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STAFFORD

MATHEMATICS DEPARTMENT - S.

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Report No. NS t 185

Date 28.3.57.

Reference

Order No.

Front Sheet.

Data Sheet 1.

Figure Sheet S6/10794.

DEUCE Subroutine No. 202 (P13F/3)

Report by

P.B. Holland.

SUMMARY.

The attached document contains details of a DEUCE Subroutine which has been prepared and tested by N.R.L. Blackheath.

P B Holland

MATHEMATICS DEPARTMENT.

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NS t 185
Sheet No.: 1.

Description. Converts standard floating binary to decimal and punches s significant digits ($S \leq 9$) as for P13F/1. This routine however rectifies the error which arises in P13F/1 when the decimal round off causes the mantissa to fall outside its allowed limits.
Otherwise all the facilities and failures of P13F/1 are retained.

Data. $x = a.2^b$ in s.f.b.
 S the No. of significant decimal digits required.

Result. $x = A.10^B$ ($1 \leq A < 10$) converted to decimal and punched as for P13F/1.

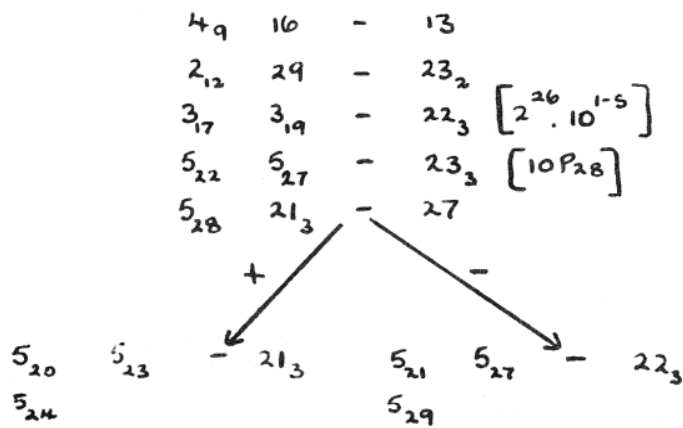
Failure. As for P13F/1.

Error. Rounded off to S significant digits.

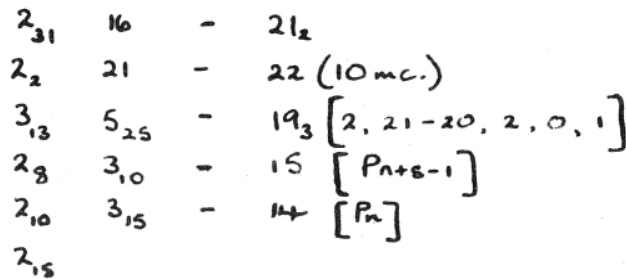
Instructions for Use.

Stores Used.	13	14	15	16	19 ₃	20	21	TCB
Contents at Entry.	link	-	-	-	-	-	x	OFF
Contents at Exit.	-	-	-	-	-	-	-	OFF
Occupies.	D.L. 2, 3, 4, 5.							
Entry.	5 ₁₄							
Time.	Up to Y row arrival B > 0 b + 18B - 2 m.s. B < 0 12 - 2B - b m.s.							
Parameters.	Add (19-s) P ₁₇ to 3 ₂₂ Put 2 ²⁶ 10 ^{1-s} (rounded down) in 3 ₁₉ Put b ₁ in 5 ₁ (see note to P13F/1) Put b _u in 5 ₄							
Constants available.	P ₁₃ in 2 ₃₀ ; P ₂₉ in 3 ₁₁ ; P ₂₈ + P ₃₀ in 3 ₁₂ ; P ₂₄ in 4 ₁₅ P ₁₉ + P ₂₀ in 4 ₂₂ ; P ₂₈ in 5 ₂₃ ; P ₂₉ + P ₃₁ in 5 ₂₇ *							

The flow diagram is the same as P13F/1 NO. 112. except for the following instructions:-



and



Alterations to the coding.

2_2	becomes	3	21	-	22	1	0	9
2_{10}	"	2	3	-	14	3	3	
2_{12}	"	3	29	-	23	0	3	
3_{13}	"	2	5	-	19	10	25	
3_{17}	"	5	3	-	22	0	3	
4_9	"	2	16	-	13	0	1	
5_{22}	"	5	5	-	23	3	4	
5_{25}	"	2	21	-	20	2	0	1
5_{28}	"	5	21	-	27	1	22	