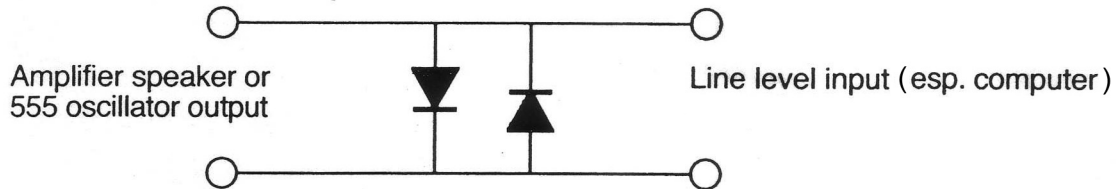


Notes on audio signals and not destroying inputs:

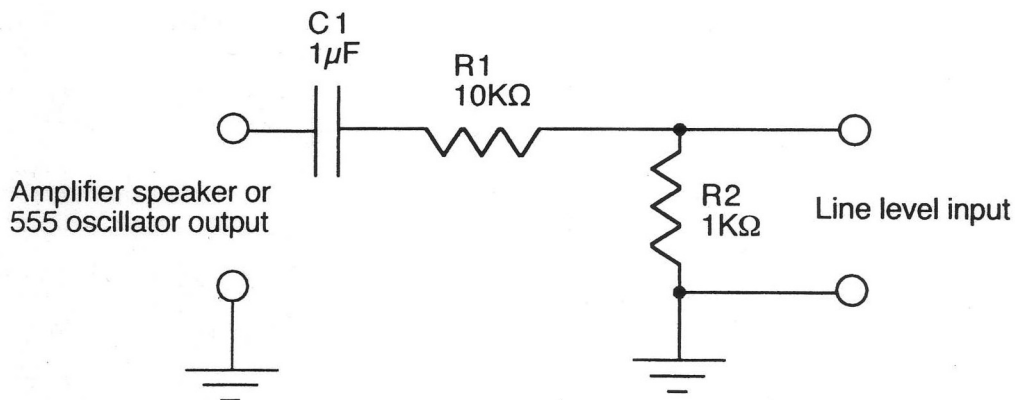
Audio components (including computer inputs) are expecting signal voltages that come in specific "sizes":

- Mic Level** (typically 0 to 1 or 2 millivolts)
- Line Level** (typically 0 to 1 volt)
- Amplified Output** (to be connected to a speaker)

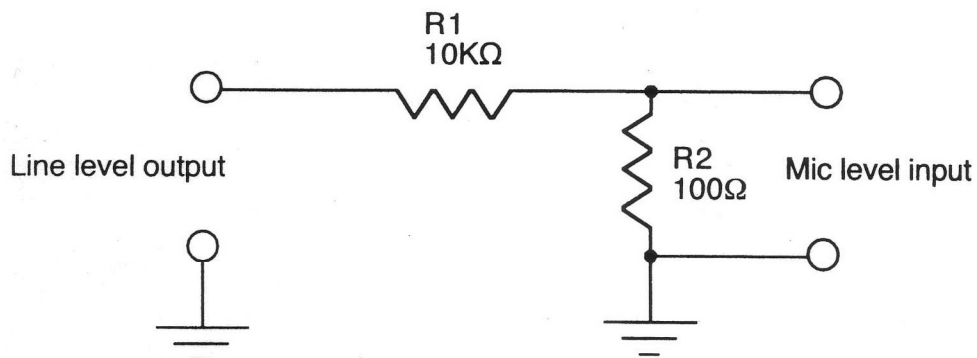
Below are some notes on how to take precautions in connecting a homemade oscillator output to an amplifier input without blowing something up.



Diodes provide "clamping" - that is, a silicon diode holds about 0.6 volts across it, so the computer will never see more than 0.6 volts. One problem is that output voltages higher than this will be clipped, resulting in distorted sound. A solution is to lower the volume of the output. Another solution might be to use LEDs which typically drop 2 volts, and allow more of the signal through. line level is usually between 0 and 1 volt, do if you are plugging a device into a computer or other expensive piece of audio equipment, it's better to be careful and not use LEDs.



C1 prevents DC voltages from entering an audio input. R1 and R2 form a voltage divider that drops voltage to 10% of the input. Note: a 555 outputs roughly 9 volts from pin 3. line level is typically 0 - 1 volt. This circuit drops the voltage to 10% of input (10 volts to 1 volt.)



R1 and R2 form a voltage divider that drops voltage to 1% of the input. Note: capacitor is not generally needed here since true line level output already has any DC component of the wave removed. This is typically a 40db L-pad attenuator and is suited for consumer audio. For professional audio equipment, increase R1 to 33Kohms (50db attenuation.)