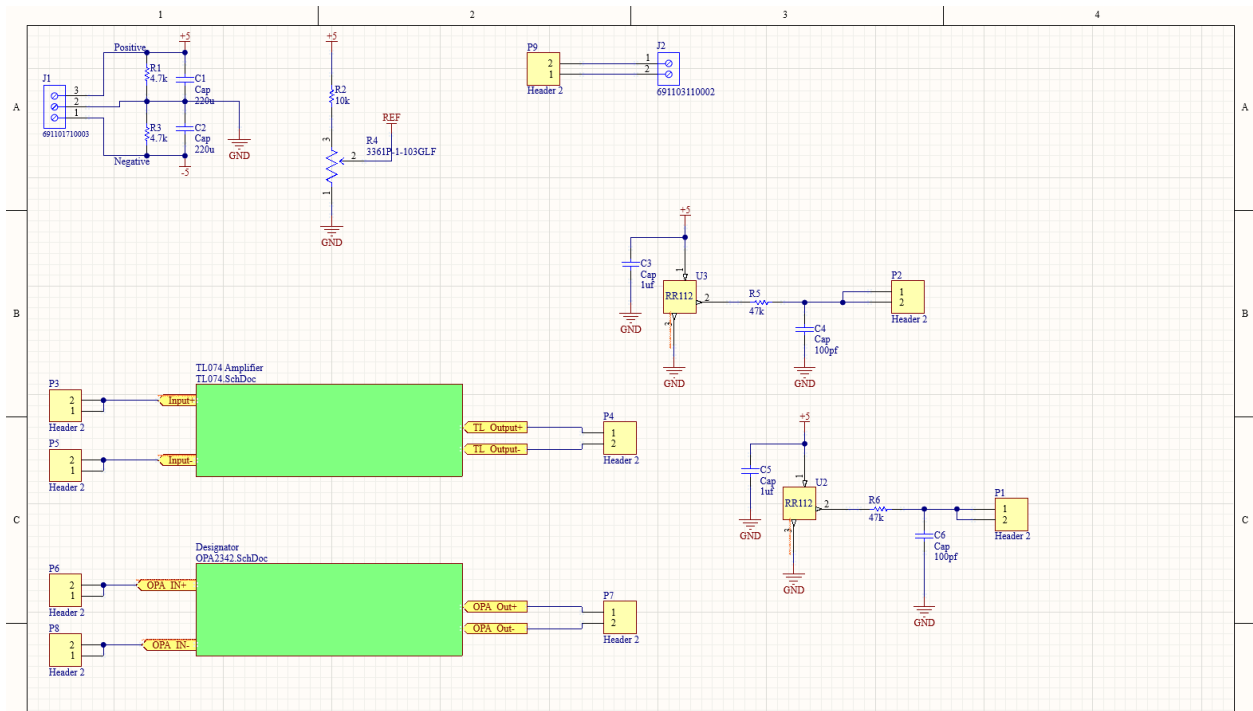
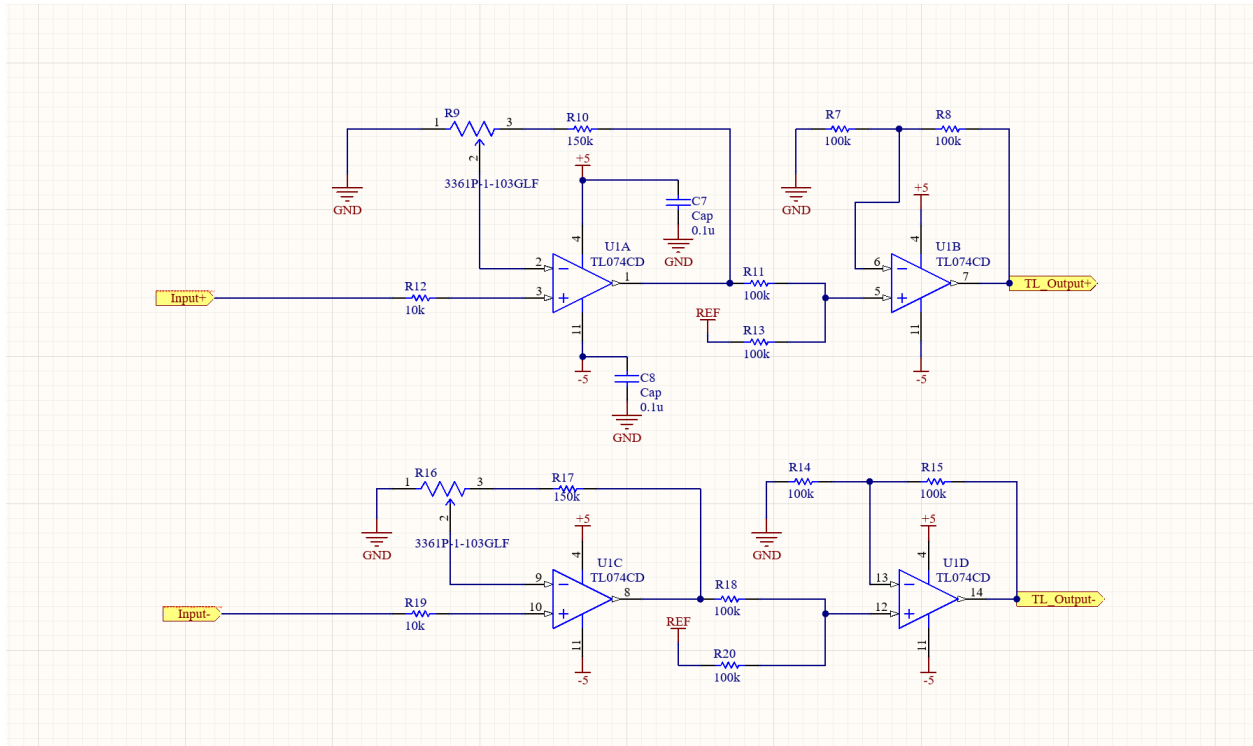


## Test board

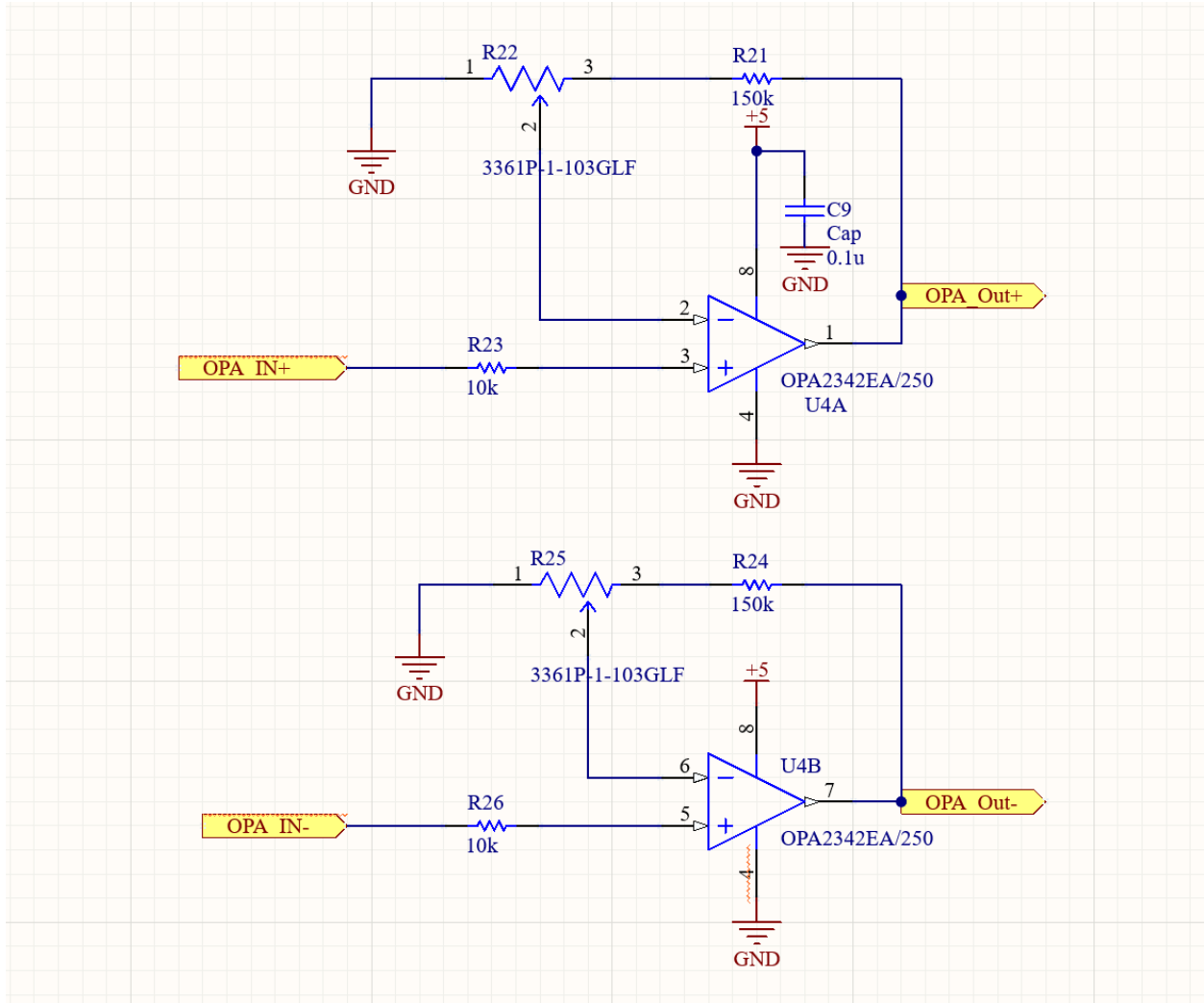


Above is the complete schematic of the circuit. It features a voltage divider to generate +5V and -5V supplies. It also features another voltage divider with a potentiometer for the purpose of creating a reference voltage for the TL074 level shifter, which shall be discussed more in depth later.

This schematic also features two TMR sensors, the RR112's. These only require a low pass filter before being read by an ADC, this filter has an Fc of:  $\frac{1}{2\pi \cdot 47k \cdot 333p} = 10.2KHz$ .

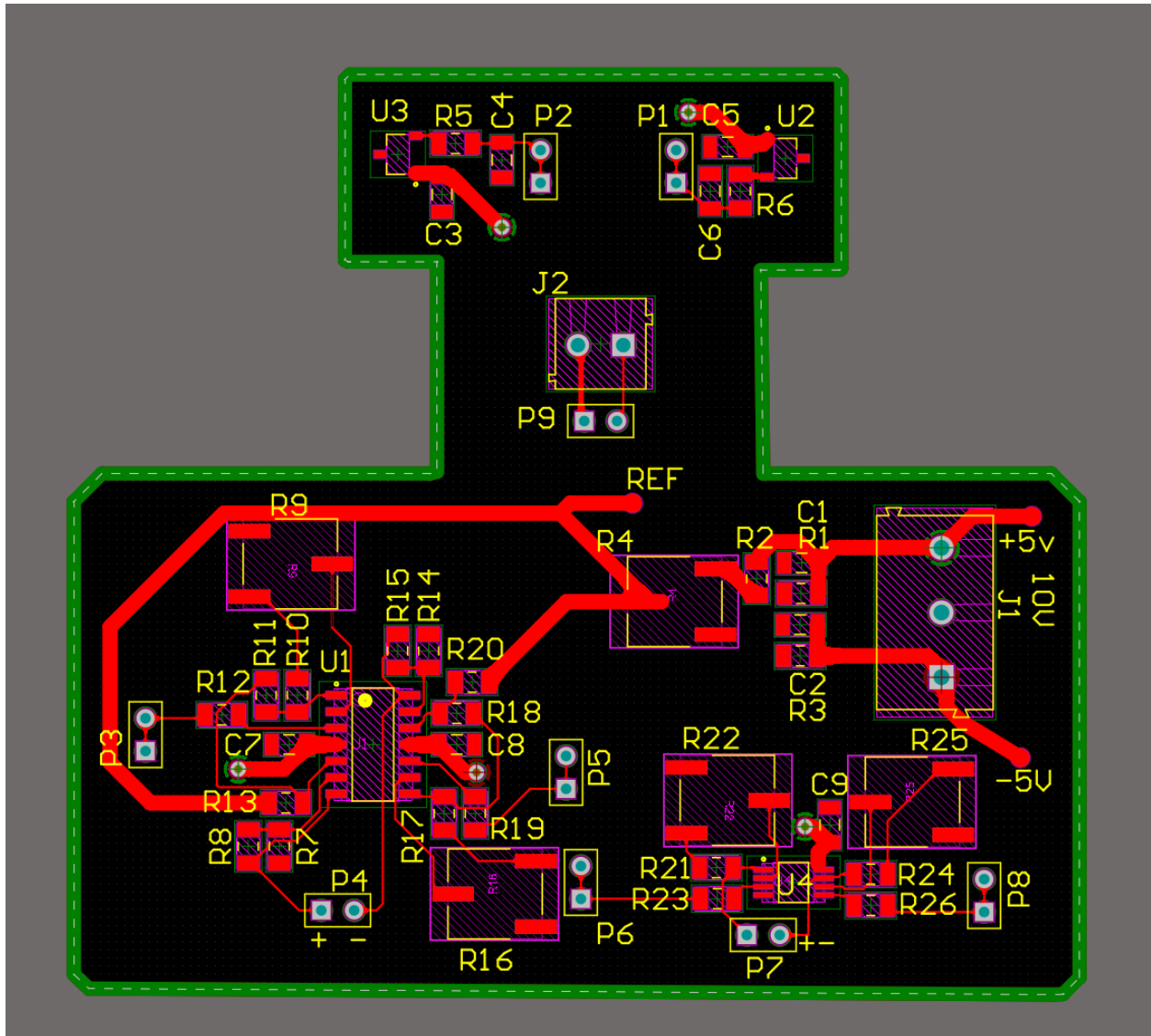


This is the TL074 circuit. The TL074 requires a positive and negative voltage for the supply, if only a positive voltage is supplied it will cause some offset issues. It features 4 opamps, two of which are used as amplifiers while the other two are used as level shifters. The gain of the amplifiers are determined by the 150K resistors and the potentiometers. The level shifters have a gain of 1, since they're only being used to shift the signal up into the positive, so it can be read out by an ADC.



The OPA2342 circuit is simple compared to the TL074 one. It features a single supply voltage and no level shifters. Level shifters are not necessary when utilizing this opamp. Once again the gain of this amplifier is determined by the 150K resistors and the potentiometer.

Both the circuits will output their signals to headers, to which a microcontroller can be easily connected to.



The two TMR sensors are placed at the top, with a screw terminal slightly below them to allow for Rogowski coil connections. With headers an amplifier can be chosen, the goal of this is so that the outputs of both amplifiers can be compared to each other.