



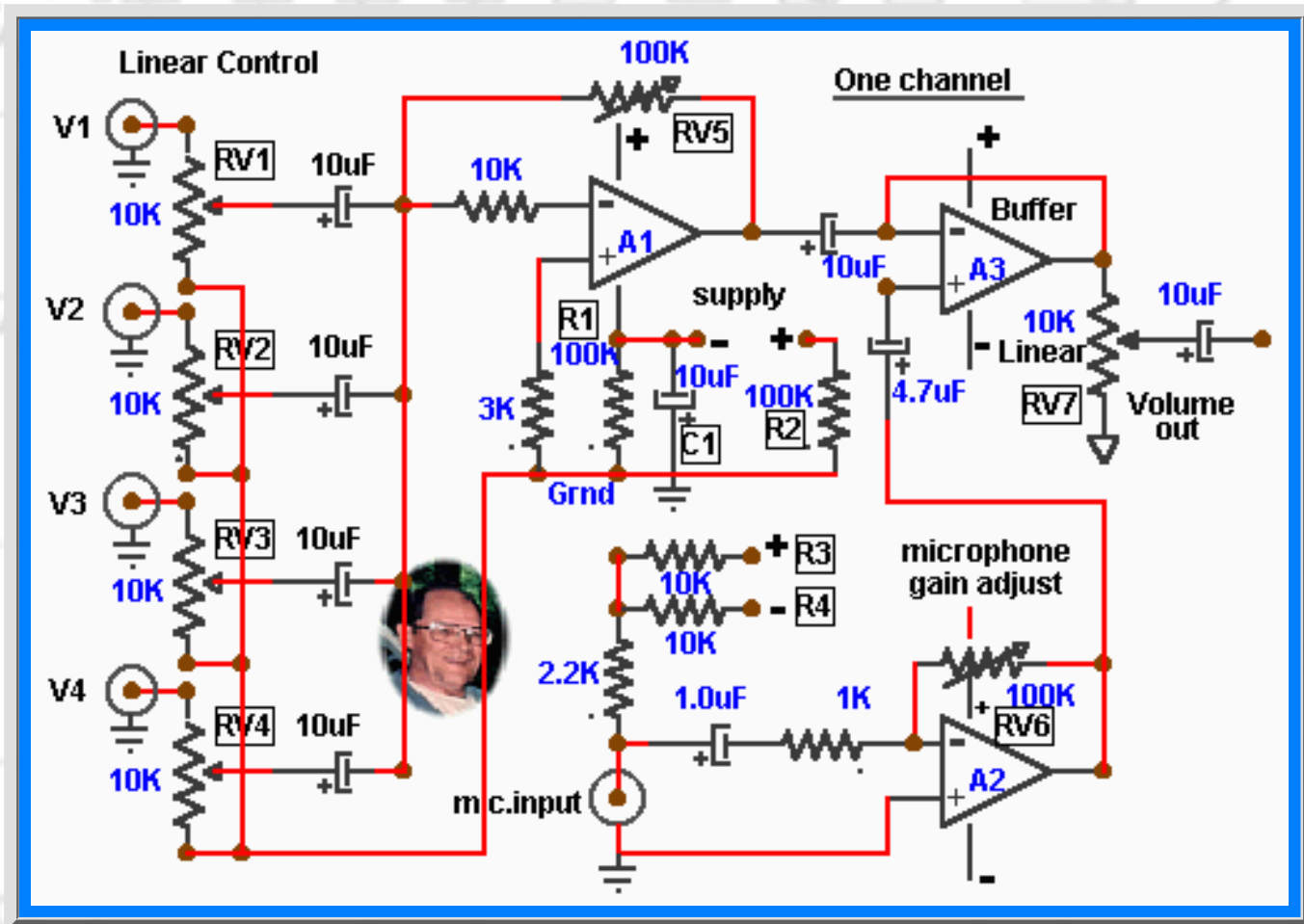
Handy Dandy #26 Little Circuits

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Super Mixer with Microphone input /amplifier

- The mixer described below differs from most mixer circuits in that all the inputs are not only adjustable but fed to a common amplifier which has an adjustable overall gain . It allows for a weak signal to be amplified and attenuate the other inputs for an even output level of all inputs.

An additional circuit provides for the input of a microphone into its own amplifier with its own adjustable gain control. Finally the overall mixed signals are fed into an amplifier/buffer to provide for a low impedance output to match almost any devices and power amplifiers.



Circuit Description

- The circuit has been designed to be operated using a 9 volts battery supply to satisfy the microphone specifications which requires an optimum operating voltage of 4.5 volts supply to a 2.2K resistance at its input . The microphone is a Archer mini-condenser microphone element from RadioShack part # 270-085 .

R3 and R4 , two 10 K resistors , are connected to supply +/- and form a voltage divider to provide the voltage supply source to the 2.2K resistor for the microphone.

R1 and R2 (100K) plus C1 (10uF) for filtering form the other voltage divider to provide the ground (common) point to the non inverting input (+) of op-amps A1 and A2 used as AC amplifiers . RV1 to RV4 control the signals input level to be mixed by A1 , RV5 is used to adjust the overall gain of the mixed signals . RV6 is used to control the gain of the microphone input signal to A2 and should be adjusted after A1 is set .

Both signals from A1 and A2 are fed to A3 used as a Buffer amplifier . It is very important that all inputs and outputs connections be made with shielded wire and the shield be connected to the Ground of the circuit as well as the receptacle plugs frame . RCA phono (female) plugs are normally used for audio input and output .

The microphone input plug should match the microphone output plug , a 1/8" plug could be use and matched with an adaptor .

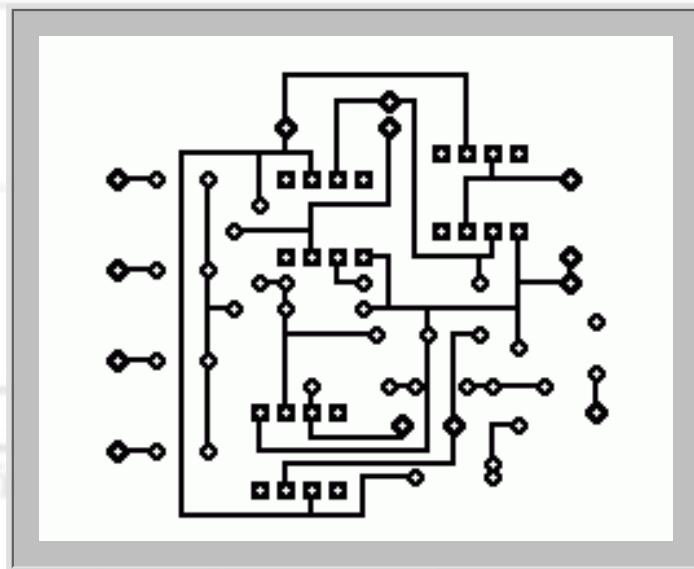
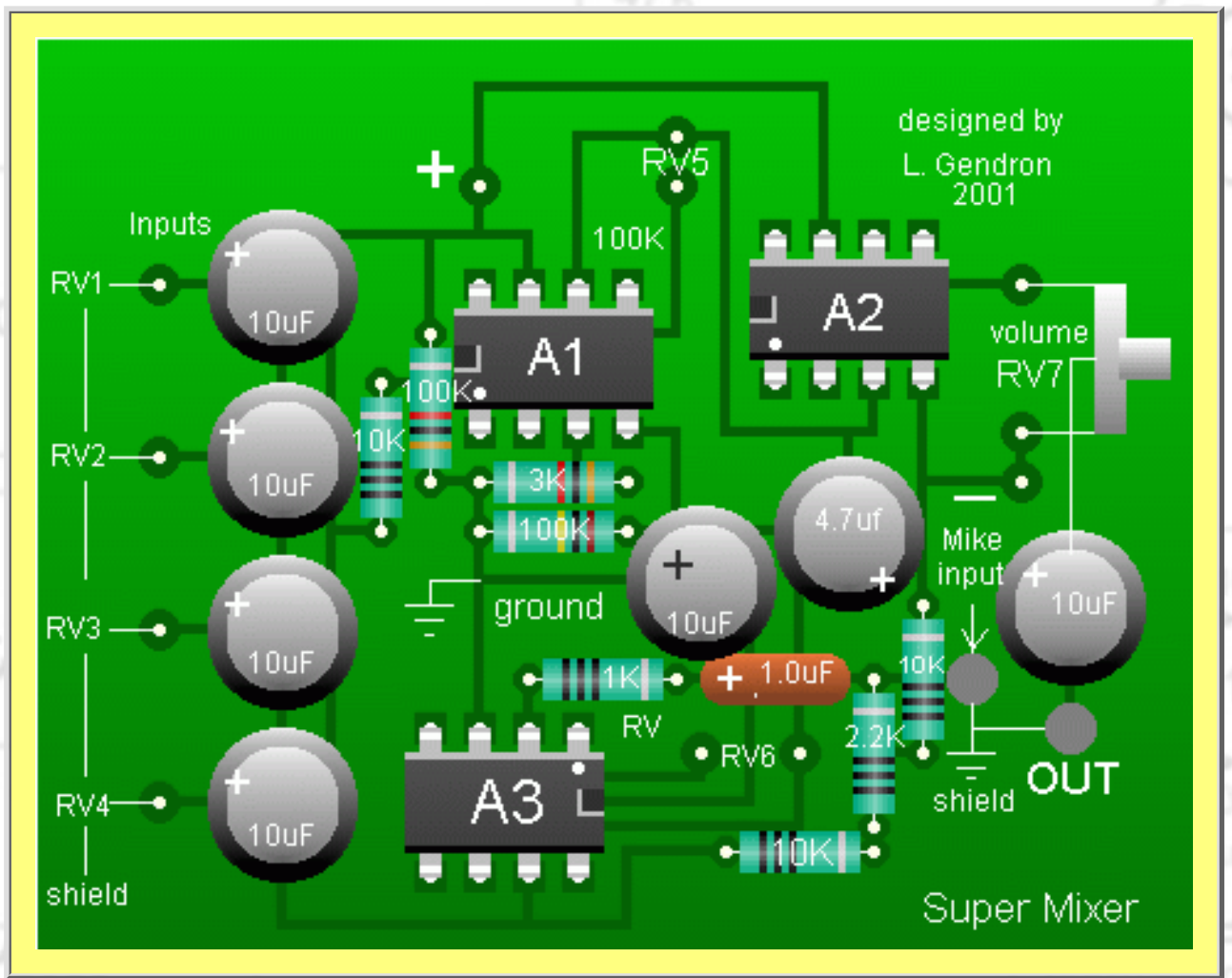
Stereo

- For stereo application you will need two similar circuits . Unless you use two microphones for stereo simulation only one microphone amplifier is required with the addition of one 4.7uF capacitor from A2 to the duplicate buffer amplifier . Of course you will need duplication for all inputs and outputs for stereo as well .

Voltage supply

- The circuit consumes very little current and although one 9 volt battery current should be sufficient for short sessions , it is recommended that two 9 volts battery be connected in parallel for a strereo system . As an option for more current six or eight 1.5 volts AA cells in a battery holder would provide more current and enable you to install additional LED's as power ON indicators . The LED should be connected between the positive bus and the negative through a 1K current limiting resistor .

The suggested layout and PCB was designed to use single op-amp IC's for easier trouble shooting in case of errors and parts replacement . By all means use IC sockets unless you are one of the few that never makes an error .



Questions? Email me at roma60@home.com

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