p-31)	0		1								3
2	2	30	21	2	0	6		2								4
3	2	2	22		1	2		3								5
4	3	24	14		0	7		4								6
5	1	10	24		0	2'		5								7
6								6								8
7	2	21	13		0	0		7								9
8	2	26	3		22	23		8								Y
9	2	13	25	1	0	15		9								X
10	2	3	14		6	7		10								0
11	1	2	3		5	17		11								1
12	3	30	21		1	1		12	2	3	15		0	0		2
13	2	26	3		18	18		13	2	25	28		0	16		3
14	2	25	28		0	0		14								4
15	2	15	1		13	17		15	2	21	22	2	1	3		5
16	2	24	14		0	6		16	2	30	3	1	14	25		6
17	2	2	13		2	13		17	1	28	26	1	11	9		7
18		P_r						18		P_r						8
19	2	13	27		0	1		19								9
20	2	21	20	1	0	3		20								Y
21	3	3	29		0 (10)	17	X	21								X
22	2	13	22		0	5		22								0
23	2	13	23		1	5		23								1
24	2	20	22	1	6	13		24								2
25	1	2	25		0	1		25								3
26	1	2	25		0	0		26								4
27	1	23	20		P_{15} - P_{32}			27								5
28	2	3	15		2	12		28								6
29	2	3	15		1	9		29								7
30	2	3	15		1	13		30								8
31	1	14	3		17	29		31								9



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FLOW DIAGRAM AND CODING FOR SUBROUTINE No. 130 (P_{14})

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