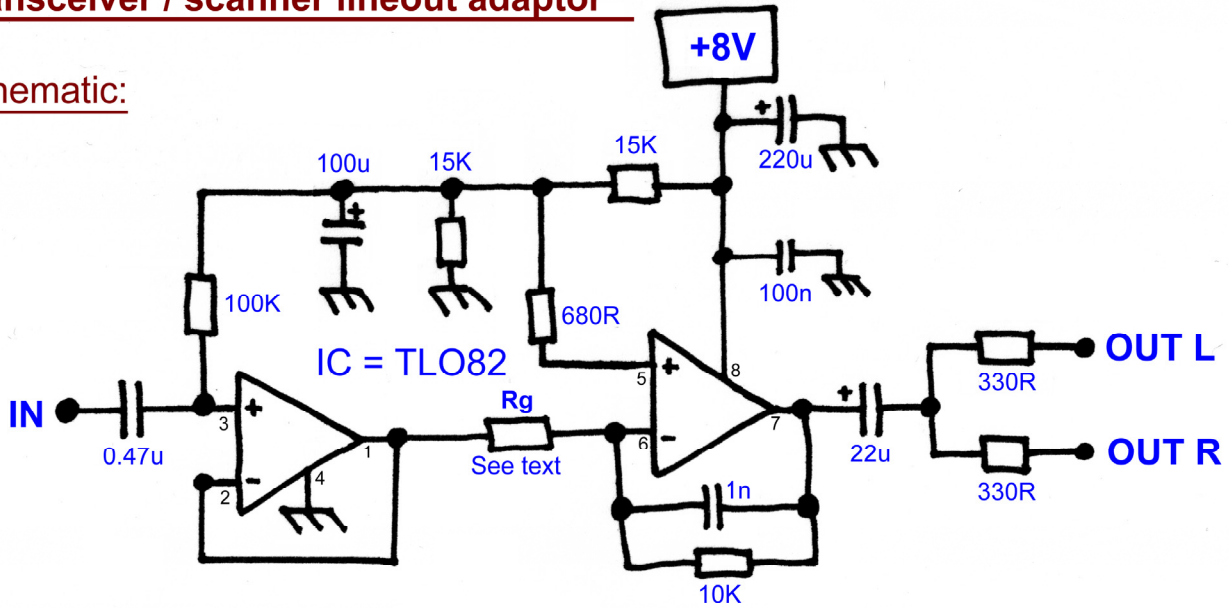
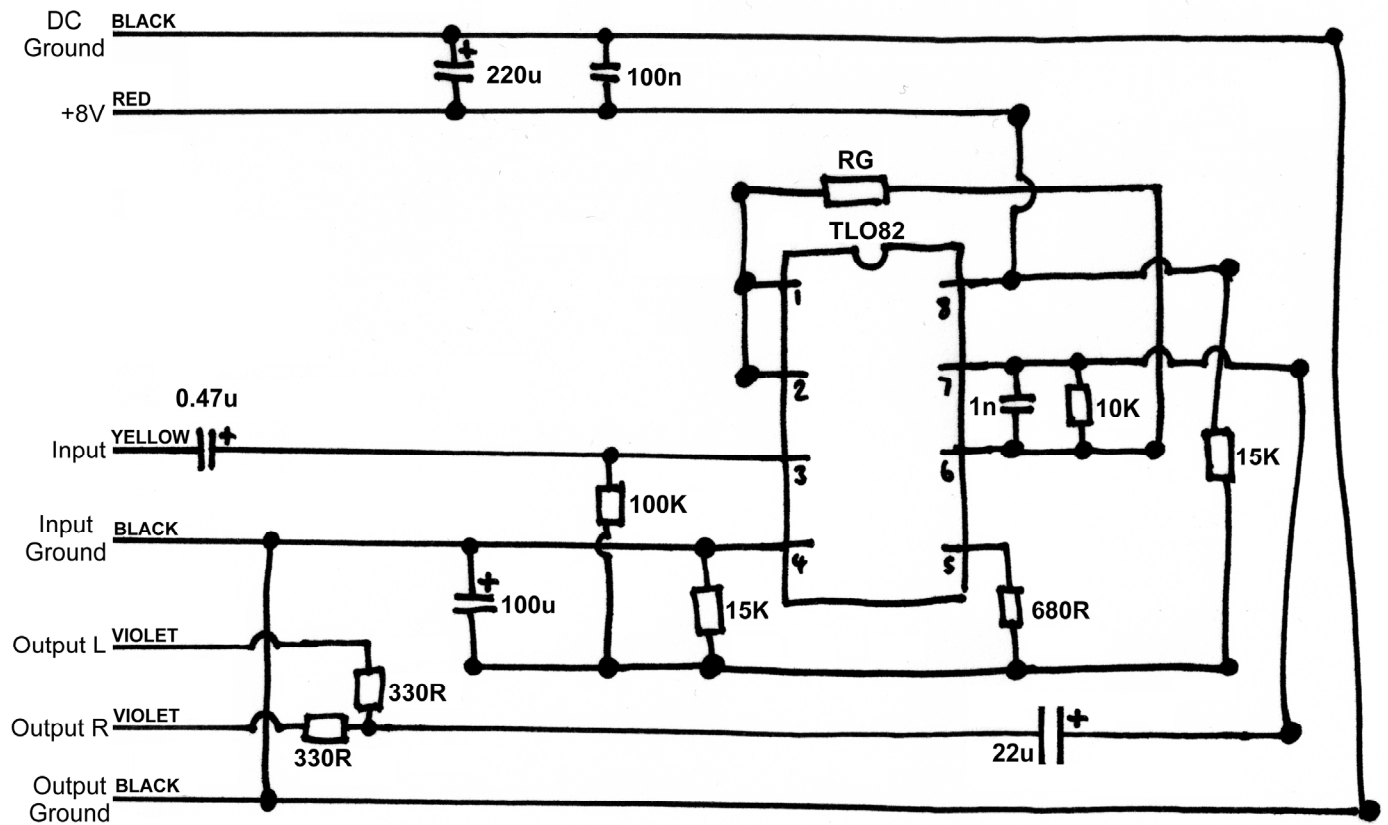


Transceiver / scanner lineout adaptor

Schematic:



Veroboard / perfboard layout:



Calculation of the value for resistor Rg:

- Measure p-p voltage at input
- Divide 2000 into this to get GAIN
- Divide 10000 by GAIN to get the resistance needed
- Use the nearest standard value resistor for Rg

Example calculation

- 140mV p-p measured
- $GAIN = 14.3$ (i.e. $2000 / 140$)
- $R = 700$ (i.e. $10000 / 14.3$)
- $R_g = 680R$ (nearest standard value)

Transceiver / scanner lineout adaptor

Purpose

To add a "line out" connection to a receiver designed for voice only signals, such as a transceiver, scanner, or shortwave receiver.

The majority of these do not have a point where audio can be tapped off before (i.e. independent of) the volume control - the voltage is too low and the impedance too high. A typical receiver "across the volume control outer pins" connection will have present about 250mV p-p @ 50K Ω . Line out needs 2V p-p at less than 5K Ω .

How it works

The first IC section is a voltage follower. This has no voltage gain, but takes a high impedance source and converts it to low impedance. This prevents the lineout circuit degrading the performance of the original circuitry due to loading effects.

The second IC section is a voltage booster. This has a voltage gain set by the value of the resistor R_g (between pins 1 and 6). The gain can be fixed to any value between 1 and 100. The calculation of this resistor value is shown on page 1.

Because the circuit operates on a single supply, input and output capacitors are required, and a 1/2 rail bias supply is needed for pins 3 and 5. A simple voltage divider (2 x 15K resistors and a 100uF bypass) is used to generate a 4V bias rail.

A 1n feedback capacitor limits the response to audio only, and 2 x 330R resistors operate as both splitters into L and R channels and as isolators to ensure stability under difficult load conditions, such as highly reactive loads, long leads, and RF energy present on the wiring.

Photos of perfboard example

