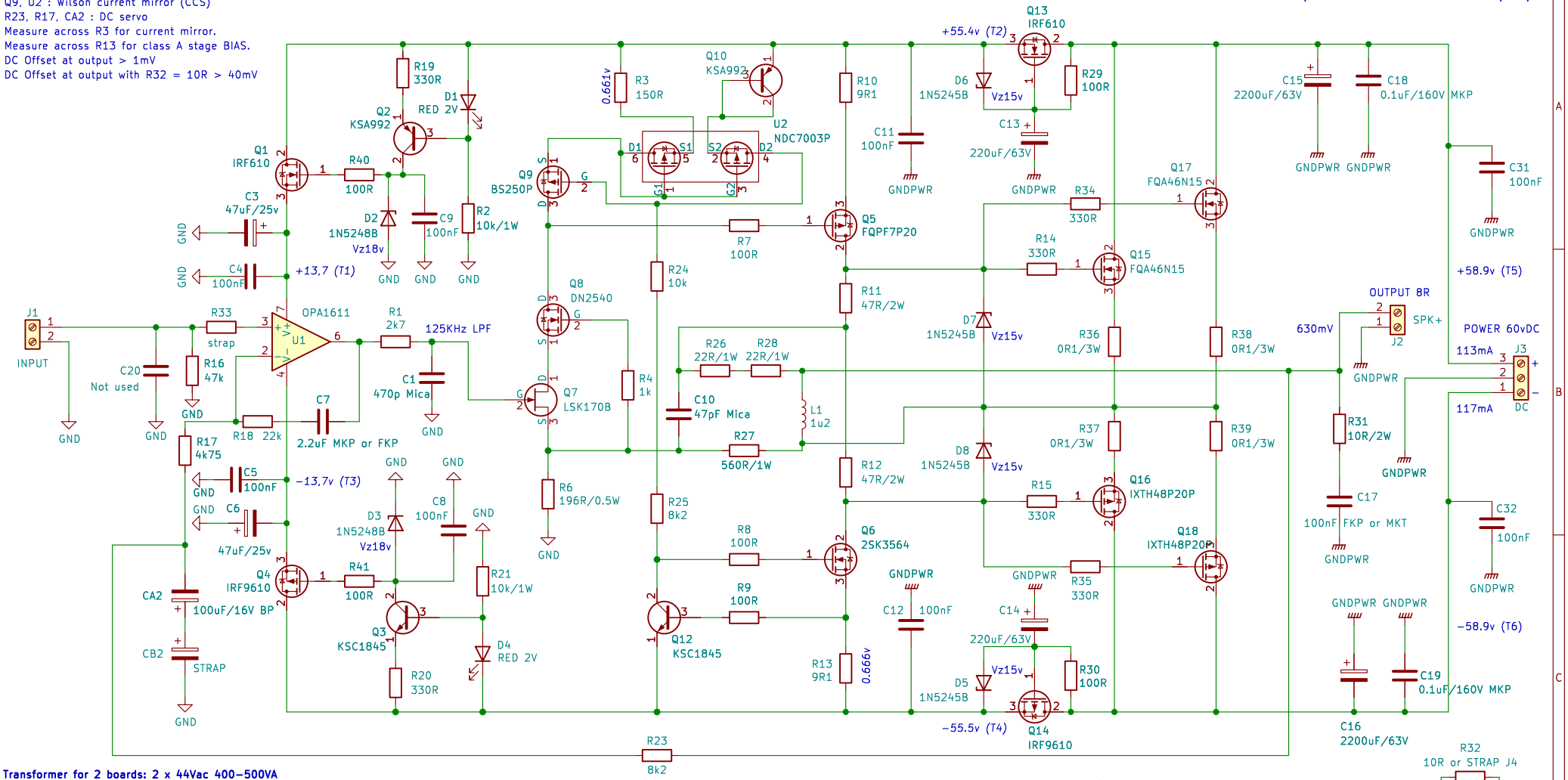

Transformer for 2 boards: 2 x 44Vac 400−500VA

L1 : 12,5 turns of a 1.5mm diameter copper insulated wire wound around a 13mm tube.
This will give you a coil of 20x16mm (see picture on github repository).

You may need to pair Q11 and Q11 transistors to have same Vbe or Vgs at 5mA. This improves the accuracy of the CCS+ current mirror.

Opamp input gain = 1+R18/R17
Global gain = ((R17+R18)/R17)x((R27+R6)/R6)
For input sensibility at 1.2Vrms (+4dBu): R17=4k75 and R6=196R
For input sensibility at 0.7Vrms (0dBu): R17 = 5k1 and R6=100R
The value of R25 depends on the input voltage (42v = 2K7, 50v = 7K5, 60v = 8k2).

U1 : OPA1611 (BIPOLAR) or OPA828 (JFET)
U2: NDC7003P or PJS6839
Q1, Q13 : IRF610
Q2, Q10 : KSA992
Q3, Q12 : KSC1845
Q4, Q14 : IRF9610
Q5 : FQP3P20, FQPF7P20 or IRF9610 (isolator)
Q6 : FQP3N30, 2SK3564 or IRF610 (isolator)
Q7 : LSK170B (TH) or JFE150 (SMD SOT23−5)
Q8 : DN2540 or DN2535
Q9, Q11 : BS250P or ZVP2106A
Q15,Q17 : FQA46N15, IXFH50N85X or IRFP240 (isolator)
Q16, Q18 : FQA36P15, IXTH48P20P or IRFP9240 (isolator)

100nF capacitor : Wima MKS2
1W resistor : Vishay PR01
2W resistor : Vishay CCF02 or PR02
D1, D4 : LED RED 2V TLHR5400
D2, D3 : 1N5248B
D5, D6 : 1N5245
C3, C6 : Nichicon UKZ1E470MPM
C7 : 2.2uF Vishay MKP1839522164
C13, C14 : Vishay MAL215058221E3
J1: KF127 or JST B2B−XH−A−GU

For resistor < 150R : sort then or use 1% range.
0.25W, 0.5W resistor : Vishay MRS25 or CCF07 or MB
R27 : 560R 1W 1% Ohmite WNB560FET or Vishay CMF60560R00JKR6
R26, R28 : 22R 1% 1W TE Connectivity H4P22RFZA
R36, R37, R38, R39 : 0R1 MOSX3CT631RR10J
C1 : 470pF CDE CD15FD471JO3F or polystyrene capacitor.
CA2 : Non polar capacitor Nichicon Muse UES1A101MPM.
C10 : 47pF Mica CDE CD15ED470JO3 or ceramic NPO.
C15, C16 : Nichicon LKG1J222MESABK or CDE SLP222M063C3P3.
C17 : 100nF capacitor FKP3C031004C00JSSD or MKT1822410255.
C18, C19 : 0.1uF/160V MKP Vishay MKP1839410164
C20 : 1nF CD15FA102JO3, FKP2C011001D00HSSD or 23PW210.

Q17 a QUAD405 audiophile approach

Modified by Stef for the Q17−TURBO project
by eng. Tiberiu Vicol

Sheet: /
File: Q17−TURBO.kicad_sch

Title: Q17−TURBO (P2) Amplifier

Size: A4	Date: 2024−08−21	**Rev: 1.3.4**
KiCad E.D.A. 8.0.4		Id: 1/1