

ZV03, ZV03N, ZV03/1.

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Nos. 7, 90, 8.
Report No. K/AA t 1464
Page No. 10

DEUCE Programme Nos. 7, 90, 8 (ZV03, ZV03N, ZV03/1)

Million Factors Slow.

Million Factors Slow, Use with Narrator.

Million Factors Fast.

SUMMARY.

These demonstration programmes read a number less than a million from the I.D., compute its smallest factor, if any, and display this, or the word 'Prime', in the scope. ZV03/1, being considerably faster, should be used in preference to ZV03.

DEUCE Programme Nos. 7, 90, 8 (ZV03, ZV03N, ZV03/1)

Million Factors Slow.

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Million Factors Fast.

OPERATING INSTRUCTIONS.

(a) ZV03 and ZV03/1.

- (1) Initial Input programme; Cards 0-18 (ZV03), cards 0-18 (ZV03/1).
- (2) Set 'I.D. Clear' key UP.
- (3) Line up scope by getting the used part of D.L.10 (mes. 6-26) in centre of display.
- (4) Switch scope to D.L.8.
- (5) Programme stops on 1, 30-21 X.
- (6) S.S.
- (7) Programme stops on 1, 0-28.
- (8) On I.D. set successively the digits of the number commencing with the most significant; the convention used is for the $P_1 - P_{10}$ keys to represent the digits 0-9. If the number has less than 6 digits set a P32 after the last one.
- (9) Programme stops on 1, 30-21 X with the smallest factor, or the word 'PRIME', displayed in the scope. Proceed from (6) with the next number.

Failures.

If any of the P_{1-31} keys on the I.D. be set the programme stops on 1, 30-21 X with "ERROR" displayed. Proceed from (6) with the next number.

(b) ZV03N.

This is a standard narrator brick and general instructions for use are contained in the report (NS t 1058) on ZV01 (Narrator).

The narrative, which is on cards 0-14, reads:-

"In order to give you some idea of my speed may I now present from the magnetic drum a programme to find the lowest factor of a given number. If you will kindly supply me on the input keys with any number which may be up to six digits in length I shall then divide it in turn by two, by three, and then by every odd number until I find a factor. I shall then write up this factor. If there should be no factor then I shall state that the number is prime.

You can assess my speed at divisions if you consider that I have to carry out some hundreds of them in the case of some of the larger primes.

Are you ready, right".

DEUCE Programme Nos. 7, 90, 8 (ZV03, ZV03N, ZV03/1)

Million Factors Slow.

Million Factors Slow, Use with Narrator.

Million Factors Fast.

OPERATING INSTRUCTIONS. (CONT'D.)

Operation is:-

- (1) Programme stops on 4, 30-28 X.
- (2) Set 'I.D. Clear' key UP.
- (3) S.S.
- (4) Programme stops on 1, 0-28.
- (5) On I.D. set successively the digits of the number commencing with the most significant; the convention used is for the $P_1 - 10$ keys to represent the digits 0-9. If the number has less than 6 digits set a P32 after the last one.
- (6) Programme stops on 4, 30-28 X with the smallest factor, or the word 'PRIME' displayed in the scope.
- (7) S.S. to return to (4) for another number or force discrim. to continue to next narration in the standard manner.

Failure.

As in (a) above.

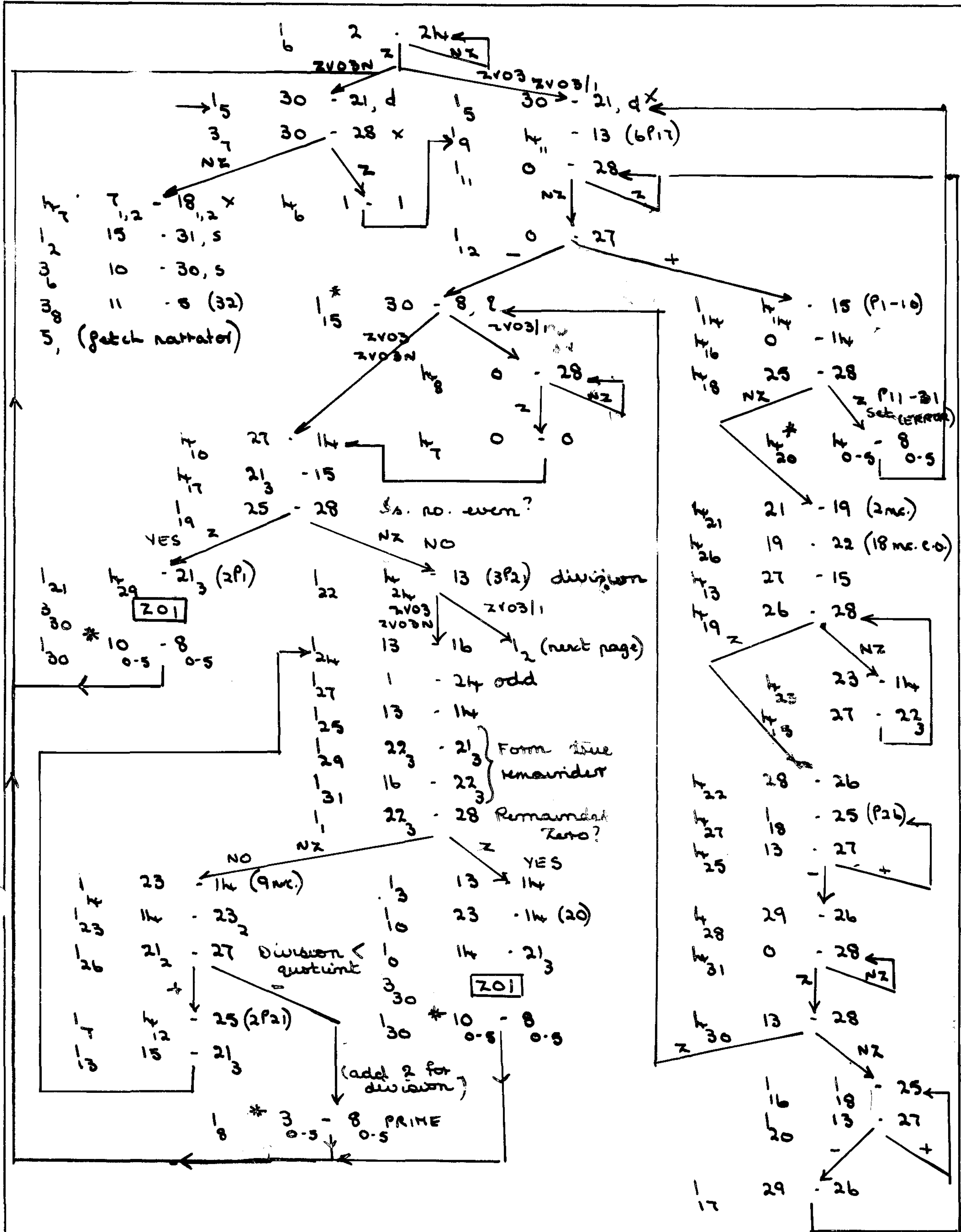
Note.

For information, 123457 and 999983 are prime, 999997 = 757 x 1321.

DEUCE Programme Nos. 7, 90, 8 (ZV03, ZV03N, ZV03/1)

Page No. 13

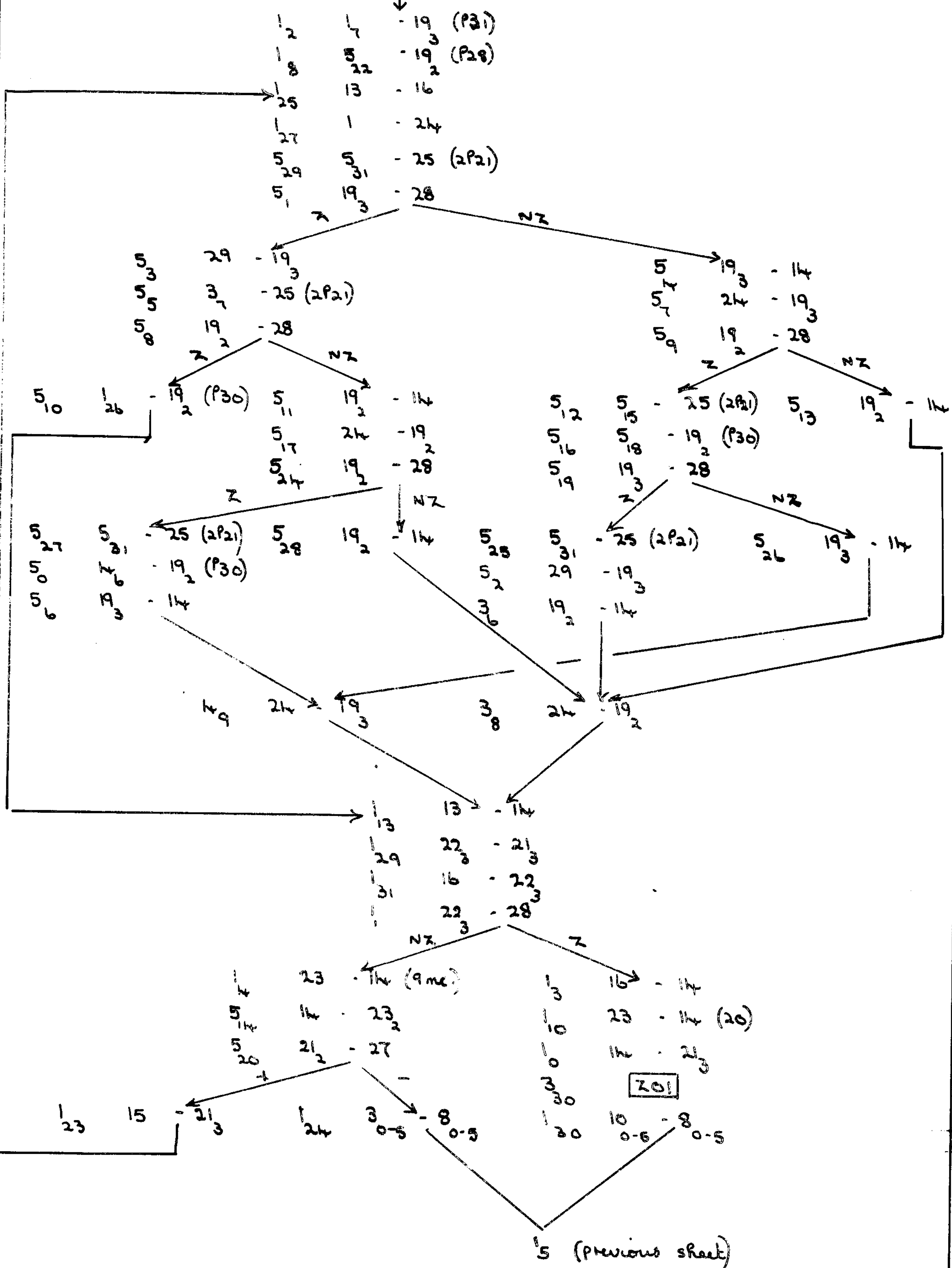
Million Factors Slow. Million Factors Slow, Use with Narrator. Million Factors Fast.



* Instructions thus marked (1₈, 1₁₅, 1₃₀, 1₂₀) Have Destination 12 in

ZV03/1 only

122 (from previous sheet)



D.L. 1. Track									D.L. 2. Track									D.L. 3. Track								
Card Nos.									Card Nos.									Card Nos.								
mc	A	NIS	S	D	C	W	T		mc	A	NIS	S	D	C	W	T		mc	A	NIS	S	D	C	W	T	
0		314	21		1	28			0									0		24, 17, 3, 9, 4, 15, 0						
1		122	28		0	0			1									1		8, 18, 4, 25, 6, 1, 0						
2		11	19		3	4	03/1		2									2		8, 18, 4, 9, 5, 7, 0						
3		313	31		0	2	03N		3									3		8, 18, 4, 9, 5, 7, 0						
4		116	14		0	5	03/1		4									4		24, 17, 3, 9, 4, 1, 0						
5		113	14		0	8	03/1		5									5		8, 16, 2, 9, 4, 1, 0						
6		123	14	8	9	17	03/1		6									6		8, 16, 4, 9, 4, 15, 0						
7		3130	21	d	0	2	03N		7									7		3, 19, 14, 0, 0, 03/1						
8		12	24		0	29			8									8		3, 10, 30, 0, 0, 03N						
9		14	23		3	1	03/1		9									9		4, 30, 29, 0, 29, 03/1						
10		13	19		12	15	03/1		10									10		1, 24, 19, 0, 3, 03/1						
11		13	8	8	22	27	03		11									11		5, 11, 5, 8, 24, 23, 03N						
12		14	12	8	22	27	03N		12									12								
13		14	13		0	0			13									13								
14		123	14	8	1	20			14									14								
15		10	28	8	0	30			15									15								
16		10	27		0	0			16									16								
17		113	14		0	14	03/1		17									17								
18		115	21		0	9	03/1		18									18								
19		44	15		30	0			19									19								
20		430	8	8	1	23	03/1		20									20								
21		430	8	8	1	25	03		21									21								
22		430	12	8	1	25	03N		22									22								
23		11	25		0	2			23									23								
24		129	26		0	24			24									24								
25		P26							25									25								
26		125	28		0	0			26									26								
27		113	27		0	26			27									27								
28		34	21		6	7			28									28								
29		14	13		0	10	03/1		29									29								
30		115	21		0	0	03/1		30									30								
31		114	23		1	1	03/1		31									31								
32		113	8	8	6	11	03/1																			
33		113	16		0	1	03/1																			
34		113	16		0	0	03/1																			
35		113	14		3	2	03/1																			
36		P30					03/1																			
37		121	27		0	11	03/1																			
38		51	24		0	0	03/1																			
39		013	0		0	0	03/1																			
40		122	21		0	0																				
41		110	12	8	0	5	03N																			
42		110	8	8	0	5	03/1																			
43		116	22		0	0																				

These minor cycles are not used in ZV03

30-5 PRIME

D.L. 4. Track								D.L. 10 Track								D.L. 5. Track							
Card Nos.								Card Nos.								Card Nos. 2V03/1 ONLY							
mc	A	NIS	S	D	C	W	T	mc	A	NIS	S	D	C	W	T	mc	A	NIS	S	D	C	W	T
0								0								0							
1								1								1							
2								2								2							
3								3								3							
4								4								4							
5								5								5							
6								6								6							
7								7								7							
8								8								8							
9								9								9							
10								10								10							
11								11								11							
12								12								12							
13								13								13							
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26								26								26							
27								27								27							
28								28								28							
29								29								29							
30								30								30							
31								31								31							

40-5 = ERROR

☒ These minor cycles are not used in 2V03