

NOTES:

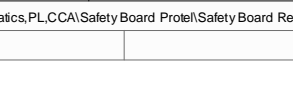
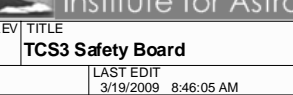
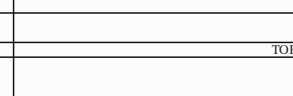
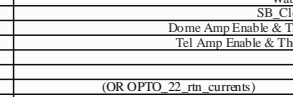
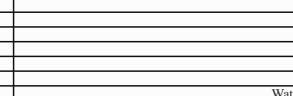
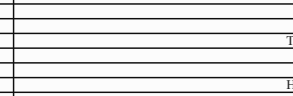
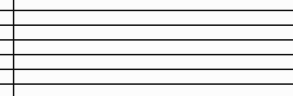
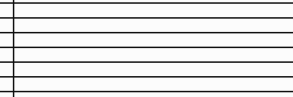
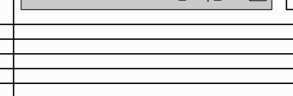
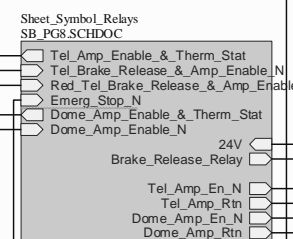
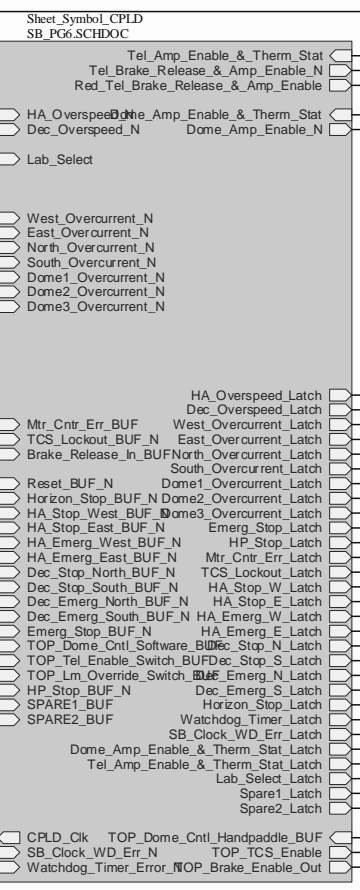
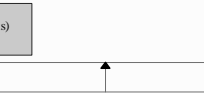
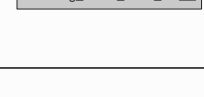
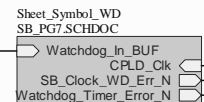
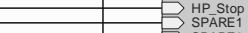
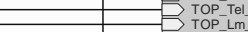
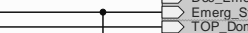
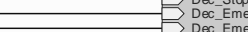
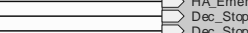
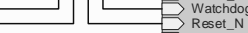
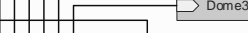
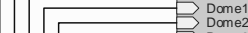
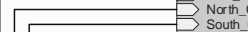
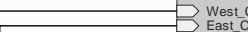
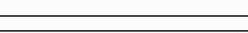
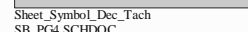
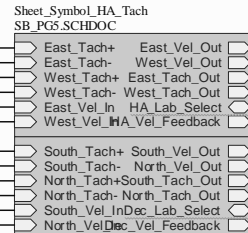
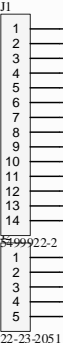
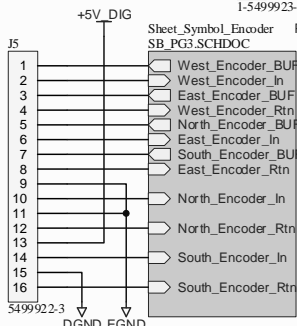
1. Unless otherwise stated:
Resistors are 250 mW, 1% tolerance.
Capacitors are 50V, 10% tolerance.

2. Port and Net Name scopes for this project are:
NOT Global (connected via Sheet Symbols)
Local (connected on same page only)

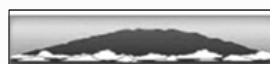
3. Do not install (DNI).

D13,D14,D29,D30,R1,R29,R33,R35,R5
4,R55,R63,R67,R68,R81,R138,R139,R1
40,R141,R159,R160,R165,R166,R167,R
168,R177,R178,R186,R187,R189,R193,
R194,R208,R228,R231,R235,R237,R23
8,R258,R262,R263,R264,R306,R307,R3
33,R335,R343,R344,R350,R351,R352,R
353,R363,R366,R374,R375,R377,R379,
R383,R385,R386,R388,R391,U26

4. Tailored value.
Nominal value shown.



REVISION BLOCK			
REV	DESCRIPTION	DATE	INCORP. BY



DWG #
TCS3-2070

REV
-

TITLE
TCS3 Safety Board

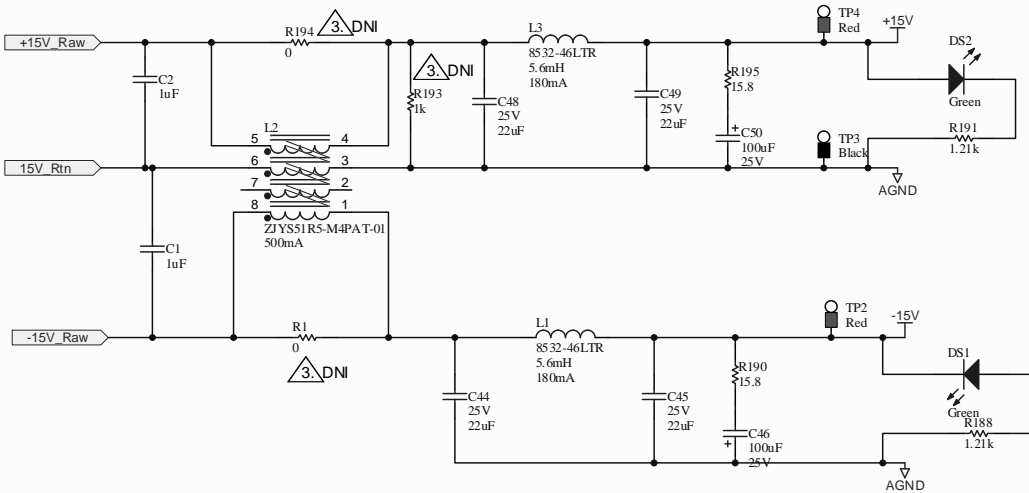
ENGINEER
E. Warmbler

LAST EDIT
3/19/2009 8:46:05 AM

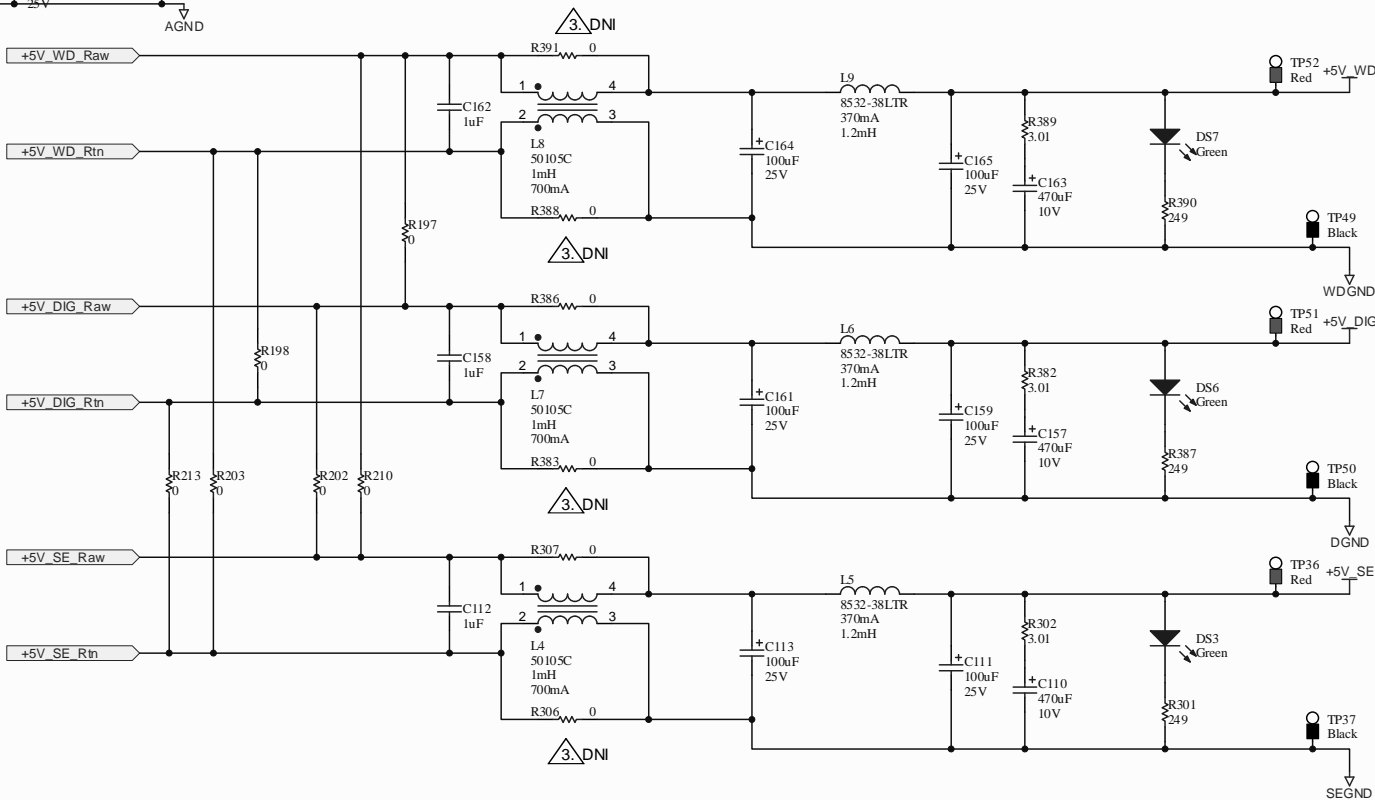
SIZE
B

SHEET
1 of 16

FILE: Z:\TCS\Safety Board Schematics,PL,CCA\Safety Board Protel\Safety Board Rev D\SB_PG1.S



Note: DO NOT overlap input and output planes of filter in layout.
This defeats the whole purpose by creating a bypass capacitance.

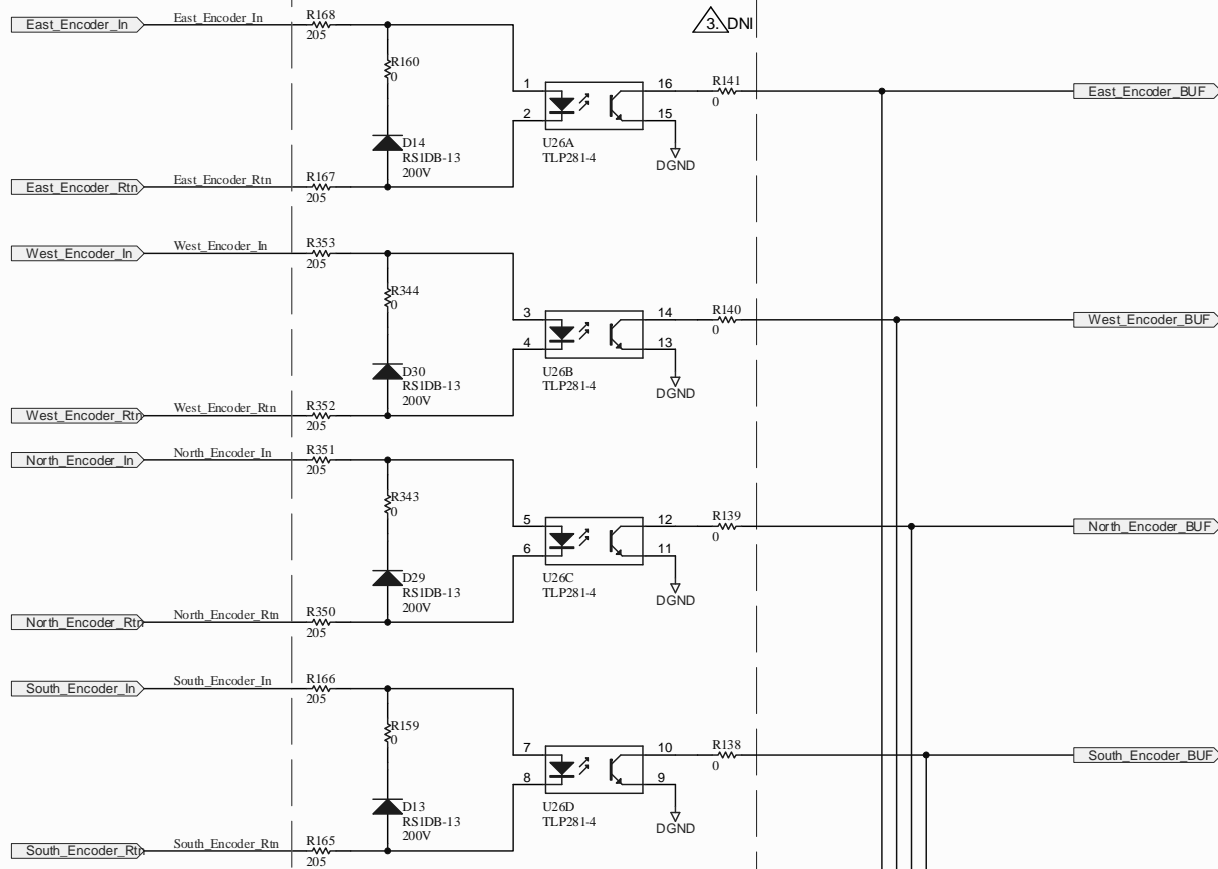


Power Filtering & References

REVISION BLOCK
SEE SHEET 1

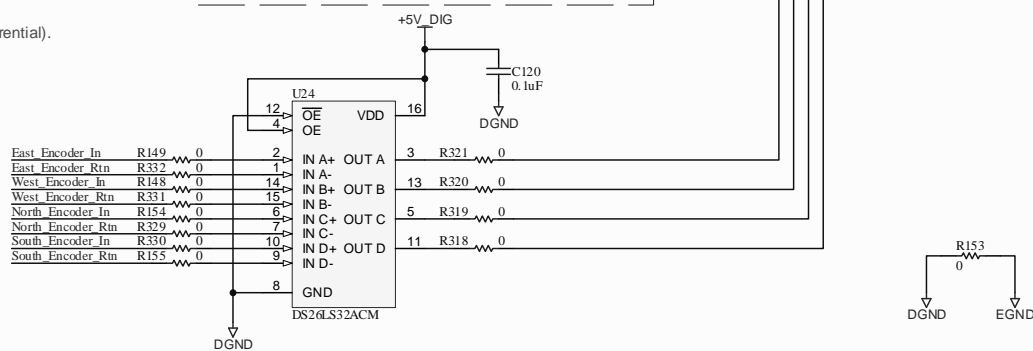
DWG # **TCS3-2070**
REV **-** SIZE **B** SHEET 2 of 16

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SEE SHEET 1	



Note: US Digital Corp EQUAD accepts TTL logic or open collector. It has 5k pullup to +5V. Configurable via switch for rising/falling edge.

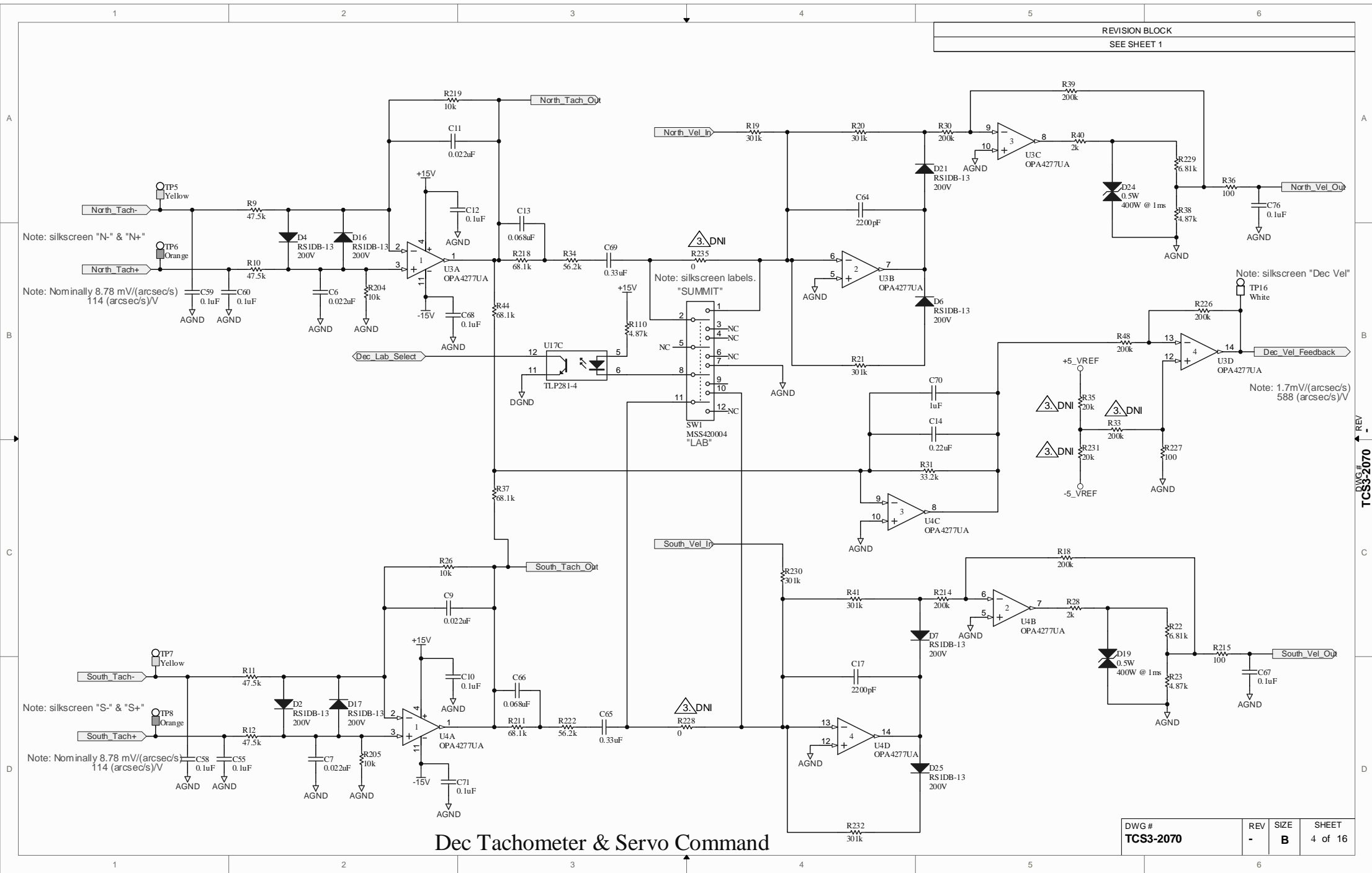
Note: Input signals are RS422 (differential).



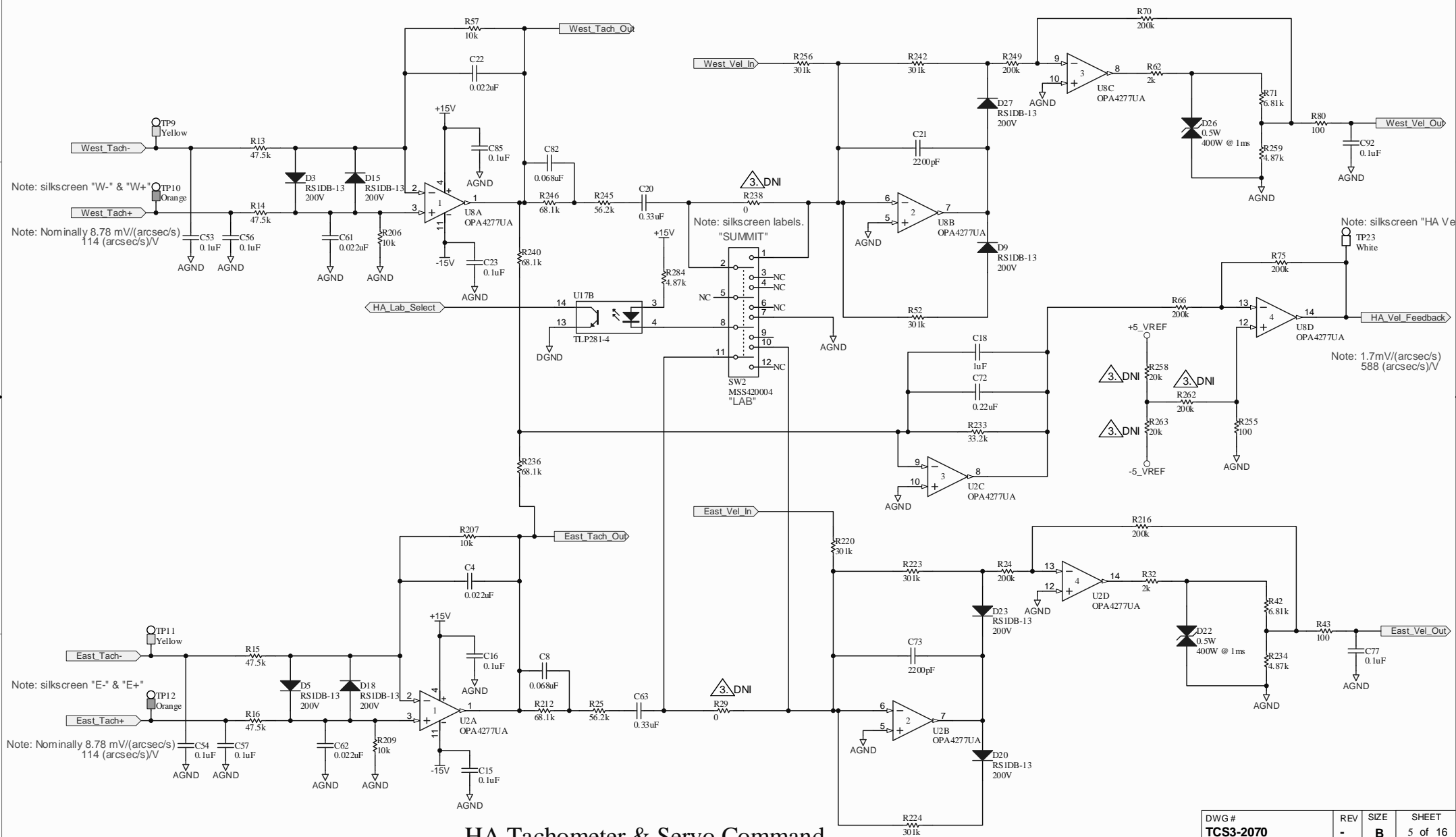
Note: All XXX_Encoder_In and XXX_Encoder_Rtn pairs should be matched to within 100 mil.

Axis Incremental Encoder Converters

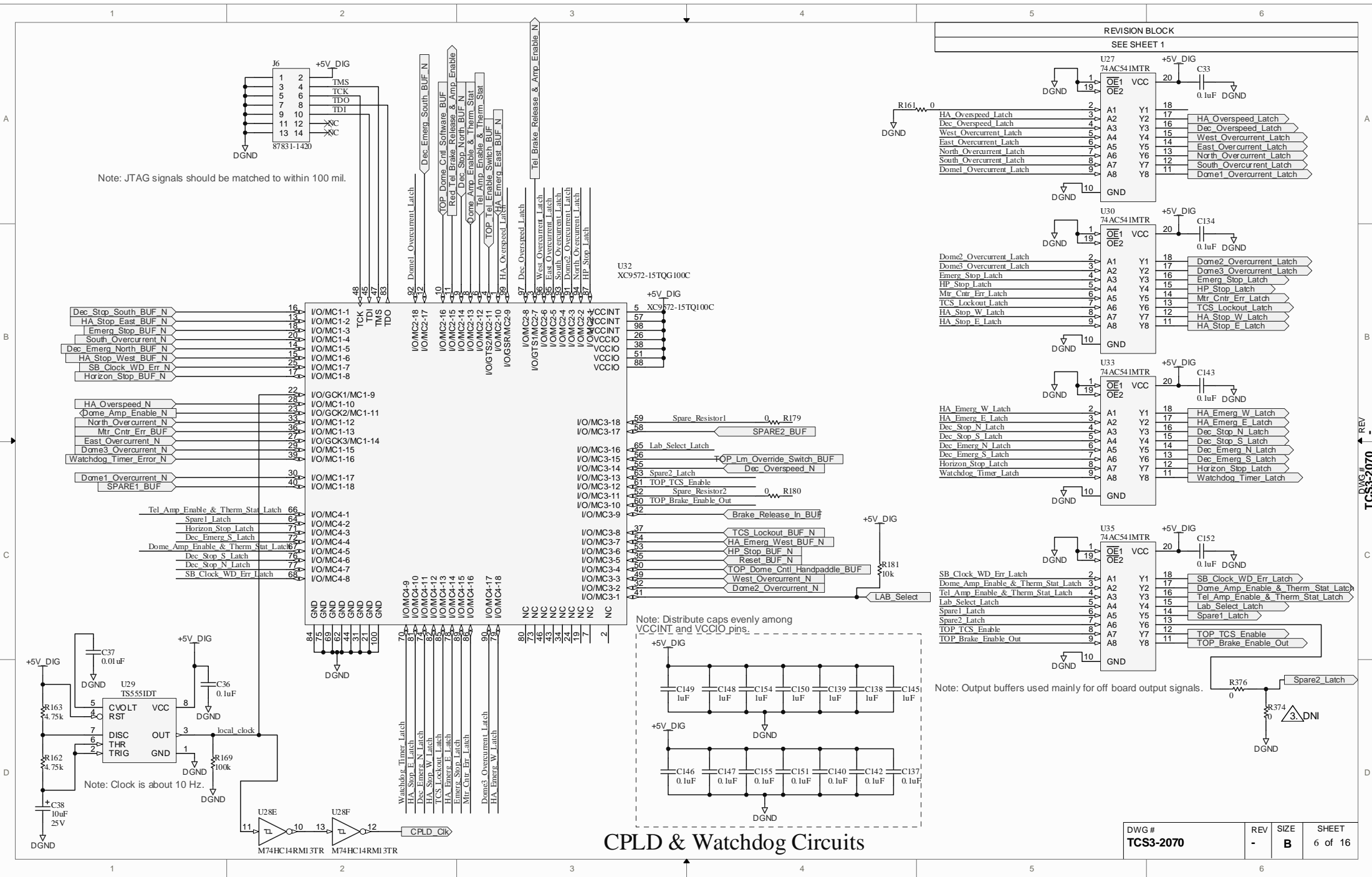
DWG #	REV	SIZE	SHEET
TCS3-2070	-	B	3 of 16



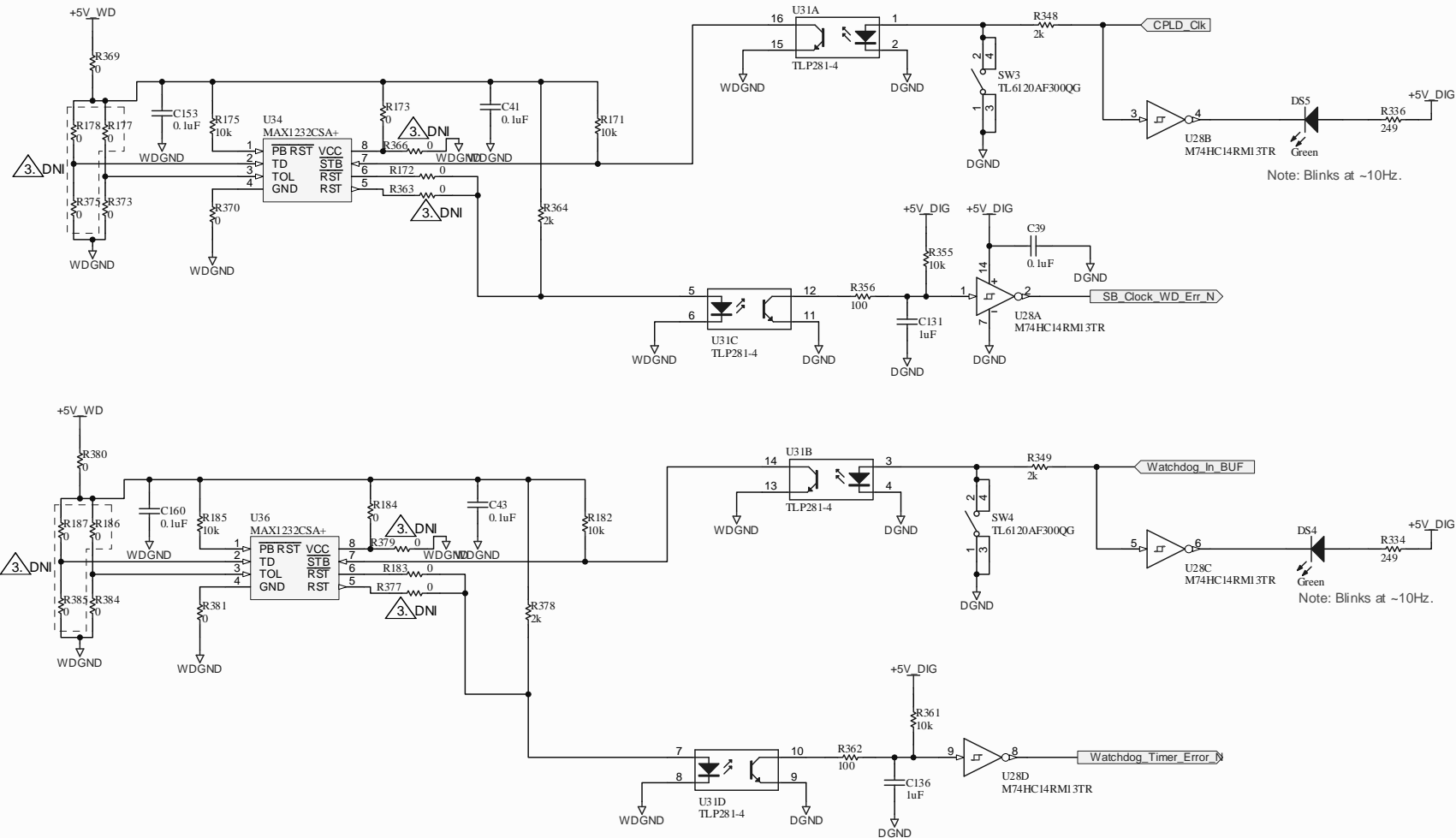
REVISION BLOCK	
SEE SHEET 1	



DWG #	REV	SIZE	SHEET
TCS3-2070	-	B	5 of 16

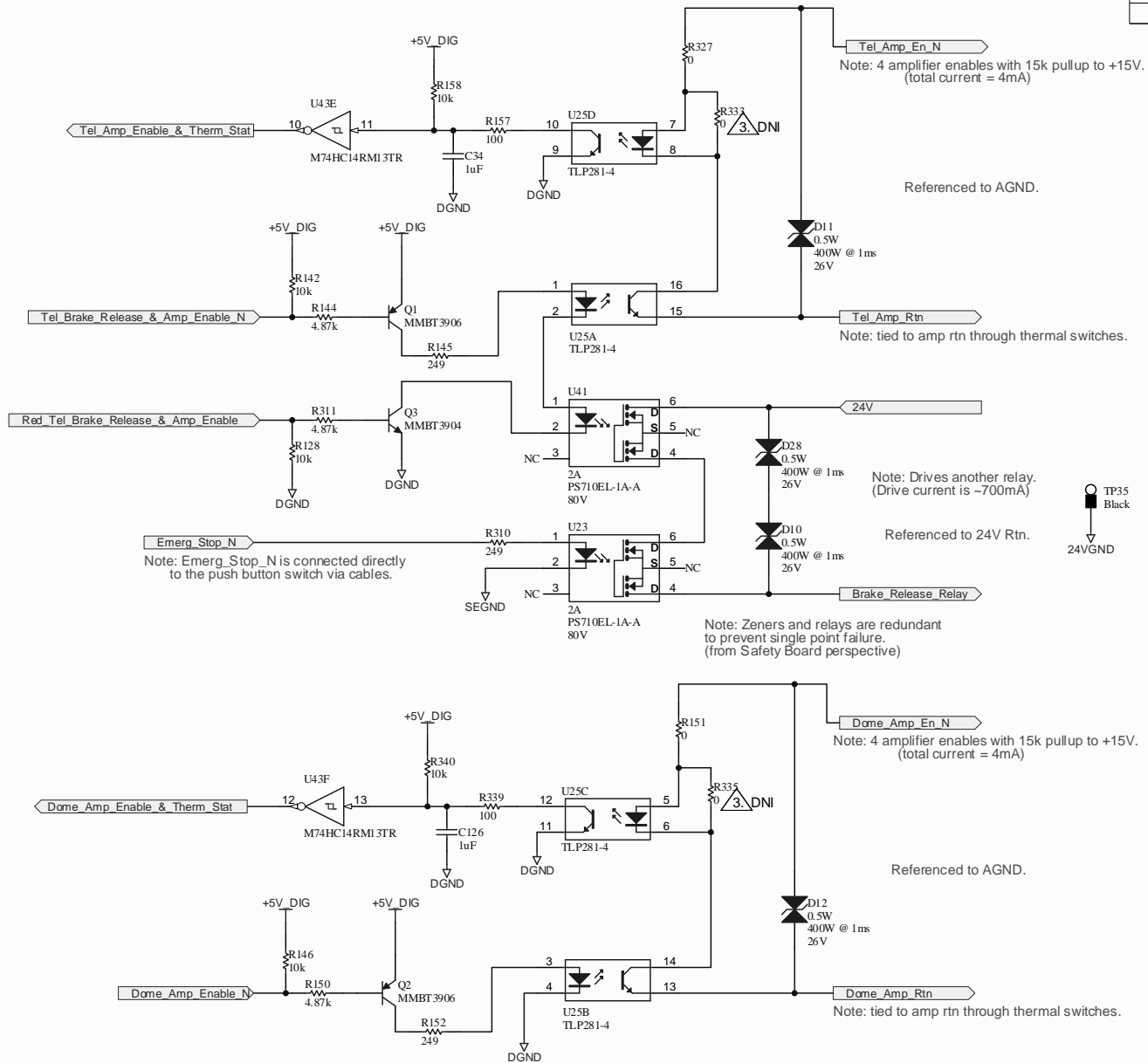


DWG #	REV	SIZE	SHEET
TCS3-2070	-	B	6 of 16



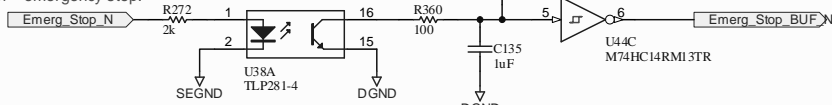
Watchdog Circuits

DWG #	REV	SIZE	SHEET
TCS3-2070	-	B	7 of 16

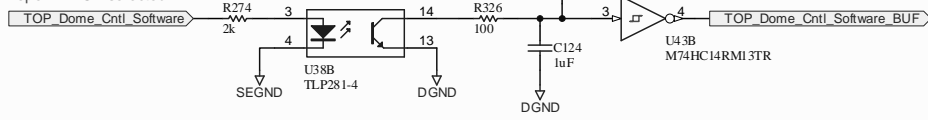


Relays - Brake, Telescope Amp, Dome Amps

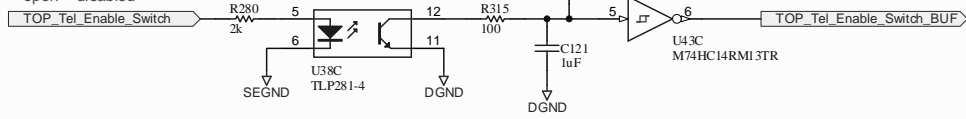
Note: +5V = normal, OK
open = emergency stop.



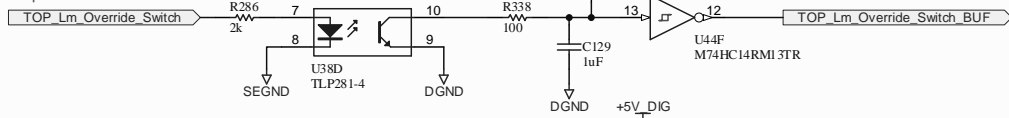
Note: +5V = software
open = NOT selected



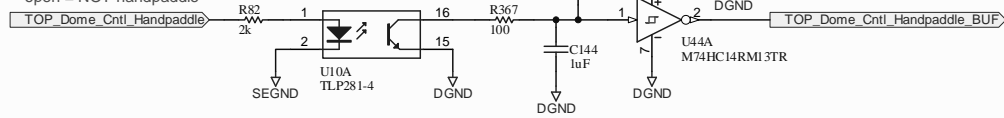
Note: +5V = enabled
open = disabled



Note: +5V = override
open = DO NOT override

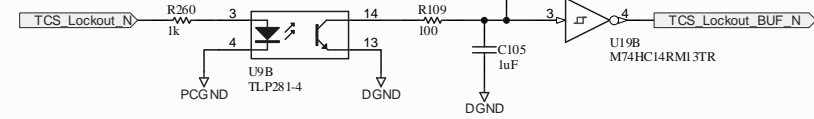
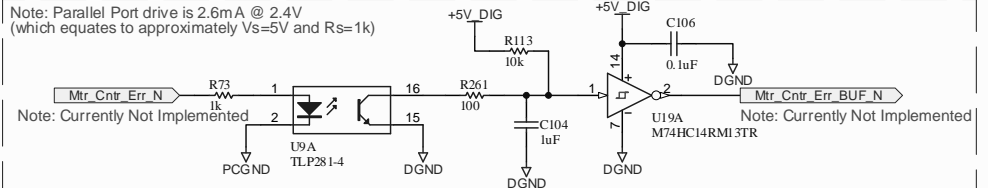


Note: +5V = Hand Paddle controls dome
open = NOT handpaddle

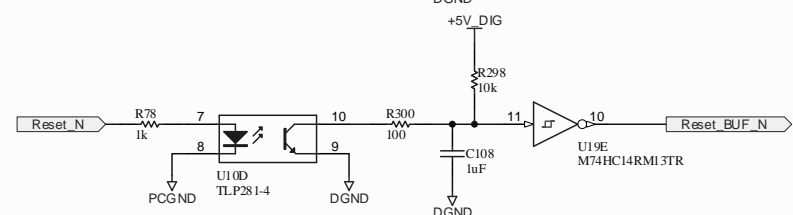
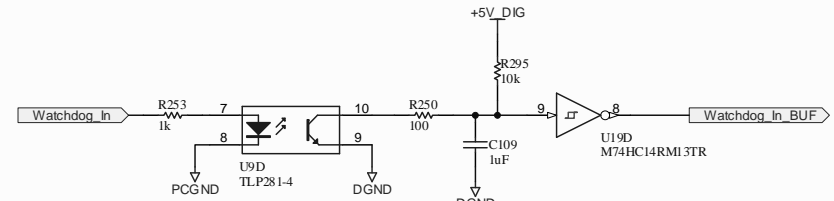
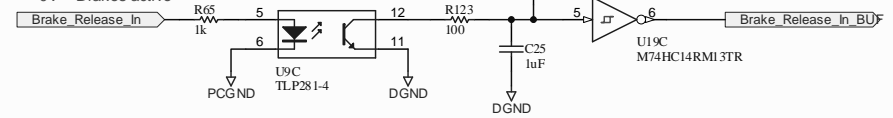


Parallel Port Inputs

Note: Parallel Port drive is 2.6mA @ 2.4V
(which equates to approximately Vs=5V and Rs=1k)



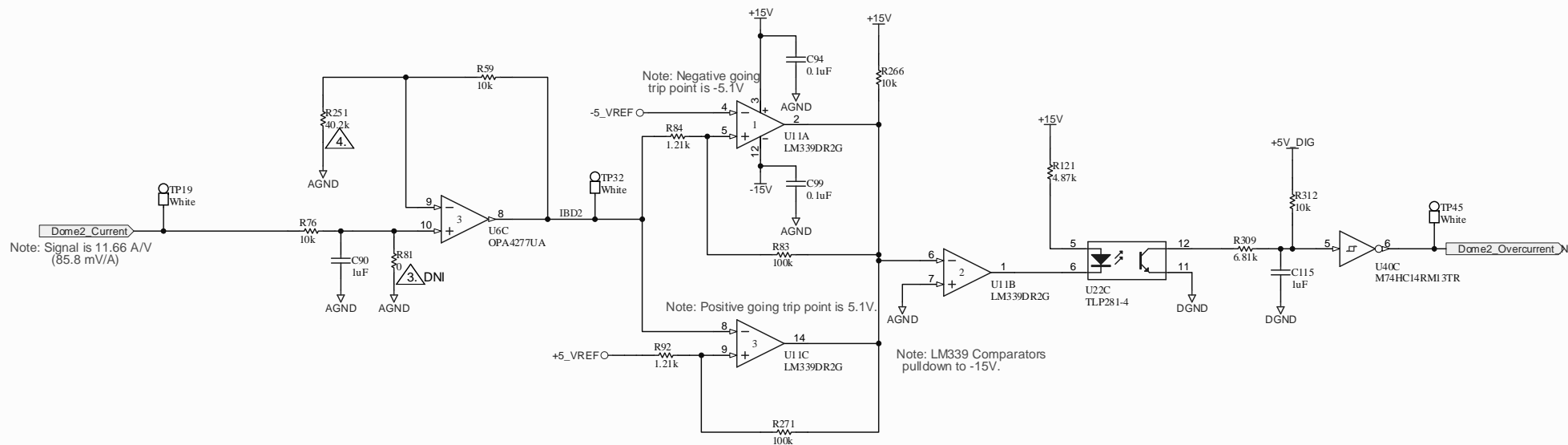
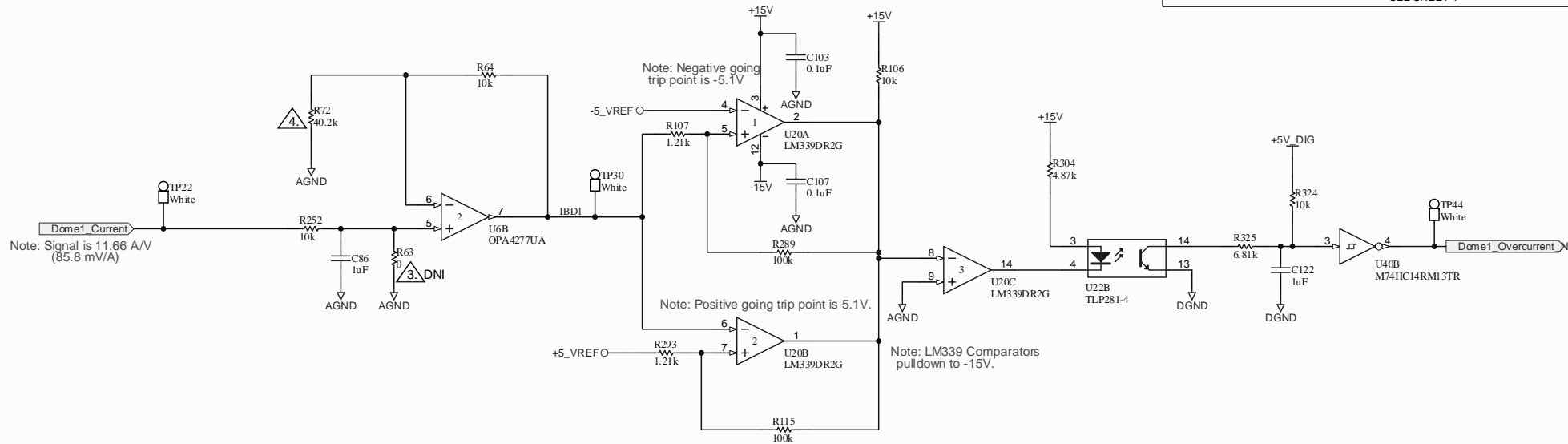
Note: +5V = Brakes released
0V = Brakes active



Limit Switches & Parallel Port

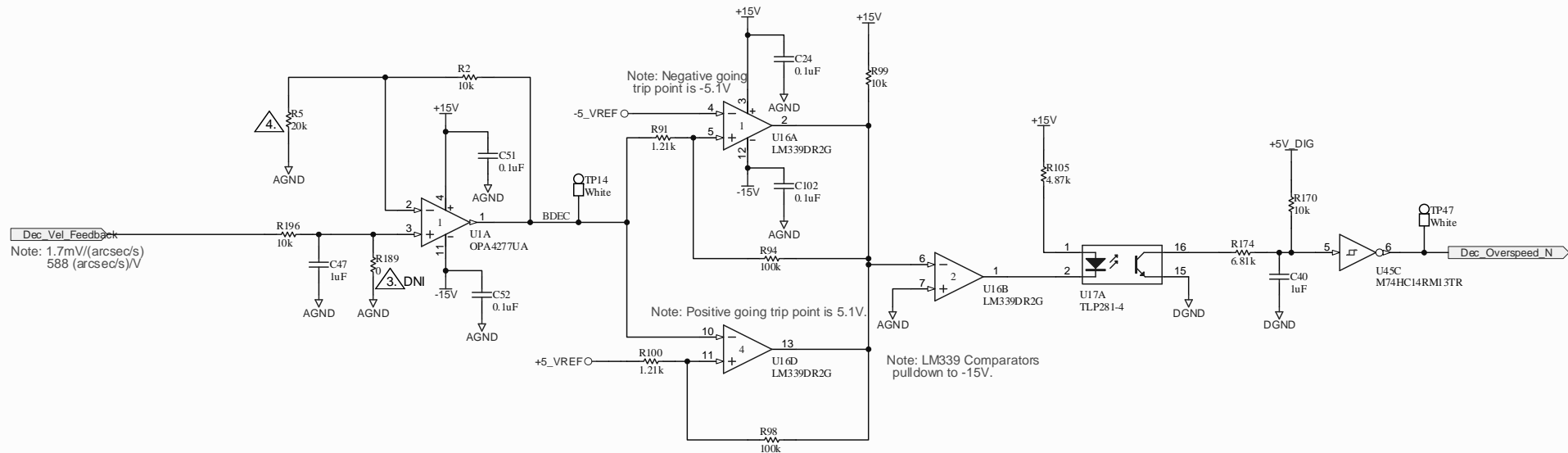
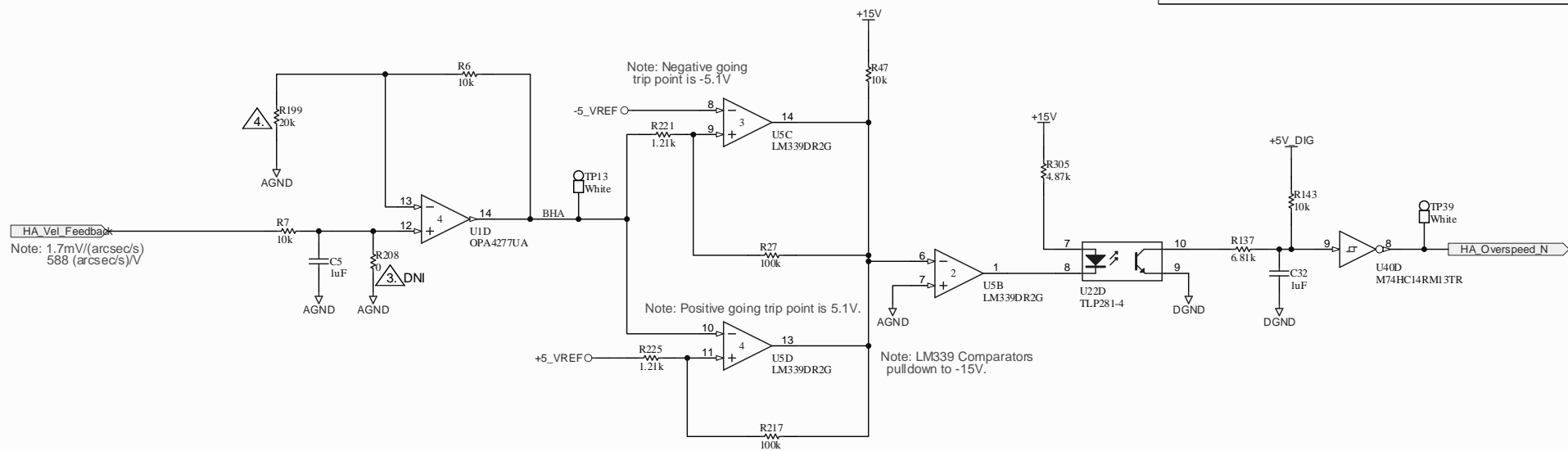
DWG #	REV	SIZE	SHEET
TCS3-2070	-	B	10 of 16

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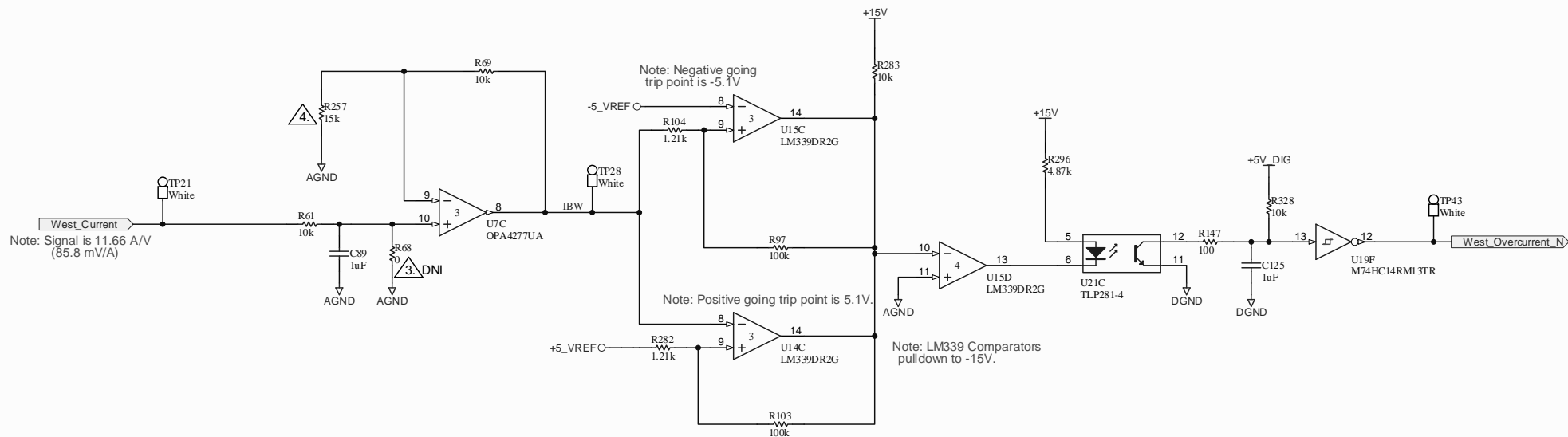
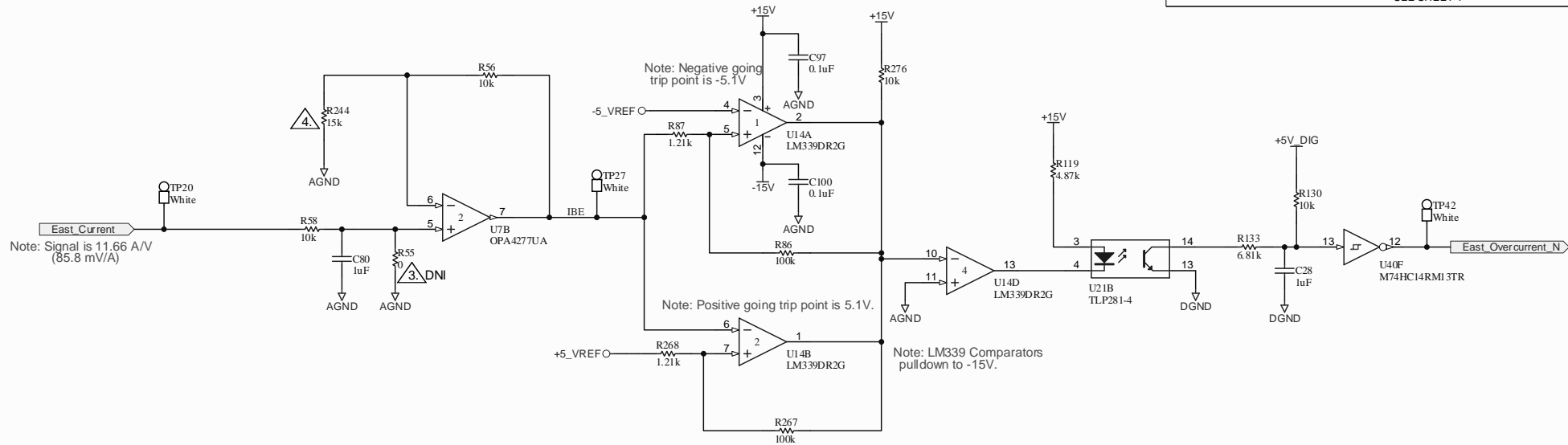


Dome Overcurrent

DWG #	REV	SIZE	SHEET
TCS3-2070	-	B	11 of 16

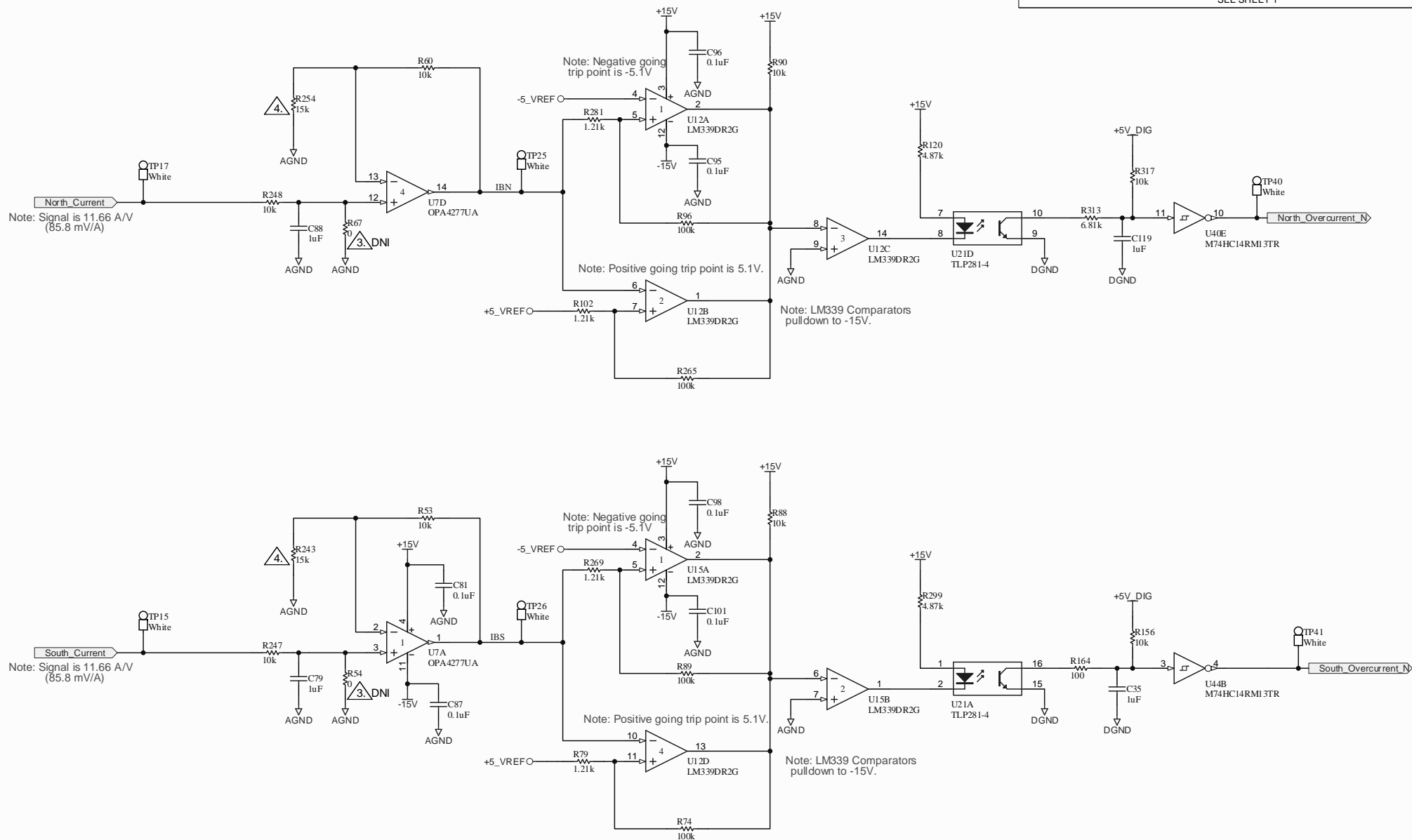


HA & Dec Overspeed



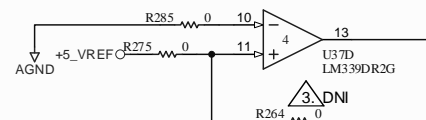
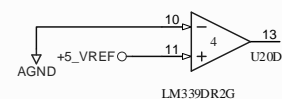
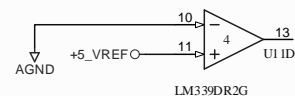
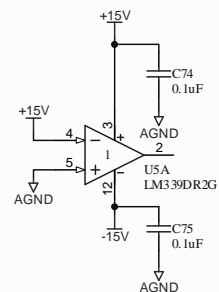
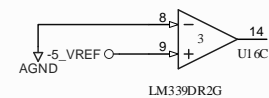
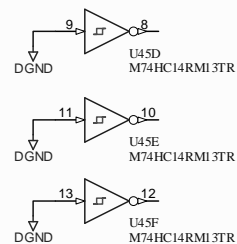
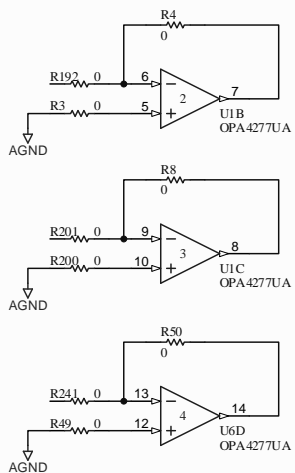
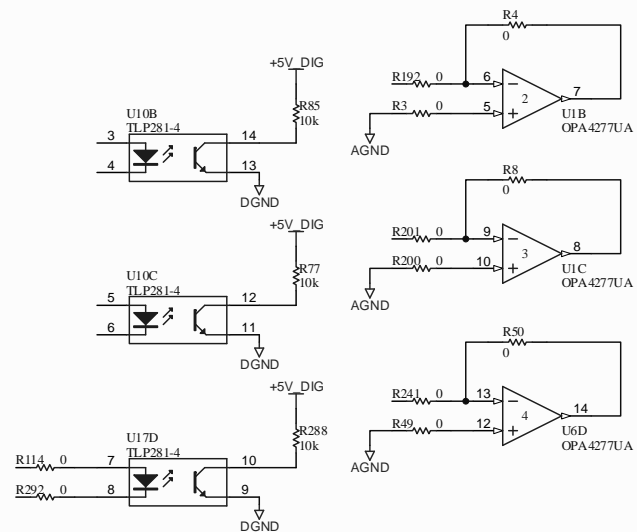
East & West Overcurrent

REVISION BLOCK	
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North & South Overcurrent

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Spare / Unused Multipart Circuits