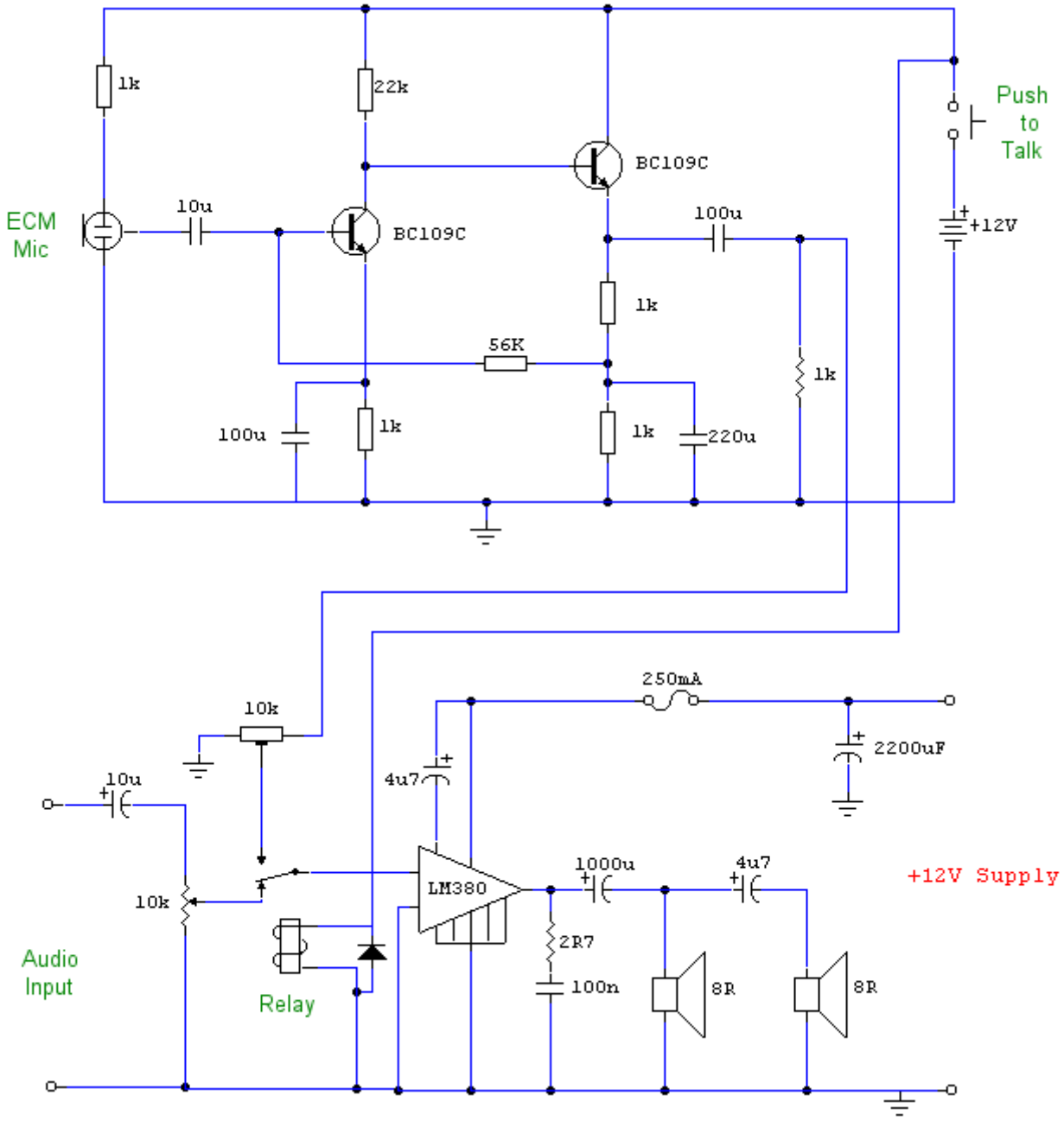
Voice-Over Circuit



Application Notes:

In its simplest form, a voice-over unit is just a microphone and change-over switch feeding an amplifier, the output from the microphone having priority over the amplifiers audio signal when the "push-to-talk" switch is pressed. In this circuit, a preamplifier immediately follows the microphone and is designed to be used some distance away from the main amplifier. The changeover switch is nothing more than a relay with a single changeover contact. For completion, an amplifier based on the LM380 is shown. Three wires are needed to connect the remote microphone unit to the amplifier and switching unit.

Circuit Notes:

With reference to the above schematic, the two BC109C transistors are used to make a microphone preamplifier. The left hand BC109C operates in common emitter mode, the right hand emitter follower. The combination form a high gain, low output impedance amplifier, capable of driving a long audio cable. Screened cable is not required as the output impedance from the microphone pre-amp is very low, and will be immune to mains hum and background noise. The input is shown as a three wire Electret Condenser Microphone though two wire ECM's may also be used. The output of the pre-amp is via a 100uF capacitor and 1k resistor. The 1k resistor here plays an important role, eliminating the dc component of the audio output. (See also eliminating the DC "thump" also on this web site.) A cable of three or more wires is wired to the remote amplifier. The amplifier shown here is based on the National Semiconductor LM380. The input signal is passed via the normally closed contact of a changeover relay, the 10k potentiometer being the volume control for the audio input source. The 10k preset at the normally open contact allows volume control of the voice input, note that this signal has by-passed the normal volume control. At the remote end, when the push-to-talk switch is pressed, the relay will operate and the "voice" signal will be heard in the speaker. There will be no "thump" or "thud" on voice-over as direct current has been eliminated as already mentioned. A suitable application for this circuit would be for use in a remote location such as a workshop or shed.