BASSER COMPUTING DEPARTMENT

BOUNDER - ENG. 2:11

Purpose

To test the operation of Control Transfer orders, and particularly the address gates used in these orders.

Method

Control is transferred cyclically through 64 addresses.

A single digit error in the address to which control is transferred will cause a stop. The information in R_3 then indicates:-

(1) In digits 2^{-10} to 2^{-19}, the address to which control should have been transferred.

(2) In digits 2^{-20} to 2^{-29}, the address from which control was transferred.

(3) In digits 2^{-30} to 2^{-39}, the location of the present order.

After such an error stop, the test will continue with a Black switch start.

Input

The Bootstrap input comes to a 24 stop. A Black switch start causes the 64 parameters at the end of the tape to be read in, and the test continues automatically.

The program is run with the Black switch centred.

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```
000    80 028   40 001
001    80 028   40 002
002    26 000   00 000                    Bootstrap
001    80 028   40 000
000    F5 001   42 001
001    30 028   40(3L9) By 000

3LK    80 000   01 000
3LS    42 3LN   80 028
3LN    32 3LF   40(087) By 3LS           Special Input Routine
3LJ    19 026   L4 3LN
3LF    26 3LS   L4 3LK
3LL    36 3LS   L0 3LK

000  (22 3LN    00 000) By OFN           Into input routine

088    41 OSL   81 OON
089    40 ON2   00 014                   Input and store parameter
08K    46 OFL   46 OL1                   temporarily in ON2

08S    00 009   32 08N                   Test for "all parameters
08N    26 000                            have been input"

                09 001                   Form and store digitwise
08J    10 027   L0 ON2                   complement of parameter
08F    40 OK3

                19 01J                   Form and store 00 000 00 200
08L    40 OSJ

                41 OJN
090    09 001   10 027                   Form addresses simulating
091    L0 OSJ   42 OJN                   any single-digit error in
092    50 OJN   J0 ON2                   the true address, and
093    S5 000   50 OSJ                   store a stop order in each
094    J0 OK3   S4 000                   such error address
095    42 OFL   42 096
096    L5 OFL   40(000) By 095
097    L5 OSJ   26 OS7

       7L LLL   LL OS7                   Directive
```

```
0S7     10 001   40 0SJ
0S8     S5 000   00 001
0S9     36 090

0S9              L5 0FL
0SK     10 00K   26 0F8
```

	7L LLL LL 0F8	Directive
0F8	40 0FL L5 0N2	
0F9	42 0FL L5 0FL	Store "address of previous order" in $_2$-20 to $_2$-29 of stop orders
0FK	00 00K 40 0FL	
0FS	L5 0SL 42 0FN	
0FN	L5 0L1	
	40(000)By 0FS	Store correct transfer order
0FJ	L5 0N2 26 0L3	
0FF	LL LLL LL LLL	RAR separation
0FL	24(000 00 000)By 08K, 095, 0FK	Working location for forming step orders
0L0	LL LLL LL LLL	RAR separation
0L1	26(000) 00 000 By 08K	Working location for forming transfer orders.
0L2	LL LLL LL LLL	RAR separation
0L3	40 0SL 22 088	Back into "input parameters" loop
	7L LLL LL 3LJ	Directive
3LJ	24 088 00 000	Black switch start to input parameters

```
37N  282  27S  285  365  29S  362  29N
356  2K8  351  2KL  34L  2S1  348  2S6
337  2N9  330  2NF  32F  2J0  329  2J7
31J  2F3  31K  2F4  304  2IK  303  2LJ
1LF  181  1I9  186  1F7  198  1F0  19L
1J4  1KS  1J3  1KN  1NJ  1S2  1NK  1S5
07L  007  078  019  066  01F  061  02K
055  02J  052  033  04N  034  04S  000

400
```

Parameters = 64 addresses

End of tape marker