DANSK DATA ELEKTRONIK

ID-7014
FLEXIBLE DISC MODULE

January 1977

1. General Description

The ID-7014 module connects the Sykes 7000 Floppy Disk to the ID-7000 Micro Computer System.

In the following description of the module references are made to the Users Manual for Series 7000/9000 OEM System Kit, which is included here as appendix 2. Appendix 1 contains the logic diagrams for the module.

The module controls the disk using the signals DATA,DOT and STROBE, (see the manual for the disk pp. 2-1 to pp.2-4), while the floppy disk replies back with the signal DEVICE FLAG

2. Addressing

The module uses 4 of 256 possible I/O addresses for the ID-7000.
ADR (7:2) is compared with a switch register on the module. If ADR (7:2) is equal to the content of the switch register the module is addressed.

ADR (1:0) is used the following way:

ADR (1:0)	
0 0	data input/data output
0 1	status input/command output
1 0	Panel status input
1 1	panel status input

3. Commands

ADR (1:0)= 01

The commands are sent to the disk by placing the command in the A-register and performing the instruction OUT BASE +1 where BASE equals the content of the switch register.

The different commands are described in the manual pp.1-11 to pp. 1-14 and pp.2-5 to pp.2-6.
Note that D1 is the most significant bit. In this way 81 means Select Unit 1. Note further that one has to wait at least 1 ms after the disk has received a command before it is ready to receive the next one. (Manual pp.1-11).

4.Status

ADR (1:0)=01

Status is read from the disk to the A-register by performing the instruction in BASE + 1.

Status is described in the manual pp. 1-14 for pp. 1-17 and pp. 2-8 to pp. 2-10. Note again that D1 is the most significant bit in status.

5. Data Output

ADR (1:0)=00

Data is written on the disk by placing the data in the A-register and performing the instruction OUT BASE.

6. Data Input

ADR (1:0)=00

Data is read from the disk to the A-register by performing the instruction IN BASE.

For programming a total datatransport from the beginning to the end see the manual pp. 1-18 to pp. 1-20, pp. 2-11, and pp. 3-1 to pp. 3-4. For use of the device flag see under interrupt below.

7. Panel Status

ADR (1:0)=10

Panel status is read from the disk to the A-register by performing the instruction IN BASE + 2.
The significance of the panel status is as follows.

PROT				READY			
4	3	2	1	4	3	2	1

If PROT(i)= 0 disk drive no. i is protected against being written on.

If PROT(i)=1 writing on disk drive no.i is possible.

If READY(i)= 0 disk drive no. i is READY (see the manual pp.2-10 and pp. 3-3).

At the same time as panel status is read, it is written into a register on the module.

If the actual panel status differs from the status in the register the module generates no interrupt to the ID 7000.
The interrupt is removed by reading panel status.

8.Interrupts

The module contains 2 interrupt sources. One, the panel status interrupt, is decribed above. The other interrupt originates from the device flag of the disk.

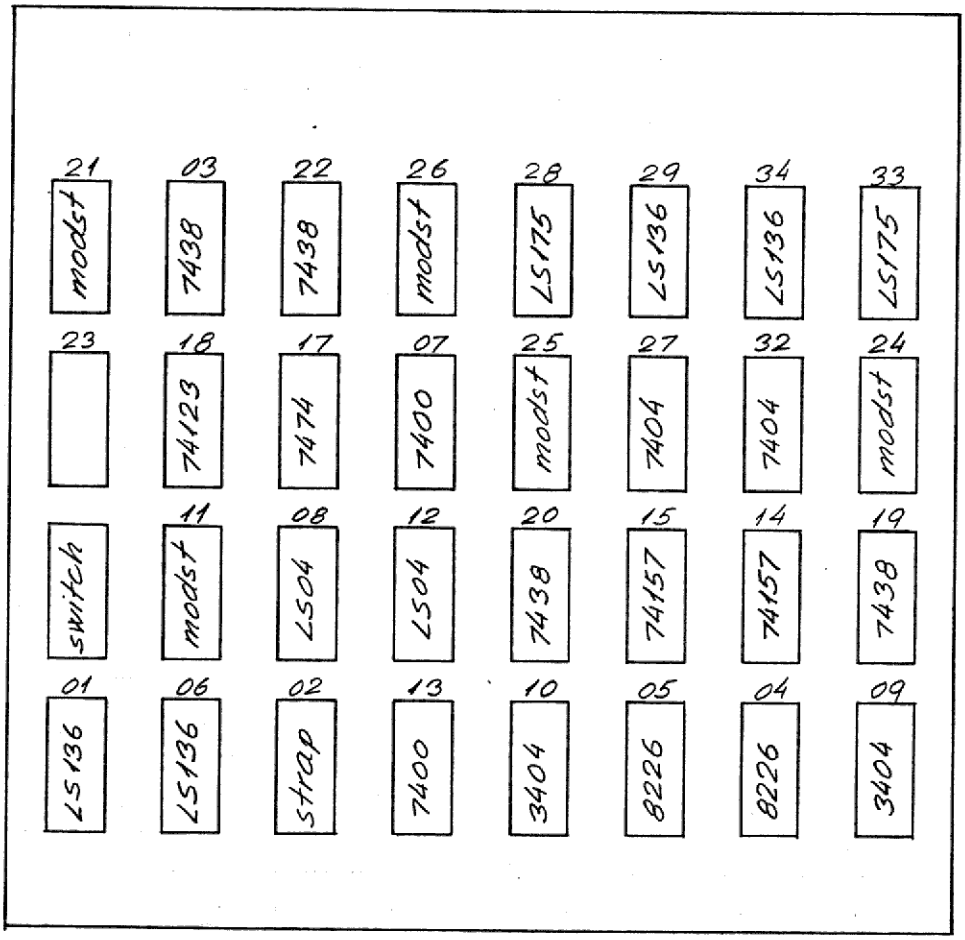
When the device flag is set the module generates an interrupt. The interrupt is removed by performing a command which resets the device flag.

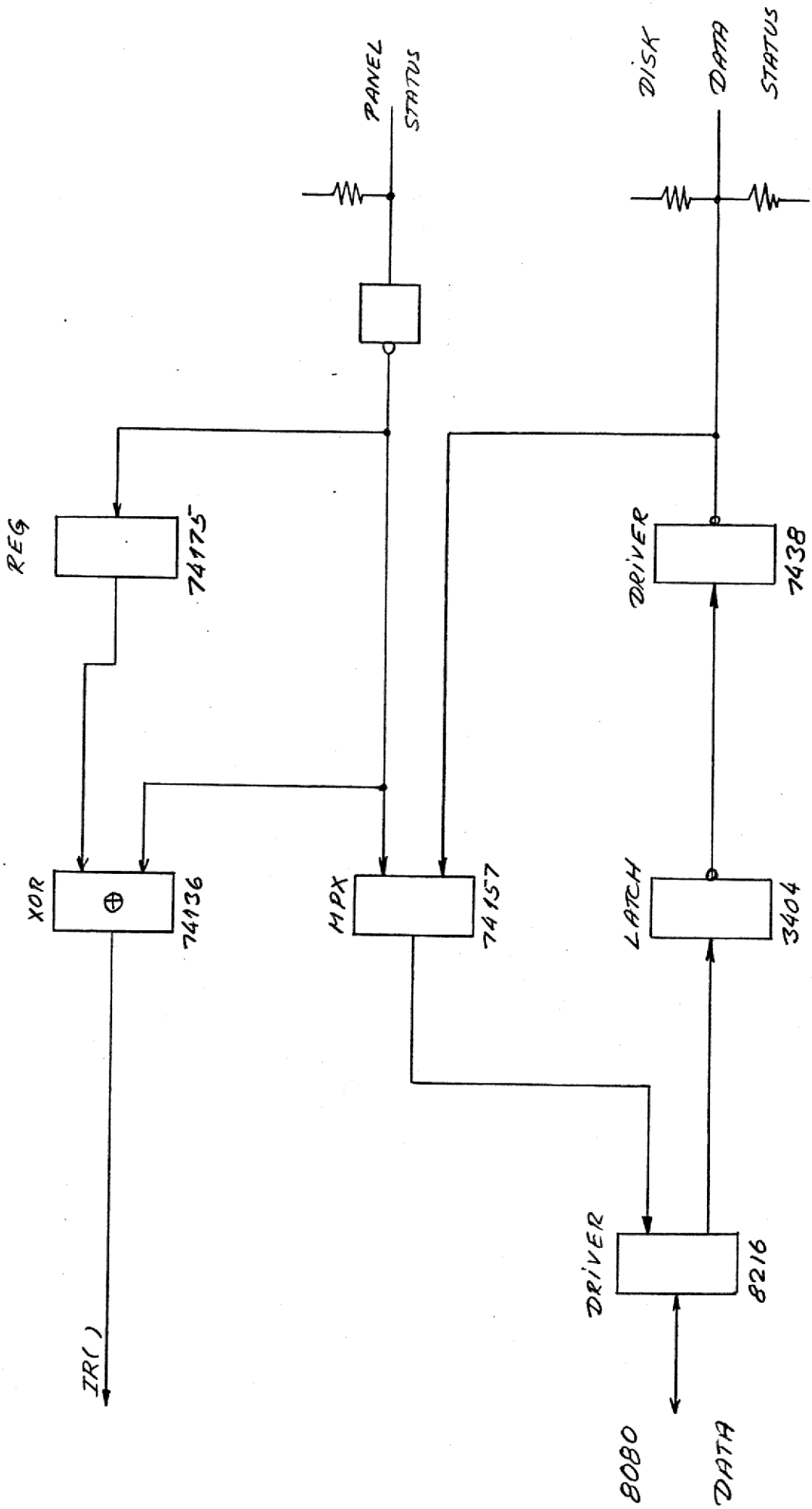
The device flag is described in the manual pp. 1-14.

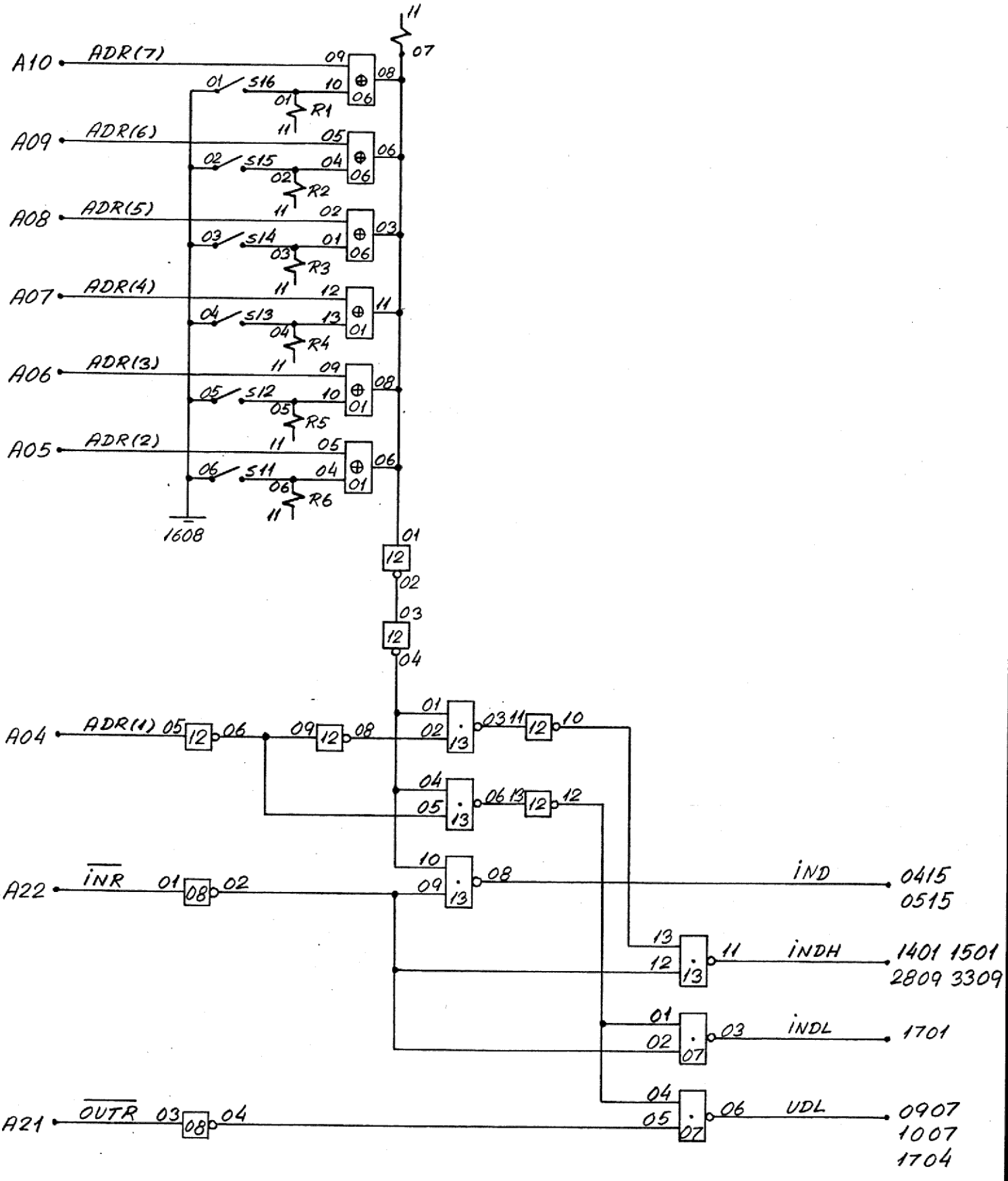
The module does not give the programmer the possibility to sense the device flag. Instead he has to sense the status from the disk.

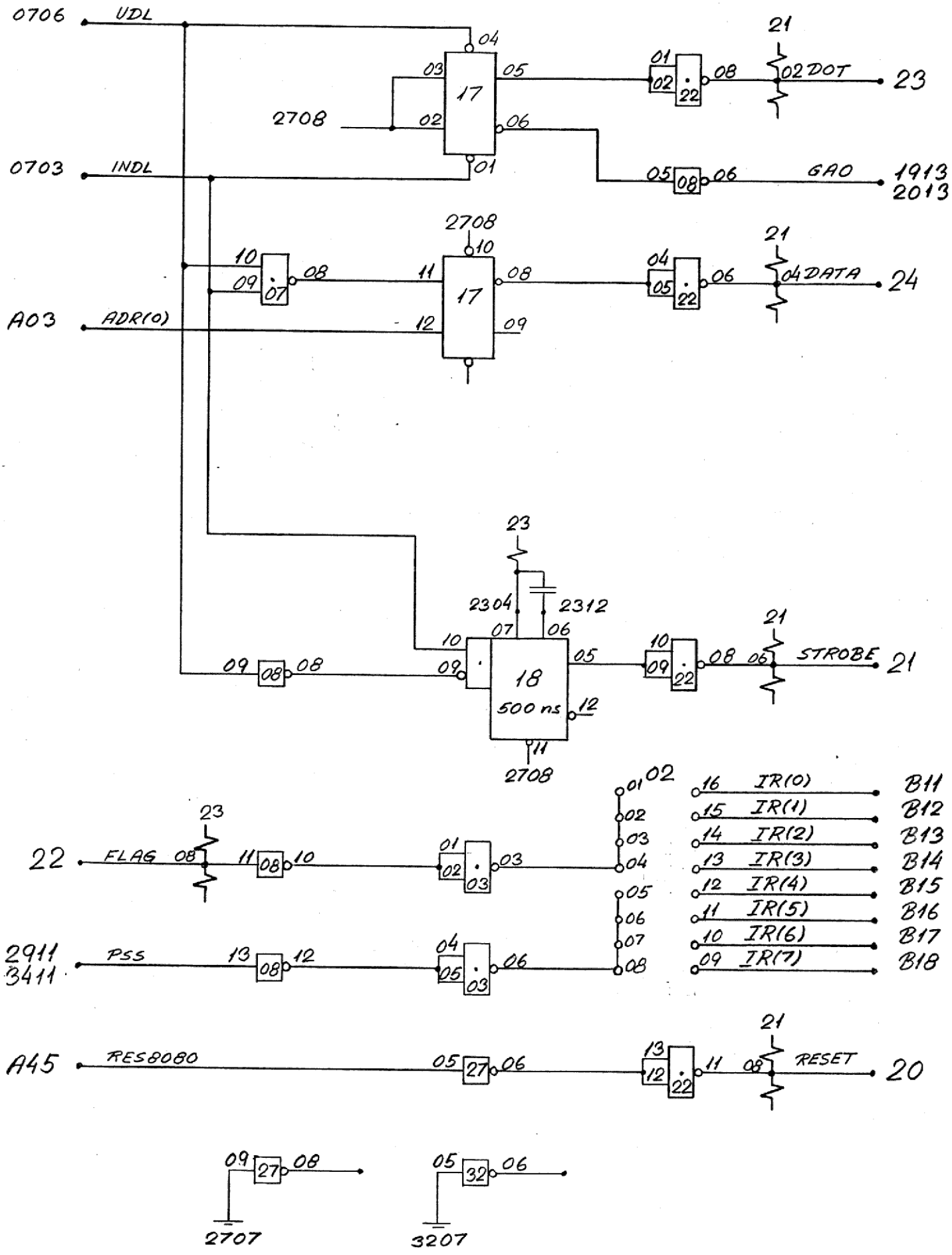
The two interrupt sources are connected to the IR(7:0) interrupt request bus by means of a 16 pin strap plugged into a socket on the board as shown in the logic diagram. (Appendix 1 pp.2).

7014


21 modst
03 7438
22 7438
26 modst
28 LS175
29 LS136
34 LS136
33 LS175
23
18 74123
17 7474
07 7400
25 modst
27 7404
32 7404
24 modst
switch
11 modst
08 LS04
12 LS04
20 7438
15 74157
14 74157
19 7438
01 LS136
06 LS136
02 strap
13 7400
10 3404
05 8226
04 8226
09 3404


PANEL STATUS
DISK DATA STATUS
REG
74175
DRIVER
7438
XOR
74136
MPX
74157
LATCH
3404
DRIVER
8216
IRQ
8080 DATA


A10 ADR(7)
A09 ADR(6)
A08 ADR(5)
A07 ADR(4)
A06 ADR(3)
A05 ADR(2)
A04 ADR(1)
A22 INR
A21 OUTR
S16
S15
S14
S13
S12
S11
R1
R2
R3
R4
R5
R6
1608
IND
INDH
INDL
UDL
0415 0515
1401 1501 2809 3309
1701
0907 1007 1704


0706 UDL
0703 INDL
2708
17
04
03
05
02
06
01
01 02 22 08 21 02 DOT 23
05 08 06 GAO 1913 2013
A03 ADR(0)
10 09 07 08
2708
10 11 12 17 08 09
04 05 22 06 21 04 DATA 24
23
2304
2312
07 06
10 09 08 08 09 18 500 ns 05 12 11
10 09 22 08 06 21 STROBE 21
2708
22 FLAG 08 23 11 08 10
01 02 03 04 05 06 07 08
16 IR(0) B11
15 IR(1) B12
14 IR(2) B13
13 IR(3) B14
12 IR(4) B15
11 IR(5) B16
10 IR(6) B17
09 IR(7) B18
2911 3411 PSS 13 08 12
04 05 03 06
A45 RES8080 05 27 06
13 12 22 11 08 21 RESET 20
09 27 08
2707
05 32 06
3207

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		Dato:	sider

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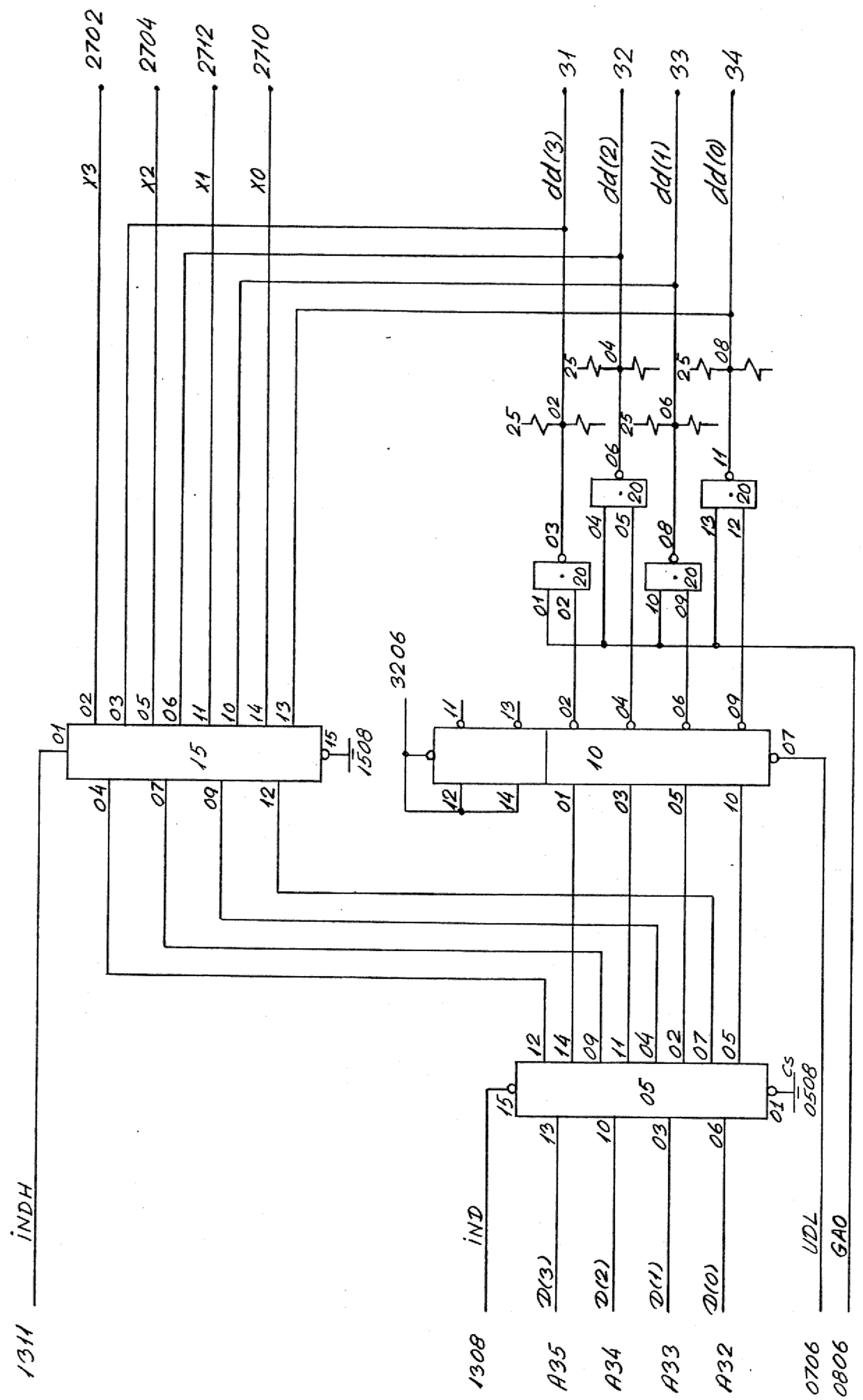
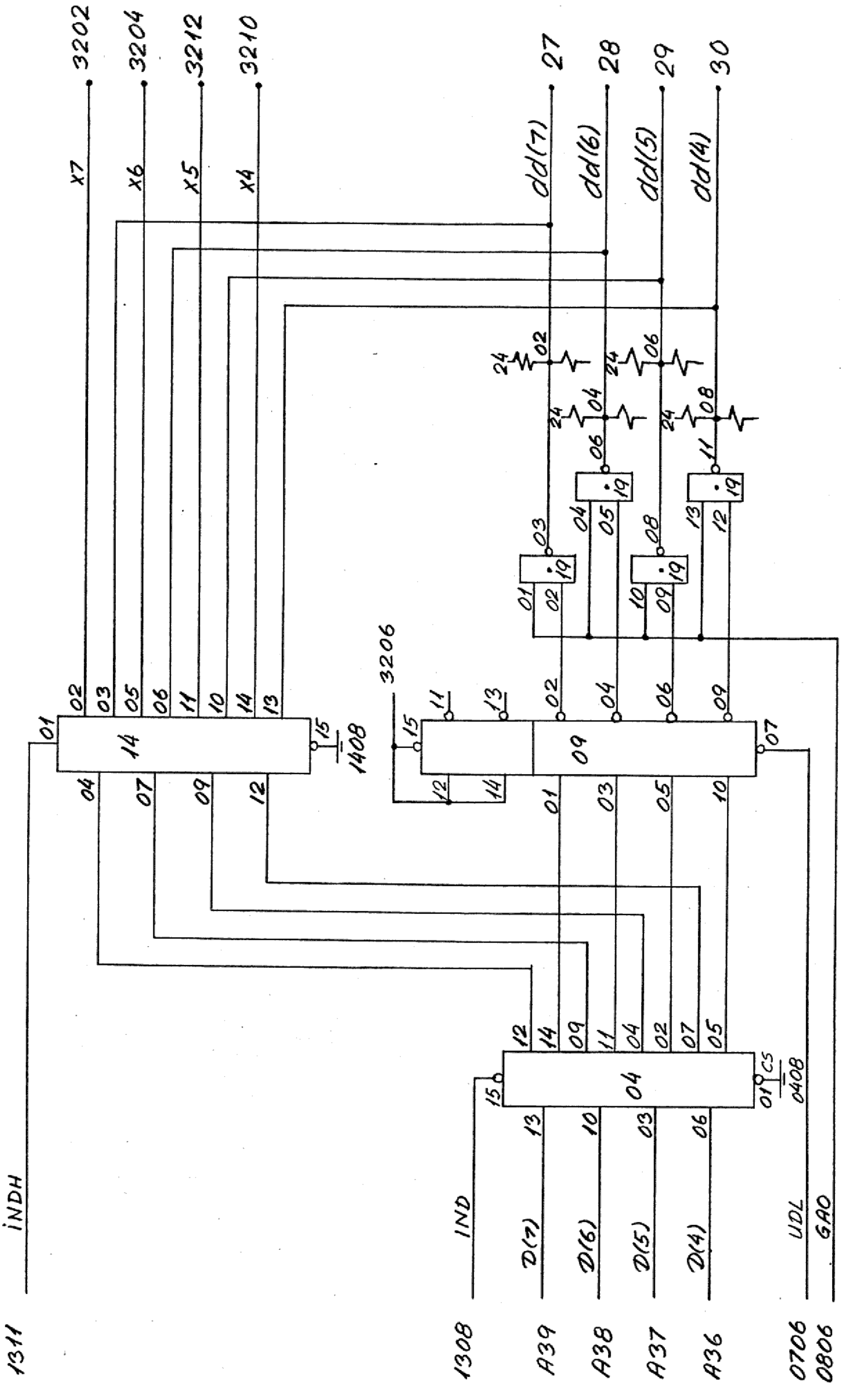
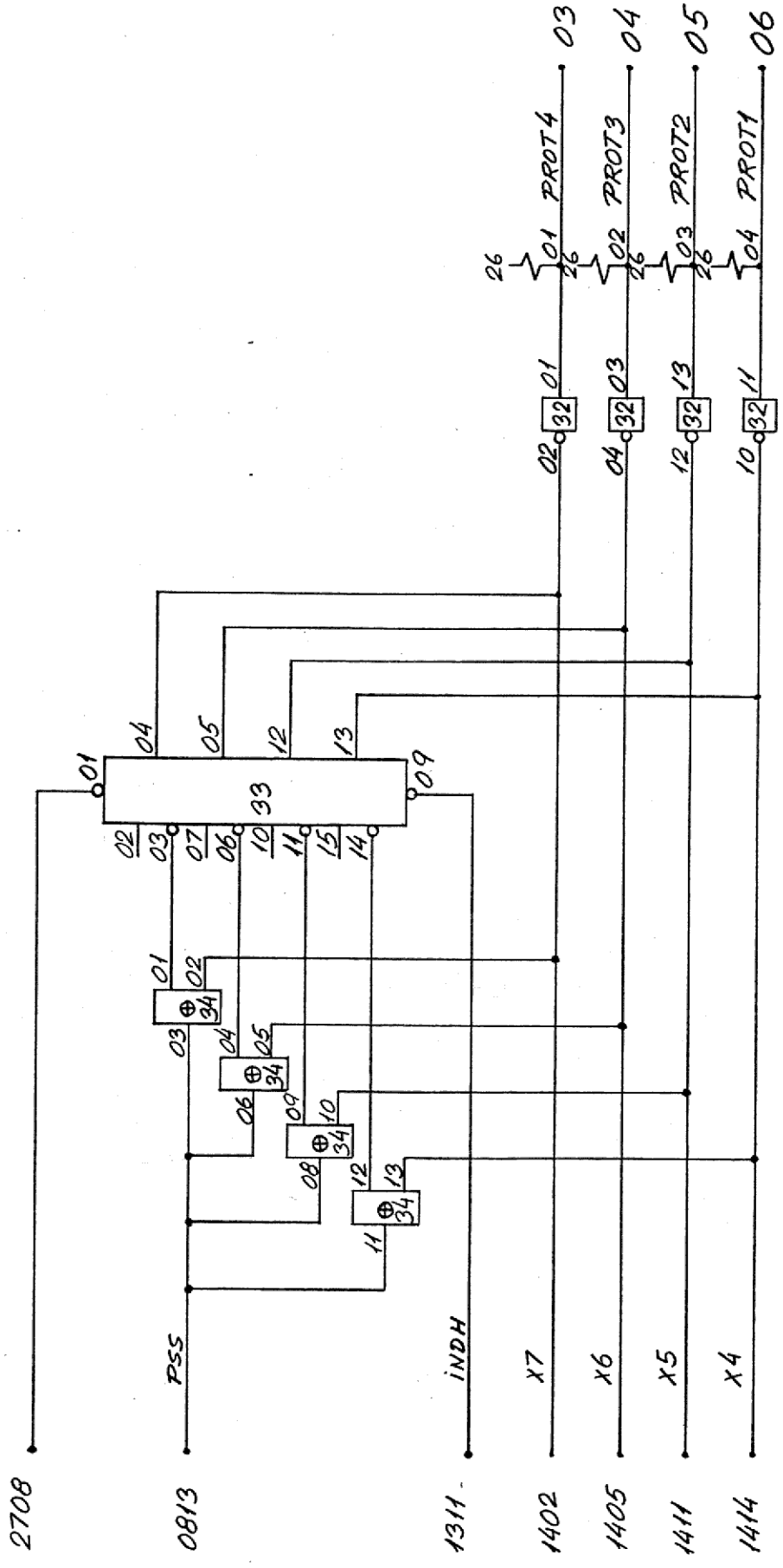


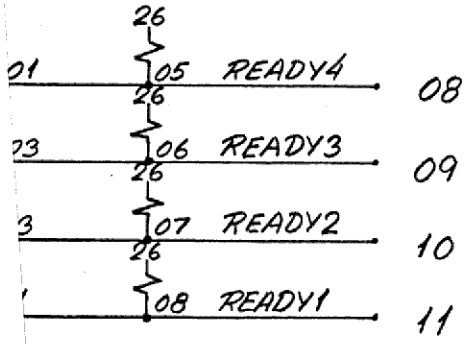

3202
3204
3212
3210
27
28
29
30
X7
X6
X5
X4
dd(7)
dd(6)
dd(5)
dd(4)
3206
1408
0408
INDH
IND
D(7)
D(6)
D(5)
D(4)
UDL
GAO
1311
1308
A39
A38
A37
A36
0706
0806


03
04
05
06
PROT4
PROT3
PROT2
PROT1
26
01
02
32
33
34
PSS
INDH
X7
X6
X5
X4
2708
0813
1311
1402
1405
1411
1414

SYKES

RLOPPY - 520

06 29 11 66 2433



7014 Topconnector

back side toddeside		front side komponentside	
A		1	
B		2	
C		3	PROT4
D		4	PROT3
E		5	PROT2
F		6	PROT1
H		7	
J		8	READY4
K		9	READY3
L		10	READY2
M		11	READY1
N		12	
P		13	
R		14	
S		15	
T		16	
U		17	
V		18	

back side toddeside		front side komponentside	
W		19	
X		20	RESET
Y		21	STROBE
Z		22	FLAG
a		23	DOT
b		24	DATA
c		25	
d		26	
e		27	dd(7)
f		28	dd(6)
h		29	dd(5)
j		30	dd(4)
k		31	dd(3)
l		32	dd(2)
m		33	dd(1)
n		34	dd(0)
p		35	
r		36	