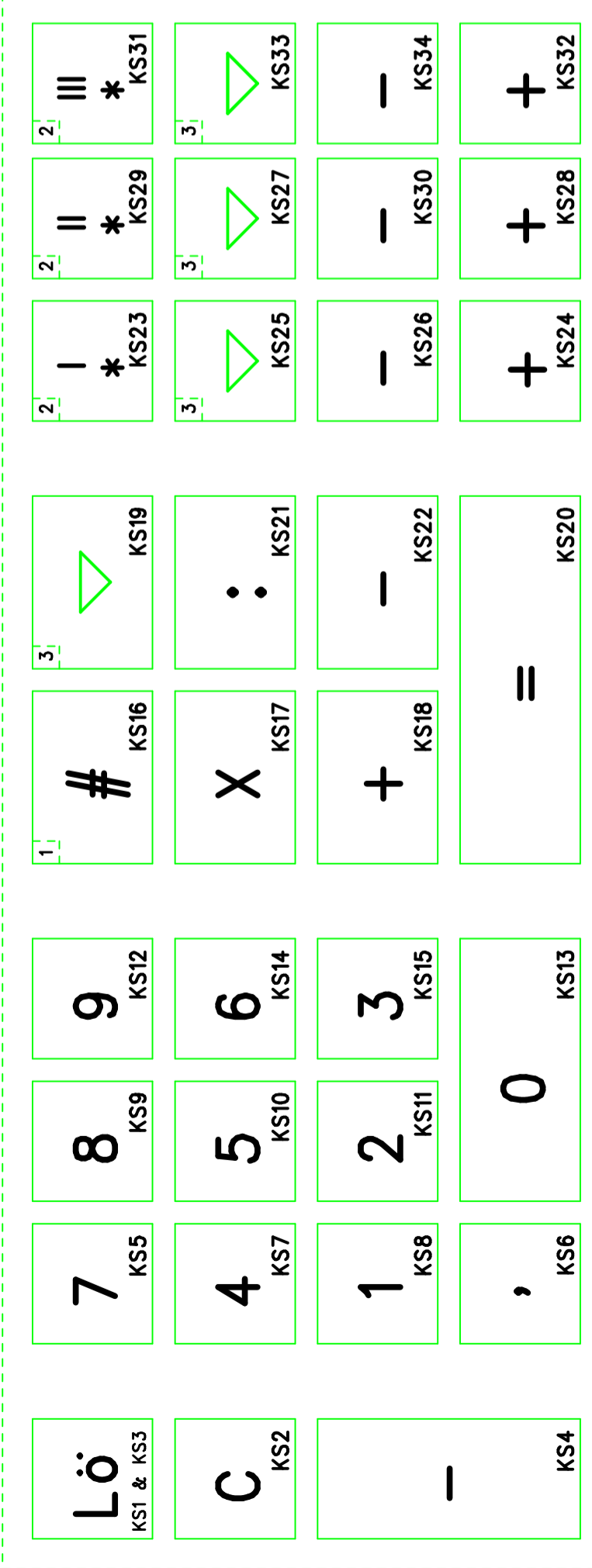
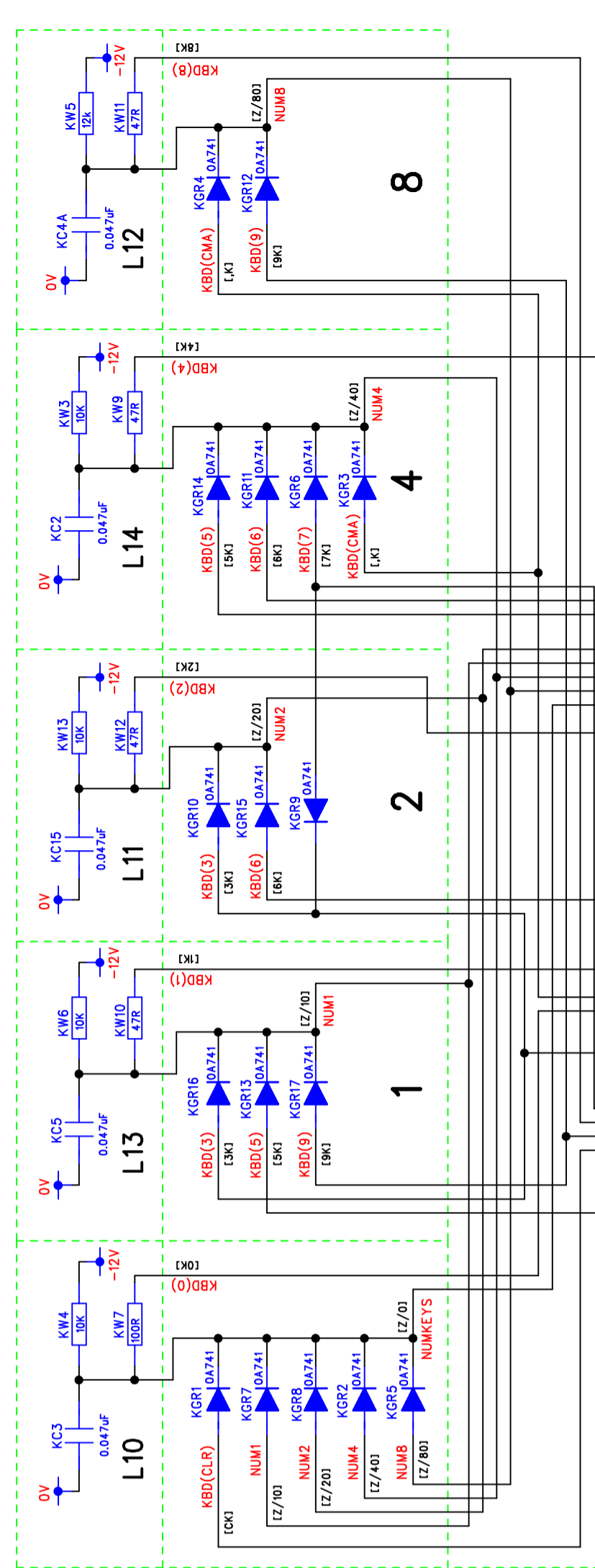


Notes -

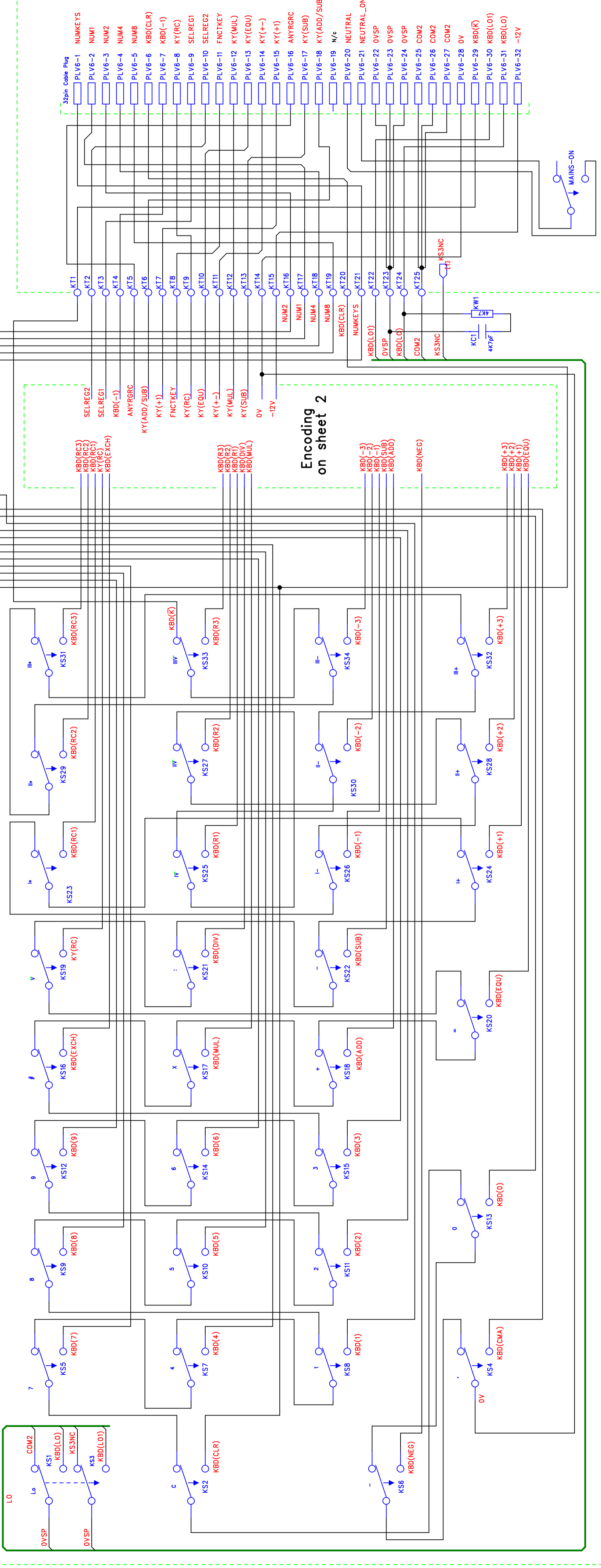
1	#	Exchange operands	4	-	Negate entry
2	I II III	Recall (clears memory)			
3		Recall only			

### Numeric (BCD 0-9), Clear & DP (BCD 12) Encode Matrix



### Keyboard Physical Layout

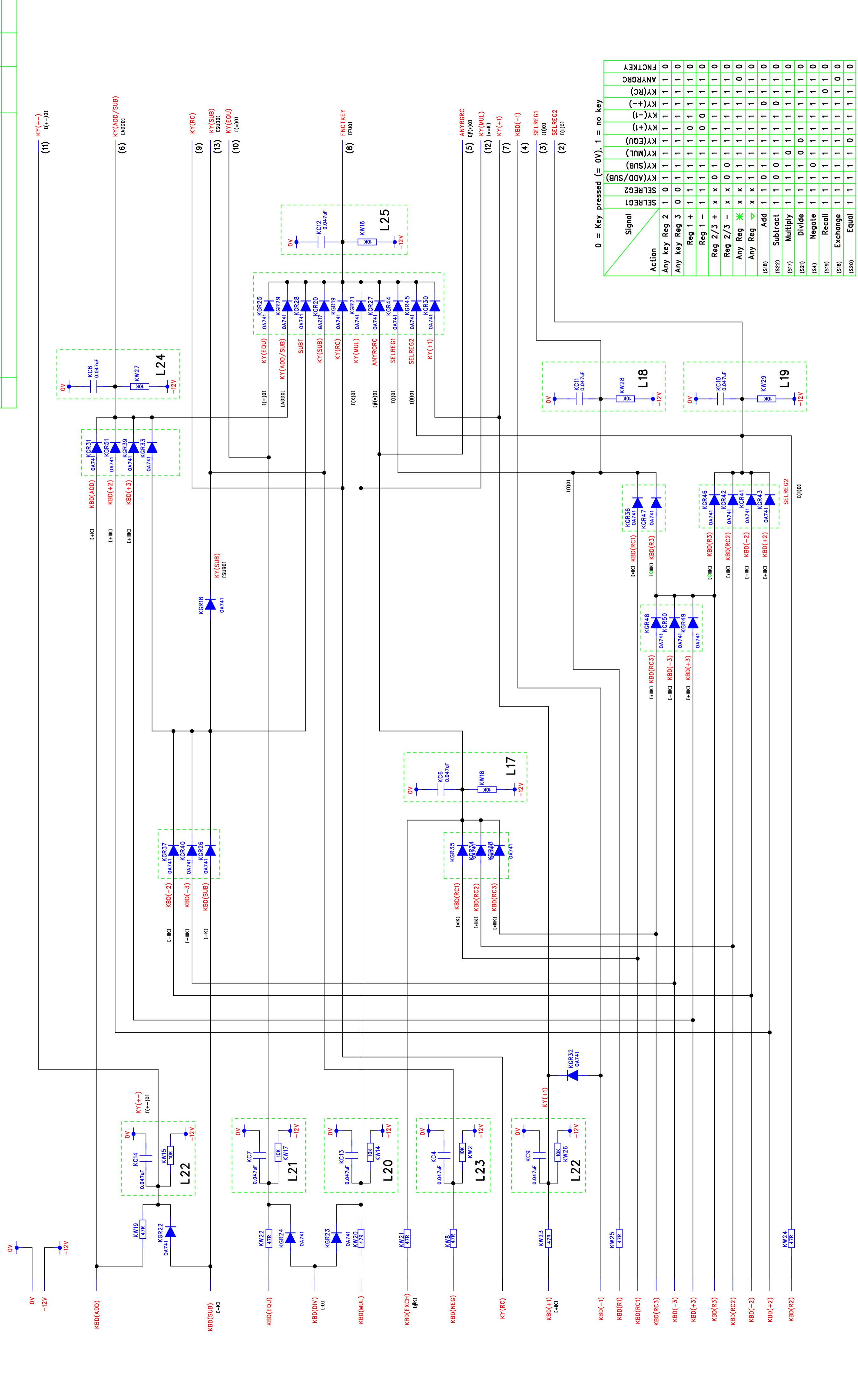
### Keyboard PCB 224-301-014a



Encoding on sheet 2

Title		Soemtron ETR 222 Calculator	
Sheet		1	
Name		[Keyboard Circuit & Layout]	
Date		15/8/2017	
Drawing Number		Soemtron 222	
Scale		Nts	
Sheet		1	
Next Sheet		2	
Pcb Dwg # =			
Drawn		MD Hatch	
Checked			
DM Associates		33, Northbrook Road	
		Aldershot, Hampshire, GU11 3HE	
		Email: mike@soemtron.org	
		www.soemtron.org	
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### Keyboard & Digit Key Encoder



0 = Key pressed (= 0V), 1 = no key

Action	SELREG1	SELREG2	SELREG3	KY(ADD/SUB)	KY(MUL)	KY(EQU)	KY(L)	KY(+)	KY(-)	ANYRRC	KY(RC)	FNCTKEY
Any key Reg 2	1	0	1	1	1	1	1	1	1	1	1	0
Any key Reg 3	0	0	1	1	1	1	1	1	1	1	1	0
Reg 1 +	1	1	1	0	1	1	1	1	1	0	1	0
Reg 1 -	1	1	1	1	1	0	1	1	1	0	1	0
Reg 2/3 +	x	x	0	1	1	1	1	1	1	1	1	0
Reg 2/3 -	x	x	0	1	1	1	1	1	1	1	1	0
Any Reg *	x	x	1	1	1	1	1	1	1	1	1	0
Any Reg	x	x	1	1	1	1	1	1	1	1	1	0
Add	1	0	1	1	1	1	1	1	1	1	1	0
Subtract	1	0	1	1	1	1	1	1	1	1	1	0
Multiply	1	1	0	1	1	1	1	1	1	1	1	0
Divide	1	1	0	1	1	1	1	1	1	1	1	0
Negate	1	1	0	1	1	1	1	1	1	1	1	0
Recall	1	1	1	1	1	1	1	1	1	1	1	0
Exchange	1	1	1	1	1	1	1	1	1	1	1	0
Equal	1	1	1	1	1	1	1	1	1	1	1	1

Function & Register Key Encoder

These diagrams are referenced to 0V - Logical 1 = -12V, logical 0 = 0V

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Pcb Dwg # =

Name: MD Hatch

Date: 28/02/2024

Scale: Sheet 2 of 3

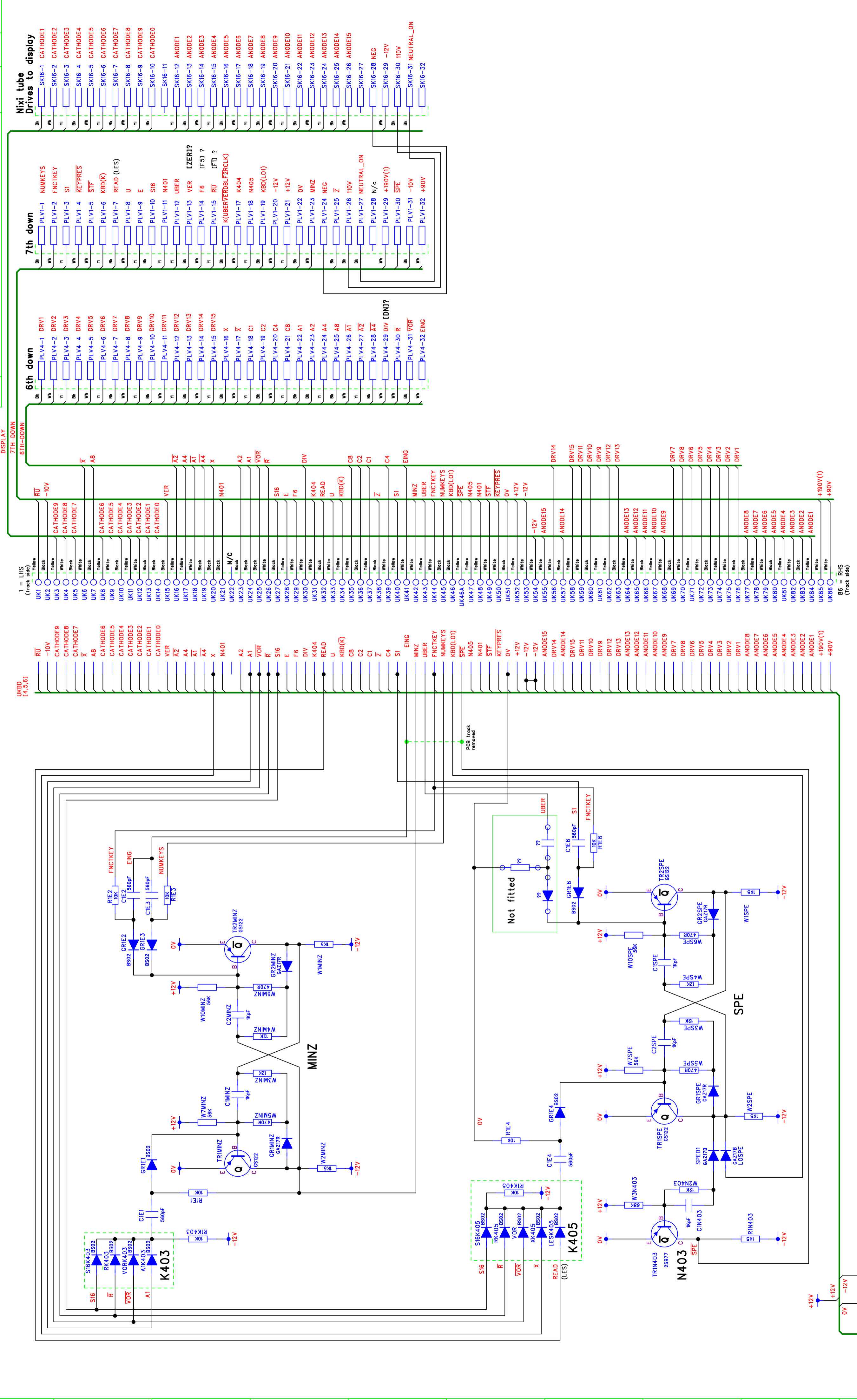
Title: Soemtron ETR 222 Calculator Keyboard Function Encoding Circuit Diagram

Drawing Number: Soemtron 222

PCB = 05-222-0000-5b (comp)  
 PCB = 05-222-0000-5a (track)

RevNo Revision note

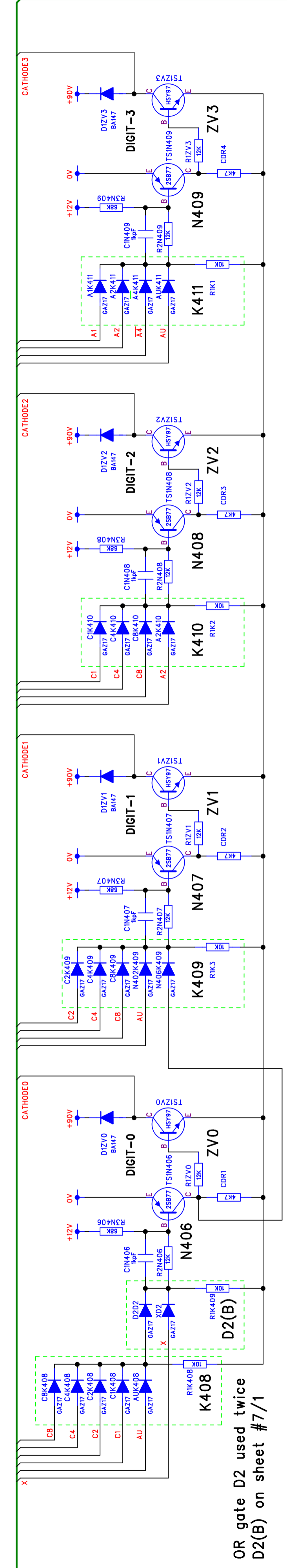
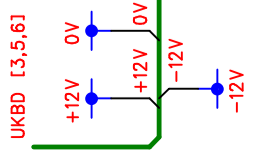
Date By Checked



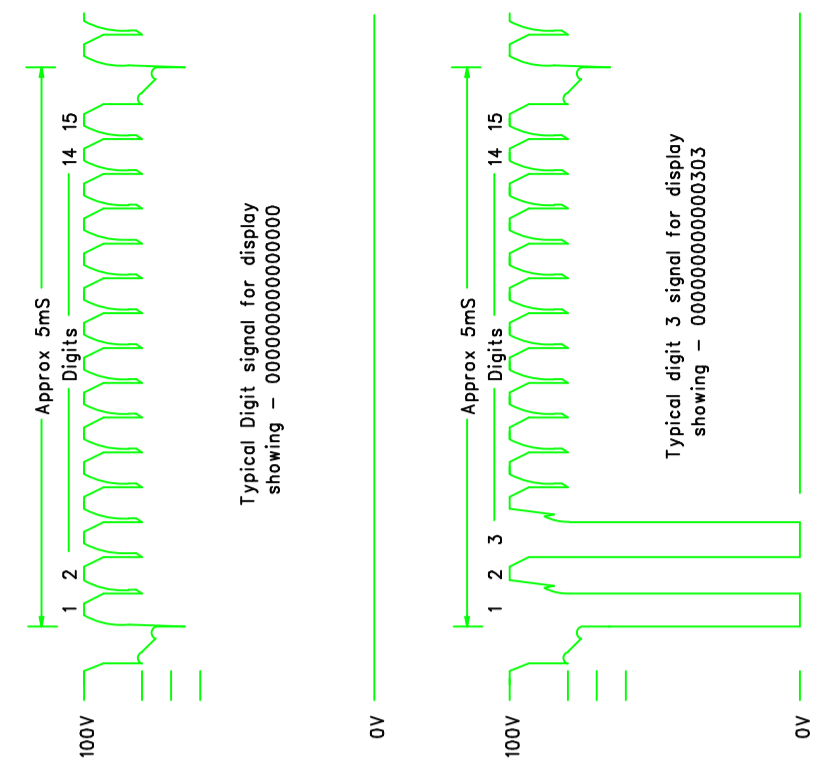
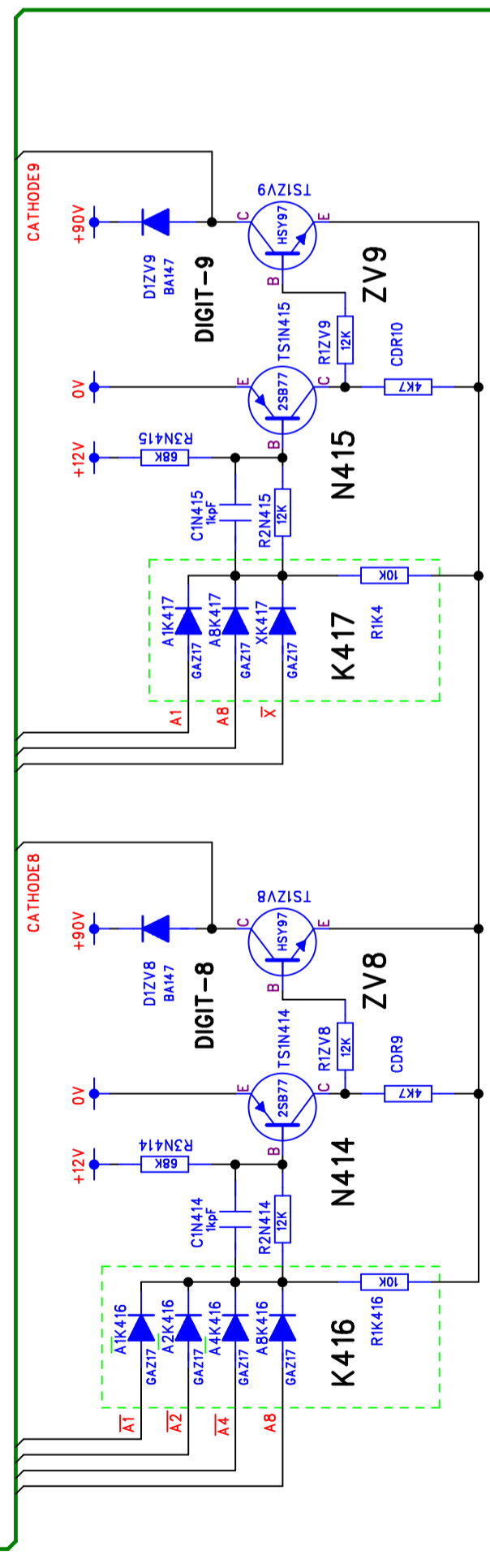
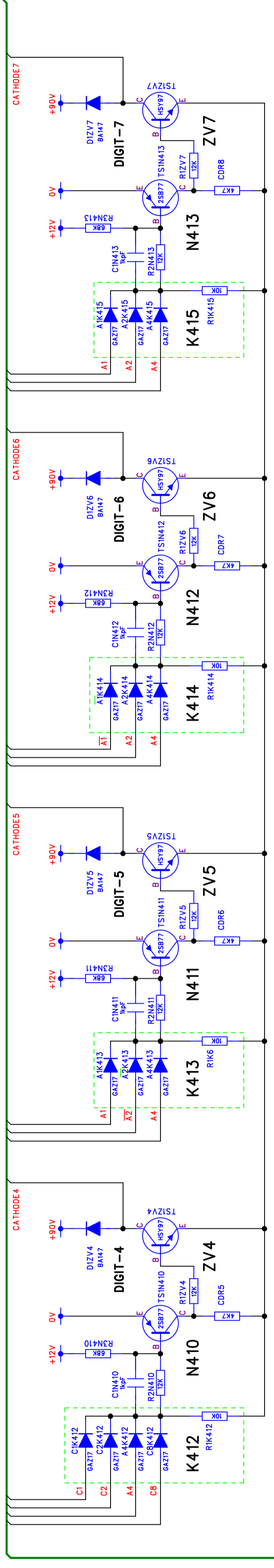
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Pcb Dwg # =		Title	
Name		Søemtron ETR 222 Calculator	
MD Hatch		Display Drivers Under Keyboard PCB	
Drawn	Checked	Sheet	Nts
		3	4
Date		Drawing Number	
30/10/2018		Soemtron 222	
		A2 Issue	

These diagrams are referenced to 0V - Logical 1 = -12V, logical 0 = 0V



OR gate D2 used twice  
D2(B) on sheet #7/1



Typical signals  
Component references for these waveforms are for a 74139 decoder (left) and a 7414 Schmitt trigger (right) respectively. driver circuits have the same signals but with different component designations.

TS12V9/C +90V  
TS12V9/B -10V  
TS12V9/B -9.5V  
TS12V9/B -12V  
TS12V9/C 0V  
TS12V9/B -12V  
TS12V9/B -13V  
TS12V9/B -0.3V

UKBD [3.5.6]

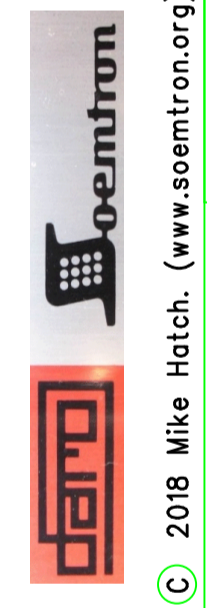
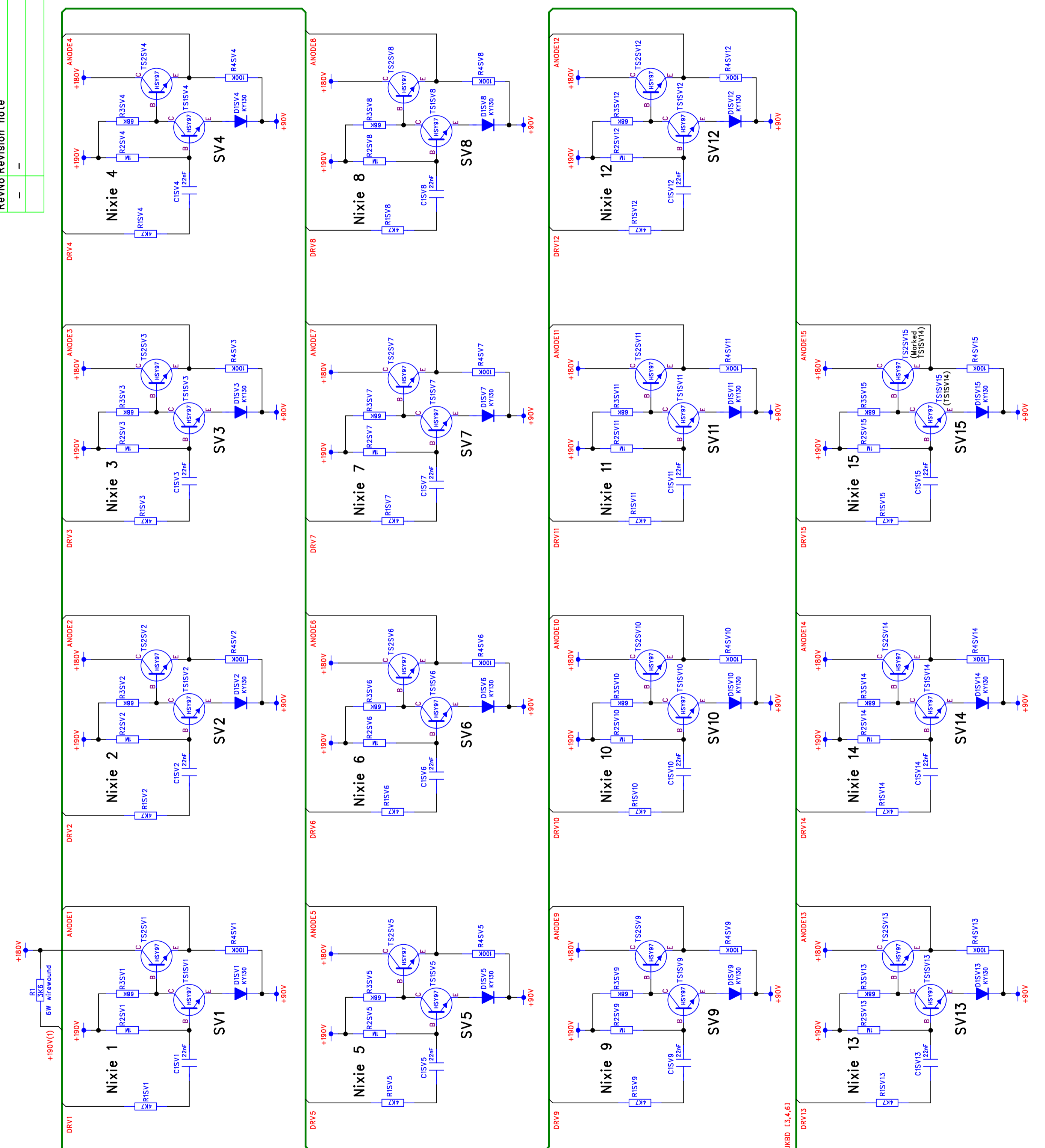
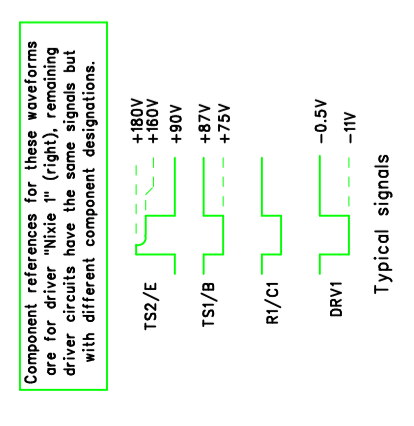
McLENNAN SERVO SUPPLIES LTD.  
Unit 1, The Royston Centre  
Lynchford Road, Ash Vale UK GU12 5PQ  
Tel : 01252 531444 / Fax: 01252 531446  
[www.mclennan.co.uk](http://www.mclennan.co.uk)

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Notes:  
1. All wire 24 AWG minimum unless specified otherwise  
2. All mains wire to be 18 AWG, 600V

DO NOT MANUFACTURE FROM NUMERICAL ISSUE DRAWINGS

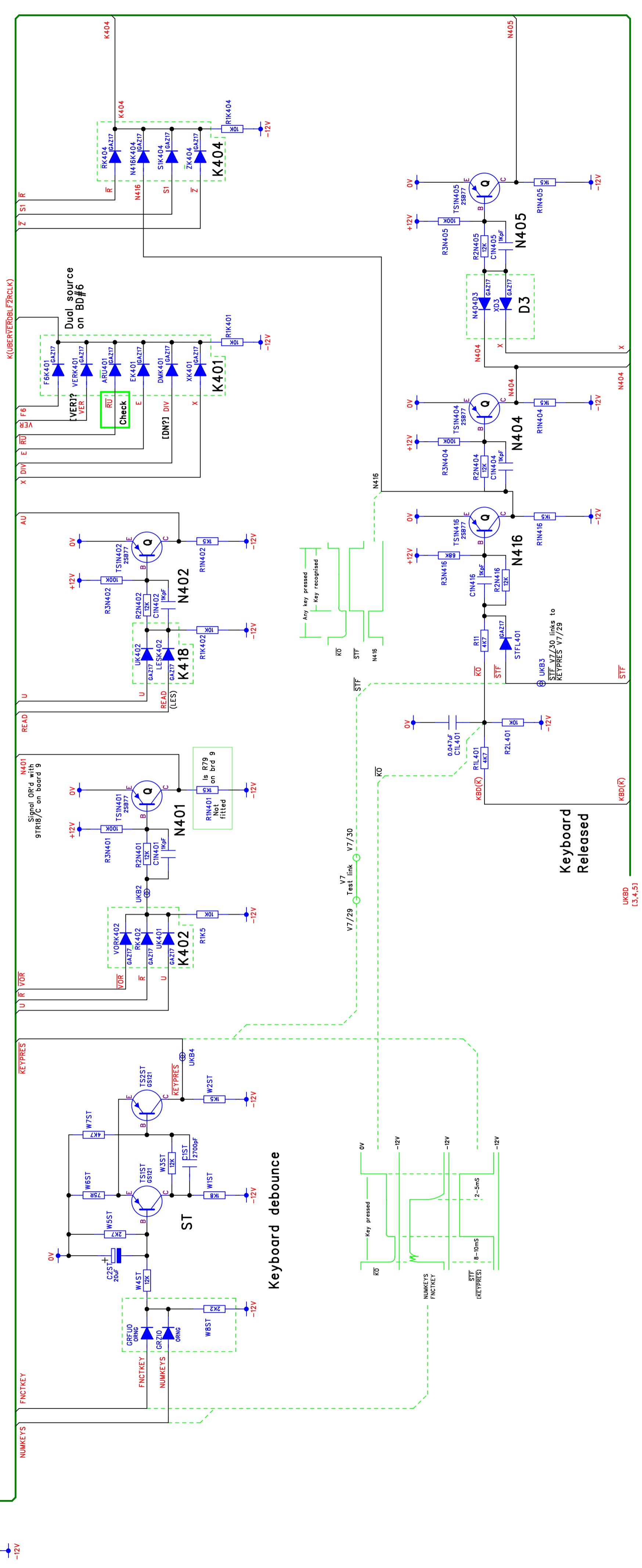
Pcb Dwg # =	Name	Date	Scale	Nts	Title
	MD Hatch	20/11/2018		4	Søemtron ETR 222 Calculator
Drawn	Checked		Sheet	Next Sheet	Transcribed Misc Circuits
			5	Display Drivers PCB - Cathode Drivers	
			Drawing Number	XXXX	A2 Issue
				9	A



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Pcb Dwg # =		Name	Date	Title	
Drawn	Checked	MD Hatch	20/11/2018	Sheet	5
Pcb Dwg # =		MD Hatch	20/11/2018	Next Sheet	6
Pcb Dwg # =		MD Hatch	20/11/2018	Drawing Number	Soemtron 222
Pcb Dwg # =		MD Hatch	20/11/2018	Søemtron ETR 222 Calculator Transcribed Misc Circuits Display Drivers PCB - Anode Drivers	
Pcb Dwg # =		MD Hatch	20/11/2018	A2 Issue	A

RevNo	Revision note	Date	By	Checked
-	-	-	-	-



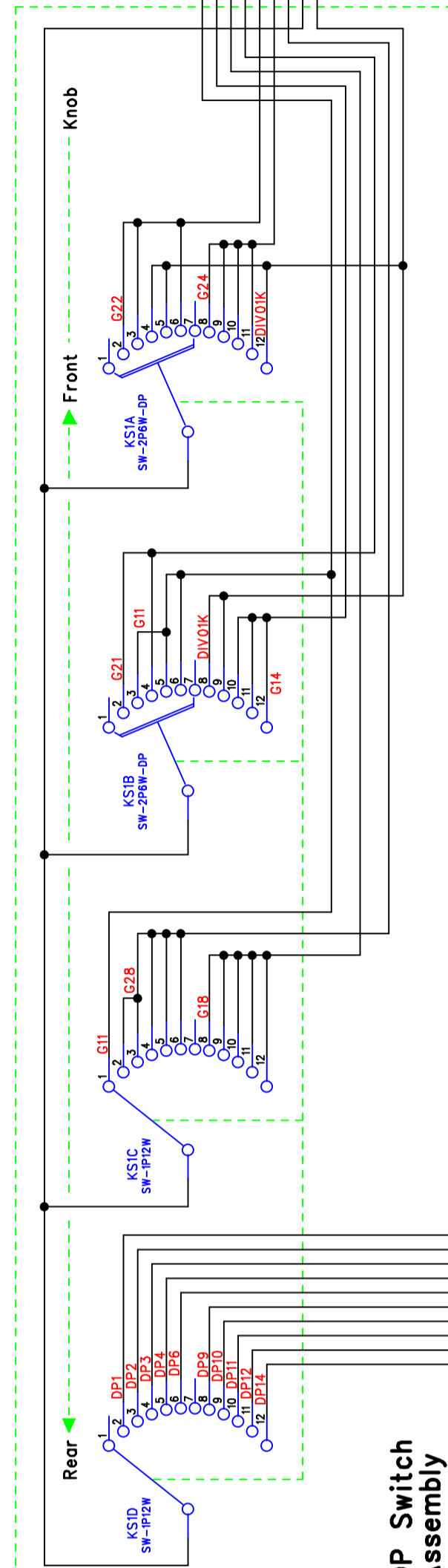
**Keyboard debounce**

**Keyboard Released**

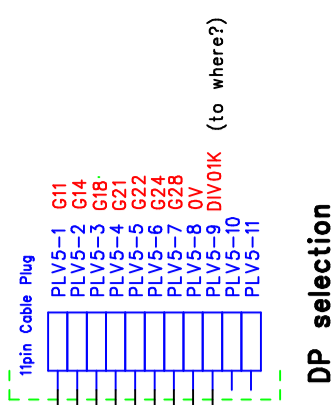
			
DM Associates 33, Northbrook Road Aidershot, Hampshire. GU11 3HE Email: mike@soemtron.org <a href="http://www.soemtron.org">www.soemtron.org</a>			
Pcb Dwg # =		Title	
Name		Soemtron ETR 222 Calculator	
MD Hatch		Transcribed Misc Circuits	
Date		Display Drivers PCB - Misc	
20/11/2018		Drawing Number	
Checked		Soemtron 222	
Drawn		A2 Issue	
Any key pressed - Key recognised		9	
Key pressed		10	
Key released		11	
Key pressed		12	
Key released		13	
Key pressed		14	
Key released		15	
Key pressed		16	
Key released		17	
Key pressed		18	
Key released		19	
Key pressed		20	

Decimal Point Switch Wiring Table (X=0V)

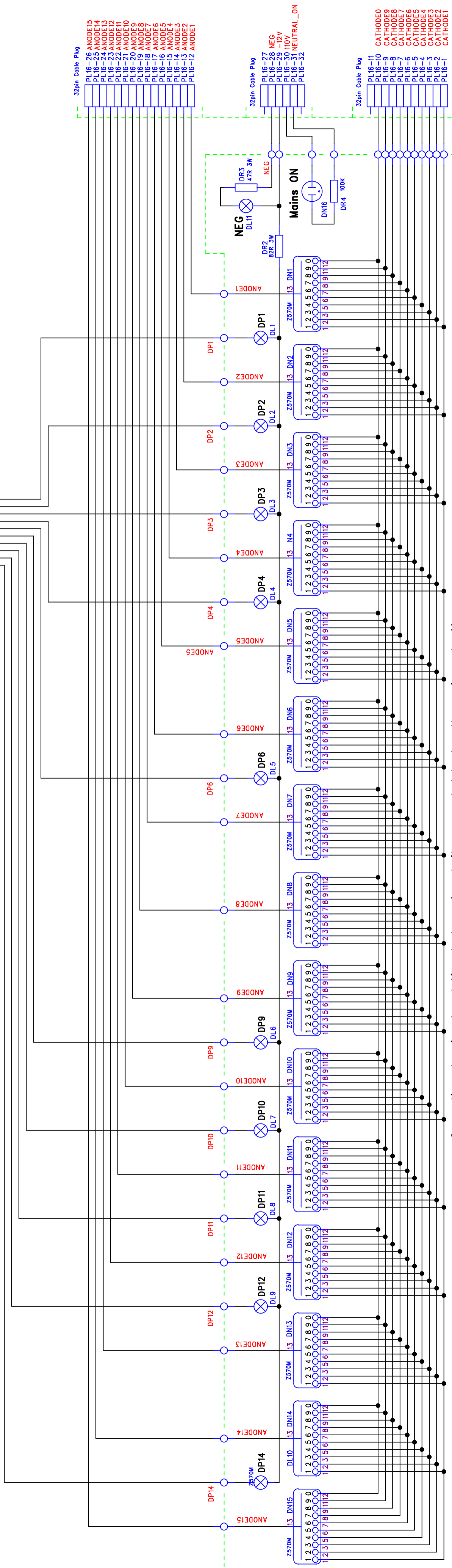
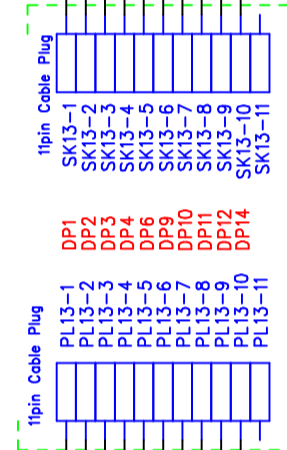
Switch position →	1	2	3	4	5	6	7	8	9	10	11	12
KSID												
"												
"												
"												
"												
"												
"												
"												
"												
"												
KSIB												
"												
KSIC												
"												
KSIA												
"												
KSID												
KSIA/B												



DP Switch Assembly



DP selection



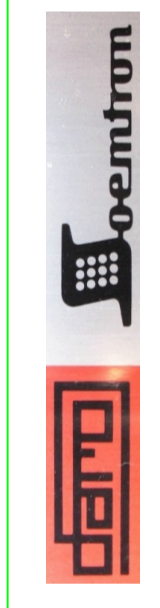
Connections to pins 4 and 10 not shown for clarity - each tube has those pins cut off

RHS Digit

LHS Digit

Display PCB

Nixi tube drives from under keyboard PCB.



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Scale	Nts	Title
Sheet	4	Soemtron ETR 222 Calculator
Next Sheet	8	DP Selection and Nixi Display

Name	Date
MD Hatch	11/10/2017

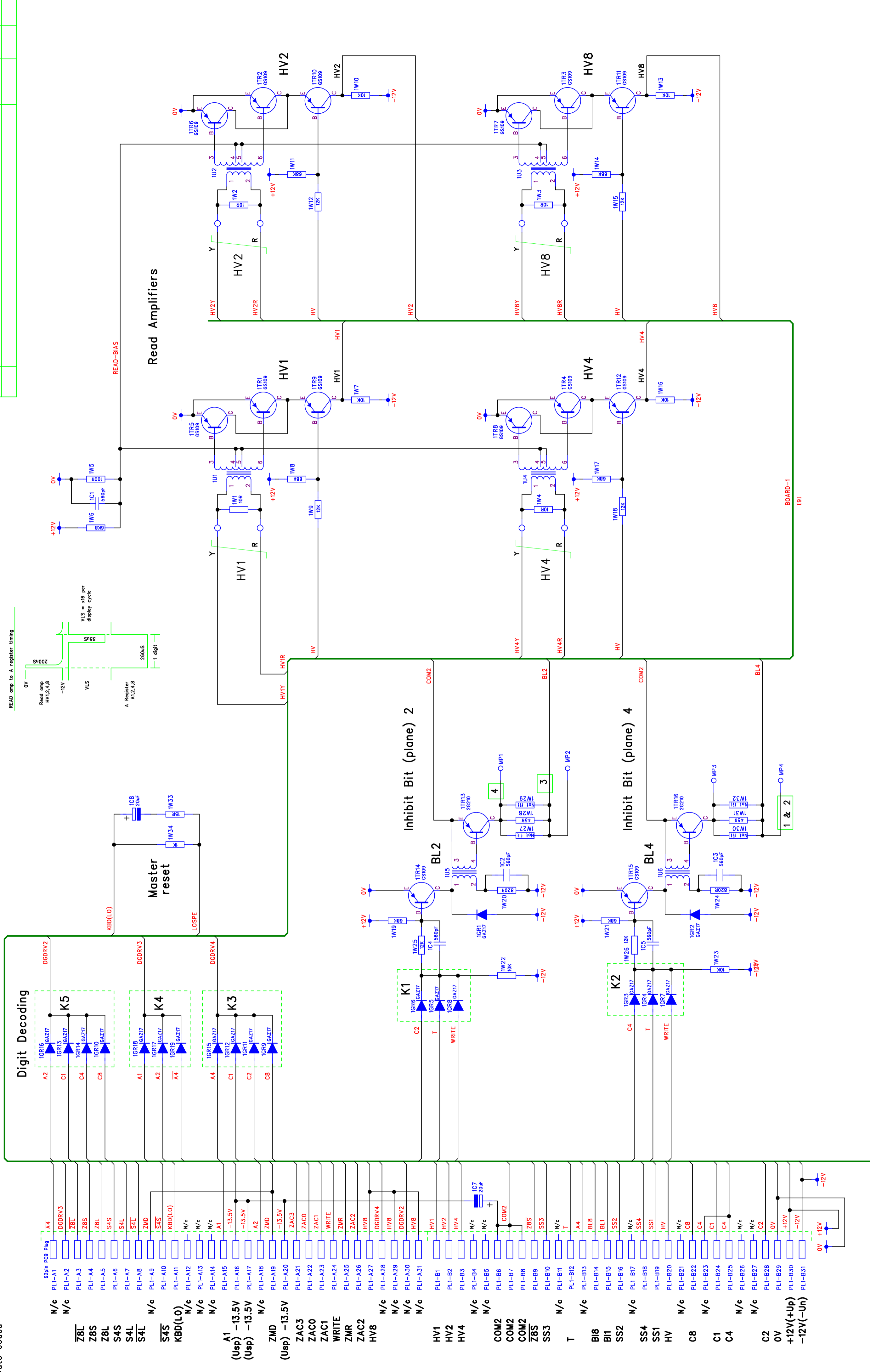
Drawn	Checked
MD Hatch	-

Pcb Dwg #	
8	

Drawing Number	Soemtron 222
----------------	--------------

A2 Issue	A
----------	---

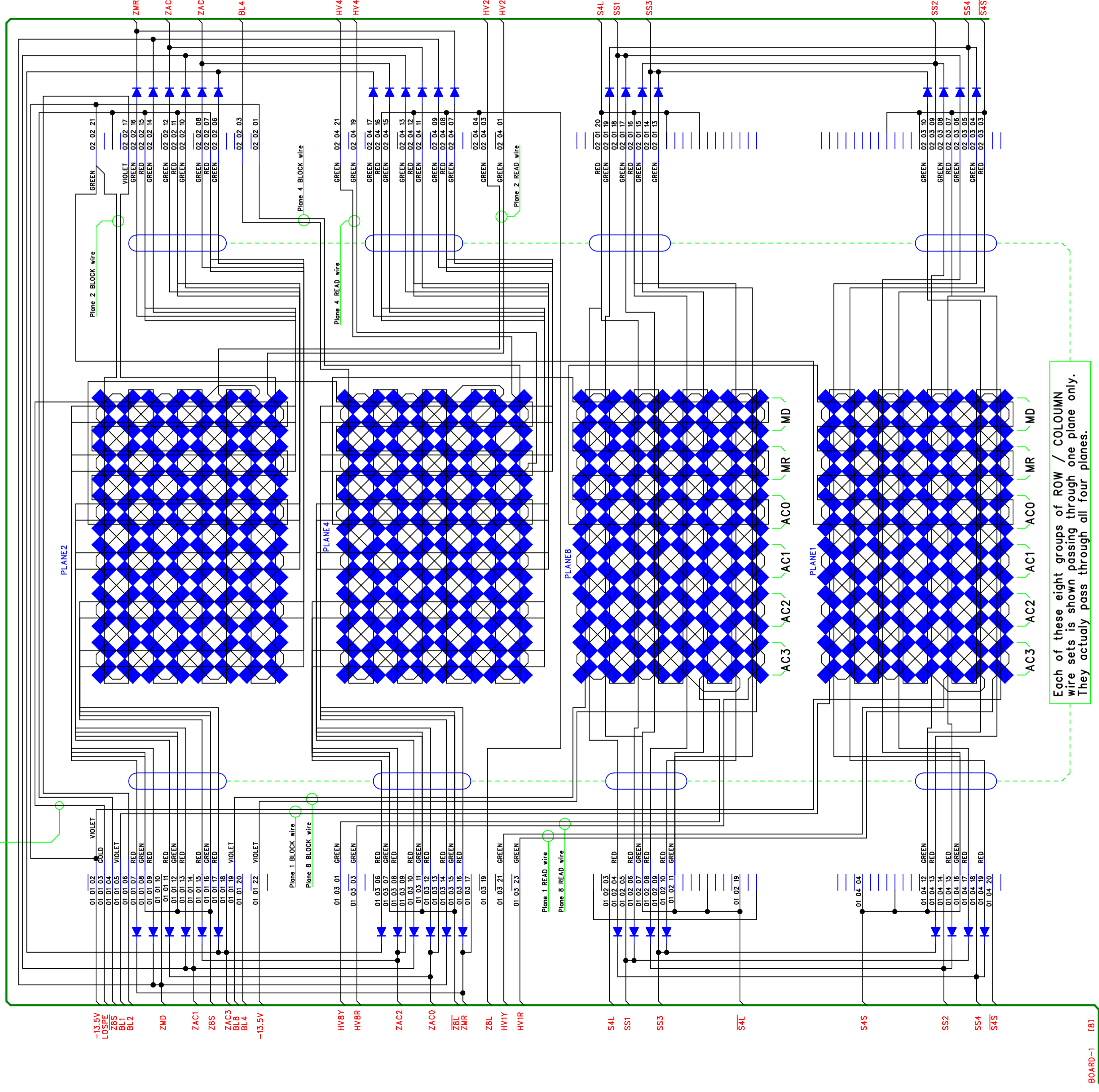
RevNo	Revision note	Date	By	Checked
-	-	-	-	-






RevNo	Revision note	Date	By	Checked
-	-	-	-	-

Lo SPE only clears the MD, MR and AC0 registers



Each of these eight groups of ROW / COLUMN wire sets is shown passing through one plane only. They actually pass through all four planes.

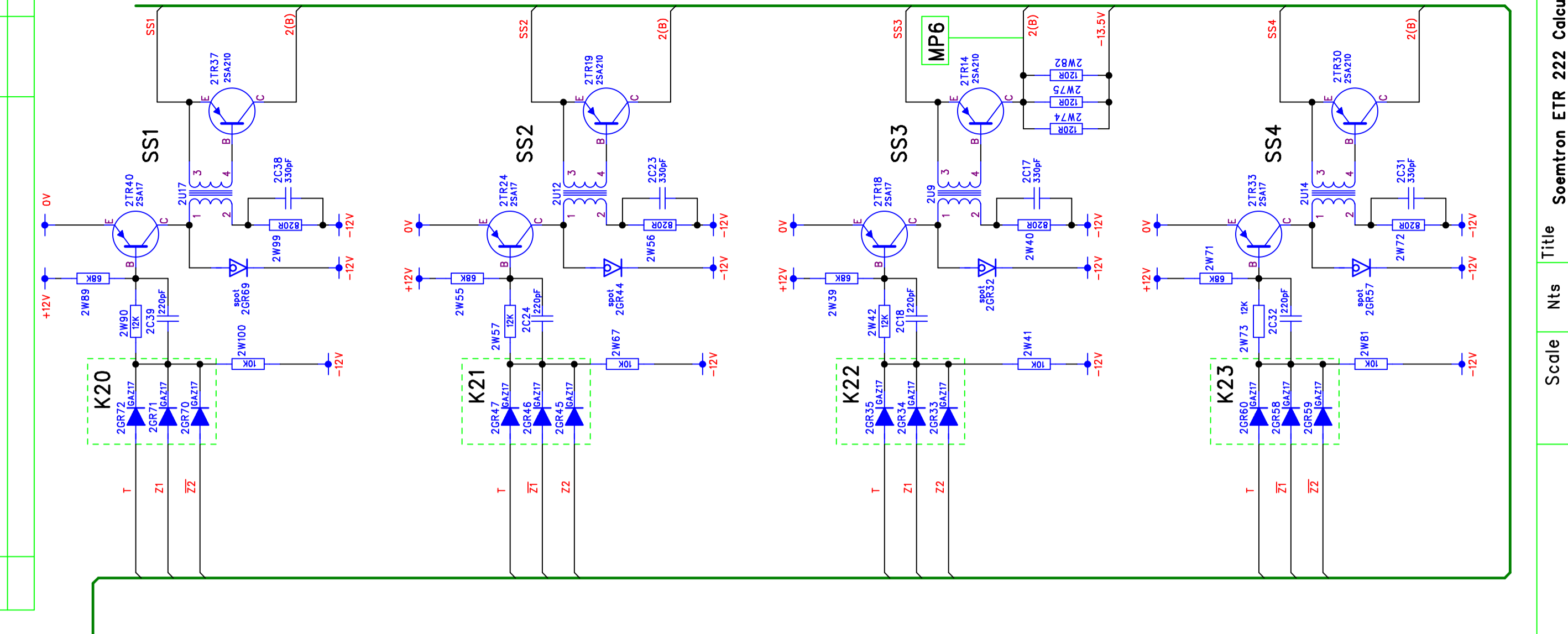
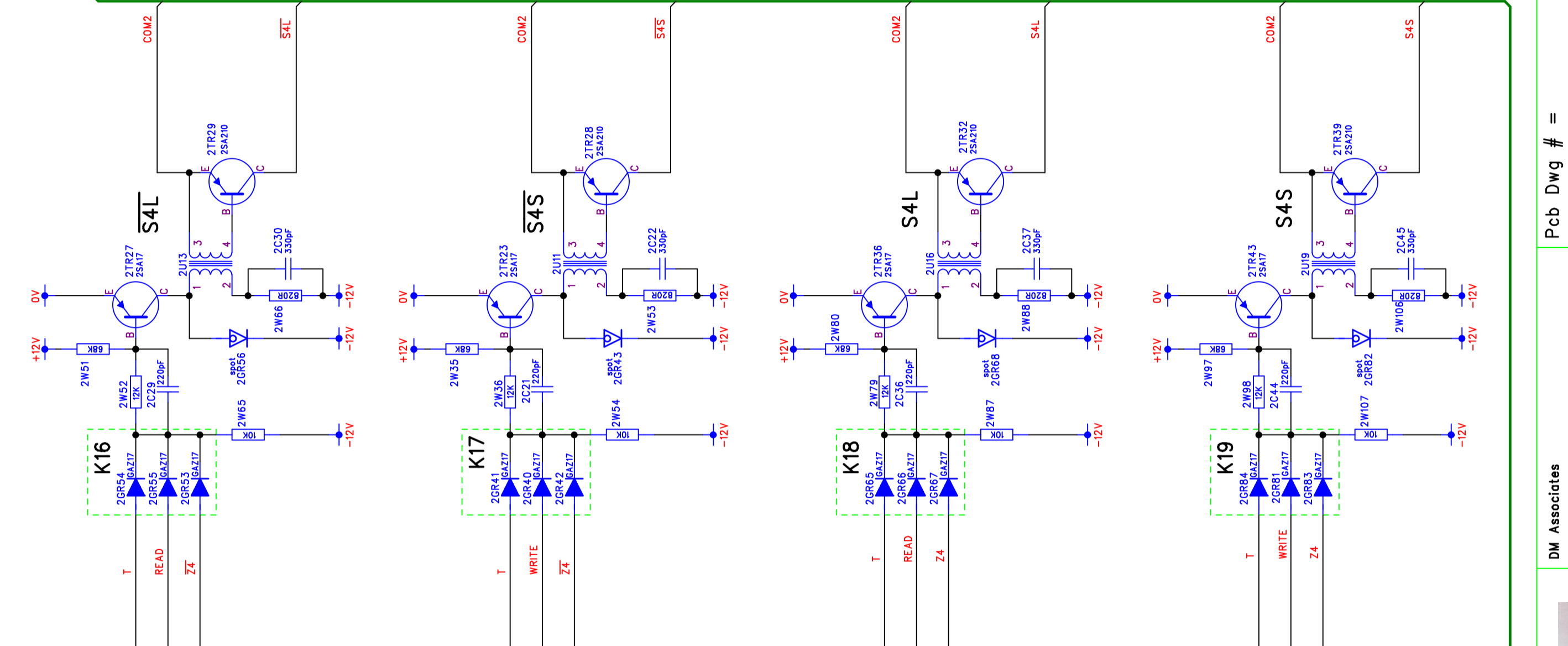
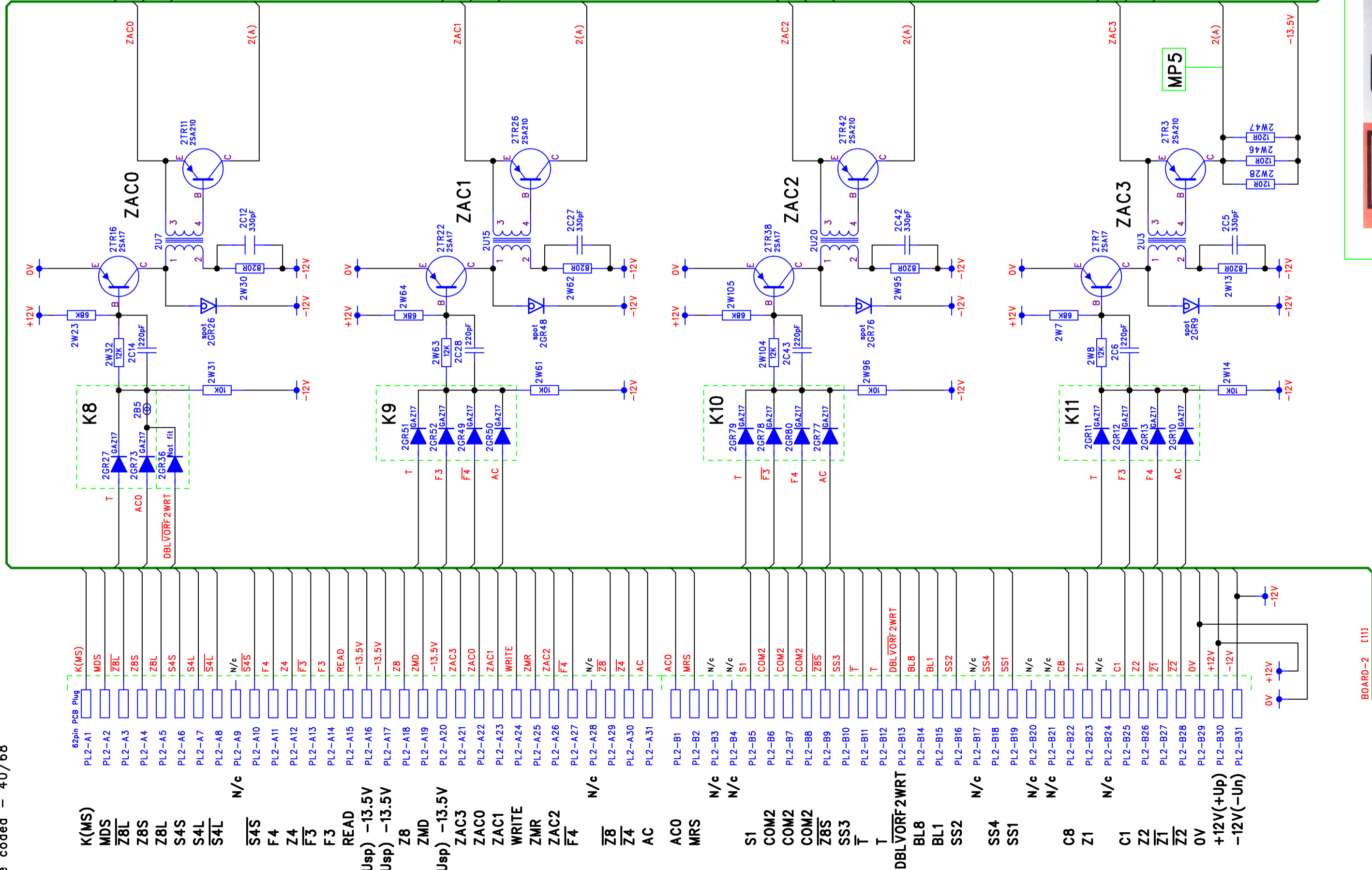
		DM Associates 33, Northbrook Road Aldershot, Hampshire, GU11 3HE Email: mike@soemtron.org <a href="http://www.soemtron.org">www.soemtron.org</a>	
Pcb Dwg # =		Name MD Hatch	
Drawn Checked		Date 15/8/2017	
Title Soemtron ETR 222 Calculator Transcribed Misc Circuits Board 1/2 - Core Store Planes		Nts 9	
Drawing Number Soemtron 222		Sheet 10	
A2 issue		A	

These diagrams are referenced to 0V - Logical 1 = -12V, logical 0 = 0V

Comp side - 3034-  
Solder side - 220-317-002-d  
Date coded - 40/68

RevNo Revision note

Date By Checked



- K(MS)
- MDS
- ZBL
- ZBS
- ZBL
- S4S
- S4L
- S4L
- N/c
- S4S
- F4
- Z4
- F3
- F3
- READ
- (Usp) -13.5V
- (Usp) -13.5V
- Z8
- ZMD
- (Usp) -13.5V
- ZAC3
- ZACO
- ZAC1
- WRITE
- ZMR
- ZAC2
- F4
- Z8
- Z4
- Z4
- AC
- ACO
- MRS
- N/c
- N/c
- S1
- COM2
- COM2
- COM2
- ZBS
- SS3
- T
- T
- DBLVORF-2WRT
- BL8
- BL1
- SS2
- N/c
- SS4
- SS1
- N/c
- N/c
- N/c
- N/c
- N/c
- Z1
- C1
- Z2
- Z1
- Z2
- OV
- +12V(+Up)
- 12V(-Un)

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Pcb Dwg # =

Name MD Hatch

Date 15/8/2017

Scale Sheet 10

Next Sheet 11

Drawing Number Soemtron 222

Title Soemtron ETR 222 Calculator Transcribed Misc Circuits Board 2/1 - Core Drivers

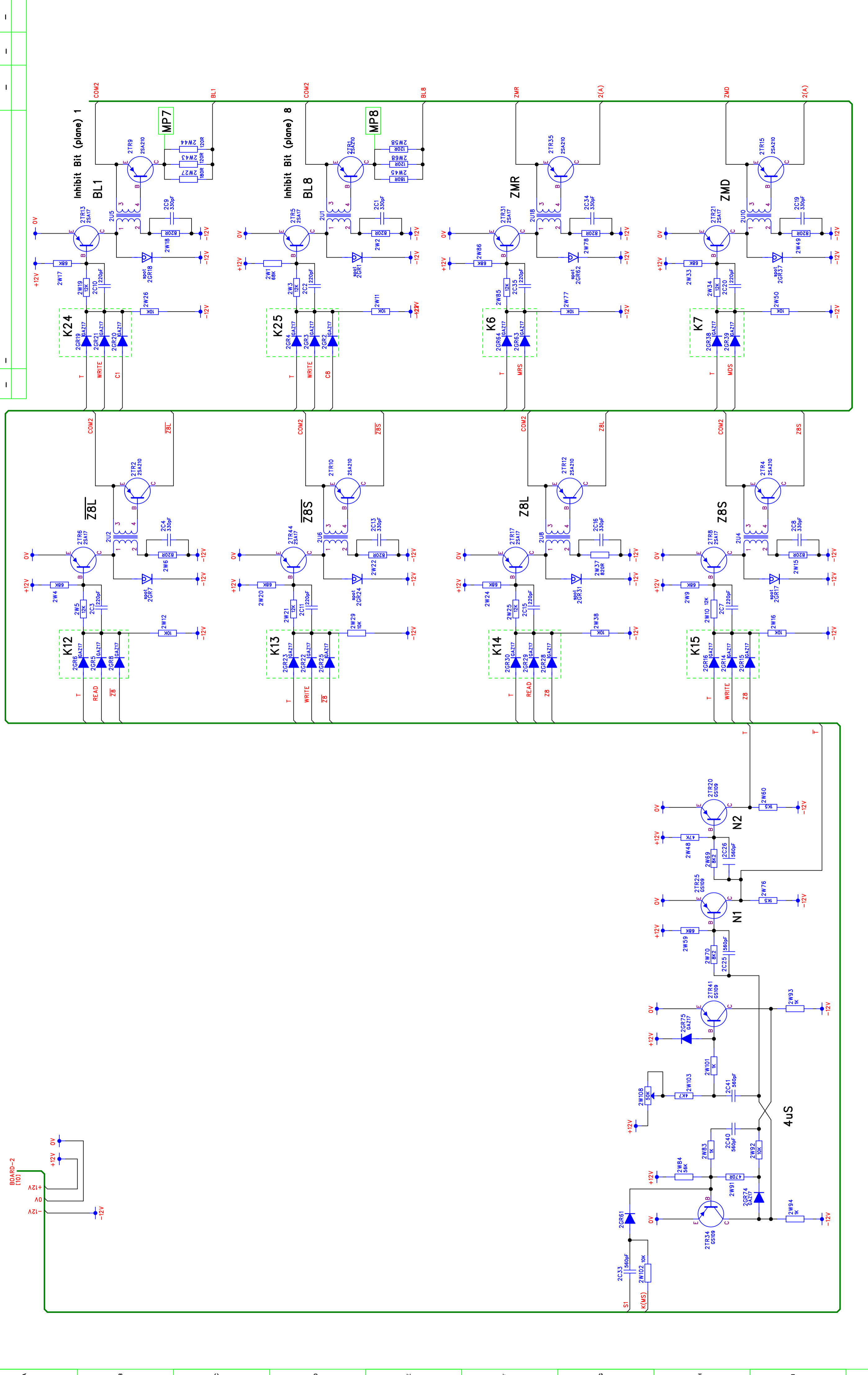
Nts 10

Sheet 10

Next Sheet 11

Drawing Number Soemtron 222

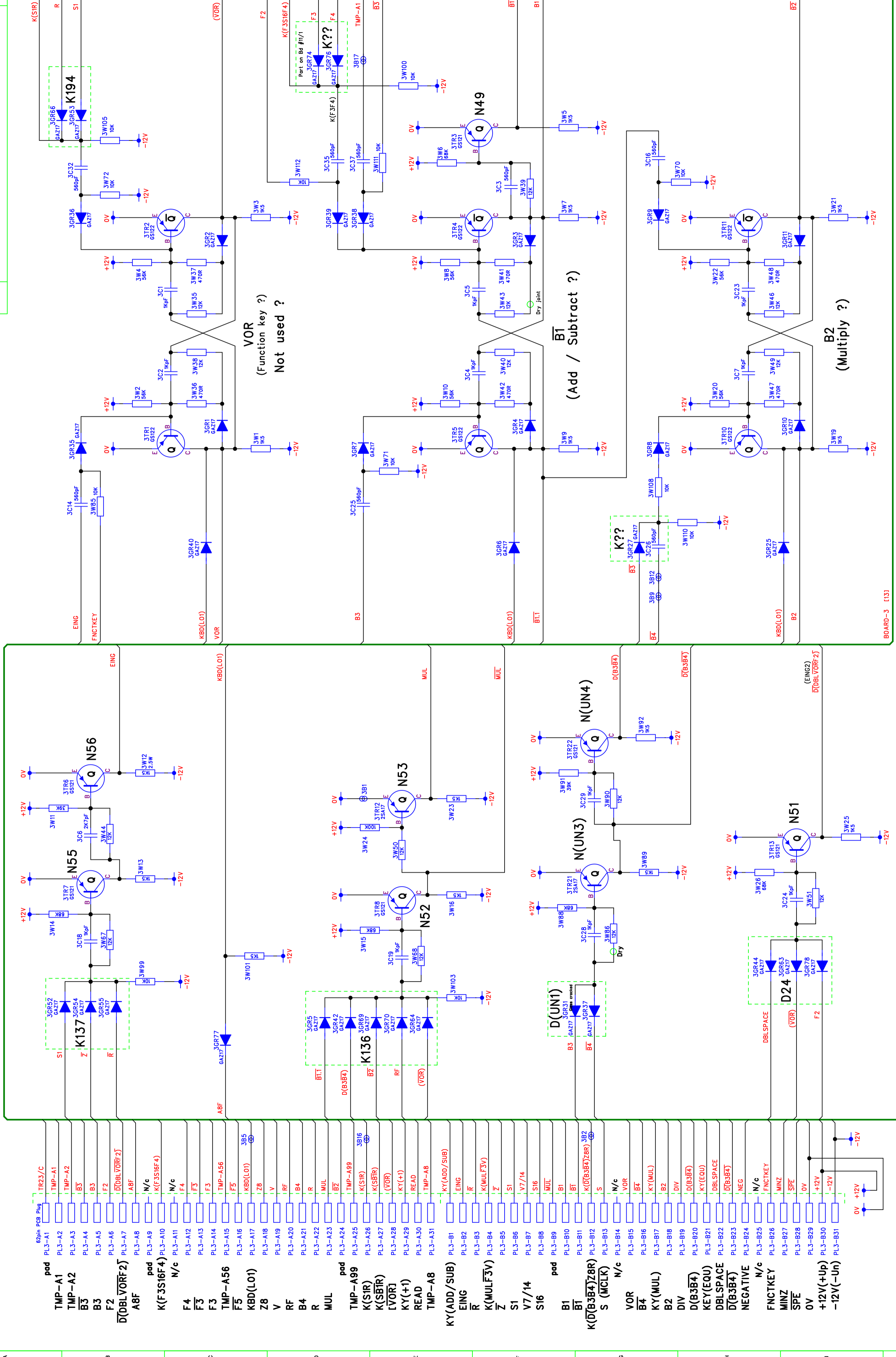
A2 Issue A



Comp side - 3966- 22 -307-003-d  
 Solder side - 25/69  
 Date coded - 25/69

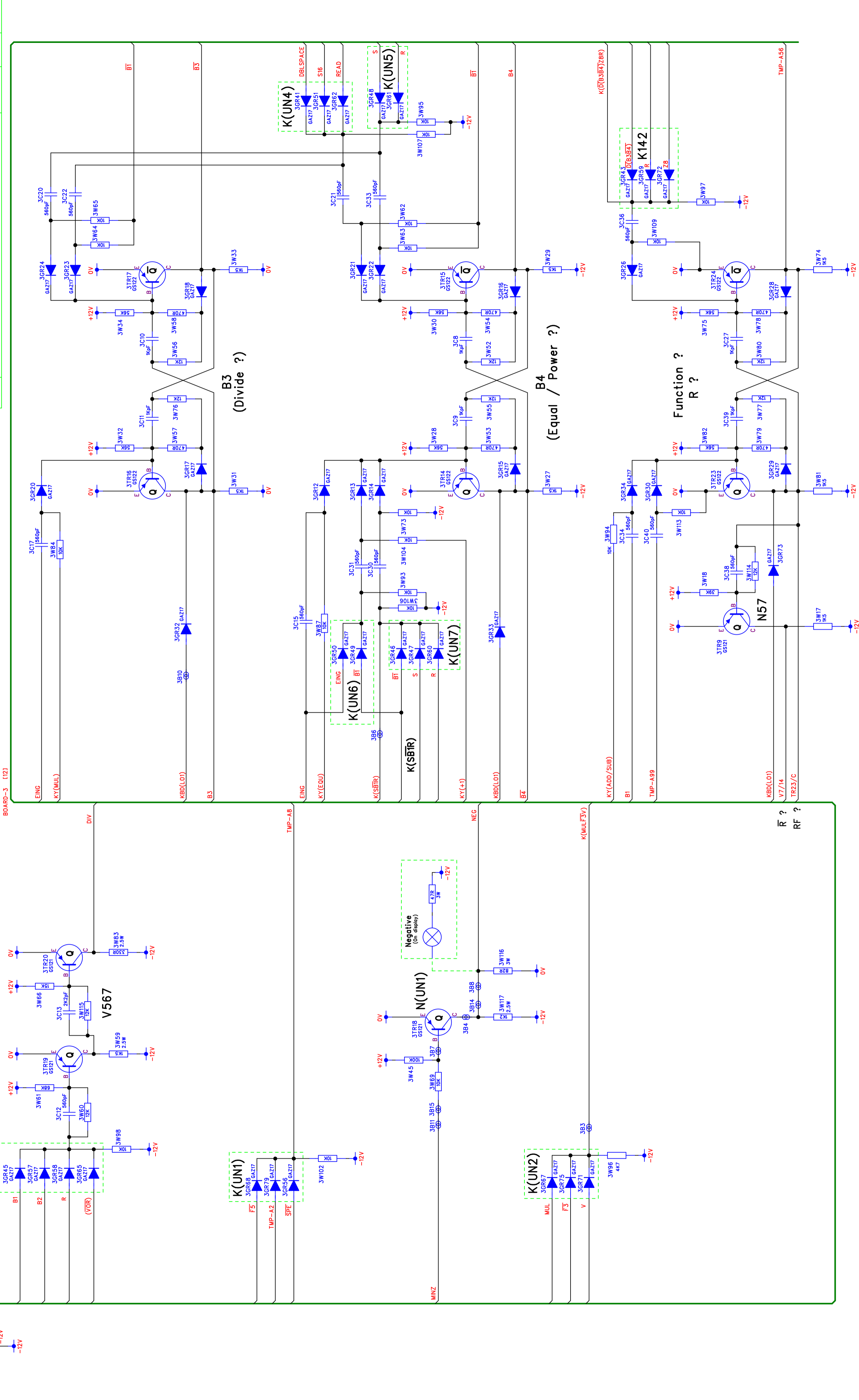
RevNo Revision note


Date By Checked

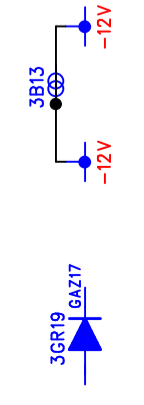


DM Associates 33, Northbrook Road Aldershot, Hampshire, GU11 3HE Email: mike@soemtron.org <a href="http://www.soemtron.org">www.soemtron.org</a>		Pcb Dwg # =		Title	
© 2017 Mike Hatch. (www.soemtron.org)		Name		Soemtron ETR 222 Calculator	
These diagrams are referenced to 0V - Logical 1 = -12V, logical 0 = 0V		Date		Transcribed Misc Circuits	
BOARD-3 [13]		MD Hatch		Board 3/1 - B1, B2, VOR	
BOARD-3 [13]		Checked		Drawing Number	
BOARD-3 [13]		Drawn		Soemtron 222	
BOARD-3 [13]		Checked		Drawing Number	
BOARD-3 [13]		Date		Sheet	
BOARD-3 [13]		15/8/2017		12	
BOARD-3 [13]		Next Sheet		13	
BOARD-3 [13]		Next Sheet		A2 Issue	
BOARD-3 [13]		Next Sheet		A	

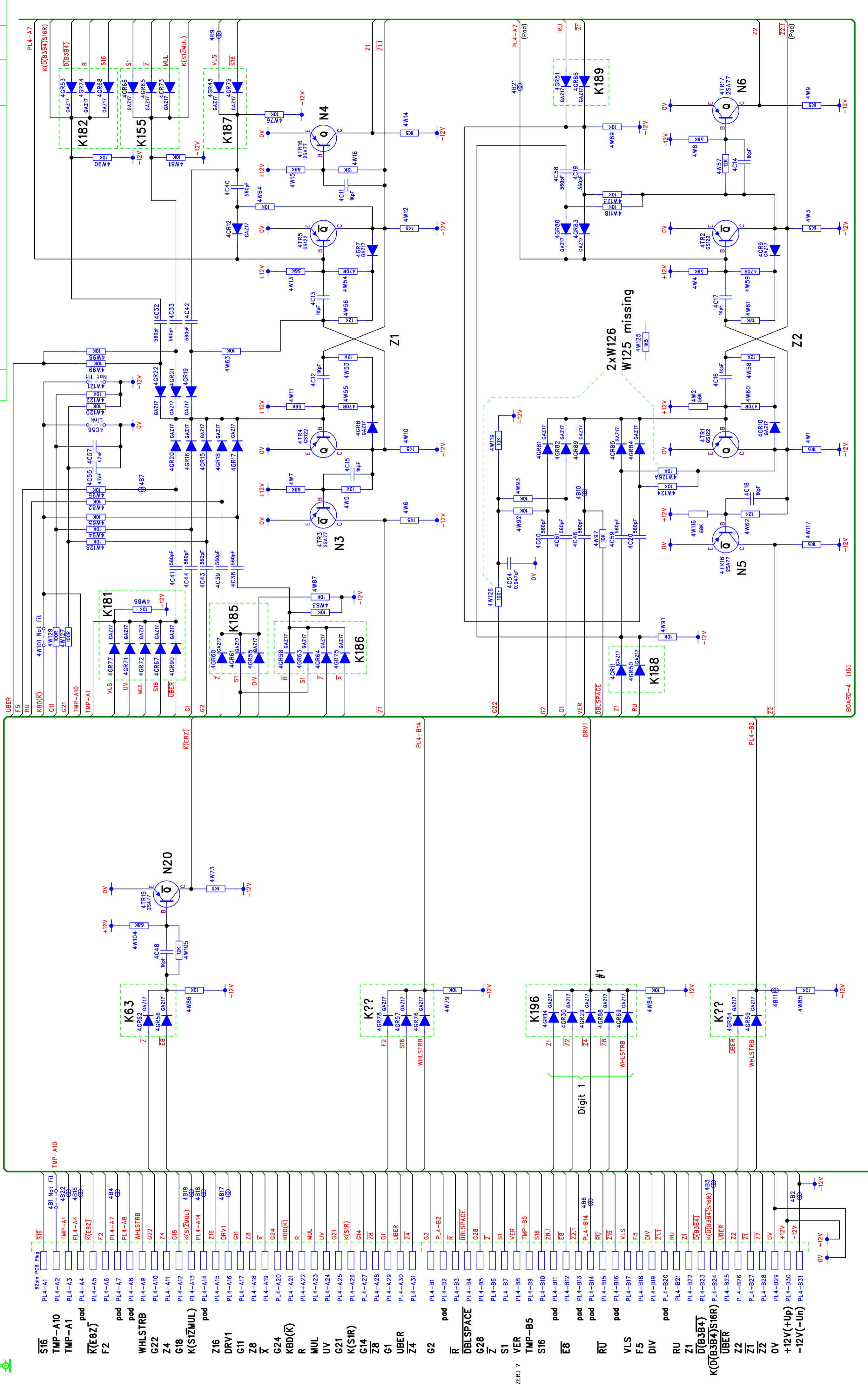
RevNo	Revision note	Date	By	Checked
-	-	-	-	-



	DM Associates	Pcb Dwg # =	Scale	Nts	Title
	33, Northbrook Road Aldershot, Hampshire. GU11 3HE Email: mike@soemtron.org <a href="http://www.soemtron.org">www.soemtron.org</a>	MD Hatch	15/8/2017	Sheet 13	Soemtron ETR 222 Calculator Transcribed Misc Circuits Board 3/2 - B3, B4, ?R?
© 2017 Mike Hatch. (www.soemtron.org)	Checked	7	8	9	10
1	2	3	4	5	6
7	8	9	10	11	12

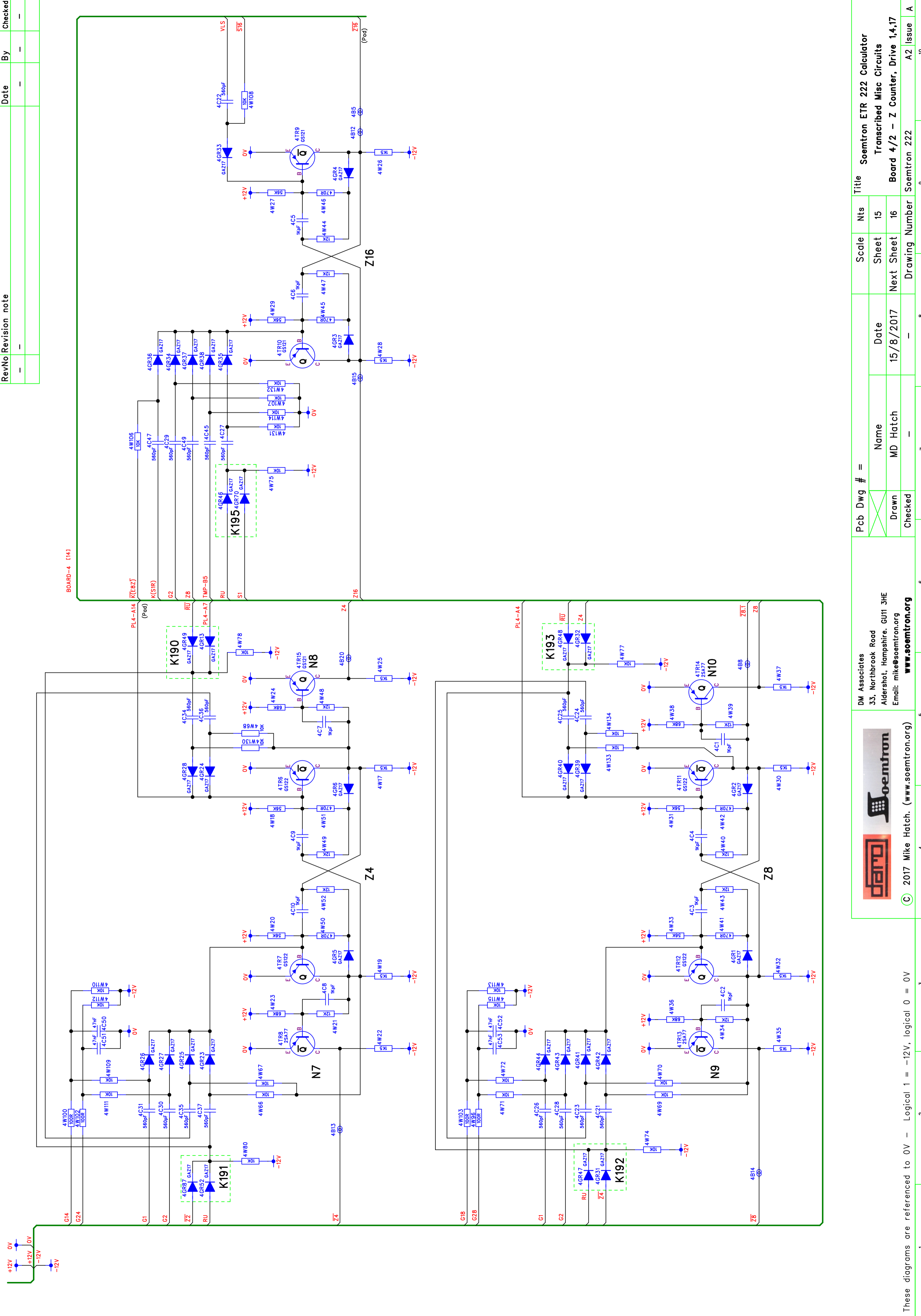


These diagrams are referenced to 0V - Logical 1 = -12V logical 0 = 0V





- |                |                |                |
|----------------|----------------|----------------|
| S16            | 62pin PCB Ring | S16            |
| TMP-A10        | 4B1 Not fit    | TMP-A10        |
| PL4-A1         | 4B22           | PL4-A1         |
| PL4-A2         | 4B22           | PL4-A2         |
| PL4-A3         | 4B22           | PL4-A3         |
| PL4-A4         | 4B22           | PL4-A4         |
| PL4-A5         | 4B22           | PL4-A5         |
| PL4-A6         | 4B22           | PL4-A6         |
| PL4-A7         | 4B22           | PL4-A7         |
| PL4-A8         | 4B22           | PL4-A8         |
| WHLSTRB        | 4B22           | WHLSTRB        |
| G22            | 4B22           | G22            |
| Z4             | 4B22           | Z4             |
| G18            | 4B22           | G18            |
| K(SIZMUL)      | 4B22           | K(SIZMUL)      |
| PL4-A13        | 4B22           | PL4-A13        |
| PL4-A14        | 4B22           | PL4-A14        |
| PL4-A15        | 4B22           | PL4-A15        |
| PL4-A16        | 4B22           | PL4-A16        |
| PL4-A17        | 4B22           | PL4-A17        |
| PL4-A18        | 4B22           | PL4-A18        |
| PL4-A19        | 4B22           | PL4-A19        |
| PL4-A20        | 4B22           | PL4-A20        |
| PL4-A21        | 4B22           | PL4-A21        |
| PL4-A22        | 4B22           | PL4-A22        |
| PL4-A23        | 4B22           | PL4-A23        |
| PL4-A24        | 4B22           | PL4-A24        |
| PL4-A25        | 4B22           | PL4-A25        |
| PL4-A26        | 4B22           | PL4-A26        |
| PL4-A27        | 4B22           | PL4-A27        |
| PL4-A28        | 4B22           | PL4-A28        |
| PL4-A29        | 4B22           | PL4-A29        |
| PL4-A30        | 4B22           | PL4-A30        |
| PL4-A31        | 4B22           | PL4-A31        |
| PL4-B1         | 4B22           | PL4-B1         |
| PL4-B2         | 4B22           | PL4-B2         |
| PL4-B3         | 4B22           | PL4-B3         |
| DBLSPACE       | 4B22           | DBLSPACE       |
| G28            | 4B22           | G28            |
| Z              | 4B22           | Z              |
| S1             | 4B22           | S1             |
| VER            | 4B22           | VER            |
| TMP-B5         | 4B22           | TMP-B5         |
| S16            | 4B22           | S16            |
| Z8T            | 4B22           | Z8T            |
| E8             | 4B22           | E8             |
| RU             | 4B22           | RU             |
| Z16            | 4B22           | Z16            |
| VLS            | 4B22           | VLS            |
| F5             | 4B22           | F5             |
| DIV            | 4B22           | DIV            |
| RU             | 4B22           | RU             |
| Z1             | 4B22           | Z1             |
| Z1             | 4B22           | Z1             |
| D(B3B4)        | 4B22           | D(B3B4)        |
| K(D(B3B4)S16R) | 4B22           | K(D(B3B4)S16R) |
| UBER           | 4B22           | UBER           |
| Z2             | 4B22           | Z2             |
| Z1             | 4B22           | Z1             |
| Z2             | 4B22           | Z2             |
| 0V             | 4B22           | 0V             |
| +12V(+Up)      | 4B22           | +12V(+Up)      |
| -12V(-Un)      | 4B22           | -12V(-Un)      |

RevNo	Revision note	Date	By	Checked
-	-	-	-	-
-	-	-	-	-



Scale	Nts	Title
Sheet	15	Soemtron ETR 222 Calculator
Next Sheet	16	Transcribed Misc Circuits
Next Sheet	16	Board 4/2 - Z Counter, Drive 1,4,17
Drawing Number	Soemtron 222	

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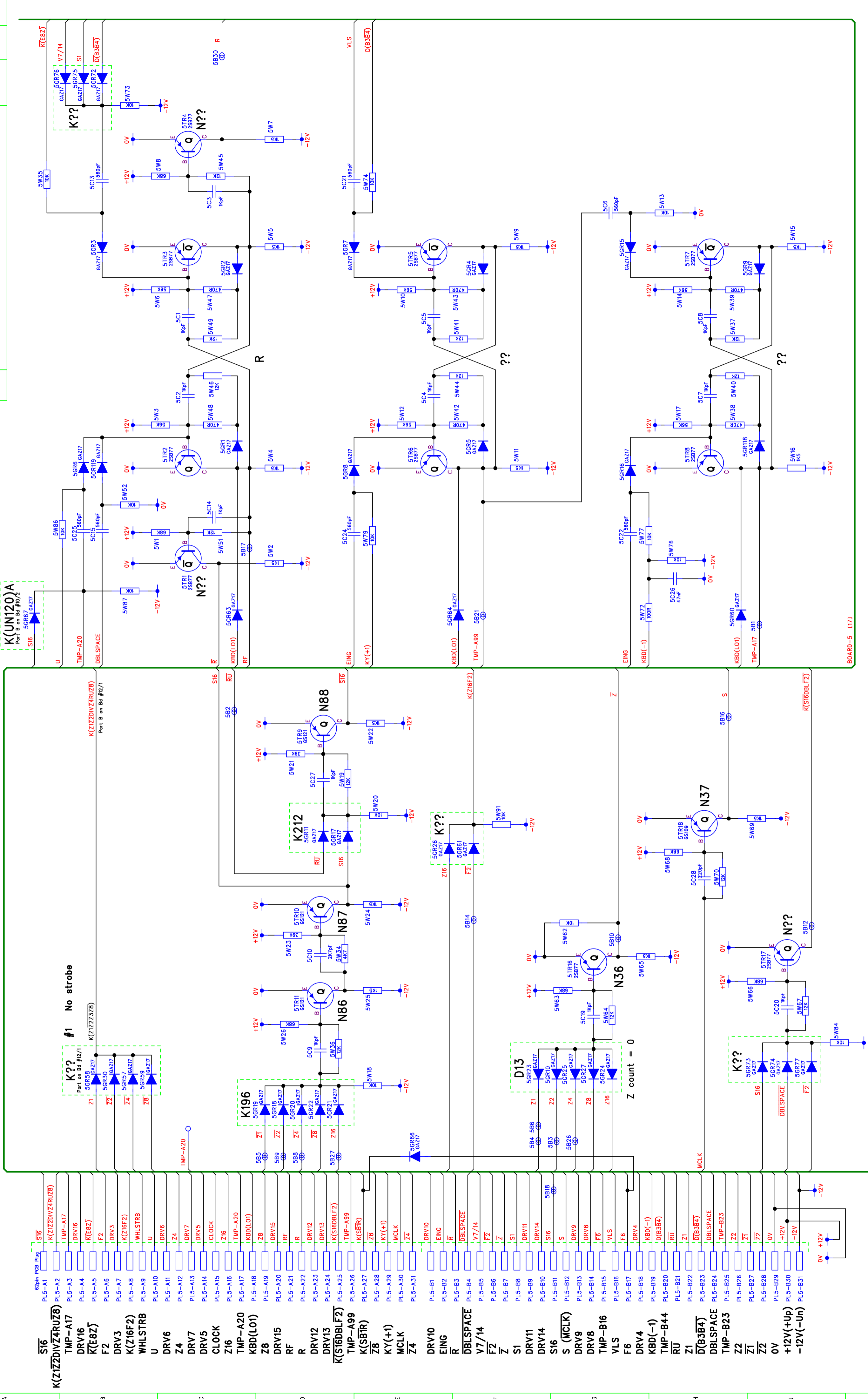
 

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These diagrams are referenced to 0V - Logical 1 = -12V, logical 0 = 0V

Comp side - 3960- 224-307-005-a  
 Solder side - 34/68  
 Date coded - 34/68

RevNo	Revision note	Date	By	Checked
-	-	-	-	-



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These diagrams are referenced to 0V - Logical 1 = +12V, logical 0 = 0V

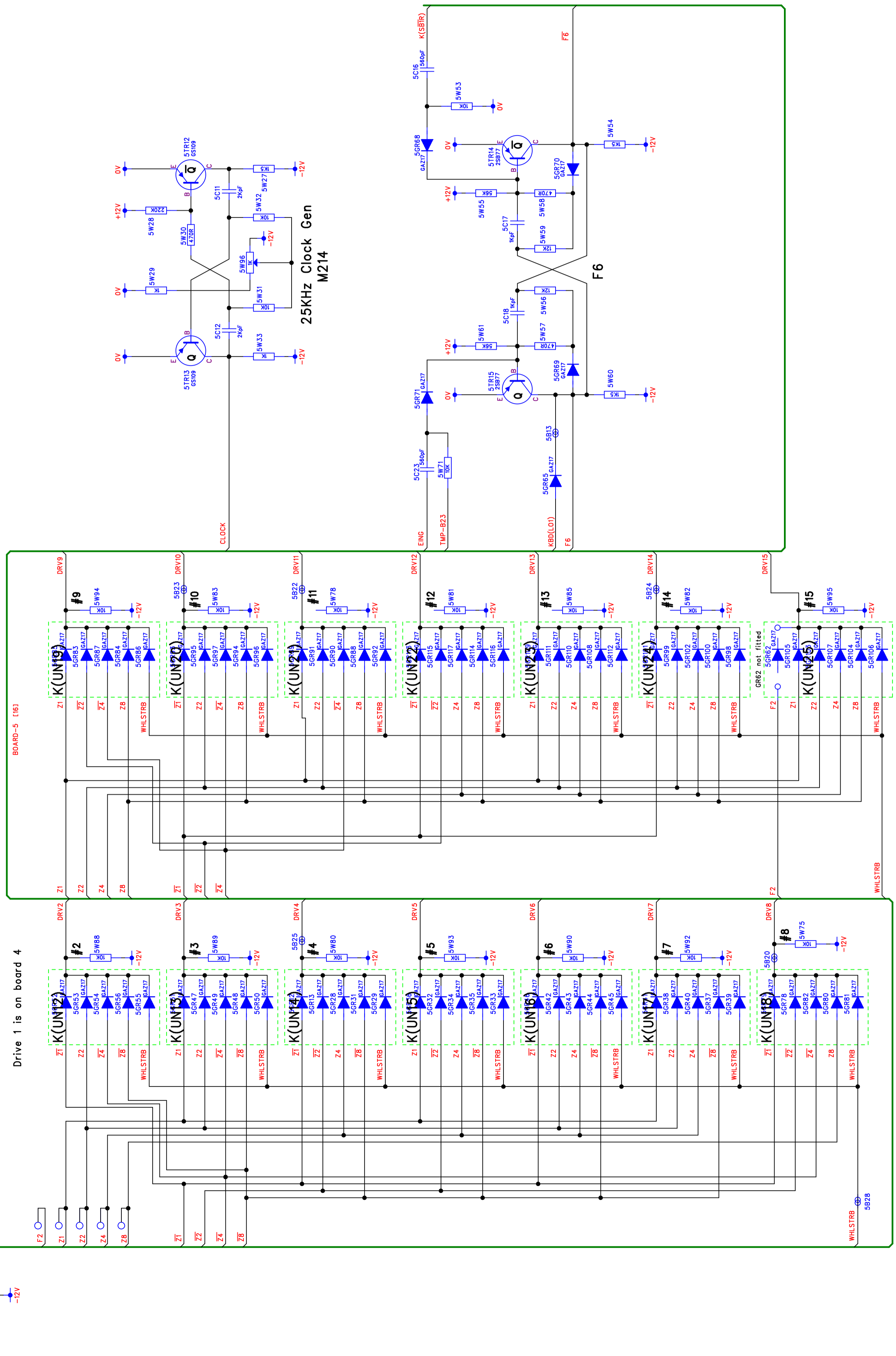
Pcb Dwg #	Name	Date	Scale	Nts	Title
MD Hatch	MD Hatch	15/8/2017	Sheet 16	16	Soemtron ETR 222 Calculator
Checked	Checked	-	Next Sheet	17	Transcribed Misc Circuits
			Drawing Number		Soemtron 222

BOARD-5 [17]



RevNo	Revision note	Date	By	Checked
-	-	-	-	-

1	2	3	4	5	6	7	8	9	10
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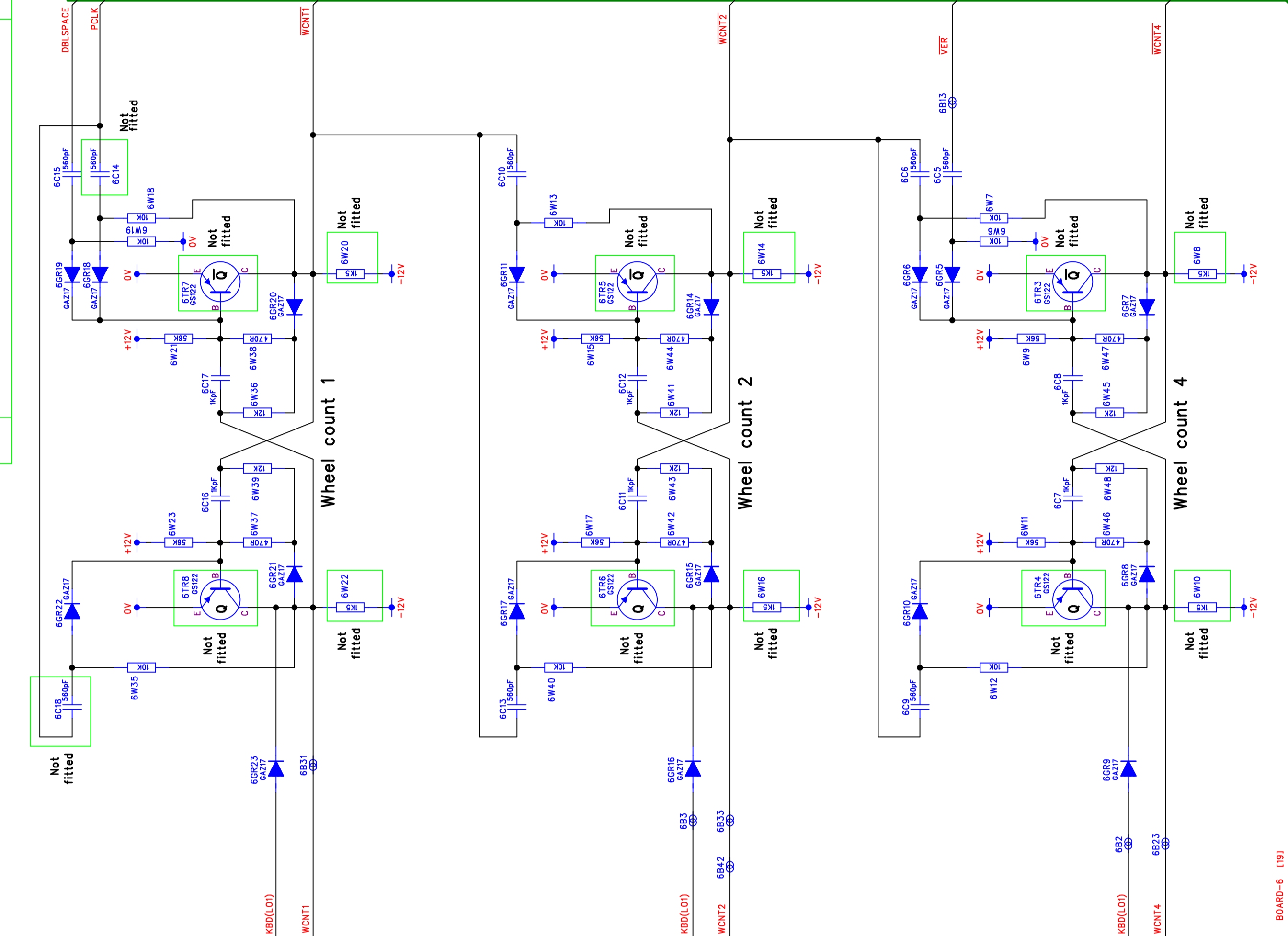
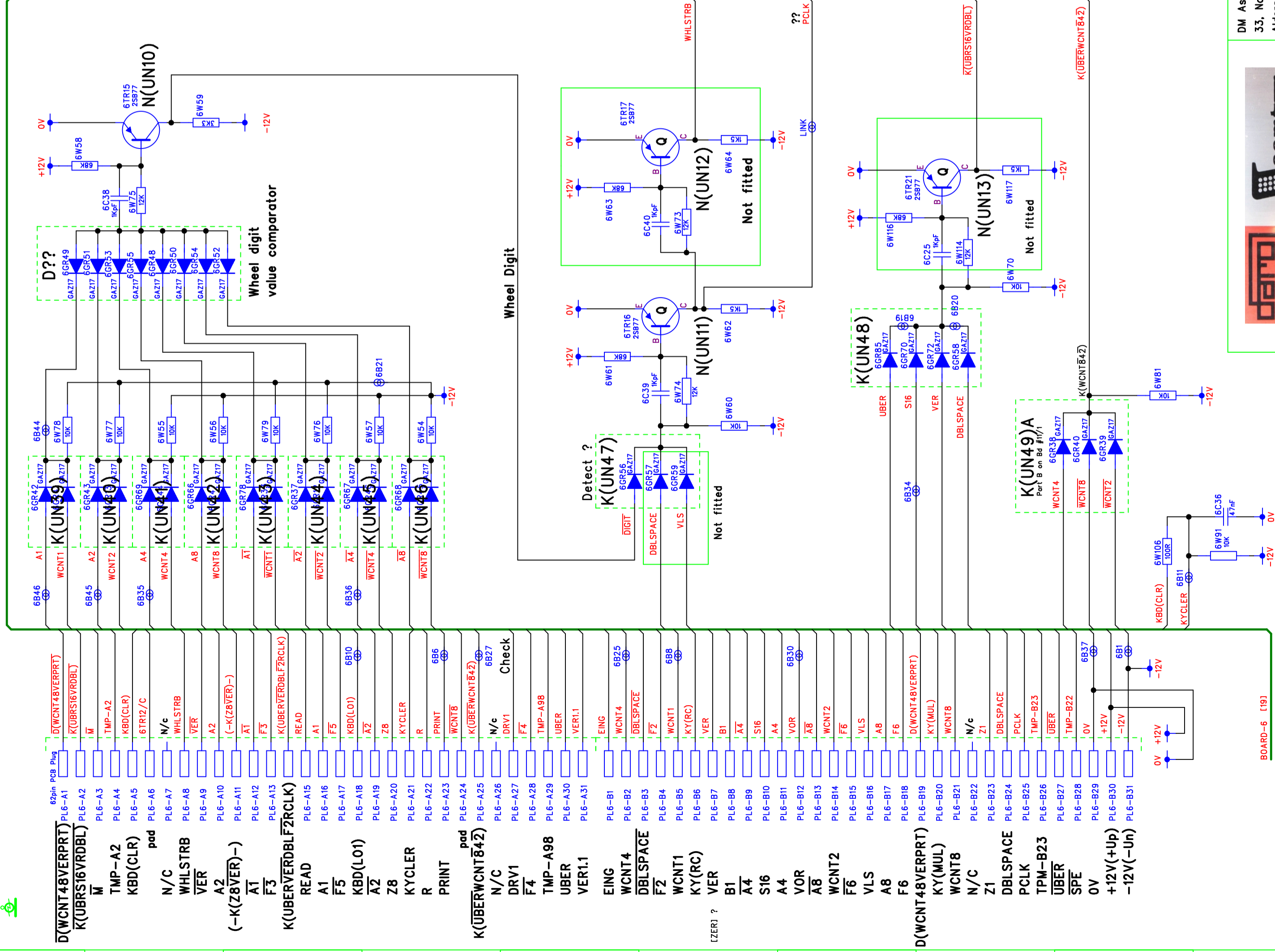


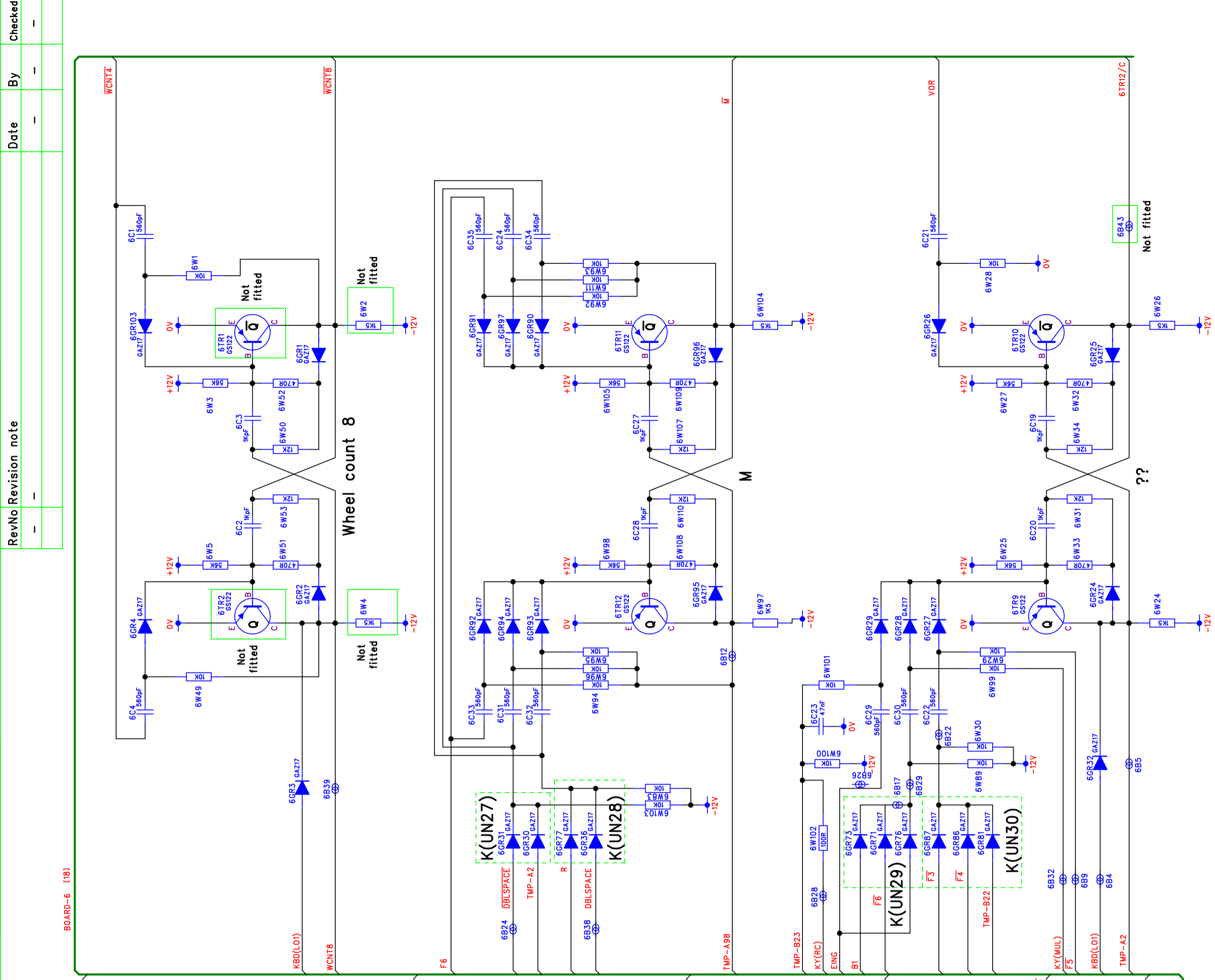
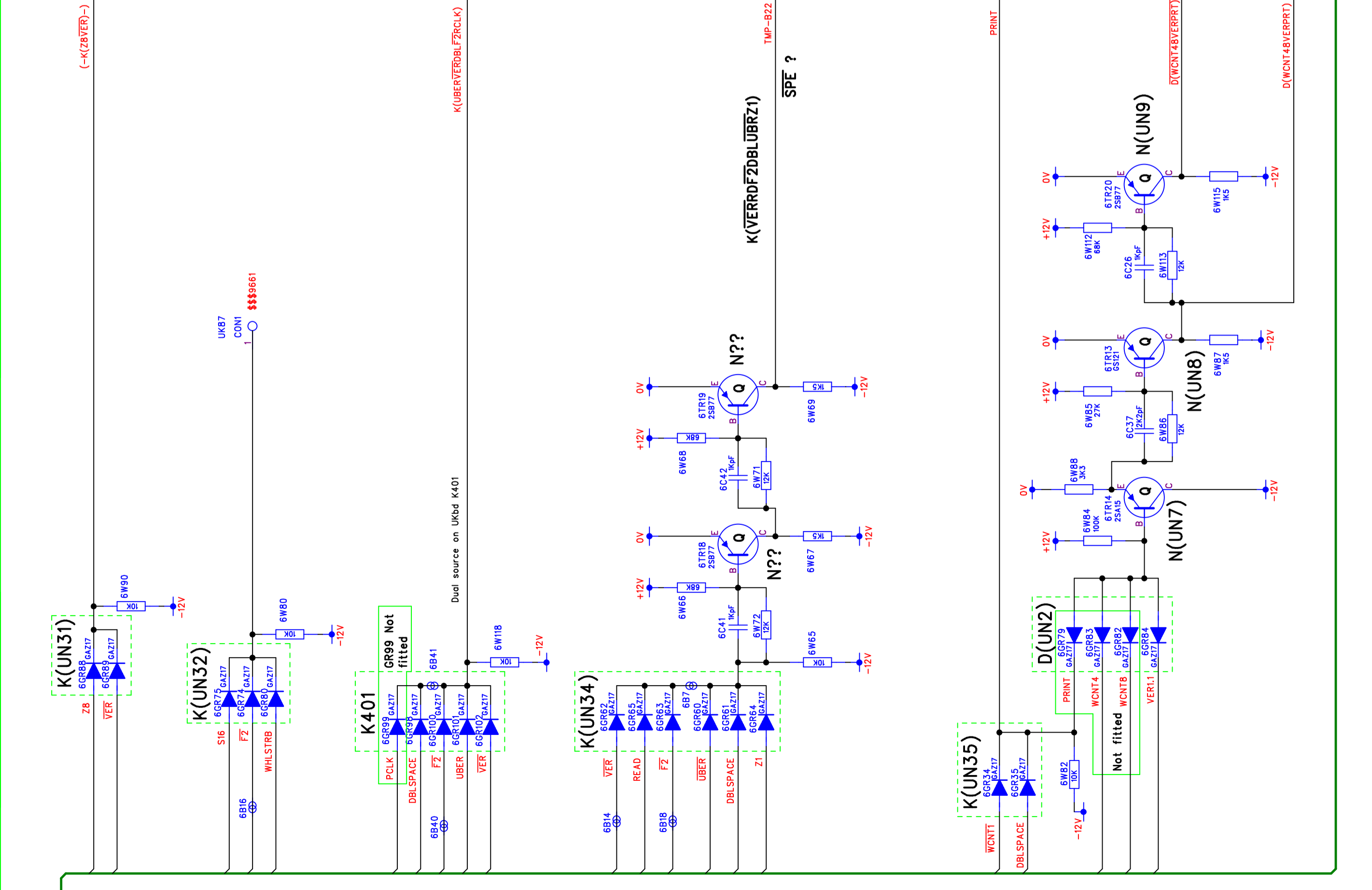
DM Associates  
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Aldershot, Hampshire. GU11 3HE  
Email: mike@soemtron.org  
[www.soemtron.org](http://www.soemtron.org)

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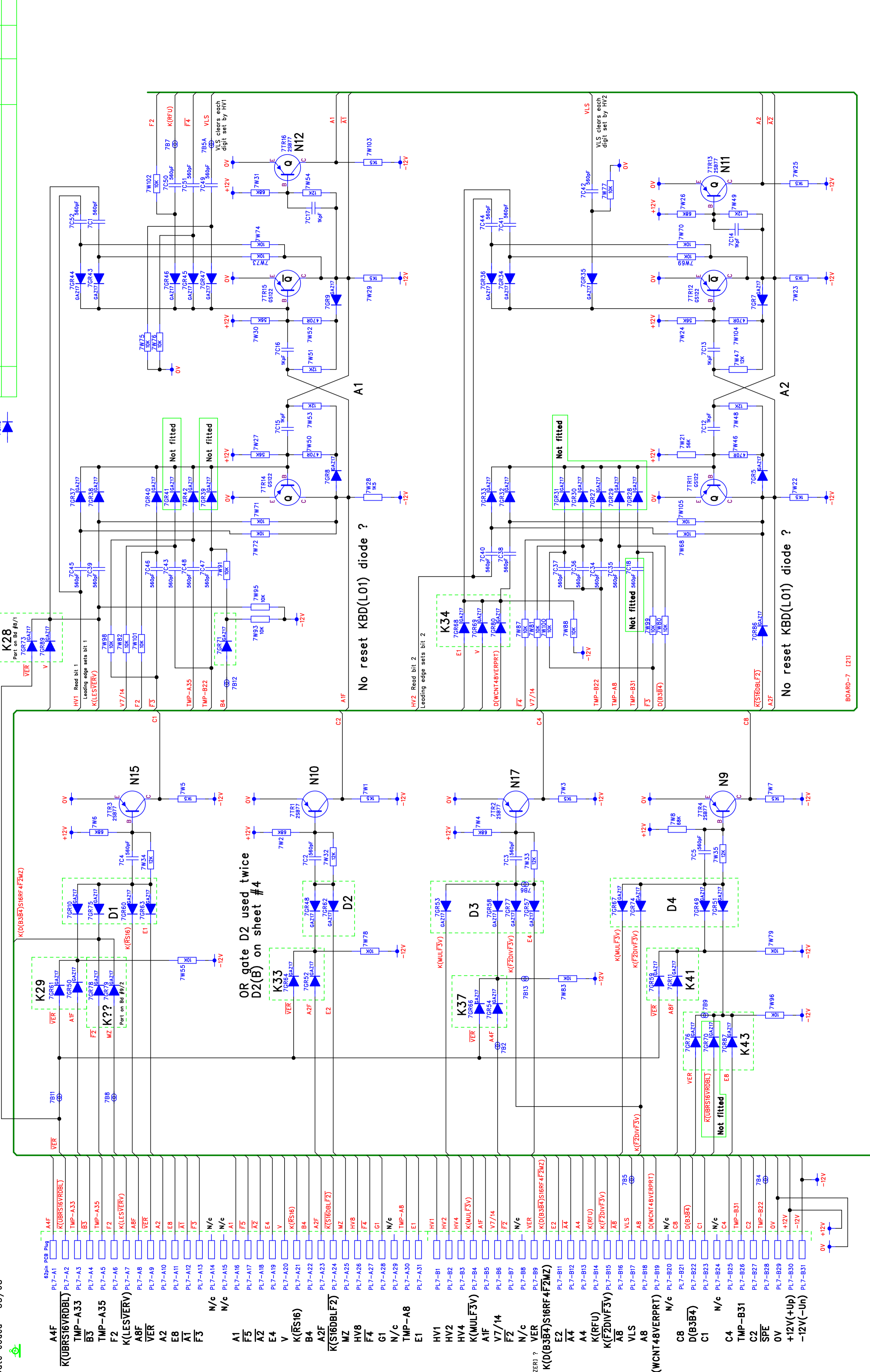
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MD Hatch	MD Hatch	15/8/2017	Soemtron ETR 222 Calculator
Checked	Drawn	Next Sheet	Transcribed Misc Circuits
	Checked	18	Board 5/2 - Clock, DRV2-16
		17	Soemtron 222
		Sheet	Drawing Number
		Scale	A2 Issue
		Nts	10

These diagrams are referenced to 0V - Logical 1 = -12V, logical 0 = 0V



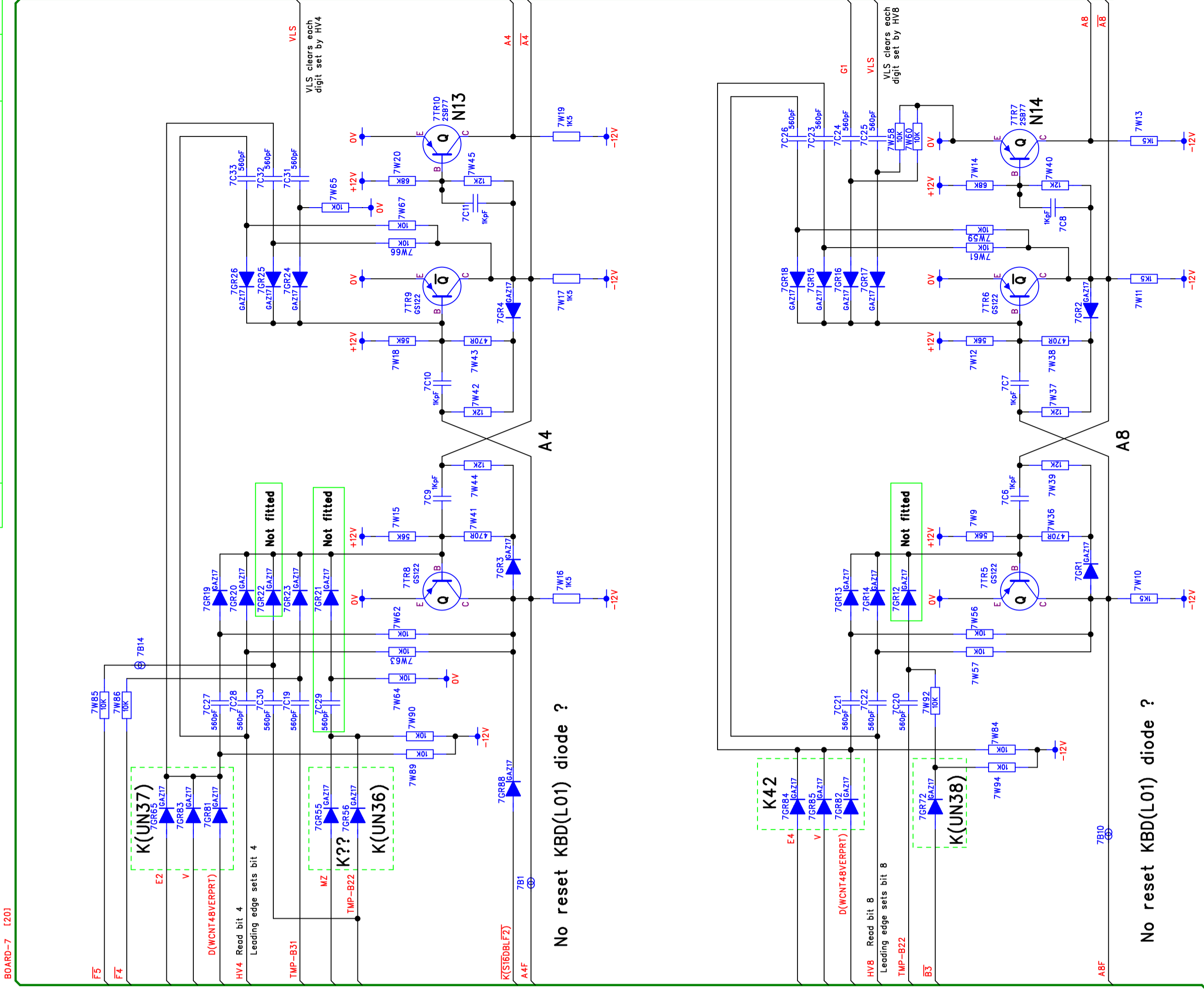


RevNo	Revision note	Date	By	Checked
-	-	-	-	-



DM Associates 33, Northbrook Road Aldershot, Hampshire, GU11 3HE Email: mike@soemtron.org		Pcb Dwg # =		Title	
www.soemtron.org		Name		Soemtron ETR 222 Calculator	
© 2017 Mike Hatch. (www.soemtron.org)		Date		Transcribed Misc Circuits	
These diagrams are referenced to 0V - Logical 1 = -12V, logical 0 = 0V		MD Hatch		Board 7/1 - A1, A2, C Gates	
		Checked		Drawing Number	
		15/8/2017		Soemtron 222	
		8		21	
		9		A2 Issue	
		10		A	

RevNo	Revision note	Date	By	Checked
-	-	-	-	-

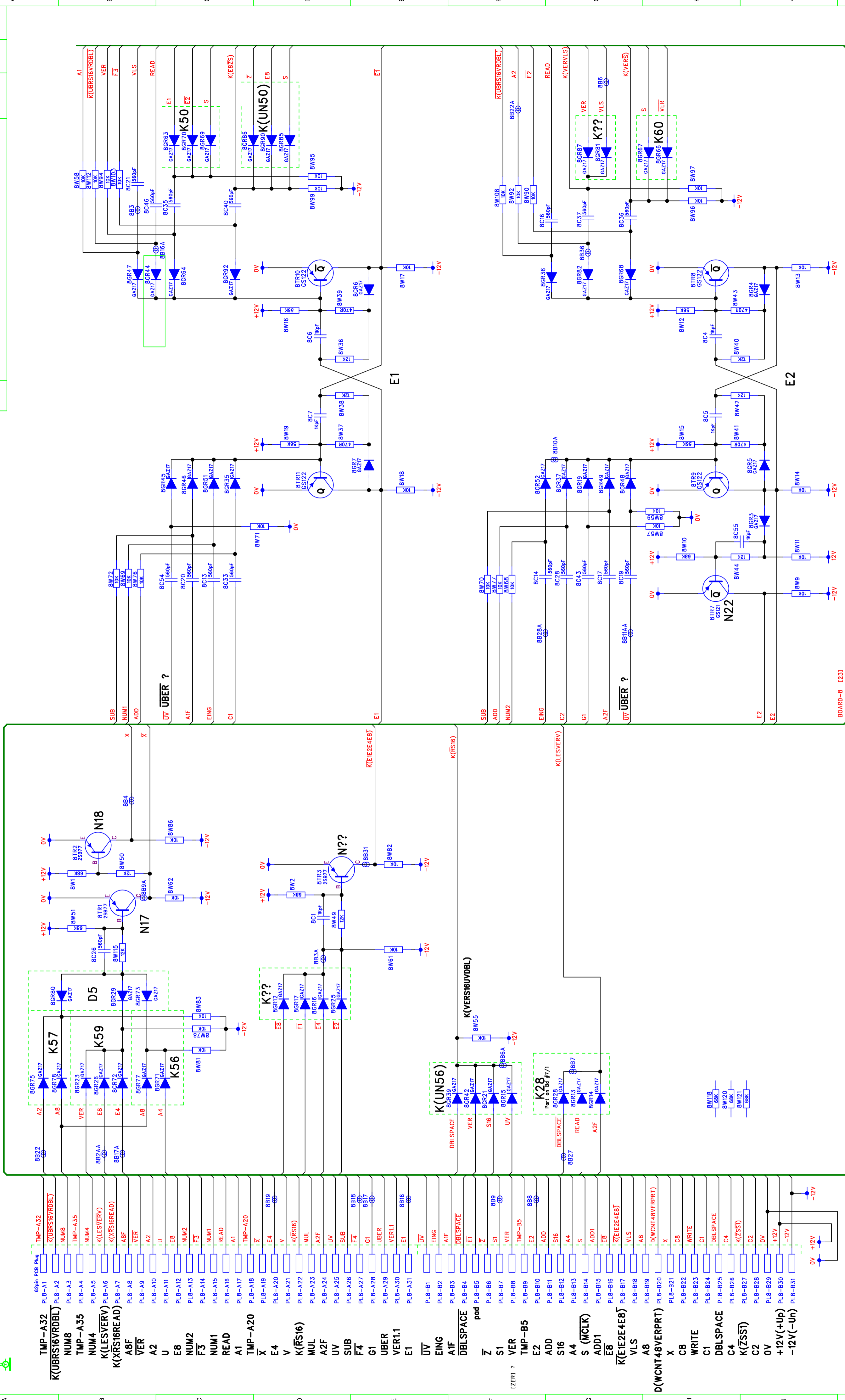


DM Associates 33, Northbrook Road Aldershot, Hampshire. GU11 3HE Email: mike@soemtron.org <a href="http://www.soemtron.org">www.soemtron.org</a>	Pcb Dwg # =	Name MD Hatch	Date 15/8/2017	Scale Sheet 21	Nts 21	Title Soemtron ETR 222 Calculator Transcribed Misc Circuits
	Checked			Next Sheet	22	Board 7/2 - A Register (A4, A8)
				Drawing Number	Soemtron 222	A2 Issue

Comp side - 3952- 224-307-008-a  
 Solder side - 40/69  
 Date coded - 40/69

RevNo Revision note

Checked	By	Date
-	-	-
-	-	-

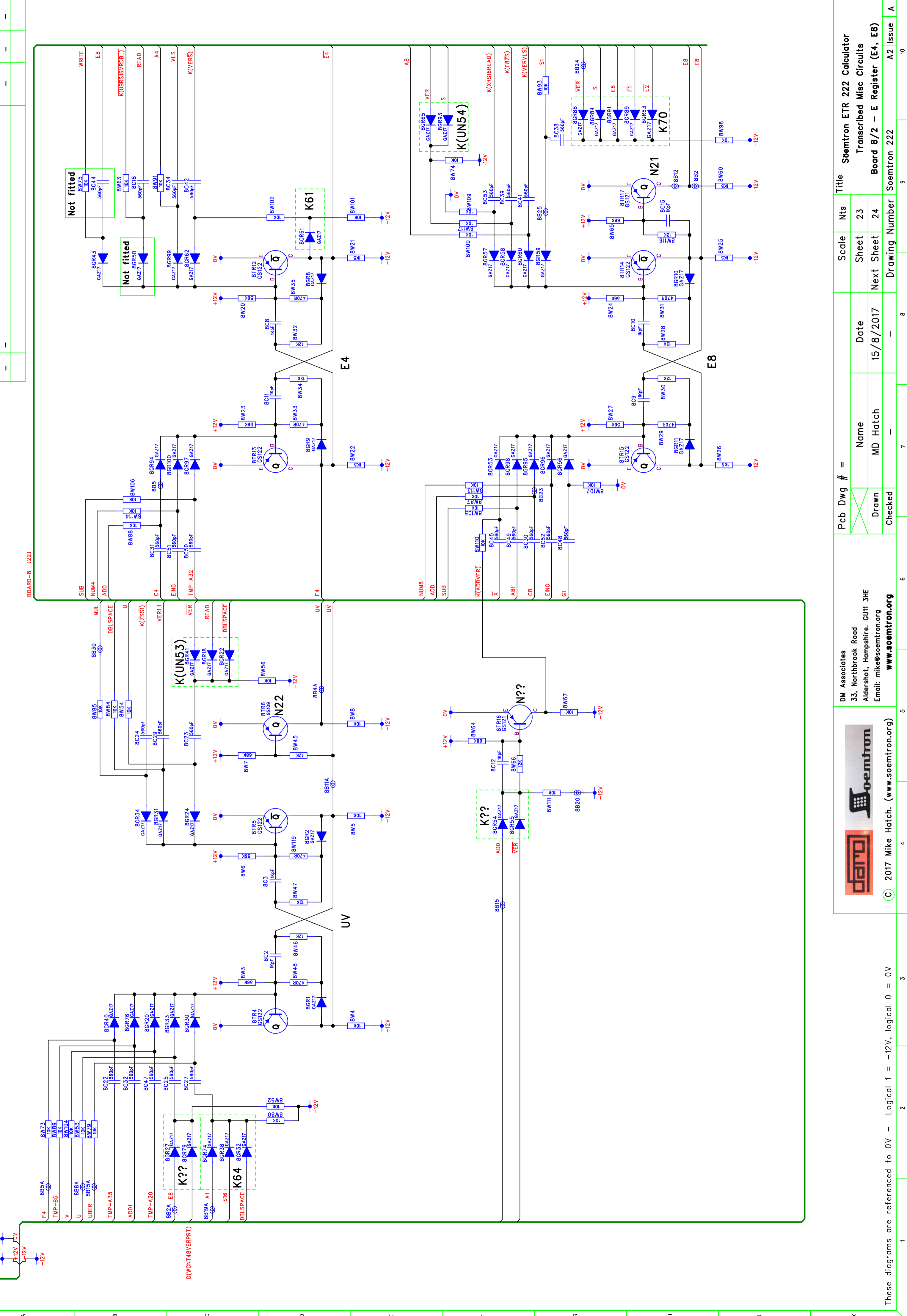


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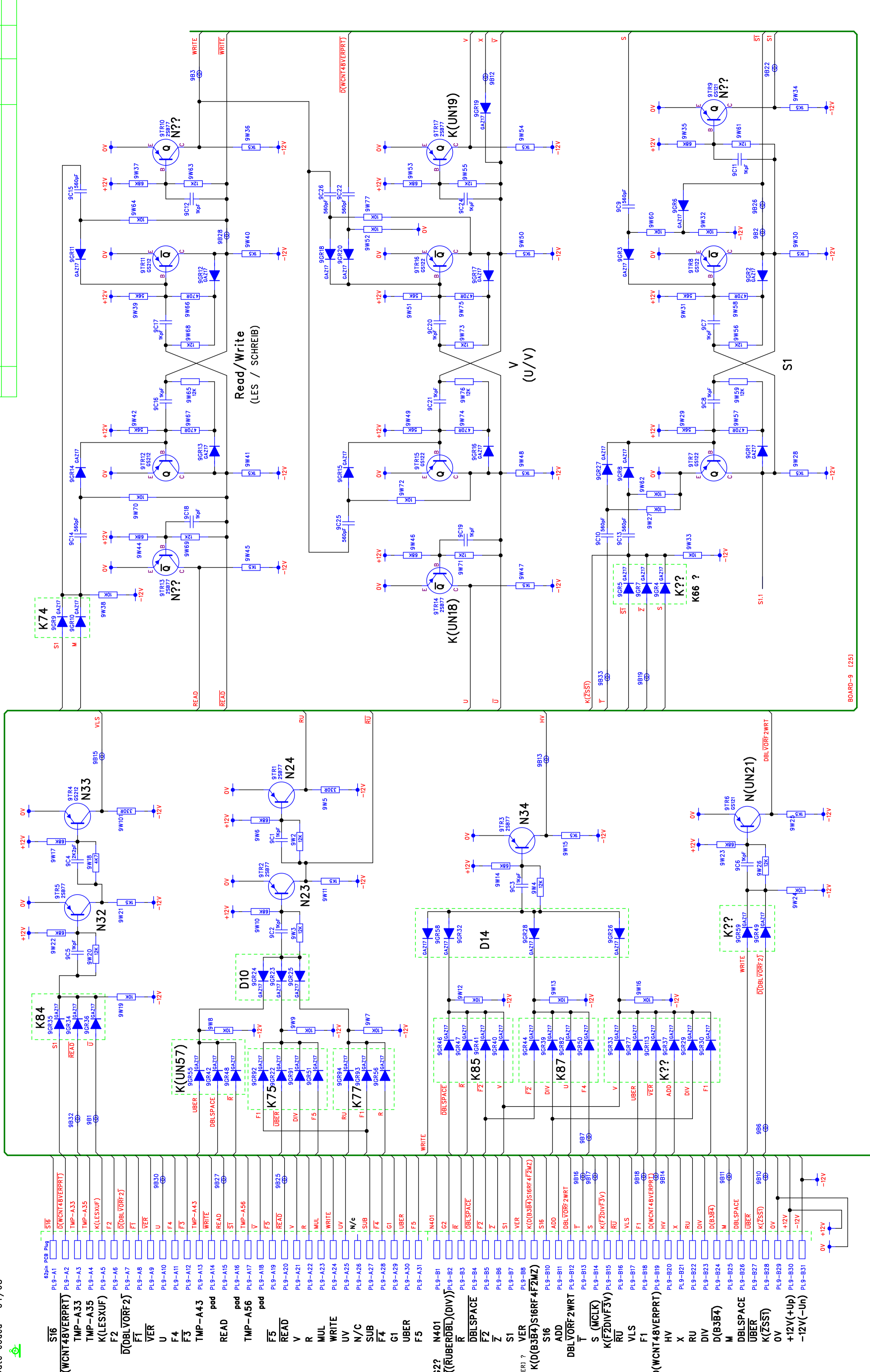
These diagrams are referenced to 0V - Logical 1 = +12V, logical 0 = 0V

Pcb Dwg #	Name	Date	Scale	Nts	Title
MD Hatch	MD Hatch	15/8/2017	Sheet 22	22	Soemtron ETR 222 Calculator
Checked	MD Hatch	-	Next Sheet	23	Transcribed Misc Circuits
			Drawing Number		Board 8/1 - E Register (E1, E2)



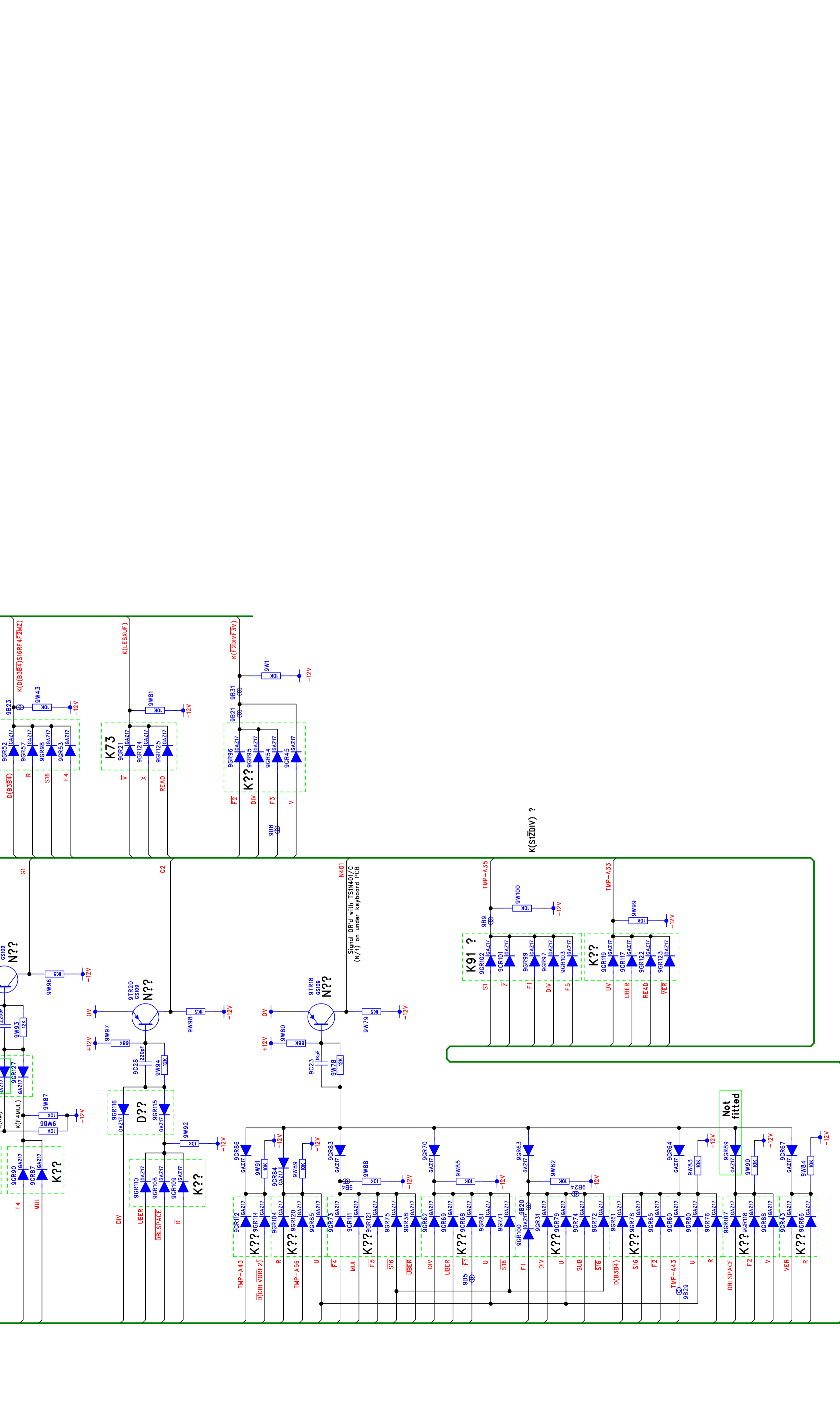
		DM Associates 33, Northbrook Road Aidershot, Hampshire. GU11 3HE Email: mike@soemtron.org <a href="http://www.soemtron.org">www.soemtron.org</a>		Pcb Dwg # =		Name MD Hatch		Date 15/8/2017		Title Soemtron ETR 222 Calculator Transcribed Misc Circuits	
Drawn Checked		Scale Sheet 23 Next Sheet 24		Nts 23 24		Drawing Number Soemtron 222		A2 Issue A		A2 Issue A	

RevNo	Revision note	Date	By	Checked
-	-	-	-	-



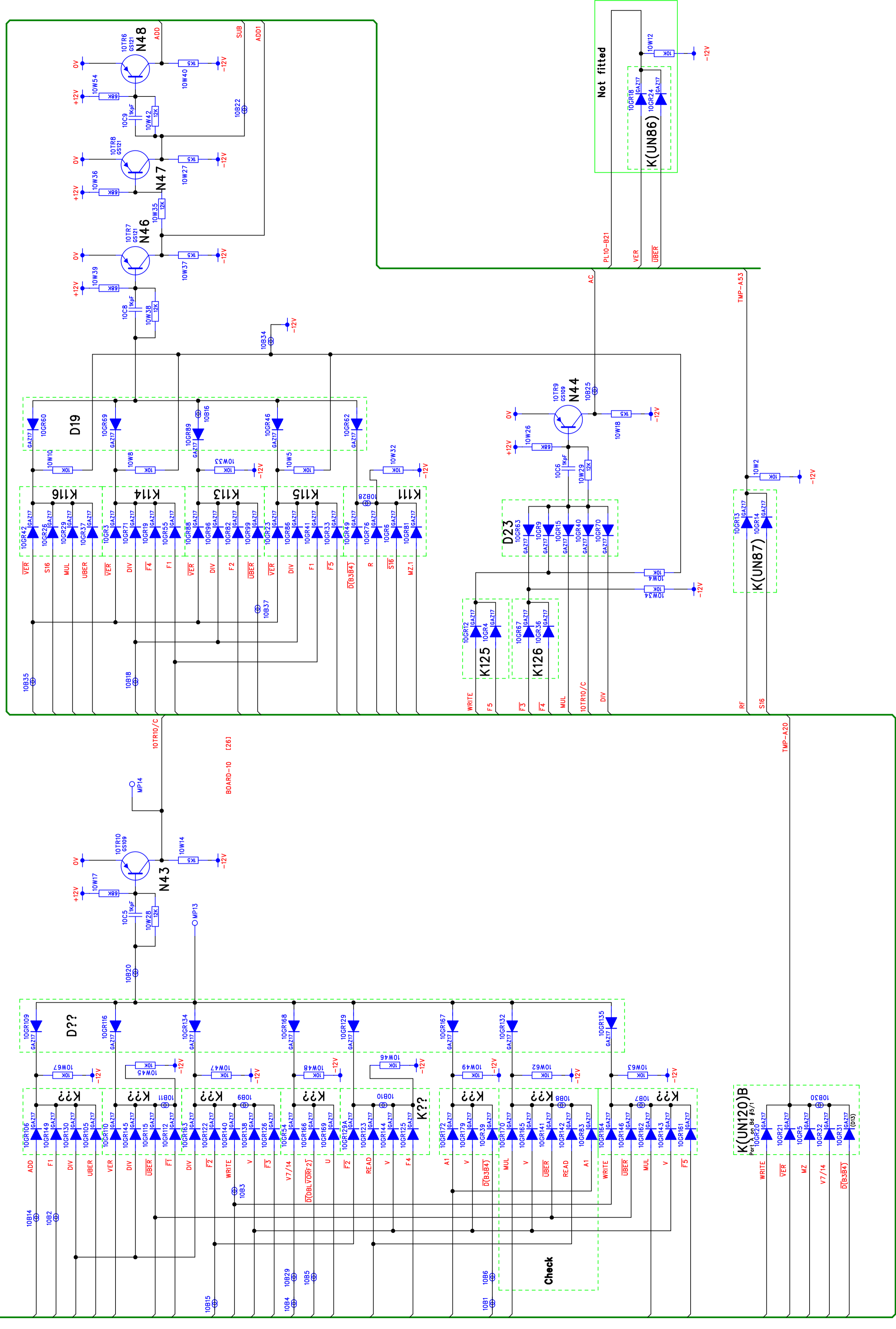
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	MD Hatch	1/2/2018	Sheet 24	24	Soemtron ETR 222 Calculator
Drawn	Checked		Next Sheet	25	Transcribed Misc Circuits
			Drawing Number		Board 9 / 1 - Read/Write, S1, V
					Soemtron 222





Pcb Dwg # =	Name	Date	Title	Nts	Scale
MD Hatch	MD Hatch	1/2/2018	Soemtron ETR 222 Calculator	25	Sheet
Checked			Transcribed Misc Circuits	26	Next Sheet
			Board 9/2 - ??		Drawing Number
			Soemtron 222		A2 Issue

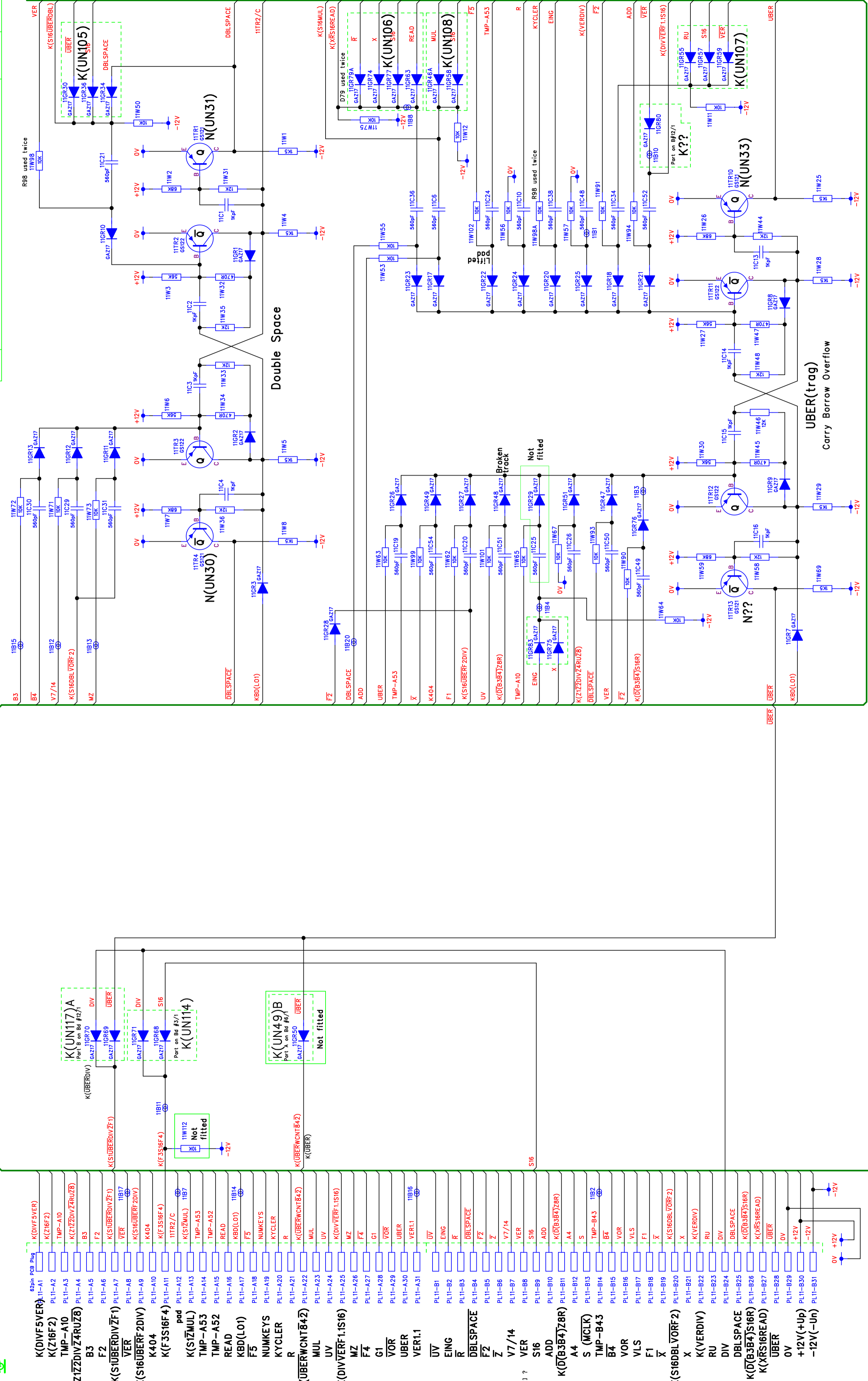




These diagrams are referenced to 0V - Logical 1 = -12V logical 0 = 0V

RevNo	Revision note	Date	By	Checked
-	-	-	-	-

Comp side - 224-307-011a 3970  
 Solder side - 20/73



RevNo	Revision note	Date	By	Checked
-	-	-	-	-

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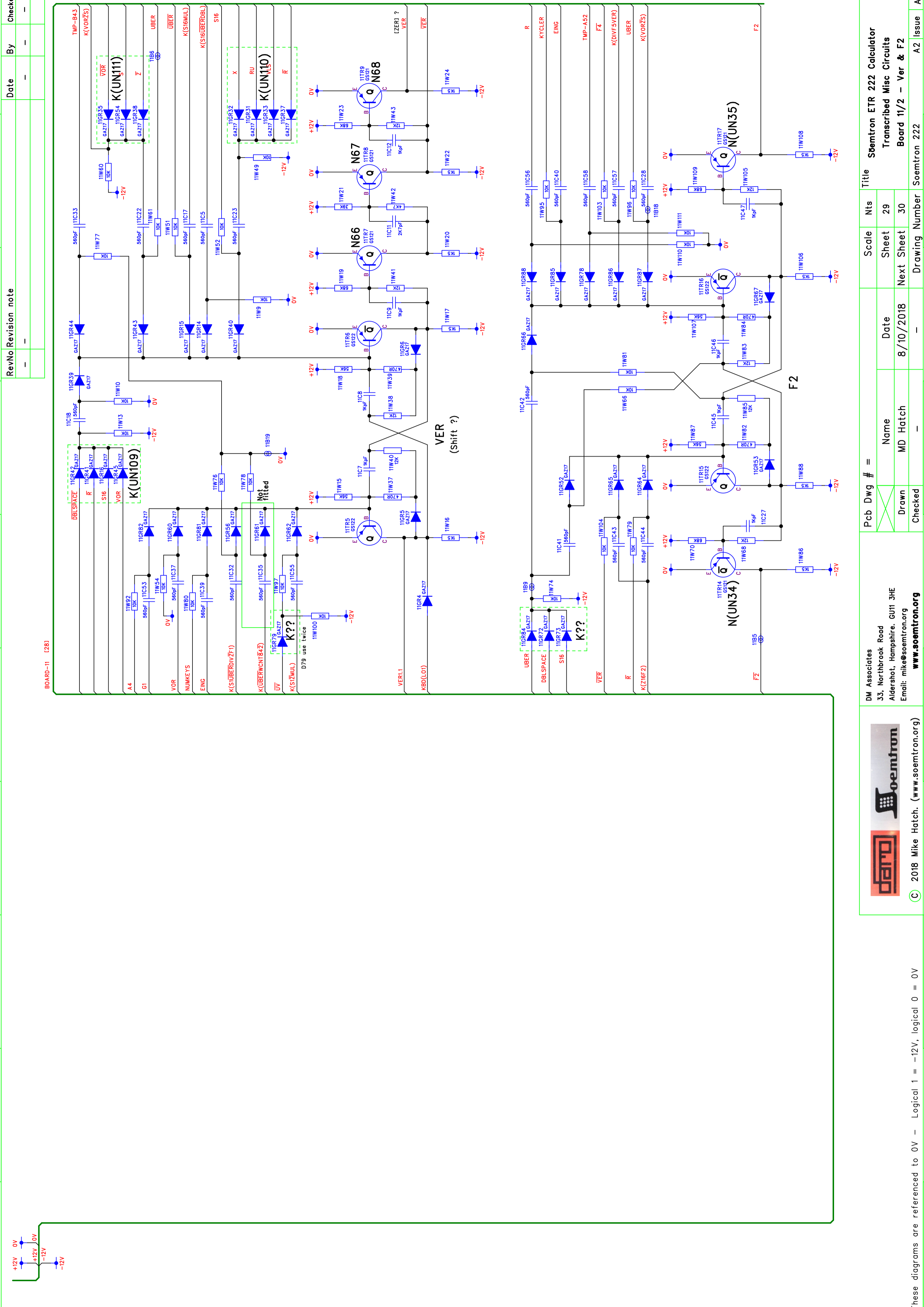
Title: Soemtron ETR 222 Calculator  
 Transcribed Misc Circuits  
 Board 11/1 - UBER & ?

Pcb Dwg # =

Name: MD Hatch  
 Date: 8/10/2018

Scale: 1:1  
 Sheet: 29  
 Next Sheet: 28

Drawing Number: Soemtron 222  
 A2 Issue: A



RevNo	Revision note	Date	By	Checked
-	-	-	-	-

Title		Scale		Nts	
Soemtron ETR 222 Calculator		Sheet		29	
Transcribed Misc Circuits		Next Sheet		30	
Board 11/2 - Ver & F2		Drawing Number		Soemtron 222	
A2 Issue		A		10	


  

Name	Date
MD Hatch	8/10/2018

Drawn	Checked
MD Hatch	MD Hatch

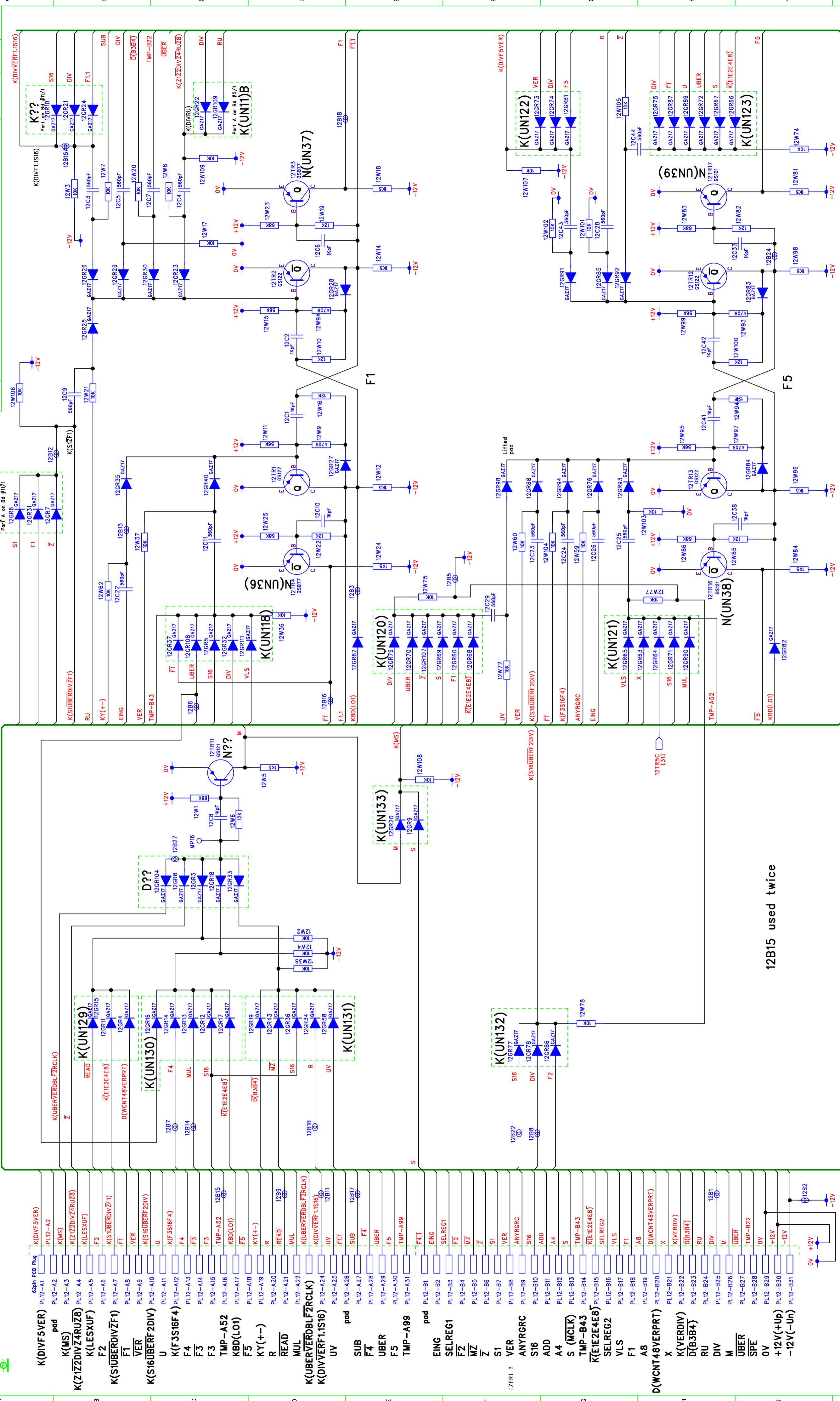
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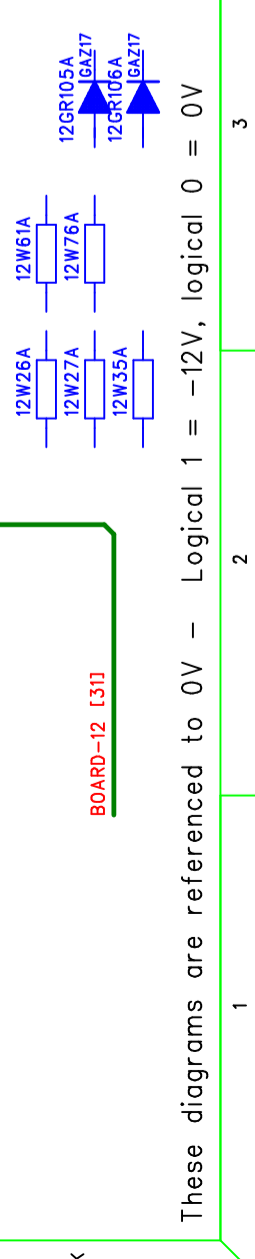
Comp side  
Solder side  
Date coded - None



12B15 used twice

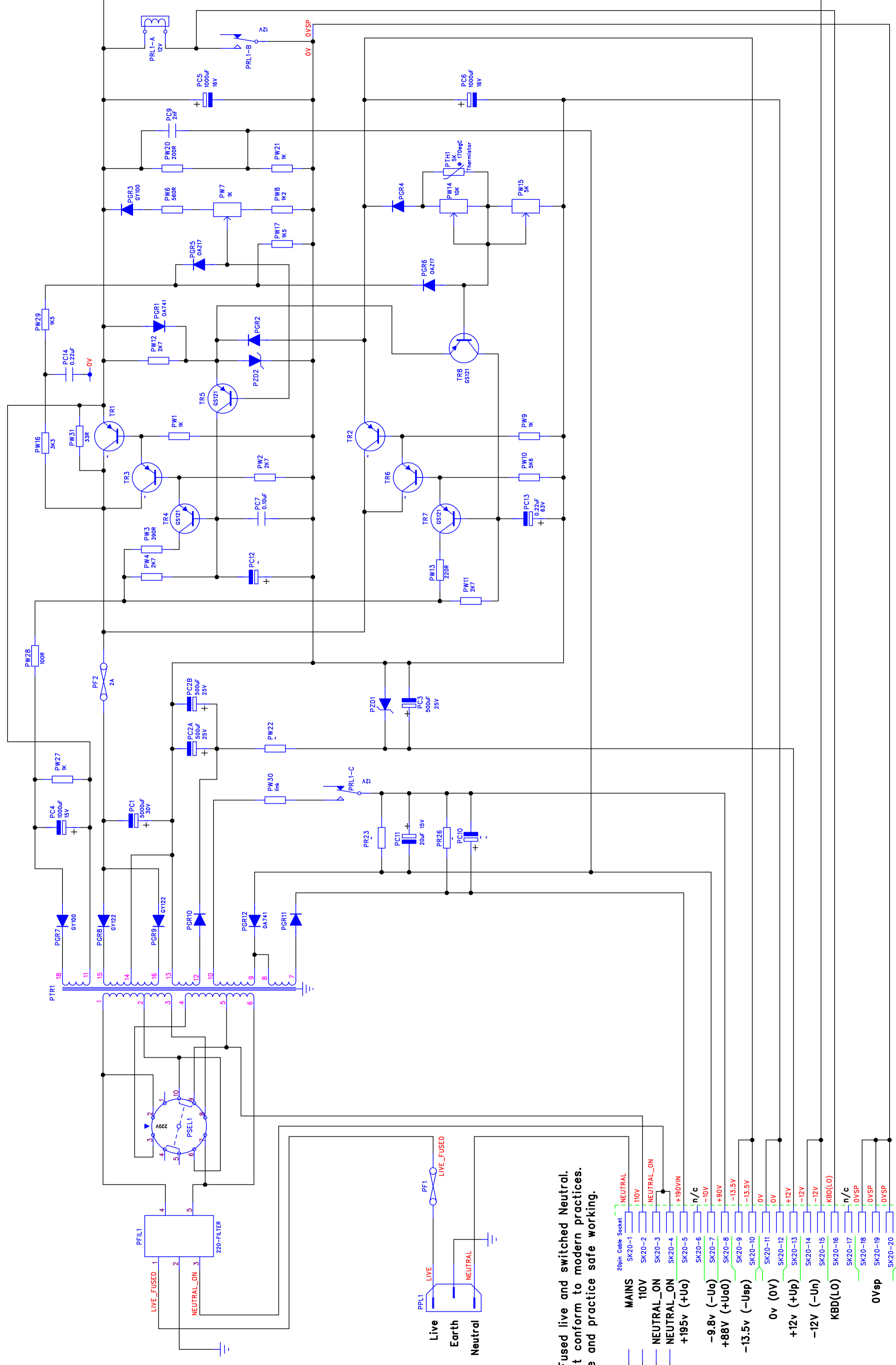
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Aldershot, Hampshire. GU11 3HE  
Email: mike@soemtron.org  
**soemtron**

Pcb Dwg # =		Name		Date	Title	
1	2	MD Hatch	15/10/2018	Soemtron ETR 222 Calculator	30	Nts
3	4	Checked		Transcribed Misc Circuits	31	Sheet
5	6			Board 12/1 - F1 & F5		Next Sheet
7	8			Drawing Number Soemtron 222		
9				A2 Issue		

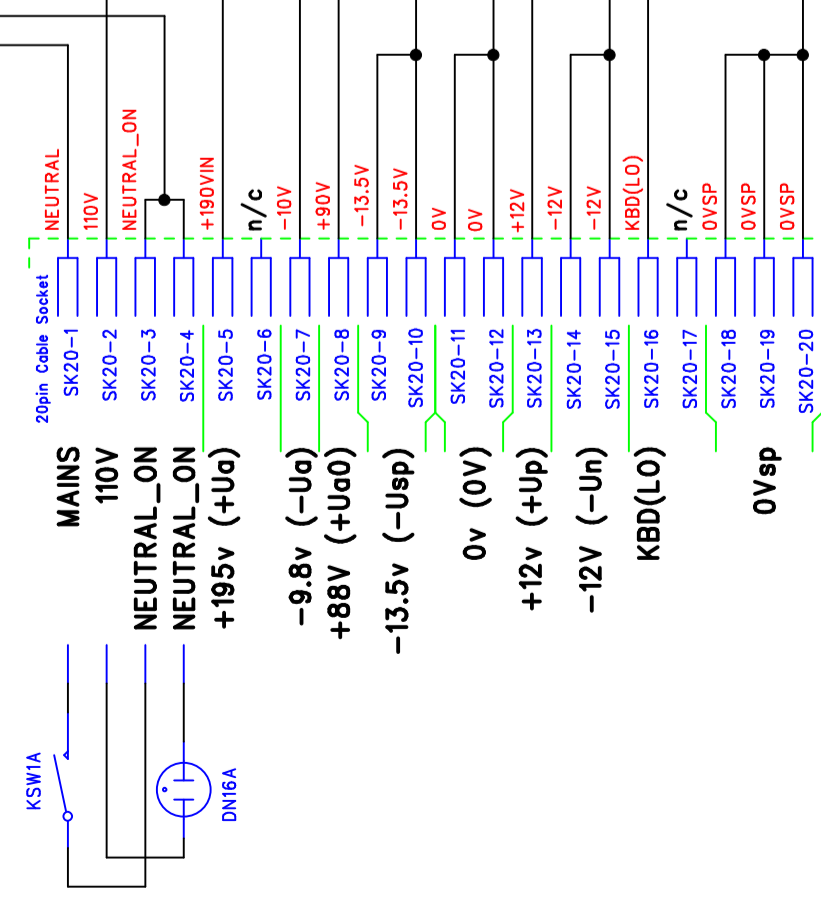


These diagrams are referenced to 0V - Logical 1 = +12V, logical 0 = 0V

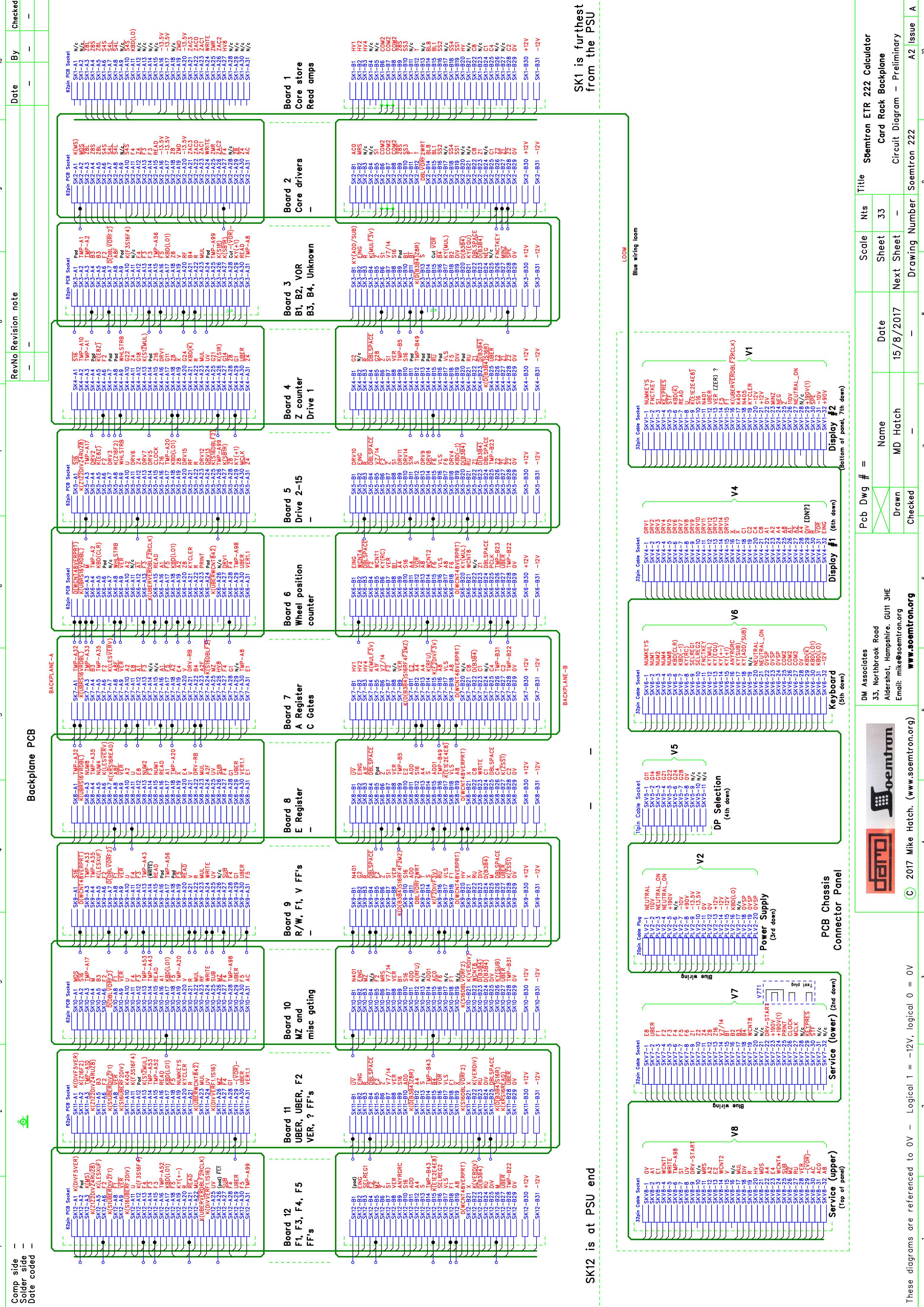




The 222 is Fused live and switched Neutral.  
This does not conform to modern practices.  
Exercise care and practice safe working.







Comp side	Solder side	Date	By	Checked
-	-	-	-	-

RevNo	Revision note	Date	By	Checked
-	-	-	-	-

Pcb Dwg #	Name	Date	Scale	Nts	Title
3	MD Hatch	15/8/2017		33	Soemtron ETR 222 Calculator Card Rack Backplane
4					Circuit Diagram - Preliminary
5					Drawing Number Soemtron 222

Drawn	Checked	Date	Scale	Nts	Title
					Soemtron ETR 222 Calculator Card Rack Backplane
					Circuit Diagram - Preliminary
					Drawing Number Soemtron 222

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These diagrams are referenced to 0V - Logical 1 = -12V, logical 0 = 0V

SK12 is at PSU end  
 SK11 is furthest from the PSU

Service (upper) (Top of panel)  
 Service (lower) (2nd down)  
 Keyboard (5th down)  
 Display #1 (6th down)  
 Display #2 (Bottom of panel, 7th down)

DP Selection (4th down)  
 Power Supply (3rd down)  
 Blue wiring  
 Blue wiring loom

BACKPLANE-A  
 BACKPLANE-B

Board 12: F1, F3, F4, F5 FF's  
 Board 11: UBER, UBER, F2 VER, ? FF's  
 Board 10: MZ and misc gating  
 Board 9: R/W, F1, V FF's  
 Board 8: E Register  
 Board 7: A Register, C Gates  
 Board 6: Wheel position counter  
 Board 5: Drive 2-15  
 Board 4: Z counter, Drive 1  
 Board 3: B1, B2, VOR, B3, B4, Unknown  
 Board 2: Core drivers  
 Board 1: Core store, Read amps

SK12-01 to SK12-32  
 SK11-01 to SK11-32  
 SK10-01 to SK10-32  
 SK09-01 to SK09-32  
 SK08-01 to SK08-32  
 SK07-01 to SK07-32  
 SK06-01 to SK06-32  
 SK05-01 to SK05-32  
 SK04-01 to SK04-32  
 SK03-01 to SK03-32  
 SK02-01 to SK02-32  
 SK01-01 to SK01-32

SK12-01 (eng)  
 SK12-02 ENG  
 SK12-03 SELREGI  
 SK12-04 ELZ  
 SK12-05 FZ  
 SK12-06 MRS  
 SK12-07 V7/14  
 SK12-08 VER  
 SK12-09 ANYRRC  
 SK12-10 UBER  
 SK12-11 ADD  
 SK12-12 K(VERDV)  
 SK12-13 S  
 SK12-14 MP-B43  
 SK12-15 UMA  
 SK12-16 SELREGI(B)  
 SK12-17 VLS  
 SK12-18 VLS  
 SK12-19 E  
 SK12-20 K(SUBVER)  
 SK12-21 VOR  
 SK12-22 K(VERDV)  
 SK12-23 WNTB  
 SK12-24 D(B3B4)  
 SK12-25 DIV  
 SK12-26 WNTB  
 SK12-27 UBER  
 SK12-28 UBER  
 SK12-29 UBER  
 SK12-30 UBER  
 SK12-31 UBER  
 SK12-32 UBER

SK11-01 K(OWF5VER)  
 SK11-02 K(Z16F2)  
 SK11-03 K(MS)  
 SK11-04 K(Z1Z2D(V74RUZ8))  
 SK11-05 F3  
 SK11-06 F3  
 SK11-07 F3  
 SK11-08 K(SUBVER)  
 SK11-09 VER  
 SK11-10 VER  
 SK11-11 VER  
 SK11-12 K(F3516F4)  
 SK11-13 K(SUBVER)  
 SK11-14 F3  
 SK11-15 K(SIZMUL)  
 SK11-16 F3  
 SK11-17 F3  
 SK11-18 F3  
 SK11-19 F3  
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 SK11-21 F3  
 SK11-22 F3  
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 SK11-30 F3  
 SK11-31 F3  
 SK11-32 F3

SK10-01 MDS  
 SK10-02 ST6  
 SK10-03 TMP-A10  
 SK10-04 W  
 SK10-05 F3  
 SK10-06 F3  
 SK10-07 F3  
 SK10-08 D(OBLVOR2)  
 SK10-09 VER  
 SK10-10 VER  
 SK10-11 VER  
 SK10-12 K(F3516F4)  
 SK10-13 K(SIZMUL)  
 SK10-14 F3  
 SK10-15 F3  
 SK10-16 F3  
 SK10-17 F3  
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 SK10-31 F3  
 SK10-32 F3

SK09-01 N401  
 SK09-02 G2  
 SK09-03 DBLSPACE  
 SK09-04 Z  
 SK09-05 Z  
 SK09-06 Z  
 SK09-07 V7/14  
 SK09-08 VER  
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SK08-01 DIV  
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 SK08-29 VER  
 SK08-30 VER  
 SK08-31 VER  
 SK08-32 VER

SK07-01 HV1  
 SK07-02 HV2  
 SK07-03 HV4  
 SK07-04 K(MULF3V)  
 SK07-05 V7/14  
 SK07-06 V7/14  
 SK07-07 V7/14  
 SK07-08 N/c  
 SK07-09 VER  
 SK07-10 VER  
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SK06-01 ENG  
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SK05-01 DRV10  
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 SK04-32 WHLSTRB

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