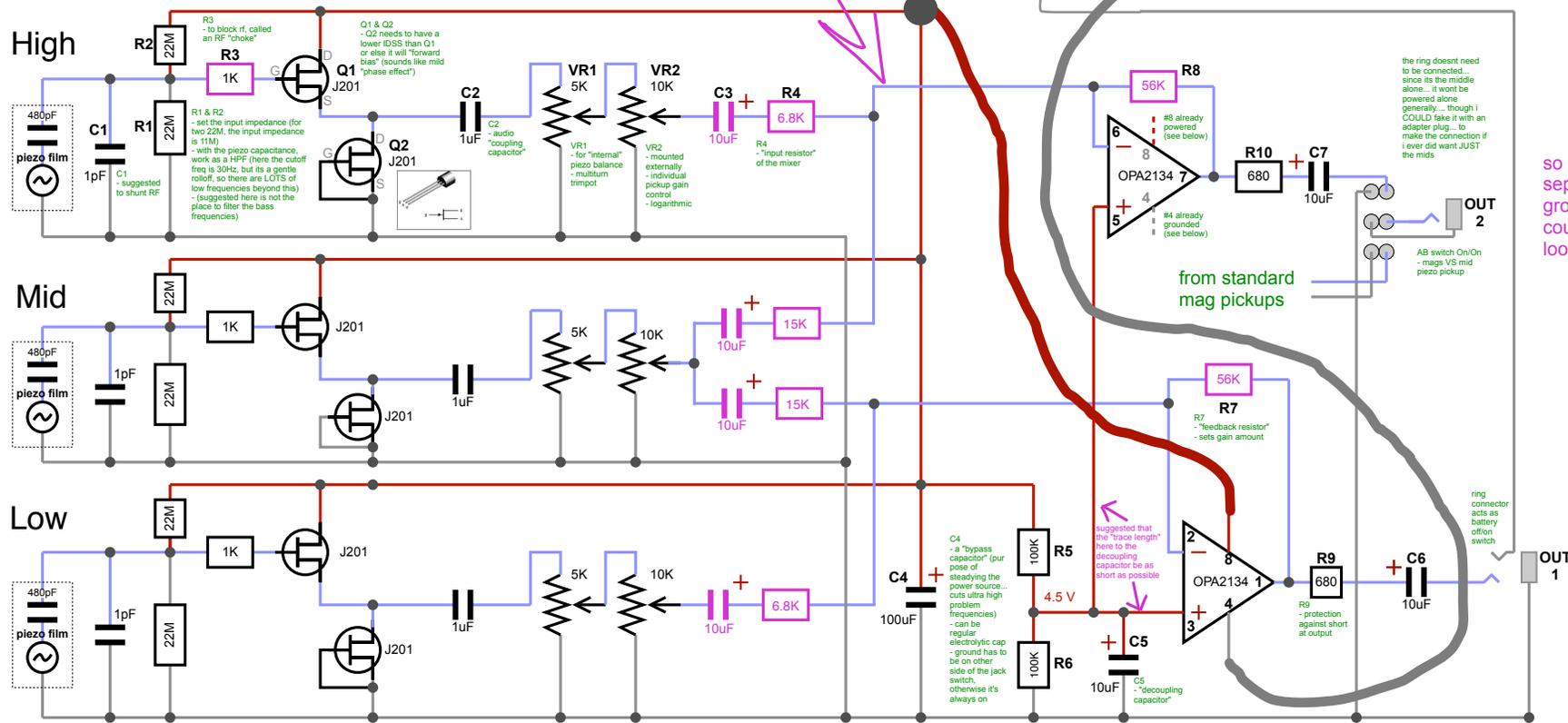


Bipolar Power Supply

- suggested to use 2x 9volts to improve the headroom factor
 this circuit... (in single amp mode at least, though SHOULD be same in double amp mode?) draws 10.84mA

Combination Buffer, Mixer, Gain Circuit - vrsn2.4



R3 - 33K was suggested online for a different circuit (see "JFET buffer and more" post) pdf... for an acoustic mag pickup)
 R1 & R2 - to block rf, called an RF "choke"
 Q1 & Q2 - Q2 needs to have a lower IDSS than Q1 or else it will "forward bias" (sounds like mild "phase effect")
 R1 & R2 - set the input impedance (for two 22M, the input impedance is 11M)
 with the piezo capacitance, work as a HPF (here the cutoff freq is 30Hz, but its a gentle rolloff, so there are LOTS of low frequencies beyond this) - (suggested here is not the place to filter the bass frequencies)
 C1 - suggested to shunt RF
 C2 - audio "coupling capacitor"
 VR1 - for "internal" piezo balance - multiturn trimpot
 VR2 - mounted externally - individual pickup gain control - logarithmic
 R4 - "input resistor" of the mixer
 R7 - "feedback resistor" - sets gain amount
 R9 - protection against short at output
 C4 - a "bypass capacitor" (pur pose of steadying the power source... cuts ultra high problem frequencies)
 - can be regular electrolytic cap - ground has to be on other side of the jack switch otherwise it's always on
 C5 - "decoupling capacitor"

virtual ground

red = power supply
 blue = "audio"
 black = ground

so out 2 needs to be separated from chassi ground i think, or there could be a ground loop, no?

CircuitA - Buffer Circuit

CircuitB - Mixer and Gain Circuit (in "inverting mode", acting as virtual earth mixer)

Piezo Films - LDT-0-028K
 - each can act as an "input capacitor" (the following from LDT datasheet)
 - 480pF source capacitance
 - [the following from D'Series datasheet]
 - Min. impedance- 1MΩ recommended 10MΩ
 - Output voltage- mV to 100's of volts
 - the capacitance is proportional to the area and inversely proportional to the thickness of the element (the following from "Technical Manual" referring to DT1)
 - Capacitance: 1.36 nF; Dissipation Factor of 0.018 @ 10 KHz; Impedance of 12 KΩ @ 10 KHz

- potentially try a 1pF capacitor back here to shunt RF to ground
 - suggested "try" (100pF 100 pF) to GND at the amplifier pin. The capacitor's impedance profile can create a notch filter at the system's most sensitive frequency"

UA22 soundcard
 - [from spec sheet]
 - Input Impedance
 - INPUT 1, 2 (XLR type): 4kΩ (balanced)
 - INPUT 1, 2 (1/4-inch TRS phone type): 34kΩ (balanced)
 - INPUT 1 jack supports high impedance

Firewire1814 soundcard
 - [from spec sheet]
 - Line Inputs
 - nominal input level -10dBV
 - max input level +2.18dBV, typical
 - input impedance 10K, typical
 - Mic/Inst. Inputs 1-2 (Balanced, at Minimum Gain)
 - max input level -3.8dBu, typical
 - input impedance