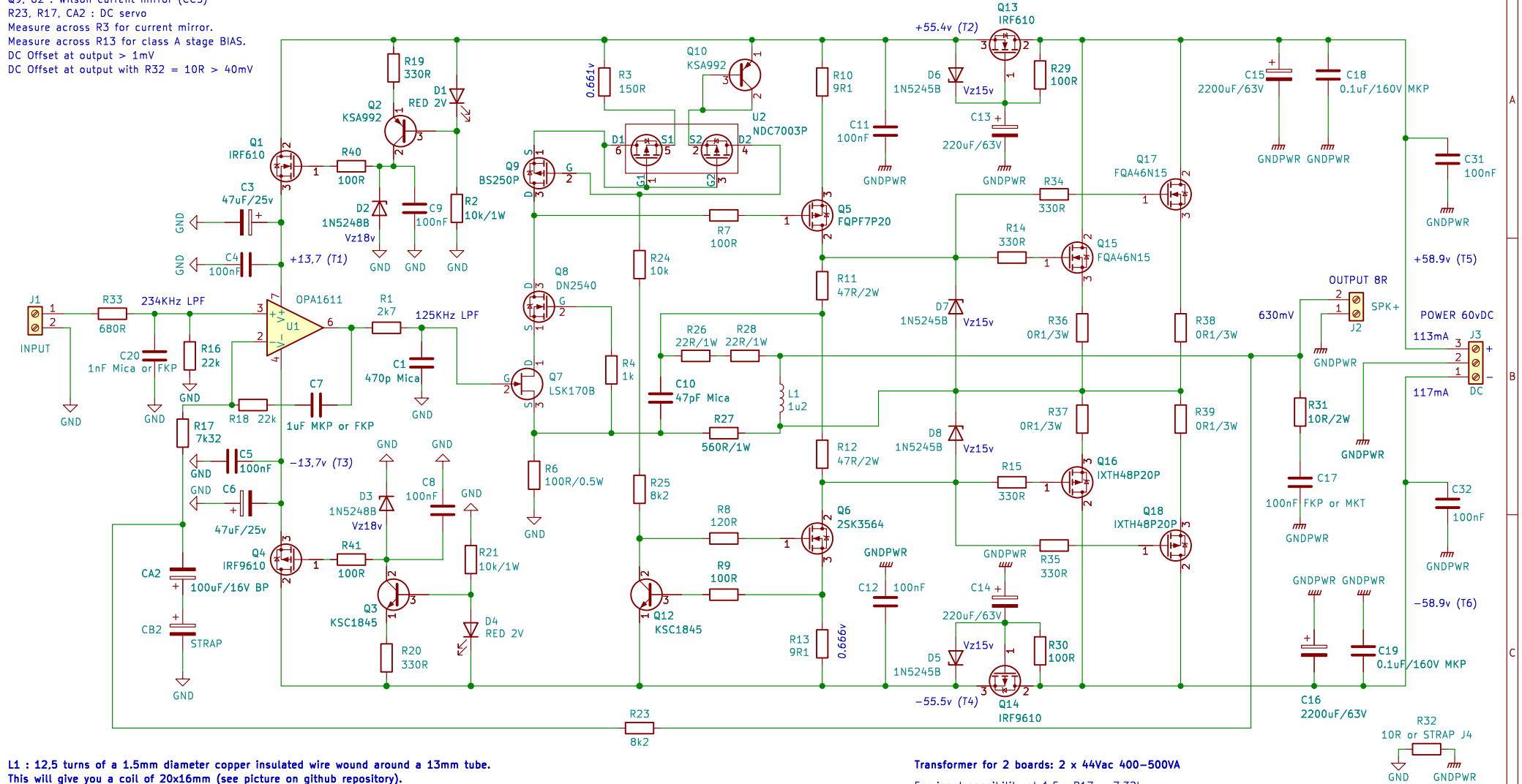


Q7, Q8 : Erno Borbely cascode
 Q9, U2 : Wilson current mirror (CCS)
 R23, R17, CA2 : DC servo
 Measure across R3 for current mirror.
 Measure across R13 for class A stage BIAS.
 DC Offset at output > 1mV
 DC Offset at output with R32 = 10R > 40mV

If you use a potentiometer in front of the amp, do not wire the LFE (not wire C20 and replace R33 by 100R).

Do not power on the board without opamp.



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).

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, IXTH48P20P 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 : 1uF CDE 930C1W1K-F
 C13, C14 : Vishay MAL2150S822IE3
 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 CD15FD471J03F or polystyrene capacitor.
 CA2 : Non polar capacitor Nichicon Muse UES1A101MPM.
 C10 : 47pF Mica CDE CD15ED470J03 or ceramic NPO.
 C15, C16 : Nichicon LKG1J222MESABK or CDE SLP222M063C3P3.
 C17 : 100nF capacitor FKP3C031004C00J5SD or MKT1822410255.
 C18, C19 : 0.1uF/160V MKP Vishay MKP1839410164
 C20 : 1nF CD15FA102J03, FKP2C011001D00HSSD or 23PW210.

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

For input sensibility at 1.5v: R17 = 7.32k
 For input sensibility at 0.750v: R17 = 3.3k
 Remember to take off the resistors of 1W and more from the PCB when you solder them.

Q17 a QUAD405 audiophile approach

Modified by Stef for the Q17-TURBO project
 by eng. Tiberiu Nicol

Sheet: /
 File: Q17-TURBO.kicad_sch

Title: Q17-TURBO (P2) Amplifier

Size: A4 Date: 2023-10-31

KiCad E.D.A. kicad 7.0.8

Rev: 1.2.9

Id: 1/1