

MASTER

Ontwerp en bouw van een centrale simulator, en het ontwerp van de besturing van een abonneegroep van een TDM-telefoonsysteem

Musters, C.J.

Award date:
1972

[Link to publication](#)

Disclaimer

This document contains a student thesis (bachelor's or master's), as authored by a student at Eindhoven University of Technology. Student theses are made available in the TU/e repository upon obtaining the required degree. The grade received is not published on the document as presented in the repository. The required complexity or quality of research of student theses may vary by program, and the required minimum study period may vary in duration.

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain

```
*****  
*  
* BEDRADINGSLIJST VAN HET INPUT- *  
* DEEL VAN EEN TDM-CENTRALE- *  
* SIMULATOR *  
*  
* AFSJUDEEROPDRACHT C•J•MUSTERS *  
*  
* DSLPROG 11/06/71 12•43•58 *  
*****
```



```

1 F9308      4002404080800004 COORD=DLINE24,PINS1=RIIIIOIOIOIA.....V, *
PINS2=.....ARIIIOIOIOIOV,
2 F7404      4002404080800004 COORD=DLINE,PINS1=IO.....A.....V, *
PINS2=..IO..A.....V,PINS3=.....IOA.....V,PINS4=.....AOI.....V, *
PINS5=.....A..OI..V,PINS6=.....A.....OIV,
3 F7400      4002404080800004 COORD=DLINE,PINS1=IIO.....A.....V, *
PINS2=...IIOA.....V,PINS3=.....AOII.....V,PINS4=.....A...OIIIV,
4 F9002      4002404080800004 COORD=DLINE,PINS1=IIC.....A.....V, *
PINS2=...IIOA.....V,PINS3=.....AOII.....V,PINS4=.....A...OIIIV,
5 F7410      4002404080800004 COORD=DLINE,PINS1=II.....A.....OIV, *
PINS2=..IIIOA.....V,PINS3=.....AOIII.....V,
6 F7420      4002404080800004 COORD=DLINE,PINS1=II.IIOA.....V, *
PINS2=.....AOII.IIV,
7 SN74H20    4002404080800004 COORD=DLINE,PINS1=II.IIOA.....V, *
PINS2=.....AOII.IIV,
8 F7476      4002404080800004 COORD=DLINE16,PINS1=CSRJV.....ANOK, *
PINS2=.....VCSRJNOKA...,
9 F7430      4002404080800004 COORD=DLINE,PINS1=IIIIIIAO..II.V, *
10 F7440      4002404080800004 COORD=DLINE,PINS1=II.IIOA.....V, *
PINS2=.....AOII.IIV,
11 F7474      4002404080800004 COORD=DLINE,PINS1=RDCSONA.....V, *
PINS2=.....ANOSCDRV,
12 F7402      4002404080800004 COORD=DLINE,PINS1=OII.....A.....V, *
PINS2=...OIIA.....V,PINS3=.....AIIO.....V,PINS4=.....A...IIOV,
13 SN7486    4002404080800004 COORD=DLINE,PINS1=IIO.....A.....V, *
PINS2=...IIOA.....V,PINS3=.....AOII.....V,PINS4=.....A...OIIIV,
14 SN74H106  4002404080800004 COORD=DLINE16,PINS1=CSRJV.....ANOK, *
PINS2=.....VCSRJNOKA...,
15 F9000      4002404080800004 COORD=DLINE,PINS1=PSKJJOANCKKJRV,
16 DM8570    4002404080800004 COORD=DLINE,PINS1=IICOCOAVROOOC,
17 SN72709   4002404080800004 COORD=DLINE,PINS1=..IIIZ..IOVI..,
18 SN72710   4002404080800004 COORD=DLINE,PINS1=..AII.Z..O.V...,
19 F9020      4002404080800004 COORD=DLINE16,PINS1=RCJKKONA.....P.V, *
PINS2=..C.....ANOKKJPRV,
20 F9022      4002404080800004 COORD=DLINE16,PINS1=RCJKSONA.....P.V, *
PINS2=..C.....ANOSKJPRV,
21 F9601      4002404080800004 COORD=DLINE,PINS1=IIII.NAO..I.IV,
22 CONTACT0  0000000000000000 001-014 007037,006037,005037,004037,003037, *
002037,001037,001040,002040,003040,004040,005040,006040,007040,
23 CONTACT1  0000000000000000 015-028 016031,015031,014031,013031,012031, *
011031,010031,010034,011034,012034,013034,014034,015034,016034,
24 CONTACT2  0000000000000000 029-042 052013,051013,050013,049013,048013, *
047013,046013,046015,047015,048015,049015,050015,051015,052015,
25 CONTACT3  0000000000000000 043-056 007049,006049,005049,004049,003049, *
002049,001049,001052,002052,003052,004052,005052,006052,007052,
26 CONTACT4  0000000000000000 057-070 007055,006055,005055,004055,003055, *
002055,001055,001058,002058,003058,004058,005058,006058,007058,
27 CONTACT5  0000000000000000 071-084 007061,006061,005061,004061,003061, *
002061,001061,001064,002064,003064,004064,005064,006064,007064,
28 CONTACT6  0000000000000000 085-098 016055,015055,014055,013055,012055, *
011055,010055,010058,011058,012058,013058,014058,015058,016058,
29 CONTACT7  0000000000000000 099-112 034013,033013,032013,031013,030013, *
029013,028013,028016,029016,030016,031016,032016,033016,034016,
30 CONTACT8  0000000000000000 113-126 043013,042013,041013,040013,039013, *
038013,037013,037016,038016,039016,040016,041016,042016,043016,
31 CONTACT9  0000000000000000 127-128 034043,033043,
32 POWER     0000000000000000 NULV=A(BK),PLUS5=V(RD),MIN5=M(BW),

```

```

33 SPEC          0000000000000000 LOGCOL=WT,WIREFUN=AND,
34 DLINE         0000000000000000 008X005 0701,0601,0501,0401,0301,0201,0101,
0104,0204,0304,0404,0504,0604,0704,
35 DLINE16      0000000000000000 009X005 0801,0701,0601,0501,0401,0301,0201,0101,*
0104,0204,0304,0404,0504,0604,0704,0804,
36 DLINE24      0000000000000000 013X008 1201,1101,1001,0901,0801,0701,0601,0501,*
0401,0301,0201,0101,0107,0207,0307,0407,0507,0607,0707,0807,0907,1007,*
1107,1207,
37 BOARD        0000000000000000 HOR=A-F,VERT=1-12,PITCH=9X6,

```

		DECLARE WITH POSITIONS			
2					
3	BT0	F7476	E8	C=KLOK J=BT5/N K=BF5 R=EEN S=SYNFF0	* * * *
4	BT1	F7476	E8	C=KLOK J=BF0 K=BT0/N S=EEN R=SYNFF0	* * * *
5	BT2	F7475	F8	C=KLOK J=BT1 K=BF1/N S=EEN R=SYNFF0	* * * *
6	BT3	F7476	F8	C=KLOK J=BF2 K=BT2/N S=EEN R=SYNFF0	* * * *
7	BT4	F7475	F7	C=KLOK J=BT3 K=BF3/N S=EEN R=SYNFF0	* * * *
8	BT5	F7476	F7	C=KLOK J=BF4 K=BT4/N S=EEN R=SYNFF0	* * * *
9	TELNORO	F7402	D4	BT4, BT5/N	
10	KT0	F9022	E4	C=NONKLOK J=TELNORO P=TELNORO S=EEN R=SYNFF0	* * * *
11	* K-INPUT AAN AARDE				
12	KT1	F9022	E4	C=NONKLOK J=KT0 K=KT0/N P=TELNORO S=EEN R=SYNFF0	* * * * *
13	KT2	F9022	E5	C=NONKLOK J=TELINV0 K=TELNAND0 P=TELNORO S=EEN R=SYNFF0	* * * * *
14	KT3	F9022	E5	C=NONKLOK J=TELNR01 K=TELINV3 P=TELNORO S=EEN R=SYNFF0	* * * * *
15	KT4	F9022	E6	C=NONKLOK	*

				J=TELVN1	*
				K=TELVNAND1	*
				P=TELVNORO	*
				S=EEN	*
				R=SYNFFO	
16	KT5	F9022	E6	C=NONKLOK	*
				J=TELVNOR2	*
				K=TELVN4	*
				P=TELVNORO	*
				S=EEN	*
				R=SYNFFO	
17	TELVNANDO	F7400	D6	KT0,KT1	
18	TELVN0	F7404	D5	TELVNANDO	
19	TELVNOR1	F7402	D4	TELVNANDO,KT2/N	
20	TELVNAND1	F7400	D6	TELVNOR1,KT3	
21	TELVN1	F7404	D5	TELVNAND1	
22	TELVNOR2	F7402	D4	TELVNAND1,KT4/N	
23	TELVN3	F7404	D5	TELVNOR1	
24	TELVN4	F7404	D5	TELVNOR2	
25	TELVNUL	F7430	E7	BT0/N,BT5/N,KT0/N,KT1/N,KT2/N,KT3/N,KT4/N,KT5/N	
26	TELVNAND2	F7400	D6	TELVNUL,TELVN2	
27	TELVNAND3	F7400	D6	KLOK,SYNFFO/N	
28	SYNFFO	F7474	D7	C=NONKLOK	*
				D=TELVNAND2	*
				R=EEN	*
				S=TELVNAND3	
29	SYNFF1	F7474	D7	S=SYNFFO	*
				C=EEN	*
				D=EEN	*
				R=RESCHECK	
30	EXCLOR0	SN7486	F4	KT0/N,SELECT0	
31	EXCLOR1	SN7486	F4	KT1/N,SELECT1	
32	EXCLOR2	SN7486	F4	KT2/N,SELECT2	
33	EXCLOR3	SN7486	F4	KT3/N,SELECT3	
34	EXCLOR4	SN7486	F5	KT4/N,SELECT4	
35	EXCLOR5	SN7486	F5	KT5/N,SELECT5	
36	TELVNOR3	F7402	D4	BT0,BT5	
37	XTEL	F7430	F6	TELVNUL,TELVNOR3,EXCLOR0,EXCLOR1,EXCLOR2, EXCLOR3,EXCLOR4,EXCLOR5	*
38	SCHUIF0	DM8570	B3	INFF,INFF	*
				R=EEN	*
				C=NONKLOK	
39	SCHUIF1	DM8570	C3	SCHUIF0/13,SCHUIF0/13	*
				R=EEN	*
				C=NONKLOK	
40	LATCH00	F9308	A1	READFFO/N(2),READFFO/N(3),SCHUIF0/4(4), SCHUIF0/5(6),SCHUIF0/6(8),SCHUIF0/10(10)	*
				R=CLEARO	*
41	LATCH01	F9308	A1	READFFO/N(14),READFFO/N(15),SCHUIF0/11(16), SCHUIF0/12(18),SCHUIF0/13(20),SCHUIF1/3(22)	*
				R=CLEARO	*
42	LATCH02	F9308	C1	READFFO/N(2),READFFO/N(3),SCHUIF1/4(4), SCHUIF1/5(6),SCHUIF1/6(8),SCHUIF1/10(10)	*
				R=CLEARO	*
43	LATCHX0	F9308	C1	READFFX/N(14),READFFX/N(15),SCHUIF0/4(16), SCHUIF0/5(18),SCHUIF0/6(20),SCHUIF0/10(22)	*
				R=CLEARX	*

44	LATCHX1	F9308	E1	READFFX/N(2), READFFX/N(3), SCHUIFO/10(4), SCHUIFO/12(6), SCHUIFO/13(8), SCHUIF1/3(10) R=CLEARX	*
45	LATCHX2	F9308	E1	READFFX/N(14), READFFX/N(15), SCHUIF1/4(16), SCHUIF1/5(18), SCHUIF1/6(20), SCHUIF1/10(22) R=CLEARX	*
46	COD	F7430	C4	SCHUIFO/4, SCHUIFO/5, SCHUIFO/6, SCHUIFO/10, SCHUIFO/11, SCHUIFO/12, SCHUIFO/13, SCHUIF1/3	*
47	CODNUL	F7420	B4	SCHUIF1/3, SCHUIF1/4, SCHUIF1/5, SCHUIF1/6	
48	CODNOR	F7402	C5	SCHUIFO/3, SCHUIF1/6	
49	CODVRIJ	F7420	B4	SCHUIF1/4, SCHUIF1/5, CODNOR, CODNOR	
50	CNORO	F7402	C5	CODNUL, COD	
51	CNORV	F7402	C5	CODVRIJ, COD	
52	DRIEO	F7410	C6	CNORO, KLOK, OS/N	
53	OS	F9601	B5	DRIEO(3), DRIEO(4), CX(11), RXCX(13)	
54	* OS INPUT 1 EN 2 AAN AARDE LEGGEN				
55	* OS: RX AAN VCC (R=22K, C=820PF)				
56	TELINV2	F7404	D5	DRIEO	
57	READNORO	F7402	C7	TELNUL, TELINV2	
58	READNORX	F7402	C7	XTEL, CNORV	
59	READFFO	F7474	B7	C=NONKLOK D=READNORO S=EEN R=DRIE1	*
60	READFFX	F7474	B7	C=NONKLOK D=READNORX R=DRIE2 S=EEN	*
61	DRIE1	F7410	C6	READFFO, READFFO, KLOK	
62	DRIE2	F7410	C6	READFFX, READFFX, KLOK	
63	SELECT0	INPUT	42		
64	SELECT1	INPUT	29		
65	SELECT2	INPUT	41		
66	SELECT3	INPUT	30		
67	SELECT4	INPUT	40		
68	SELECT5	INPUT	31		
69	CLEAR0	INPUT	36		
70	CLEARX	INPUT	35		
71	* OUTPUT OSCILLATOR AAN INPUT 1, 2, 3 EN 4 VAN POORT0				
72	POORT0	SN74H20	F9		
73	DELER0	SN74H106	E9	C=POORT0 J=EEN K=EEN R=EEN S=EEN	*
74	DELER1	SN74H106	E9	C=DELER0 J=EEN K=EEN R=EEN S=EEN	*
75	POORT1	SN74H20	F9	DELER1, DELER1, DELER1, DELER1	
76	DELER2	F9000	D9	C=POORT1 R=EEN S=EEN J=EEN, EEN, EEN K=EEN, EEN, EEN P=EEN	*

77	KLCK	F7440	B9	DELER2,DELER2,DELER2,DELER2
78	NONKLOK	F7440	B9	KLOK,KLOK,KLOK,KLOK
79	INV0	F7404	C9	DELER2
80	INV1	F7404	C9	DELER2/N
81	* 51 EN 77	DOORVERBINDEN		
82	* 65 EN 78	DOORVERBINDEN		
83	WOORD00	OUTPUT	112	LATCH00/5
84	WOORD01	OUTPUT	99	LATCH00/7
85	WOORD02	OUTPUT	111	LATCH00/9
86	WOORD03	OUTPUT	100	LATCH00/11
87	WOORD04	OUTPUT	110	LATCH01/17
88	WOORD05	OUTPUT	101	LATCH01/19
89	WOORD06	OUTPUT	109	LATCH01/21
90	WOORD07	OUTPUT	102	LATCH01/23
91	WOORD08	OUTPUT	108	LATCH02/5
92	WOORD09	OUTPUT	103	LATCH02/7
93	WOORD010	OUTPUT	107	LATCH02/9
94	WOORD011	OUTPUT	104	LATCH02/11
95	WOORDX0	OUTPUT	126	LATCHX0/17
96	WOORDX1	OUTPUT	113	LATCHX0/19
97	WOORDX2	OUTPUT	125	LATCHX0/21
98	WOORDX3	OUTPUT	114	LATCHX0/23
99	WOORDX4	OUTPUT	124	LATCHX1/5
100	WOORDX5	OUTPUT	115	LATCHX1/7
101	WOORDX6	OUTPUT	123	LATCHX1/9
102	WOORDX7	OUTPUT	116	LATCHX1/11
103	WOORDX8	OUTPUT	122	LATCHX2/17
104	WOORDX9	OUTPUT	117	LATCHX2/19
105	WOORDX10	OUTPUT	121	LATCHX2/21
106	WOORDX11	OUTPUT	118	LATCHX2/23
107	INV2	F7404	C9	MASKWIP
108	RESCHECK	INPUT	39	
109	LAMP	OUTPUT	32	SYNFF1/N
110	RXCX	INPUT	22	
111	CX	INPUT	15	
112	FASE0	OUTPUT	85	INV0
113	FASE1	OUTPUT	98	INV1
114	FASE2	INPUT	68	
115	FASE3	OUTPUT	70	INV2
116	* 91 EN 64	DOORVERBINDEN		
117	* 92 EN 78	DOORVERBINDEN		
118	* 43 AAN	-5 VOLT		
119	* 57 AAN	VCC		
120	INT2	INPUT	46	
121	INT3	OUTPUT	63	INTEG
122	INT4	INPUT	49	
123	INT5	INPUT	48	
124	INT6	INPUT	47	
125	* 60 EN 63	DOORVERBINDEN		
126	INTEG	SN72709	A12	INT5 (3) , INT2 (4) , FASE2 (5) , INT4 (9) , INT6 (12)
127	* OUTPUT	INTEG (PEN 10)	NAAR	OSCILLATOR
128	SIGNAAL	INPUT	8	
129	* 7 AAN	AARDE		
130	DELAYIN	OUTPUT	1	POORT3
131	DELAYOUT	INPUT	12	
132	EXCLOR6	SN7486	F5	POORT3, DELAYOUT
133	MASKWIP	F9601	A8	EXCLOR6 (3) , MASKWIP/N (4) , CXMASK (11) , RXCMASK (13)

```
134 * MASKWIP: INPUT 1 EN 2 AAN AARDE LEGGEN (R=4K7, C=22PF)
135 RXCMASK INPUT 24
136 CXMASK INPUT 26
137 POORT2 F7400 B8 SIGNAAL, SIGNAAL
138 POORT3 F7400 B8 POORT2, POORT2
139 POORT4 F7400 B8 POORT3, POORT3
140 POORT5 F7400 B8 POORT4, POORT4
141 INFF F7474 A6 C=NONKLOK *
R=EEN *
S=EEN *
D=POORT5

142 EEN INPUT 127
143 END
```

SYMBOL TABLE

SYMBOL	INDEXES		OVERLAY	TYPE
	LOWER	UPPER		
BT0				CIRCUIT
BT1				CIRCUIT
BT2				CIRCUIT
BT3				CIRCUIT
BT4				CIRCUIT
BT5				CIRCUIT
TELNOR0				CIRCUIT
KT0				CIRCUIT
KT1				CIRCUIT
KT2				CIRCUIT
KT3				CIRCUIT
KT4				CIRCUIT
KT5				CIRCUIT
TELNAND0				CIRCUIT
TELINV0				CIRCUIT
TELNOR1				CIRCUIT
TELNAND1				CIRCUIT
TELINV1				CIRCUIT
TELNOR2				CIRCUIT
TELINV3				CIRCUIT
TELINV4				CIRCUIT
TELNUL				CIRCUIT
TELNAND2				CIRCUIT
TELNAND3				CIRCUIT
SYNFF0				CIRCUIT
SYNFF1				CIRCUIT
EXCLOR0				CIRCUIT
EXCLOR1				CIRCUIT
EXCLOR2				CIRCUIT
EXCLOR3				CIRCUIT
EXCLOR4				CIRCUIT
EXCLOR5				CIRCUIT
TELNOR3				CIRCUIT
XTEL				CIRCUIT
SCHUIF0				CIRCUIT
SCHUIF1				CIRCUIT
LATCH00				CIRCUIT
LATCH01				CIRCUIT
LATCH02				CIRCUIT
LATCHX0				CIRCUIT
LATCHX1				CIRCUIT
LATCHX2				CIRCUIT
COD				CIRCUIT
CODNUL				CIRCUIT
CODNOR				CIRCUIT
CODVRIJ				CIRCUIT
CNOR0				CIRCUIT
CNORV				CIRCUIT
DRIE0				CIRCUIT
OS				CIRCUIT
TELINV2				CIRCUIT
READNOR0				CIRCUIT

READNORX	CIRCUIT
READFF0	CIRCUIT
READFFX	CIRCUIT
DRIE1	CIRCUIT
DRIE2	CIRCUIT
SELECT0	INPUT
SELECT1	INPUT
SELECT2	INPUT
SELECT3	INPUT
SELECT4	INPUT
SELECT5	INPUT
CLEAR0	INPUT
CLEARX	INPUT
POORT0	CIRCUIT
DELER0	CIRCUIT
DELER1	CIRCUIT
POORT1	CIRCUIT
DELER2	CIRCUIT
KLOK	CIRCUIT
NONKLOK	CIRCUIT
INV0	CIRCUIT
INV1	CIRCUIT
WOORD00	OUTPUT
WOORD01	OUTPUT
WOORD02	OUTPUT
WOORD03	OUTPUT
WOORD04	OUTPUT
WOORD05	OUTPUT
WOORD06	OUTPUT
WOORD07	OUTPUT
WOORD08	OUTPUT
WOORD09	OUTPUT
WOORD010	OUTPUT
WOORD011	OUTPUT
WOORDX0	OUTPUT
WOORDX1	OUTPUT
WOORDX2	OUTPUT
WOORDX3	OUTPUT
WOORDX4	OUTPUT
WOORDX5	OUTPUT
WOORDX6	OUTPUT
WOORDX7	OUTPUT
WOORDX8	OUTPUT
WOORDX9	OUTPUT
WOORDX10	OUTPUT
WOORDX11	OUTPUT
INV2	CIRCUIT
RESCHECK	INPUT
LAMP	OUTPUT
RXCX	INPUT
CX	INPUT
FASE0	OUTPUT
FASE1	OUTPUT
FASE2	INPUT
FASE3	OUTPUT
INT2	INPUT
INT3	OUTPUT

INT4
INT5
INT6
INTEG
SIGNAAL
DELAYIN
DELAYOUT
EXCLOR6
MASKWIP
RXCXMASK
CXMASK
POORT2
POORT3
POORT4
POORT5
INFF
EEN

INPUT
INPUT
INPUT
CIRCUIT
INPUT
OUTPUT
INPUT
CIRCUIT
CIRCUIT
INPUT
INPUT
CIRCUIT
CIRCUIT
CIRCUIT
CIRCUIT
CIRCUIT
INPUT

	A	B	C	D	E	F
1	F9308	F9308	F9308	F9308	F9308	F9308
2	F9308	F9308	F9308	F9308	F9308	F9308
3		DM8570	DM8570	CONTACTS	CONTACTS	CONTACTS
4		F7420	F7430	F7402	F9022	SN7486
5		F9601	F7402	F7404	F9022	SN7486
6	F7474	CONTACTS	F7410	F7400	F9022	F7430
7	CONTACTS	F7474	F7402	F7474	F7430	F7476
8	F9601	F7400		CONTACTS	F7476	F7476
9	CONTACTS	F7440	F7404	F9000	SN74H105	SN74H20
10	CONTACTS	CONTACTS				
11						
12	SN72709					

NUMBERS OF NEEDED MODULES

F9308	3
DM8570	2
F7420	1
F7430	3
F7402	3
F9022	3
SN7486	2
F9601	2
F7404	2
F7474	3
F7410	1
F7400	2
F7476	3
F7440	1
F9000	1
SN74H106	1
SN74H20	1
SN72709	1

		DECLARE WITH POSITIONS			
2					
3	BT0	F7476	(E8)	C = KLOK/6 (1)	*
				J = BT5/10 (4)	*
				K = BT5/11 (16)	*
				R = EEN (3)	*
				S = SYNFF0/5 (2)	
4	BT1	F7476	(E8)	C = KLOK/6 (6)	*
				J = BT0/15 (9)	*
				K = BT0/14 (12)	*
				S = EEN (7)	*
				R = SYNFF0/5 (8)	
5	BT2	F7475	(F3)	C = KLOK/6 (1)	*
				J = BT1/11 (4)	*
				K = BT1/10 (16)	*
				S = EEN (2)	*
				R = SYNFF0/5 (3)	
6	BT3	F7476	(F8)	C = KLOK/6 (6)	*
				J = BT2/15 (9)	*
				K = BT2/14 (12)	*
				S = EEN (7)	*
				R = SYNFF0/5 (8)	
7	BT4	F7475	(F7)	C = KLOK/6 (1)	*
				J = BT3/11 (4)	*
				K = BT3/10 (16)	*
				S = EEN (2)	*
				R = SYNFF0/5 (3)	
8	BT5	F7476	(F7)	C = KLOK/6 (6)	*
				J = BT4/15 (9)	*
				K = BT4/14 (12)	*
				S = EEN (7)	*
				R = SYNFF0/5 (8)	
9	TELNORO	F7402	(D4)	I = BT4/15 (2), BT5/10 (3)	
10	KT0	F9022	(E4)	C = NONKLOK/8 (2)	*
				J = TELNORO/1 (3)	*
				P = TELNORO/1 (14)	*
				S = EEN (5)	*
				R = SYNFF0/5 (1)	
11	* K-INPUT AAN AARDE				
12	KT1	F9022	(E4)	C = NONKLOK/8 (2)	*
				J = KT0/6 (13)	*
				K = KT0/7 (12)	*
				P = TELNORO/1 (14)	*
				S = EEN (11)	*
				R = SYNFF0/5 (15)	
13	KT2	F9022	(E5)	C = NONKLOK/8 (2)	*
				J = TELINV0/2 (3)	*
				K = TELNAND0/3 (4)	*
				P = TELNORO/1 (14)	*
				S = EEN (5)	*
				R = SYNFF0/5 (1)	
14	KT3	F9022	(E5)	C = NONKLOK/8 (2)	*
				J = TELNOR1/4 (13)	*
				K = TELINV3/6 (12)	*
				P = TELNORO/1 (14)	*
				S = EEN (11)	*
				R = SYNFF0/5 (15)	
15	KT4	F9022	(E5)	C = NONKLOK/8 (2)	*

				J = TELINV1/4 (3)	*
				K = TELNAND1/6 (4)	*
				P = TELNOR0/1 (14)	*
				S = EEN (5)	*
				R = SYNFF0/5 (1)	
16	KT5	F9022	(E6)	C = NONKLOK/8 (2)	*
				J = TELNOR2/10 (13)	*
				K = TELINV4/8 (12)	*
				P = TELNOR0/1 (14)	*
				S = EEN (11)	*
				R = SYNFF0/5 (15)	
17	TELNAND0	F7400	(D5)	I = KT0/6 (1), KT1/10 (2)	
18	TELINV0	F7404	(D5)	I = TELNAND0/3 (1)	
19	TELNOR1	F7402	(D4)	I = TELNAND0/3 (5), KT2/7 (6)	
20	TELNAND1	F7400	(D6)	I = TELNOR1/4 (4), KT3/10 (5)	
21	TELINV1	F7404	(D5)	I = TELNAND1/6 (3)	
22	TELNOR2	F7402	(D4)	I = TELNAND1/5 (8), KT4/7 (9)	
23	TELINV3	F7404	(D5)	I = TELNOR1/4 (5)	
24	TELINV4	F7404	(D5)	I = TELNOR2/10 (9)	
25	TELNUL	F7430	(E7)	I = BT0/14 (1), BT5/10 (2), KT0/7 (3), KT1/9 (4), KT2/7 (5), KT3/9 (6), KT4/7 (11), KT5/9 (12)	
26	TELNAND2	F7400	(D6)	I = TELNUL/8 (9), TELINV2/10 (10)	
27	TELNAND3	F7400	(D6)	I = KLOK/6 (12), SYNFF0/6 (13)	
28	SYNFF0	F7474	(D7)	C = NONKLOK/8 (3)	*
				D = TELNAND2/8 (2)	*
				R = EEN (1)	*
				S = TELNAND3/11 (4)	
29	SYNFF1	F7474	(D7)	S = SYNFF0/5 (10)	*
				C = EEN (11)	*
				D = EEN (12)	*
				R = RESCHECK (13)	
30	EXCLOR0	SN7486	(F4)	I = KT0/7 (1), SELECT0 (2)	
31	EXCLOR1	SN7486	(F4)	I = KT1/9 (4), SELECT1 (5)	
32	EXCLOR2	SN7486	(F4)	I = KT2/7 (9), SELECT2 (10)	
33	EXCLOR3	SN7486	(F4)	I = KT3/9 (12), SELECT3 (13)	
34	EXCLOR4	SN7486	(F5)	I = KT4/7 (1), SELECT4 (2)	
35	EXCLOR5	SN7486	(F5)	I = KT5/9 (4), SELECT5 (5)	
36	TELNOR3	F7402	(D4)	I = BT0/15 (11), BT5/11 (12)	
37	XTEL	F7430	(F6)	I = TELNUL/8 (1), TELNOR3/13 (2), EXCLOR0/3 (3), EXCLOR1/6 (4), EXCLOR2/8 (5), EXCLOR3/11 (6), EXCLOR4/3 (11), EXCLOR5/6 (12)	
38	SCHUIF0	DM8570	(B3)	I = INFF/5 (1), INFF/5 (2)	*
				R = EEN (9)	*
				C = NONKLOK/8 (14)	
39	SCHUIF1	DM8570	(C3)	I = SCHUIF0/13 (1), SCHUIF0/13 (2)	*
				R = EEN (9)	*
				C = NONKLOK/8 (14)	
40	LATCH00	F9308	(A1)	I = READFF0/6 (2), READFF0/5 (3), SCHUIF0/4 (4), SCHUIF0/5 (5), SCHUIF0/6 (8), SCHUIF0/10 (10)	*
				R = CLEAR0 (1)	
41	LATCH01	F9308	(A1)	I = READFF0/6 (14), READFF0/5 (15), SCHUIF0/11 (16), SCHUIF0/12 (18), SCHUIF0/13 (20), SCHUIF1/3 (22)	*
				R = CLEAR0 (13)	
42	LATCH02	F9308	(C1)	I = READFF0/6 (2), READFF0/5 (3), SCHUIF1/4 (4), SCHUIF1/5 (6), SCHUIF1/6 (8), SCHUIF1/10 (10)	*
				R = CLEAR0 (1)	

43	LATCHX0	F9308	(C1)	I = READFFX/8 (14), READFFX/8 (15), SCHUIF0/4 (16), SCHUIF0/5 (18), SCHUIF0/6 (20), SCHUIF0/10 (22) *
				R = CLEARX (13)
44	LATCHX1	F9308	(E1)	I = READFFX/8 (2), READFFX/8 (3), SCHUIF0/10 (4), SCHUIF0/12 (6), SCHUIF0/13 (8), SCHUIF1/3 (10) *
				R = CLEARX (1)
45	LATCHX2	F9308	(E1)	I = READFFX/8 (14), READFFX/8 (15), SCHUIF1/4 (16), SCHUIF1/5 (18), SCHUIF1/6 (20), SCHUIF1/10 (22) *
				R = CLEARX (13)
46	COD	F7430	(C4)	I = SCHUIF0/4 (1), SCHUIF0/5 (2), SCHUIF0/6 (3), SCHUIF0/10 (4), SCHUIF0/11 (5), SCHUIF0/12 (6), SCHUIF0/13 (11), SCHUIF1/3 (12)
47	CODNUL	F7420	(B4)	I = SCHUIF1/3 (1), SCHUIF1/4 (2), SCHUIF1/5 (4), SCHUIF1/6 (5)
48	CODNOR	F7402	(C5)	I = SCHUIF0/3 (2), SCHUIF1/6 (3)
49	CODVRIJ	F7420	(B4)	I = SCHUIF1/4 (9), SCHUIF1/5 (10), CODNOR/1 (12), CODNOR/1 (13)
50	CNORO	F7402	(C5)	I = CODNUL/6 (5), COD/8 (6)
51	CNORV	F7402	(C5)	I = CODVRIJ/8 (8), COD/8 (9)
52	DRIE0	F7410	(C6)	I = CNORO/4 (1), KLOK/6 (2), OS/6 (13)
53	OS	F9601	(B5)	I = DRIE0/12 (3), DRIE0/12 (4), CX (11), RXCX (13)
54	* OS INPUT 1 EN 2 AAN AARDE LEGGEN			
55	* OS: RX AAN VCC (R=22K, C=820PF)			
56	TELINV2	F7404	(D5)	I = DRIE0/12 (11)
57	READNORO	F7402	(C7)	I = TELNUL/8 (2), TELINV2/10 (3)
58	READNORX	F7402	(C7)	I = XTEL/8 (5), CNORV/10 (6)
59	READFF0	F7474	(B7)	C = NONKLOK/8 (3) *
				D = READNORO/1 (2) *
				S = EEN (4) *
				R = DRIE1/5 (1)
60	READFFX	F7474	(B7)	C = NONKLOK/8 (11) *
				D = READNORX/4 (12) *
				R = DRIE2/8 (13) *
				S = EEN (10)
61	DRIE1	F7410	(C5)	I = READFF0/5 (3), READFF0/5 (4), KLOK/6 (5)
62	DRIE2	F7410	(C6)	I = READFFX/9 (9), READFFX/9 (10), KLOK/6 (11)
63	SELECT0	INPUT	(42)	
64	SELECT1	INPUT	(29)	
65	SELECT2	INPUT	(41)	
66	SELECT3	INPUT	(30)	
67	SELECT4	INPUT	(40)	
68	SELECT5	INPUT	(31)	
69	CLEAR0	INPUT	(35)	
70	CLEARX	INPUT	(35)	
71	* OUTPUT OSCILLATOR AAN INPUT 1, 2, 3 EN 4 VAN POORT0			
72	POORT0	SN74H20	(F9)	
73	DELER0	SN74H106	(E9)	C = POORT0/6 (1) *
				J = EEN (4) *
				K = EEN (16) *
				R = EEN (3) *
				S = EEN (2)
74	DELER1	SN74H106	(E9)	C = DELER0/15 (5) *
				J = EEN (9) *
				K = EEN (12) *
				R = EEN (8) *
				S = EEN (7)
75	POORT1	SN74H20	(F9)	I = DELER1/11 (9), DELER1/11 (10), DELER1/11 (12),

76	DELER2	F9000	(D9)	DELER1/11(13) C = POORT1/8(9) R = EEN(13) S = EEN(2) J = EEN(4), EEN(5), EEN(12) K = EEN(3), EEN(10), EEN(11) P = EEN(1)	* * * * *
77	KLOK	F7440	(B9)	I = DELER2/6(1), DELER2/6(2), DELER2/6(4), DELER2/6(5)	
78	NONKLOK	F7440	(B9)	I = KLOK/6(9), KLOK/6(10), KLOK/6(12), KLOK/6(13)	
79	INV0	F7404	(C9)	I = DELER2/6(1)	
80	INV1	F7404	(C9)	I = DELER2/8(3)	
81	* 51 EN 77	DOORVERBINDEN			
82	* 65 EN 78	DOORVERBINDEN			
83	WOORD00	OUTPUT	(112)	I = LATCH00/5	
84	WOORD01	OUTPUT	(99)	I = LATCH00/7	
85	WOORD02	OUTPUT	(111)	I = LATCH00/9	
86	WOORD03	OUTPUT	(100)	I = LATCH00/11	
87	WOORD04	OUTPUT	(110)	I = LATCH01/17	
88	WOORD05	OUTPUT	(101)	I = LATCH01/19	
89	WOORD06	OUTPUT	(109)	I = LATCH01/21	
90	WOORD07	OUTPUT	(102)	I = LATCH01/23	
91	WOORD08	OUTPUT	(108)	I = LATCH02/5	
92	WOORD09	OUTPUT	(103)	I = LATCH02/7	
93	WOORD010	OUTPUT	(107)	I = LATCH02/9	
94	WOORD011	OUTPUT	(104)	I = LATCH02/11	
95	WOORDX0	OUTPUT	(126)	I = LATCHX0/17	
96	WOORDX1	OUTPUT	(113)	I = LATCHX0/19	
97	WOORDX2	OUTPUT	(125)	I = LATCHX0/21	
98	WOORDX3	OUTPUT	(114)	I = LATCHX0/23	
99	WOORDX4	OUTPUT	(124)	I = LATCHX1/5	
100	WOORDX5	OUTPUT	(115)	I = LATCHX1/7	
101	WOORDX6	OUTPUT	(123)	I = LATCHX1/9	
102	WOORDX7	OUTPUT	(116)	I = LATCHX1/11	
103	WOORDX8	OUTPUT	(122)	I = LATCHX2/17	
104	WOORDX9	OUTPUT	(117)	I = LATCHX2/19	
105	WOORDX10	OUTPUT	(121)	I = LATCHX2/21	
106	WOORDX11	OUTPUT	(118)	I = LATCHX2/23	
107	INV2	F7404	(C9)	I = MASKWIP/8(5)	
108	RESCHECK	INPUT	(39)		
109	LAMP	OUTPUT	(32)	I = SYNFF1/8	
110	RXCX	INPUT	(22)		
111	CX	INPUT	(15)		
112	FASE0	OUTPUT	(85)	I = INV0/2	
113	FASE1	OUTPUT	(98)	I = INV1/4	
114	FASE2	INPJP	(63)		
115	FASE3	OUTPUT	(70)	I = INV2/5	
116	* 91 EN 64	DOORVERBINDEN			
117	* 92 EN 78	DOORVERBINDEN			
118	* 43 AAN -5 VOLT				
119	* 57 AAN VCC				
120	INT2	INPJP	(46)		
121	INT3	OUTPUT	(63)	I = INTEG/10	
122	INT4	INPUT	(49)		
123	INT5	INPUT	(48)		
124	INT6	INPJP	(47)		
125	* 60 EN 63	DOORVERBINDEN			

```

126 INTEG          SN72709 (A12)  I = INT5 (3) ,INT2 (4) ,FASE2 (5) ,INT4 (9) ,INT6 (12)
127 * OUTPUT INTEG (PEN 10) NAAR OSCILLATOR
128 SIGNAAL        INPUT      (8)
129 * 7 AAN AARDE
130 DELAYIN        OUTPUT     (1)    I = POORT3/6
131 DELAYOUT       INPUT      (12)
132 EXCLOR6        SN7486     (F5)   I = POORT3/6 (9) ,DELAYOUT (10)
133 MASKWIP        F9601      (A8)   I = EXCLOR6/8 (3) ,MASKWIP/6 (4) ,CXMASK (11) ,
                                     RXCXMASK (13)
134 * MASKWIP: INPUT 1 EN 2 AAN AARDE LEGGEN (R=4K7, C=22PF)
135 RXCXMASK       INPUT      (24)
136 CXMASK         INPUT      (26)
137 POORT2         F7400      (B3)   I = SIGNAAL (1) ,SIGNAAL (2)
138 POORT3         F7400      (B8)   I = POORT2/3 (4) ,POORT2/3 (5)
139 POORT4         F7400      (B8)   I = POORT3/6 (9) ,POORT3/6 (10)
140 POORT5         F7400      (B8)   I = POORT4/8 (12) ,POORT4/8 (13)
141 INFF           F7474      (A6)   C = NONKLOK/8 (3)
                                     R = EEN (1)
                                     S = EEN (4)
                                     D = POORT5/11 (2)
142 EEN            INPUT      (127)
143 END

```

CONNECTION	WIRE	COLOR	POINT1	POINT2	WIRELENGTH
132	1	WT	F5/8	A8/3	72
131	2	WT	12 A7	F5/10	71
120	3	WT	D7/8	32 F3	64
63	4	WT	*E1/6	C4/6	57
97	5	WT	111 D3	*A1/9	60
96	6	WT	*A1/7	99 D3	56
98	7	WT	100 D3	*A1/11	59
95	8	WT	*A1/5	112 D3	57
40	9	WT	39 F3	D7/13	57
99	10	WT	110 D3	*A1/17	52
2	11	WT	E8/4	D4/3	49
47	12	WT	D4/13	F6/2	43
81	13	WT	F6/8	C7/5	44
1	14	WT	C6/2	B9/13	46
35	15	WT	E7/8	F6/1	40
31	16	WT	F5/1	D4/9	42
101	17	WT	109 D3	*A1/21	47
102	18	WT	*A1/23	102 D3	42
100	19	WT	101 D3	*A1/19	47
107	20	WT	*C1/17	126 E3	45
109	21	WT	125 E3	*C1/21	40
55	22	WT	C3/1	*E1/8	44
61	23	WT	*C1/1	36 F3	45
108	24	WT	*C1/19	113 E3	40
110	25	WT	114 E3	*C1/23	35
60	26	WT	*C1/22	*E1/4	39
111	27	WT	*E1/5	124 E3	34
4	28	WT	E4/5	C3/9	39
65	29	WT	C3/4	*C1/4	33
103	30	WT	*C1/5	108 D3	35
105	31	WT	107 D3	*C1/9	33
104	32	WT	*C1/7	103 D3	34
106	33	WT	104 D3	*C1/11	37
66	34	WT	*C1/6	C3/5	32
64	35	WT	B4/1	*A1/22	34
55	36	WT	*A1/20	B3/13	32
63	37	WT	B3/12	*A1/18	33
59	38	WT	B3/6	*A1/8	34
58	39	WT	*A1/6	B3/5	33
57	40	WT	B3/4	*A1/4	32
61	41	WT	*A1/1	*A1/13	33
4	42	WT	B3/9	A6/4	38
139	43	WT	A6/2	B8/11	33
123	44	WT	C9/6	70 A10	38
124	45	WT	63 A10	A12/10	33
128	46	WT	A12/9	49 A9	38
125	47	WT	48 A9	A12/3	37
126	48	WT	A12/4	46 A9	34
129	49	WT	47 A9	A12/12	39
119	50	WT	C9/5	A8/8	39
134	51	WT	A8/11	26 B6	33
135	52	WT	24 B6	A8/13	34
77	53	WT	C6/13	B5/6	33
73	54	WT	B4/6	C5/5	32
67	55	WT	C5/3	B4/5	33

CONNECTION	WIRE	COLOR	POINT1	POINT2	WIRELENGTH
71	56	WT	B3/3	C5/2	38
27	57	WT	D5/8	E6/12	34
19	58	WT	E7/3	E4/12	32
117	59	WT	121 E3	*E1/21	32
70	60	WT	*E1/13	*C1/13	34
29	61	WT	D4/6	F4/9	37
16	62	WT	E6/2	D7/3	33
1	63	WT	D5/12	E8/6	32
92	64	WT	F9/8	D9/9	33
24	65	WT	D5/4	E6/3	33
25	66	WT	E6/4	D6/6	23
30	67	WT	D6/5	E5/10	27
33	68	WT	E5/9	E7/6	25
29	69	WT	E7/5	E5/7	29
22	70	WT	E5/13	D6/4	29
21	71	WT	D5/3	D4/5	30
57	72	WT	C4/1	*C1/16	31
58	73	WT	*C1/18	C4/2	23
59	74	WT	C4/3	*C1/20	31
55	75	WT	C3/2	C4/11	27
64	76	WT	C4/12	C3/3	25
67	77	WT	C3/6	*C1/8	31
68	78	WT	*C1/10	C3/10	31
60	79	WT	C4/4	B3/10	29
62	80	WT	B3/11	C4/5	27
16	81	WT	C3/14	B3/14	25
75	82	WT	B4/8	C5/8	31
82	83	WT	C5/10	C7/6	25
85	84	WT	C7/4	B7/12	27
16	85	WT	B7/11	B9/8	31
121	86	WT	85 B10	C9/2	30
94	87	WT	C9/3	D9/8	24
4	88	WT	D9/1	D7/11	28
83	89	WT	C7/1	B7/2	25
84	90	WT	B7/1	C6/6	26
78	91	WT	C6/12	D5/11	30
20	92	WT	D5/2	E5/3	25
23	93	WT	E5/12	D5/6	30
76	94	WT	C5/1	C5/4	25
80	95	WT	B5/13	22 B6	27
130	96	WT	1 A7	B8/6	26
86	97	WT	B7/13	C6/8	25
16	98	WT	B7/3	A6/3	31
4	99	WT	A6/1	B7/4	23
35	100	WT	C7/2	D6/9	24
38	101	WT	D6/8	D7/2	24
34	102	WT	E5/9	E7/12	26
31	103	WT	E7/11	E6/7	27
4	104	WT	E5/11	F7/7	27
52	105	WT	F6/11	F5/3	25
45	106	WT	F5/2	40 F3	27
43	107	WT	41 F3	F4/10	25
50	108	WT	F4/8	F6/5	27
51	109	WT	F6/6	F4/11	27
44	110	WT	F4/13	30 F3	25

CONNECTION	WIRE	COLOR	POINT1	POINT2	WIRELENGTH
46	111	WT	31 F3	F5/5	30
53	112	WT	F5/6	F6/12	28
49	113	WT	F6/4	F4/6	30
42	114	WT	F4/5	29 F3	25
19	115	WT	F4/1	E4/7	30
113	116	WT	123 E3	*E1/9	31
114	117	WT	*E1/11	116 E3	30
116	118	WT	117 E3	*E1/19	25
118	119	WT	*E1/23	118 E3	31
115	120	WT	122 E3	*E1/17	27
112	121	WT	*E1/7	115 E3	29
70	122	WT	35 F3	*E1/1	30
48	123	WT	F4/3	F6/3	28
12	124	WT	F7/4	F8/11	27
13	125	WT	F8/10	F7/16	28
8	126	WT	F8/4	E8/11	30
9	127	WT	E8/10	F8/16	31
3	128	WT	F7/11	E8/16	25
2	129	WT	F7/10	E7/2	24
28	130	WT	D6/2	E4/10	30
32	131	WT	E4/9	F4/4	31
122	132	WT	C9/4	98 B10	31
127	133	WT	68 A10	A12/5	27
1	134	WT	B9/10	B9/12	18
93	135	WT	B9/5	B9/4	17
	136	WT	B9/2	B9/1	17
138	137	WT	B8/13	B8/12	17
130	138	WT	B8/10	B8/9	17
1	139	WT	B9/6	B9/9	19
133	140	WT	A8/6	A8/4	18
137	141	WT	B8/5	B8/4	17
136	142	WT	B8/2	B8/1	17
88	143	WT	C6/10	C6/9	17
1	144	WT	C6/11	C6/5	20
87	145	WT	C6/4	C6/3	17
74	146	WT	C5/9	C5/6	19
72	147	WT	B4/13	B4/12	17
66	148	WT	B4/10	B4/4	20
65	149	WT	B4/2	B4/9	23
78	150	WT	B5/4	B5/3	17
79	151	WT	B5/11	15 B6	22
25	152	WT	D4/8	D5/3	23
21	153	WT	D5/1	E5/4	23
4	154	WT	E5/5	E4/11	20
18	155	WT	E4/13	E4/6	21
17	156	WT	E4/14	E4/3	19
16	157	WT	E4/2	E5/2	22
5	158	WT	E5/1	E5/15	20
17	159	WT	E5/14	E6/14	22
5	160	WT	E6/15	E6/1	20
4	161	WT	E6/5	E5/11	20
37	162	WT	D6/13	D7/6	23
5	163	WT	D7/5	D7/10	19
4	164	WT	D7/12	D7/1	21
39	165	WT	D6/11	D7/4	19

CONNECTION	WIRE	COLOR	POINT1	POINT2	WIRELENGTH
36	166	WT	D6/10	D5/10	22
26	167	WT	D5/9	D4/10	23
22	168	WT	D4/4	D5/5	23
5	169	WT	E4/15	E4/1	20
41	170	WT	F4/2	42 F3	21
69	171	WT	*E1/15	*E1/14	17
	172	WT	*E1/3	*E1/2	17
56	173	WT	*C1/2	*C1/3	17
69	174	WT	*C1/15	*C1/14	17
54	175	WT	B3/1	B3/2	17
56	176	WT	*A1/15	*A1/14	17
	177	WT	*A1/3	*A1/2	17
5	178	WT	F7/8	F7/3	21
4	179	WT	F7/2	F8/2	22
1	180	WT	F8/1	F7/1	22
14	181	WT	F7/15	F7/9	22
1	182	WT	E8/1	F8/6	20
4	183	WT	F8/7	E8/3	21
5	184	WT	E8/2	E8/8	22
4	185	WT	E8/7	127 D8	20
6	186	WT	E8/9	E8/15	22
7	187	WT	E8/14	E8/12	18
4	188	WT	E9/7	E9/8	17
90	189	WT	E9/6	E9/15	23
4	190	WT	E9/16	E9/2	20
89	191	WT	E9/1	F9/6	19
11	192	WT	F8/12	F8/14	18
10	193	WT	F8/15	F8/9	22
5	194	WT	F8/3	F8/3	21
15	195	WT	F7/14	F7/12	18
4	196	WT	E9/3	E9/4	17
	197	WT	E9/12	E9/9	19
	198	WT	D9/2	D9/3	17
	199	WT	D9/4	D9/5	17
93	200	WT	D9/6	C9/1	20
4	201	WT	D9/10	D9/11	17
	202	WT	D9/12	D9/13	17
91	203	WT	F9/12	F9/13	17
	204	WT	F9/10	F9/9	17
130	205	WT	1 A7	F5/9	65
69	206	WT	*C1/14	B7/8	59
56	207	WT	B7/6	*A1/14	55
3	208	WT	D4/12	F7/11	50
14	209	WT	F7/9	D4/2	50
64	210	WT	C3/3	*E1/10	44
67	211	WT	*E1/20	*C1/8	43
68	212	WT	*C1/10	*E1/22	47
6	213	WT	D4/11	E8/9	45
16	214	WT	B3/14	A6/3	42
54	215	WT	A6/5	B3/2	45
60	216	WT	B3/10	*A1/10	40
62	217	WT	*A1/16	B3/11	34
58	218	WT	B3/5	C4/2	34
59	219	WT	C4/3	B3/6	34
69	220	WT	*C1/15	*E1/14	33

CONNECTION	WIRE	COLOR	POINT1	POINT2	WIRELENGTH	
	65	221	WT	*E1/16	*C1/4	35
	56	222	WT	*C1/3	*A1/2	33
	61	223	WT	*A1/1	*C1/1	34
	66	224	WT	*C1/6	*E1/18	39
	16	225	WT	E4/2	C3/14	37
	60	226	WT	C4/4	*C1/22	34
	18	227	WT	E4/13	D6/1	32
	33	228	WT	E5/9	F4/12	35
	34	229	WT	F5/4	E6/9	37
	31	230	WT	E6/7	D4/9	34
	32	231	WT	E4/9	E7/4	34
	78	232	WT	C6/12	B5/3	34
	87	233	WT	C6/4	B7/5	32
	136	234	WT	B8/2	8 A7	33
	26	235	WT	D5/9	E6/13	34
	35	236	WT	E7/8	D6/9	30
	36	237	WT	D5/10	C7/3	26
	1	238	WT	C6/11	D6/12	25
	25	239	WT	D6/6	D5/3	25
	29	240	WT	E5/7	F4/9	28
	17	241	WT	E4/3	D4/1	24
	21	242	WT	D5/1	D6/3	24
	72	243	WT	C5/1	B4/13	29
	64	244	WT	B4/1	C4/12	25
	55	245	WT	C4/11	B3/13	29
	63	246	WT	B3/12	C4/6	25
	4	247	WT	C3/9	B3/9	25
	57	248	WT	B3/4	*C1/16	31
	66	249	WT	C3/5	B4/4	30
	67	250	WT	B4/5	C3/6	30
	56	251	WT	*A1/3	*A1/15	29
	88	252	WT	C6/9	B7/9	31
	93	253	WT	B9/1	C9/1	25
	5	254	WT	D7/10	E8/8	25
	91	255	WT	E9/11	F9/9	24
	7	256	WT	E8/14	E7/1	25
	70	257	WT	35 F3	*E1/13	31
	69	258	WT	*E1/15	*E1/3	29
	65	259	WT	B4/2	C3/4	29
	55	260	WT	C3/2	C3/1	17
	74	261	WT	C4/8	C5/6	20
	1	262	WT	C6/2	C6/5	19
	16	263	WT	B7/3	B7/11	20
	4	264	WT	B7/10	B7/4	20
		265	WT	A6/1	A6/4	19
	130	266	WT	B8/6	B8/9	19
	138	267	WT	B8/8	B8/12	20
	93	268	WT	B9/4	B9/2	13
	1	269	WT	B9/12	B9/13	17
		270	WT	B9/10	B9/9	17
	137	271	WT	B8/4	B8/3	17
	4	272	WT	D9/10	D9/5	19
		273	WT	D9/4	D9/3	17
		274	WT	D9/2	D9/1	17
		275	WT	E9/8	E9/9	19

CONNECTION	WIRE	COLOR	POINT1	POINT2	WIRELENGTH
	276	WT	E9/7	E9/4	19
	277	WT	E9/3	E9/2	17
	278	WT	E9/12	D9/13	23
	279	WT	D9/12	D9/11	17
	280	WT	E8/7	E8/3	20
2	281	WT	E8/4	E7/2	23
5	282	WT	E6/15	F7/8	22
4	283	WT	F7/7	F7/2	21
1	284	WT	F7/1	F7/6	21
5	285	WT	F7/3	F8/3	22
4	286	WT	F8/2	F8/7	21
5	287	WT	F8/8	E8/2	19
1	288	WT	E8/1	E8/6	21
4	289	WT	127 D8	D7/1	22
	290	WT	D7/11	D7/12	17
	291	WT	E6/11	E6/5	20
	292	WT	E5/11	E5/5	20
19	293	WT	E4/12	E4/7	21
4	294	WT	E4/5	E4/11	20
17	295	WT	E4/14	E5/14	22
5	296	WT	E5/15	E6/1	20
16	297	WT	E6/2	E5/2	22
22	298	WT	D5/4	D5/5	23
5	299	WT	E4/15	E5/1	20
91	300	WT	F9/12	F9/10	18
1	301	WT	F8/6	F8/1	21

TOTAL WIRE-LENGTH 21 METERS

