



Transfer Function  
2 BW poles @ 15Hz, 2 BW zeros @ 75Hz

$$0.04 \frac{[s^2 + 666.4s + 2.221e5]}{s^2 + 133.3s + 8883}$$

Jumper 1 to 2 to use stage  
Jumper 2 to 3 to bypass stage

Transfer Function  
2 BW poles @ 15Hz, 2 BW zeros @ 75Hz

$$0.04 \frac{[s^2 + 666.4s + 2.221e5]}{s^2 + 133.3s + 8883}$$

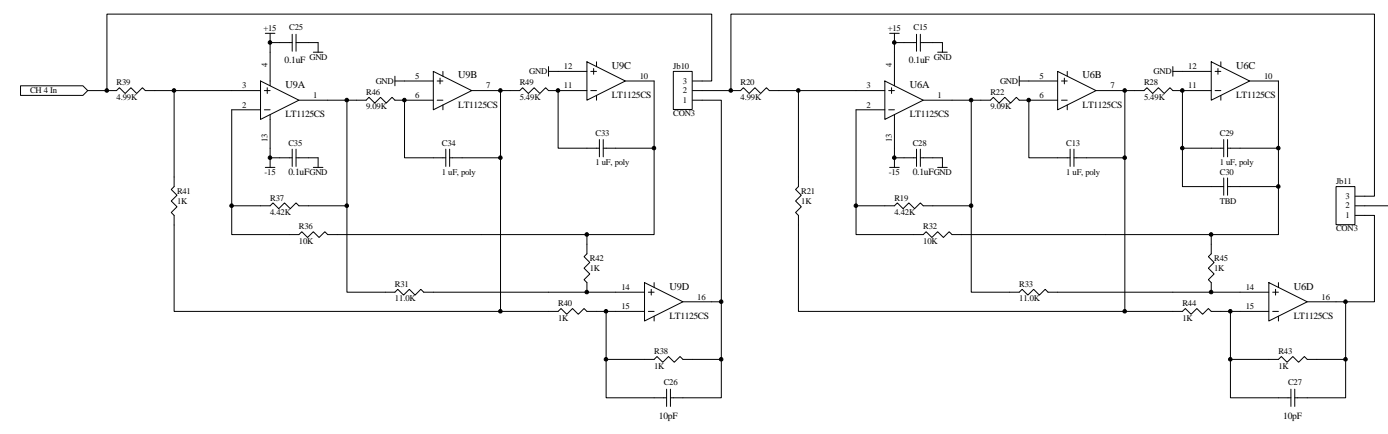
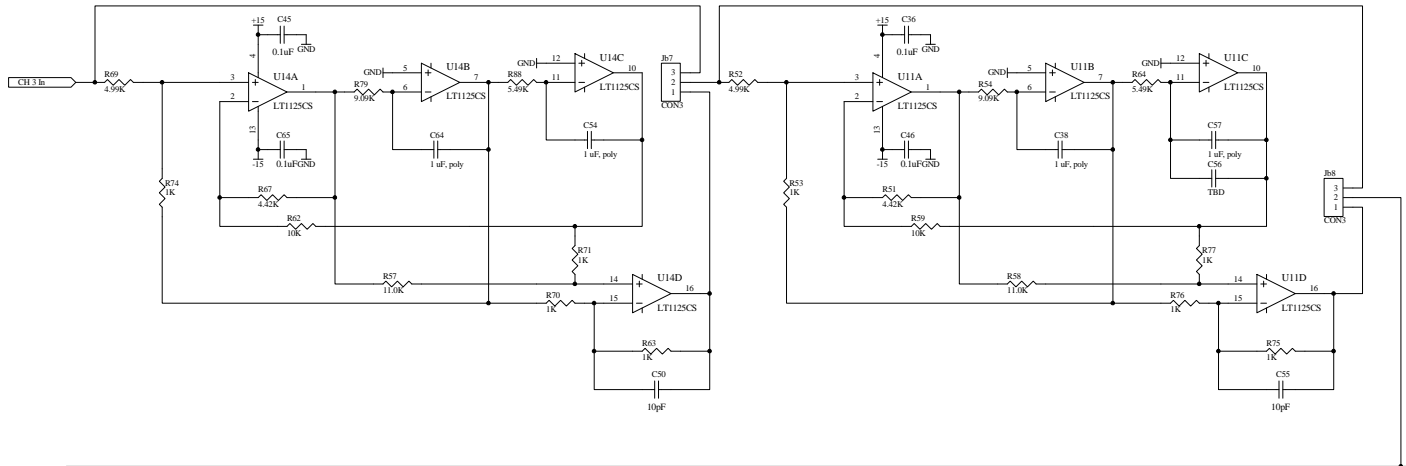
Transfer Function  
2 BW poles @ 15Hz, 2 BW zeros @ 75Hz

$$0.04 \frac{[s^2 + 666.4s + 2.221e5]}{s^2 + 133.3s + 8883}$$

Jumper 1 to 2 to use stage  
Jumper 2 to 3 to bypass stage

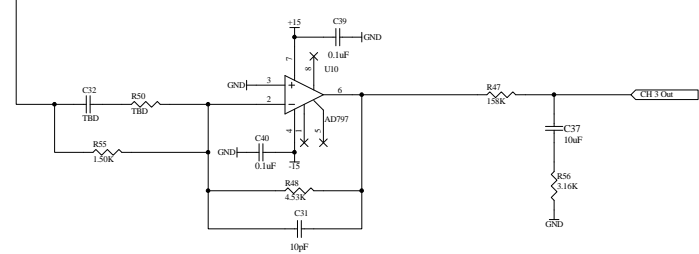
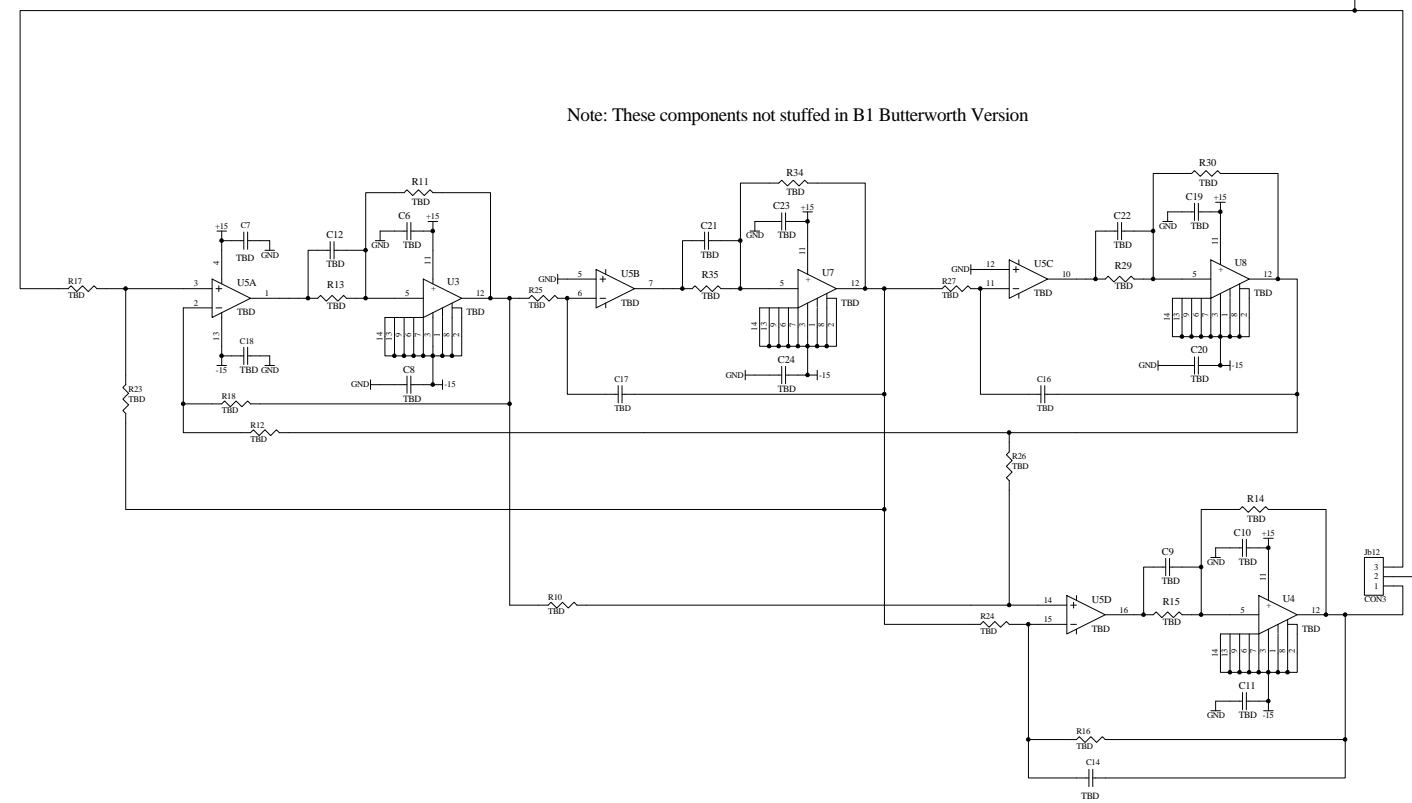
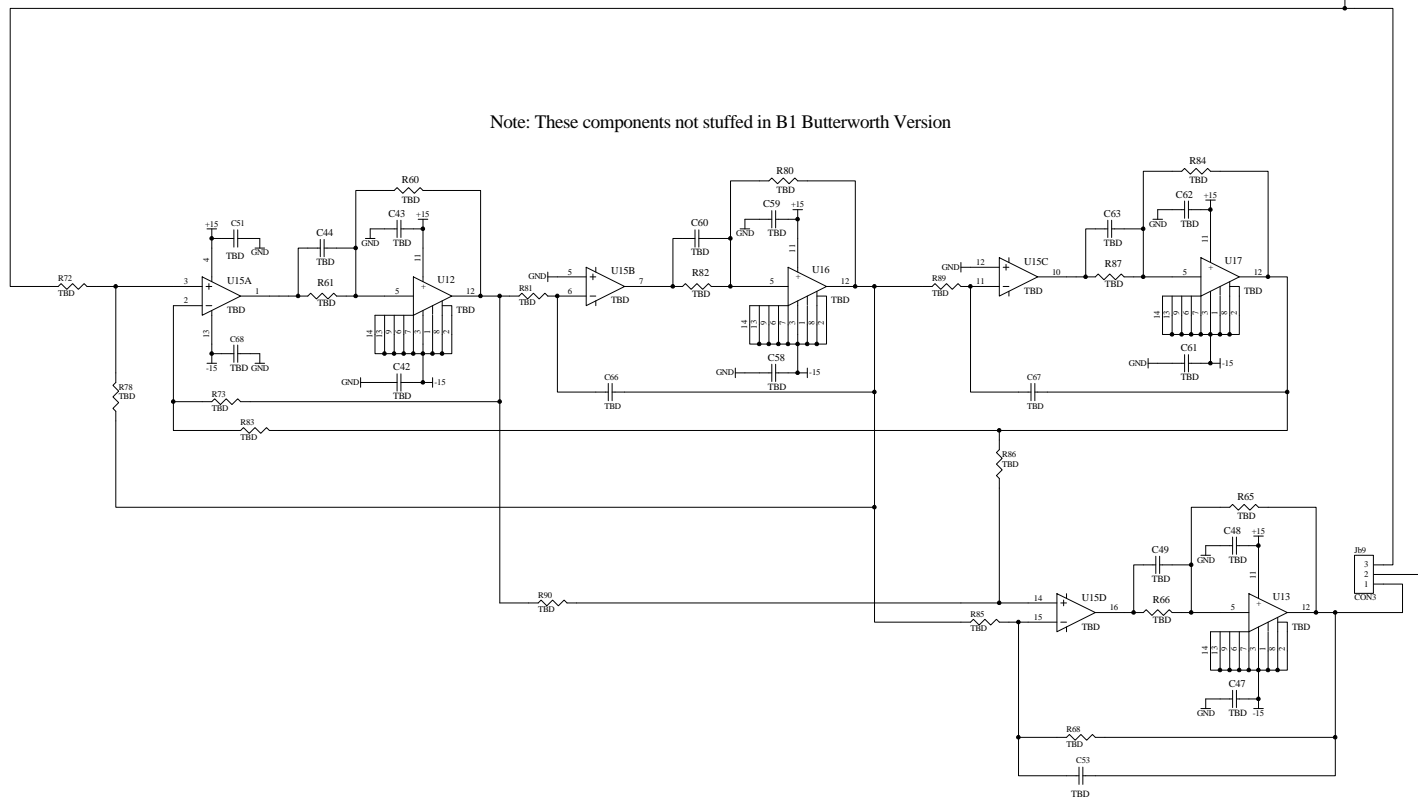
Transfer Function  
2 BW poles @ 15Hz, 2 BW zeros @ 75Hz

$$0.04 \frac{[s^2 + 666.4s + 2.221e5]}{s^2 + 133.3s + 8883}$$

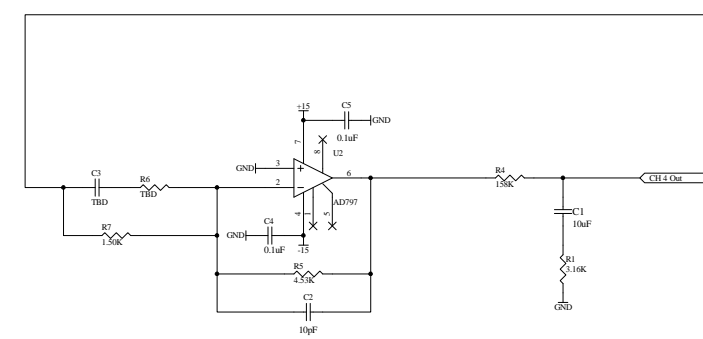


Note: These components not stuffed in B1 Butterworth Version

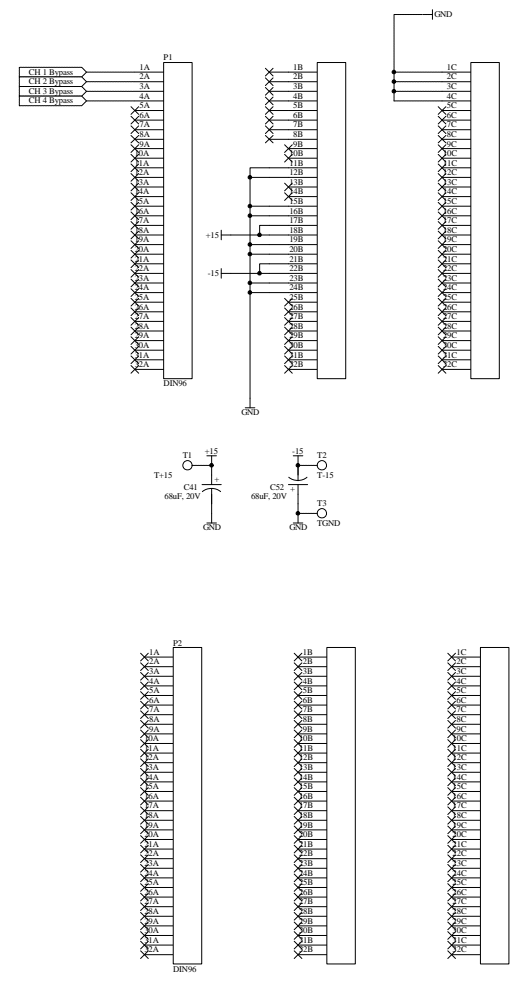
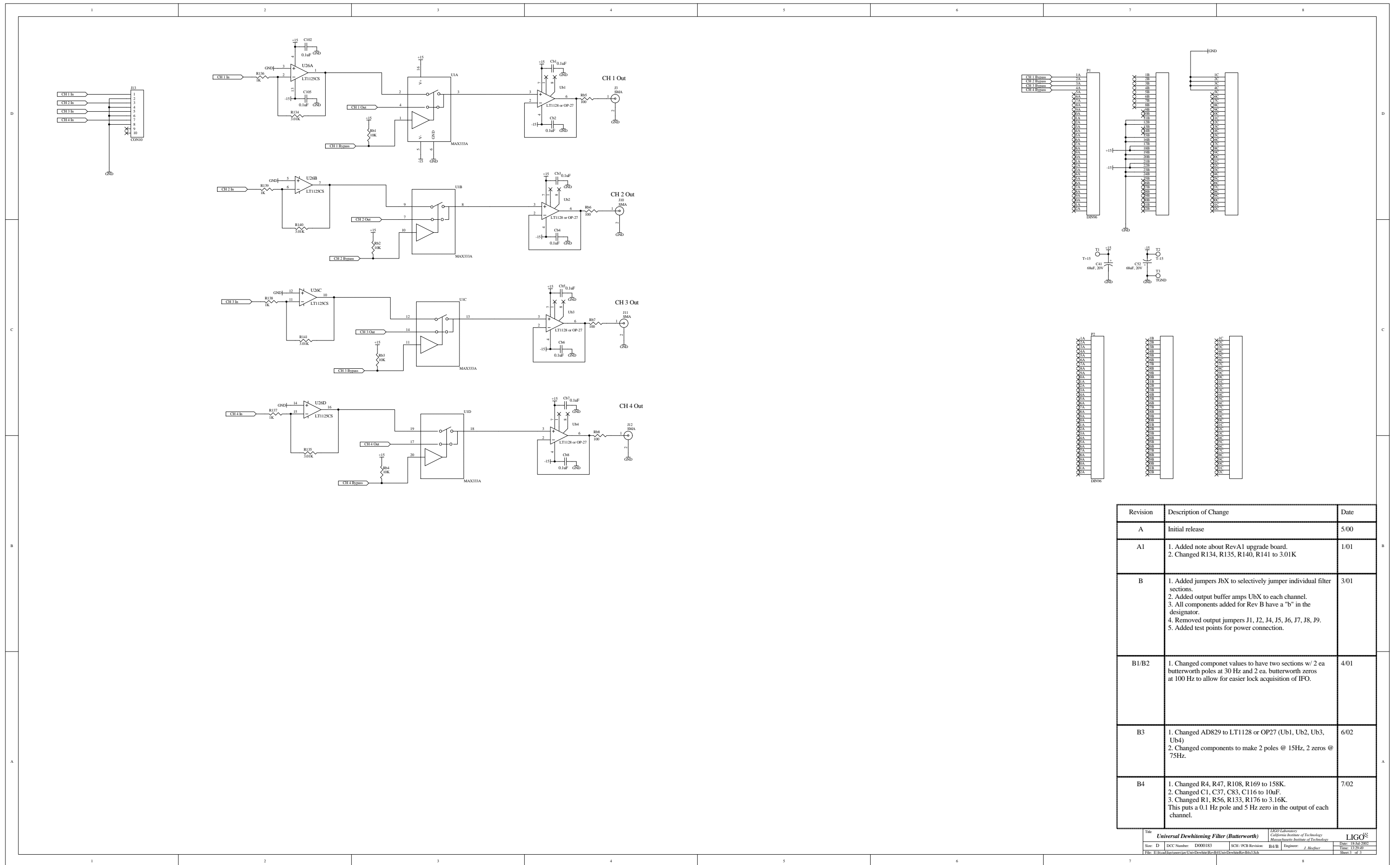
Note: These components not stuffed in B1 Butterworth Version



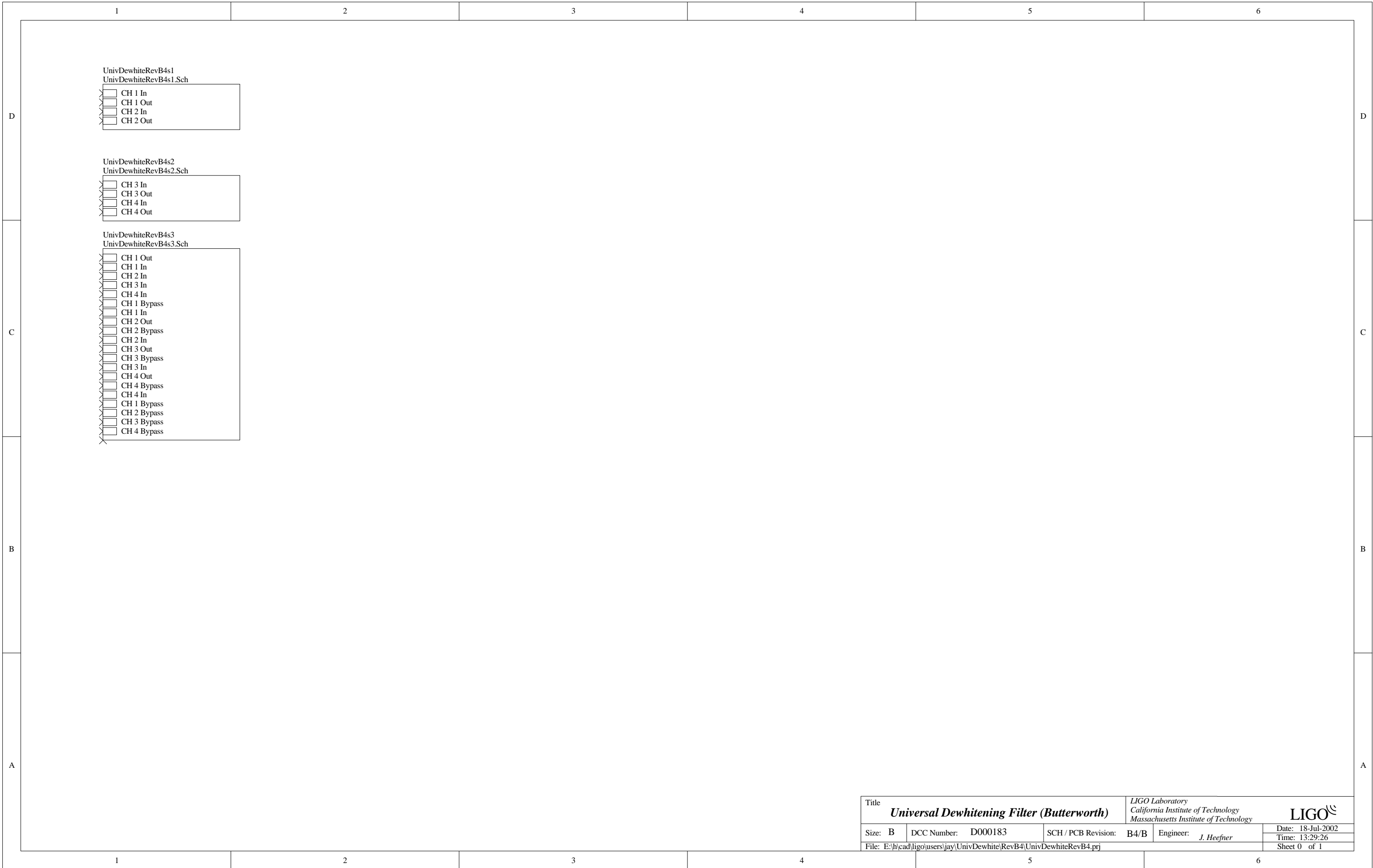
Stage must be inverting stage to maintain same polarity as bypass



Stage must be inverting stage to maintain same polarity as bypass



Revision	Description of Change	Date
A	Initial release	5/00
A1	1. Added note about Rev:A1 upgrade board. 2. Changed R134, R135, R140, R141 to 3.01K	1/01
B	1. Added jumpers JbX to selectively jumper individual filter sections. 2. Added output buffer amps UbX to each channel. 3. All components added for Rev B have a "b" in the designator. 4. Removed output jumpers J1, J2, J4, J5, J6, J7, J8, J9. 5. Added test points for power connection.	3/01
B1/B2	1. Changed component values to have two sections w/ 2 ea butterworth poles at 30 Hz and 2 ea. butterworth zeros at 100 Hz to allow for easier lock acquisition of IFO.	4/01
B3	1. Changed AD829 to LT1128 or OP27 (Ub1, Ub2, Ub3, Ub4) 2. Changed components to make 2 poles @ 15Hz, 2 zeros @ 75Hz.	6/02
B4	1. Changed R4, R47, R108, R169 to 158K. 2. Changed C1, C37, C83, C116 to 10uF. 3. Changed R1, R56, R133, R176 to 3.16K. This puts a 0.1 Hz pole and 5 Hz zero in the output of each channel.	7/02



Title		<b>Universal Dewhiting Filter (Butterworth)</b>		LIGO Laboratory California Institute of Technology Massachusetts Institute of Technology		LIGO	
Size: B	DCC Number: D000183	SCH / PCB Revision: B4/B	Engineer: J. Heefner	Date: 18-Jul-2002	Time: 13:29:26		
File: E:\h\cad\ligo\users\jay\UnivDewhite\RevB4\UnivDewhiteRevB4.prj				Sheet 0 of 1			