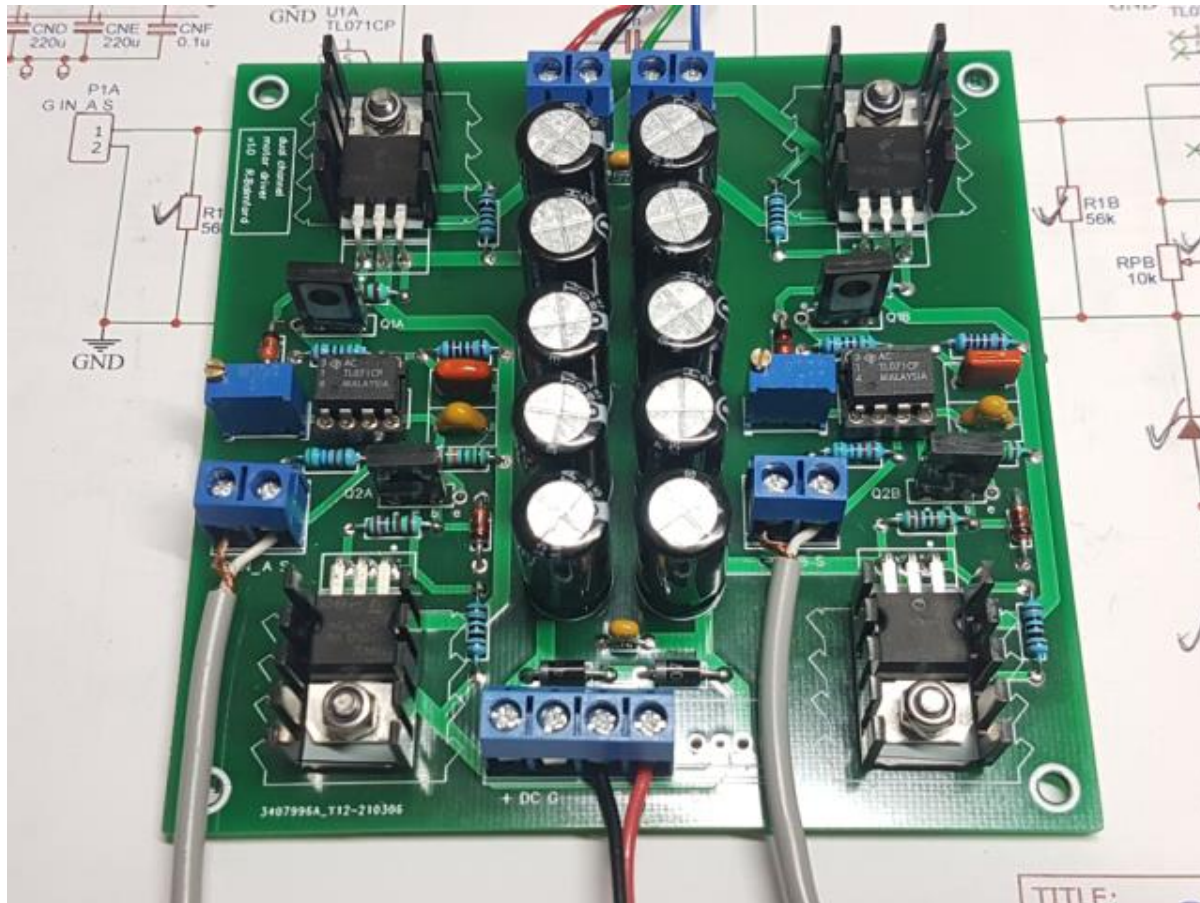
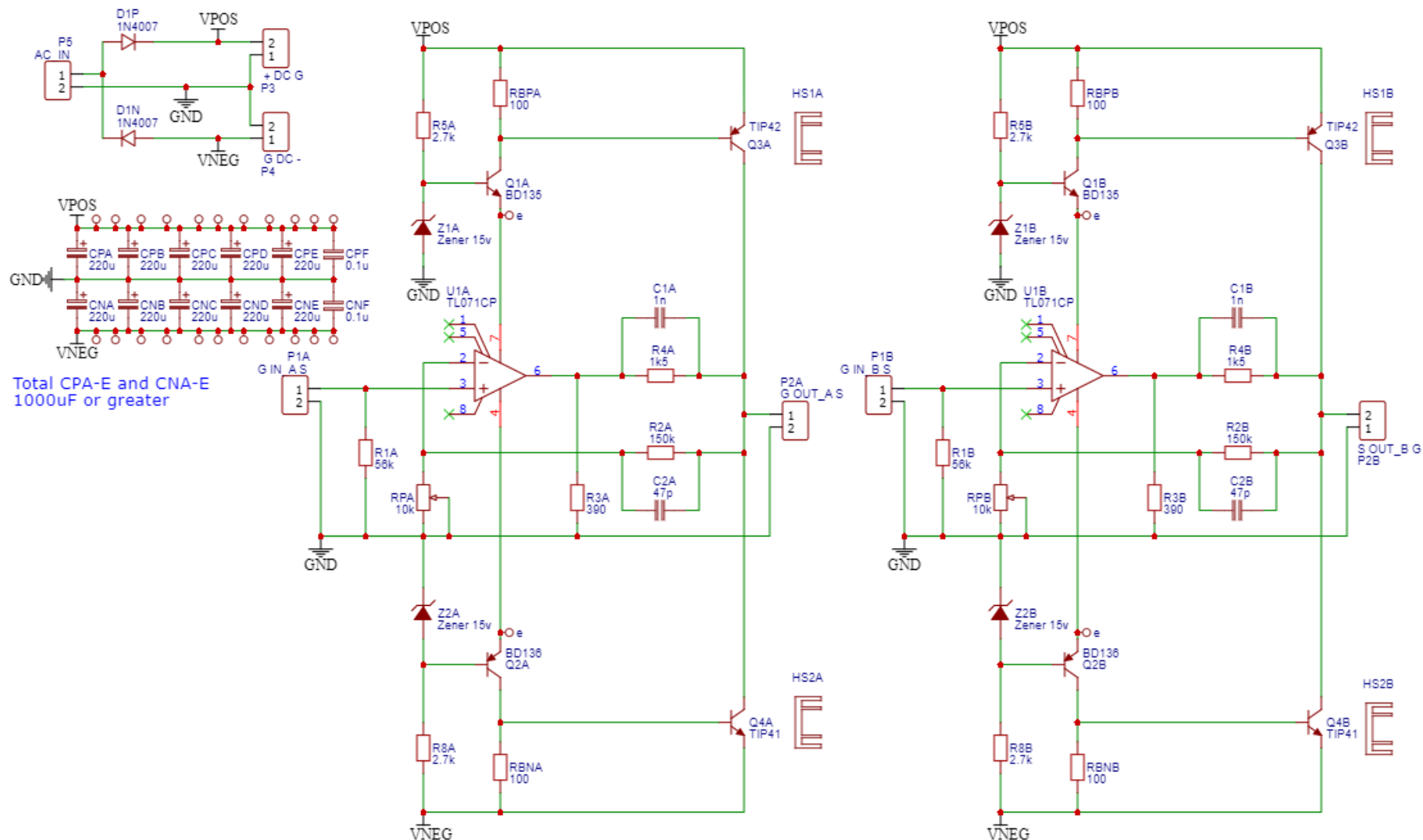


## SPINAMP

2 channel amplifier for 24v AC synchronous motor





$$f_{R2C2} = 1/(2 \cdot \pi \cdot 150k \cdot 47p) = 22.6kHz$$

$$f_{R4C1} = 1/(2 \cdot \pi \cdot 1k5 \cdot 1n) = 106kHz$$

H4 HOLE\_M3\_BLANK (M3)

H3 HOLE\_M3\_BLANK (M3)

H2 HOLE\_M3\_BLANK (M3)

H1 HOLE\_M3\_BLANK (M3)

TITLE: spinamp		REV: 1.0
EasyEDA		Sheet: 1/1
Date: 2021-02-22		Drawn By: R. Balmford

## BOM - spinamp

Designator	Part	Quantity
C1A, C1B	1n	2
C2A, C2B	47p	2
CNA-E, CPA-E	*	*
CNF, CPF	0.1u	2
D1N, D1P	1N4007^	2 <sup>\$</sup>
HS1A, HS1B, HS2A, HS2B	TO-220 HEATSINK AAVID TV5G^	4
P1A, P1B, P2A, P2B, P3", P4", P5 <sup>\$</sup>	2-terminal connector 0.2" spacing	5-7
Q1A, Q1B	BD135^	2
Q2A, Q2B	BD136^	2
Q3A, Q3B	TIP42C^	2
Q4A, Q4B	TIP41C^	2
R1A, R1B	56k	2
R2A, R2B	150k	2
R3A, R3B	390	2
R4A, R4B	1.5k	2
R5A, R5B, R8A, R8B	2.7k	4
RBNA, RBNB, RBPA, RBPB	100	4
RPA, RPB	10k trimmer	2
U1A, U1B	TL071CP	2
Z1A, Z1B, Z2A, Z2B	15v Zener diode	4
	TO-220 insulating kit	4

\* multiple footprints allow wide choice of values and number of caps, total at least 1000uF, 50v

<sup>\$</sup> only if AC in used

" only if DC out/in required

^ or similar

## **BUILD NOTES - spinamp**

Power supply is 24v AC single supply via transformer or 'wall-wart' type adapter.  
Alternatively, can be supplied with +- 36-40v DC, in which case omit P5/D1x, and include P3/4.

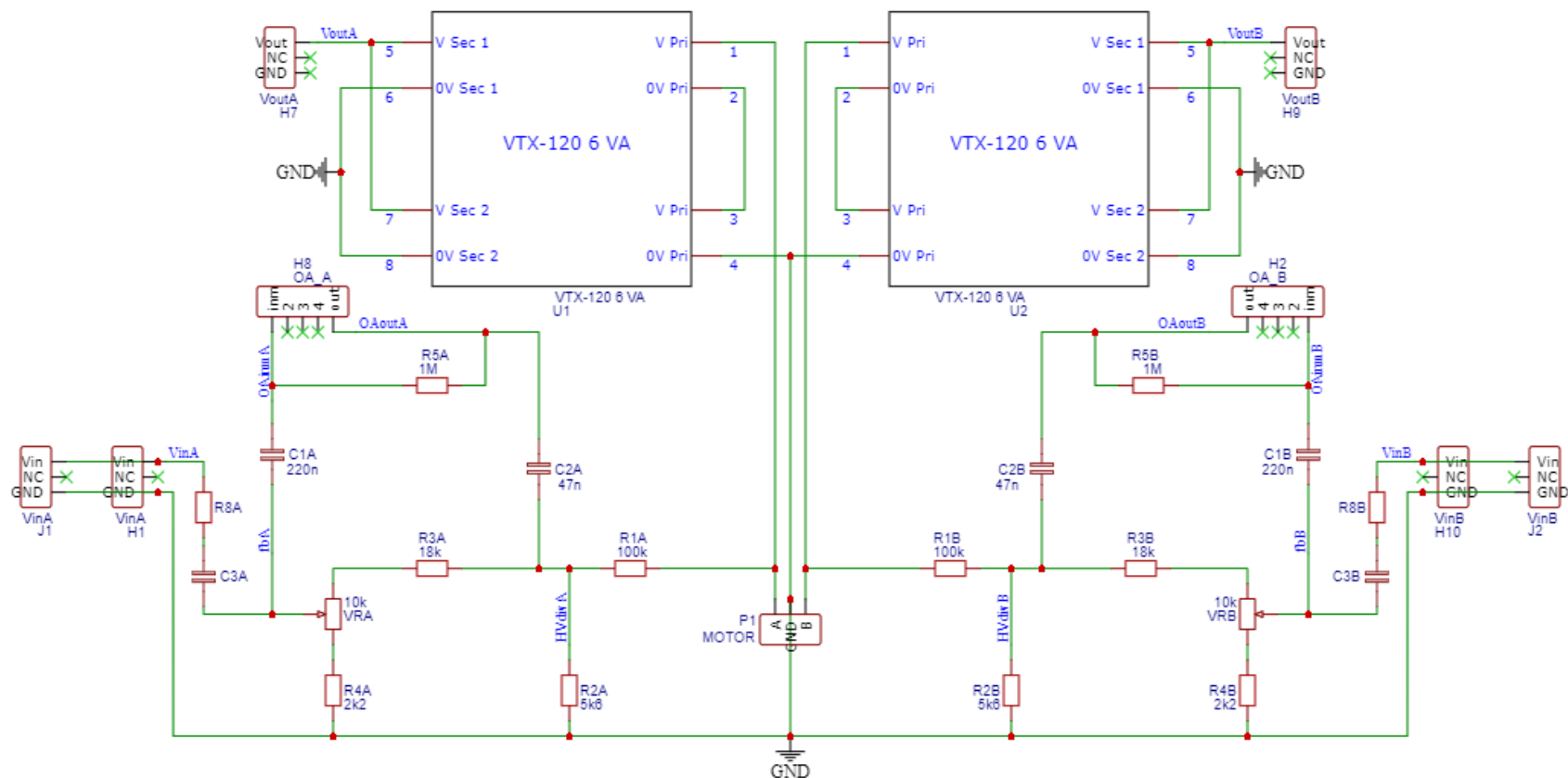
Many components are non-critical, as indicated in BOM.

TL071 should be used, to ensure stability with values shown.

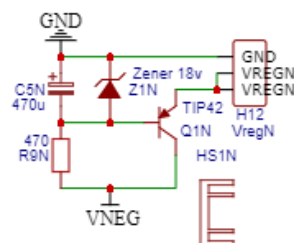
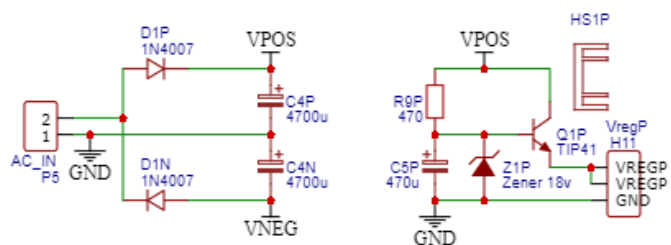
## SPINAMP + SPINAMP\_HV

2 channel amplifier for 110v AC synchronous motor





input amplitude 0.4 - 2v RMS



H5 HOLE\_M3\_BLANK H4 HOLE\_M3\_BLANK H3 HOLE\_M3\_BLANK H6 HOLE\_M3\_BLANK  
HOLE\_M3 HOLE\_M3 HOLE\_M3 HOLE\_M3

TITLE: spinamp_HV		REV: 1.0
Company:		Sheet: 1/1
Date: 2021-02-22	Drawn By: R. Balmford	

## BOM – spinamp\_HV

Designator	Part	Quantity
C1A, C1B	220n	2
C2A, C2B	47n	2
C3A, C3B	not fitted	
C4N, C4P	4700u 25v, 0.3" spacing, max. diameter 16mm	2*
C5N,C5P	470u 25v	2*
D1N, D1P	1N4007^	2*
H1, H7, H9, H10, H11*, H12*	3-pin female header	4/6
H2, H8	5-pin female header	2
HS1N, HS1P	TO-220 HEATSINK AAVID TV5G^	2*
J1, J2	3-pin male header (no middle pin)	2
P1	3-terminal connector 0.2" spacing	1
P5	2-terminal connector 0.2" spacing	1*
Q1N	TIP42C^	1*
Q1P	TIP41C^	1*
R1A, R1B	100k	2
R2A, R2B	5k6	2
R3A, R3B	18k	2
R4A, R4B	2k2	2
R5A, R5B	1M	2
R8A, R8B	not fitted	
R9N, R9P	470	2*
U1, U2	Vigortronix VTX-120-4206-406 PCB Transformer	2
VRA, VRB	10k trimmer	2
Z1N, Z1P	18v Zener diode	2*
	TO-220 insulating kit	2*

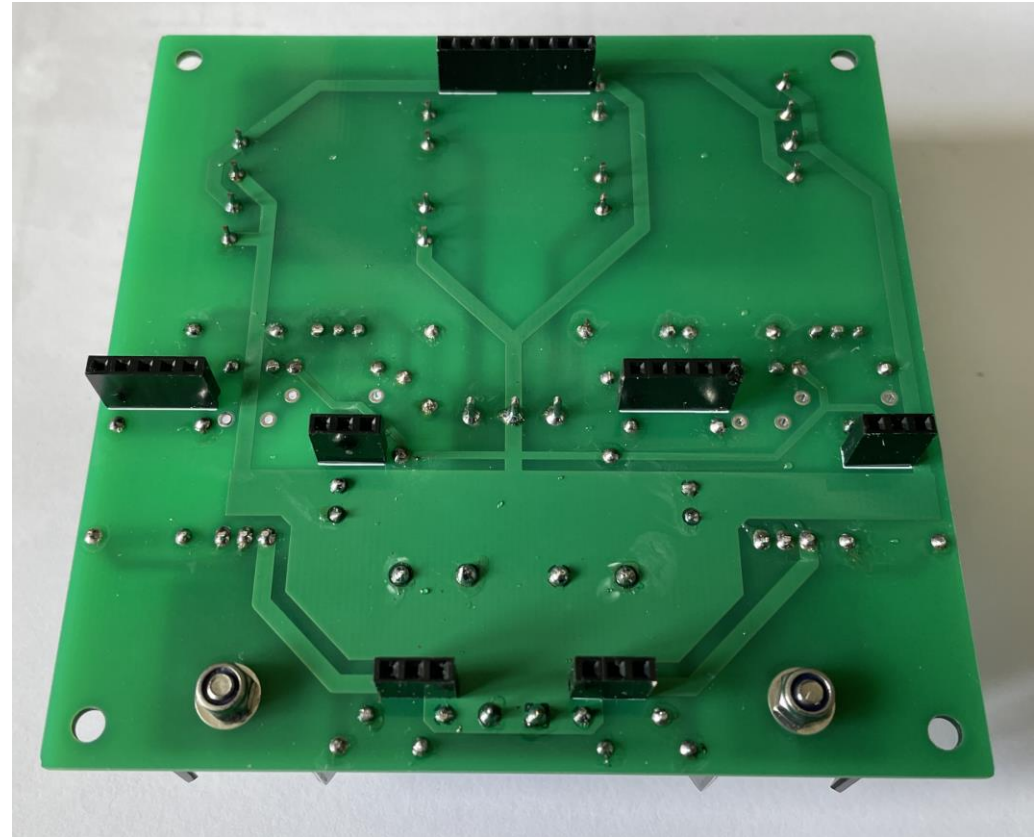
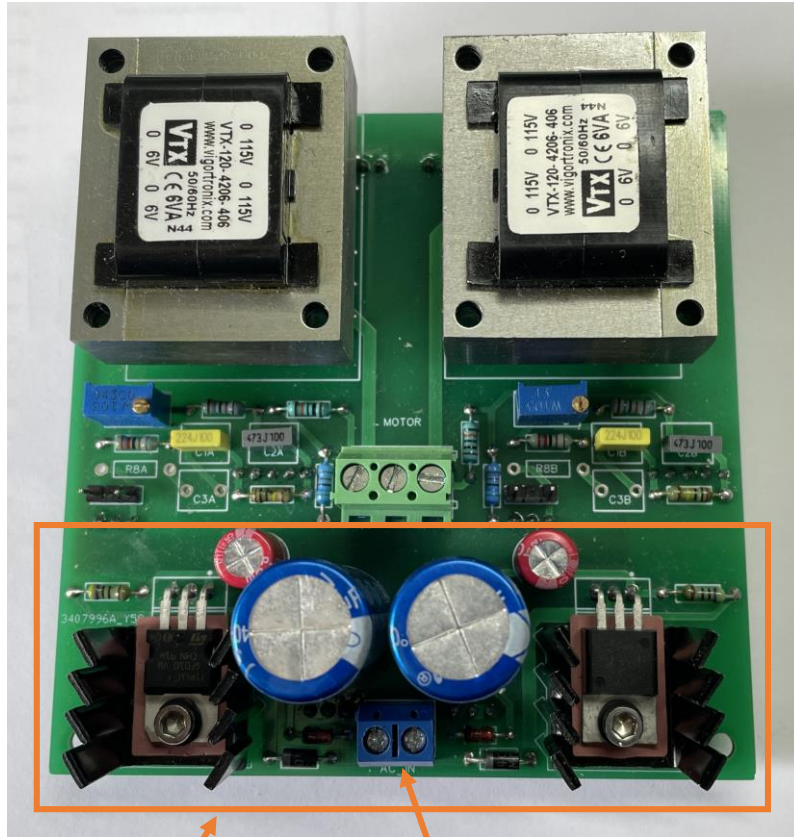
\* supply filter, if using AC in

^ or similar



## BUILD NOTES – spinamp\_HV

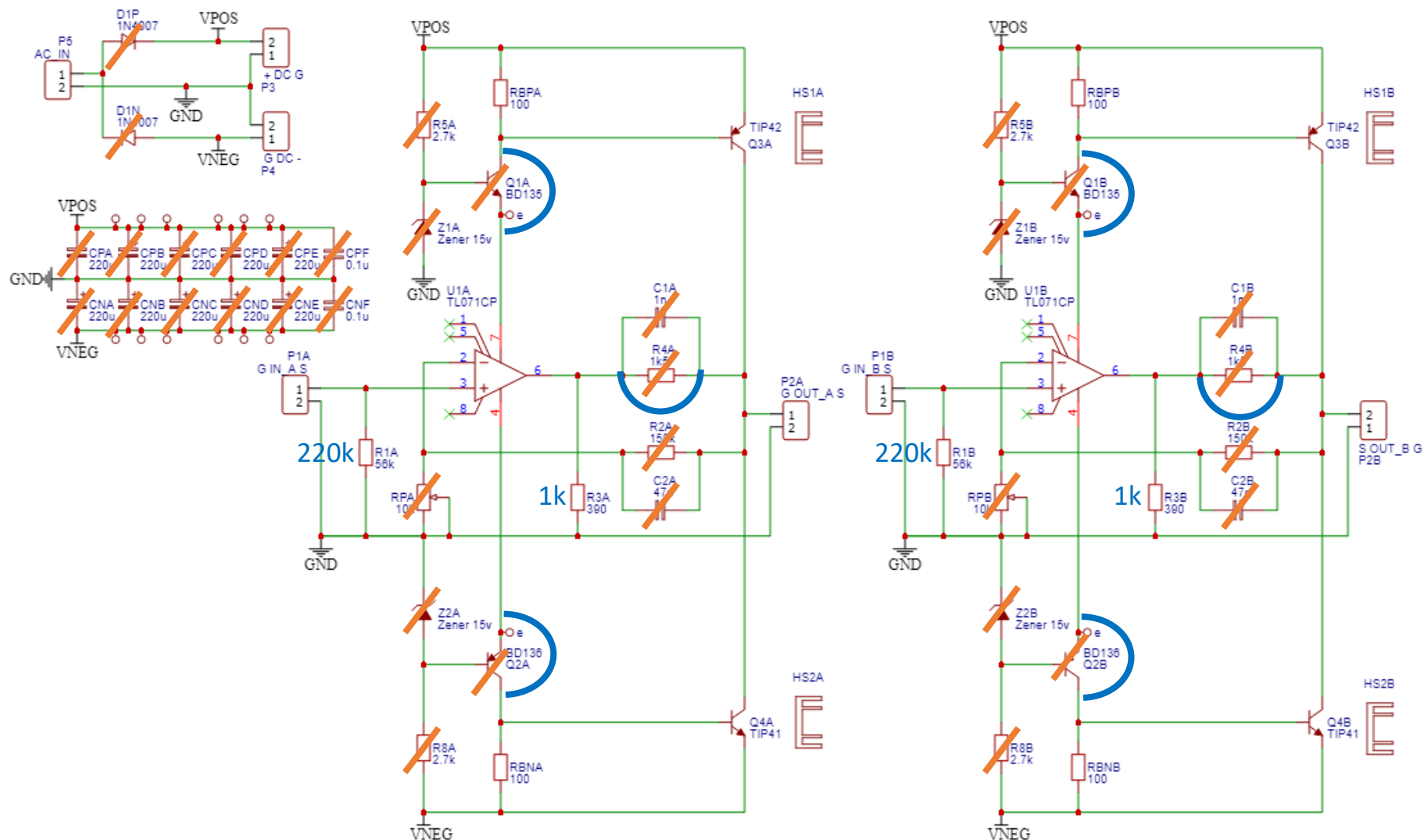
Power supply is 12v AC single supply via transformer or 'wall-wart' type adapter, 6VA minimum.  
Alternatively, can be supplied with +- 12-15v DC via spinamp board, see later.



supply filter  
(if used)

12v AC in





spinamp modified for  
use with spinamp\_HV

TITLE: spinamp		REV: 1.0
Company:		Sheet: 1/1
Date: 2021-02-22	Drawn By: R. Balmford	

## BOM – spinamp modified for use with spinamp\_HV

Designator	Part	Quantity
HS1A ,HS1B, HS2A, HS2B	TO-220 HEATSINK AAVID TV5G^	4
P1A, P1B, P2A, P2B, P3*, P4*	3-pin extended male header	4/6
	3-terminal connector 0.2" spacing	1"
R2A, R2B – fit header in place of resistors	5-pin extended male header	2
Q3A, Q3B	TIP42C^	2
Q4A, Q4B	TIP41C^	2
R1A, R1B	220k	2
R3A, R3B	1k	2
RBNA, RBNB, RBPA, RBPB	100	4
U1A, U1B	TL071CP	2
	TO-220 insulating kit	4
	M3 threaded standoff, 20mm	4

\* if using AC in / supply filter on spinamp\_HV board

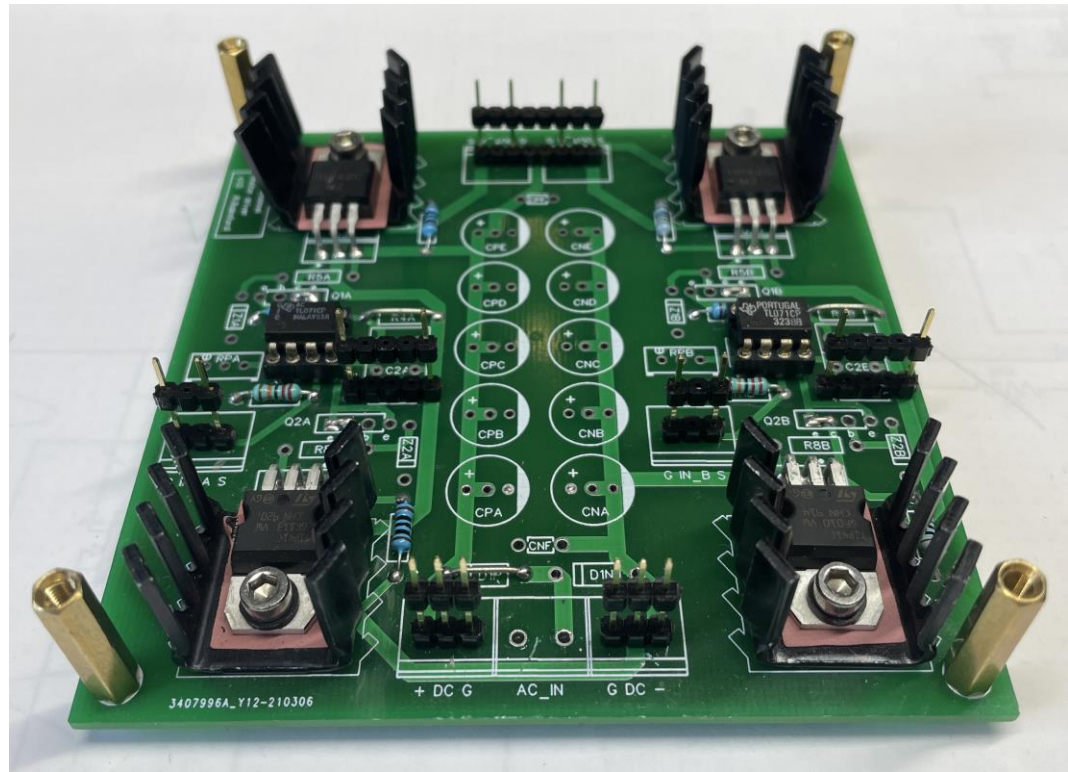
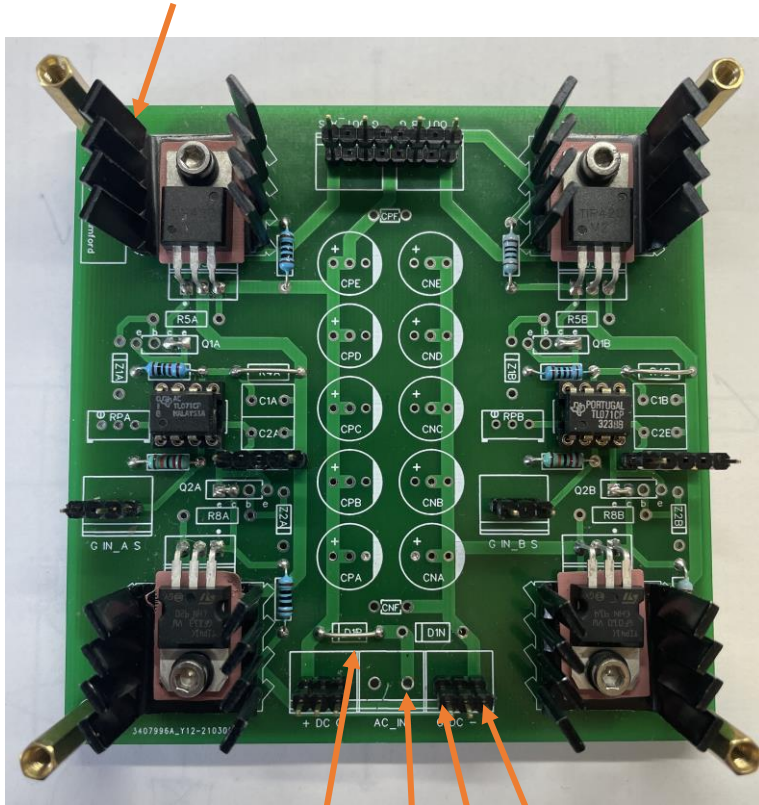
" if using external DC supply, see pictures

^ or similar

## BUILD NOTES - spinamp for use with spinamp\_HV

If using +/- 12-15v DC supply, omit P3 and P4 extended headers, and connect supply as shown below

bend vanes out slightly to avoid  
fouling connections on underside  
of spinamp\_HV board



make link + GND -  
for external DC supply