Reducing Hiss in an LM386 Audio Amplifier

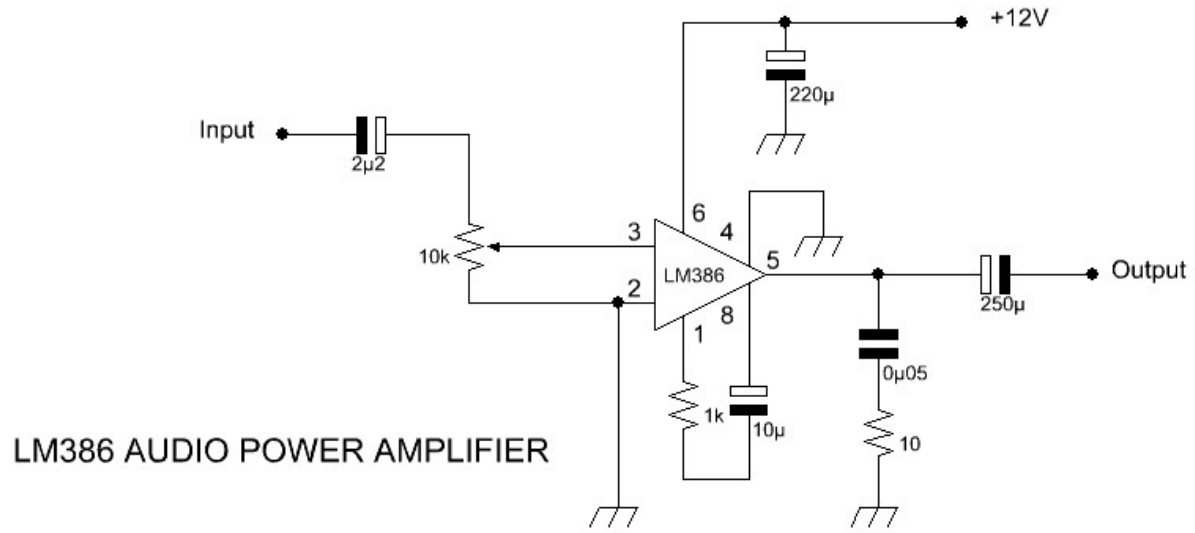
The LM386 has been around for a long time now. But it is still a very popular choice for a low component count amplifier; it's almost the amplifier of choice when you need to knock up something quick to hang a speaker off a project. I guess the market for this little 8-pin IC must still be quite buoyant and the 8-pin DIL package 386 can be found in most component catalogues.

One thing that's bothered me for a long time, though, is that hiss. Especially when the amplifier is built gainy and the signal level is low. I'd often wondered if it was something to do with the way I built or whether I've just been unlucky with almost every 386 chip I've ever acquired.

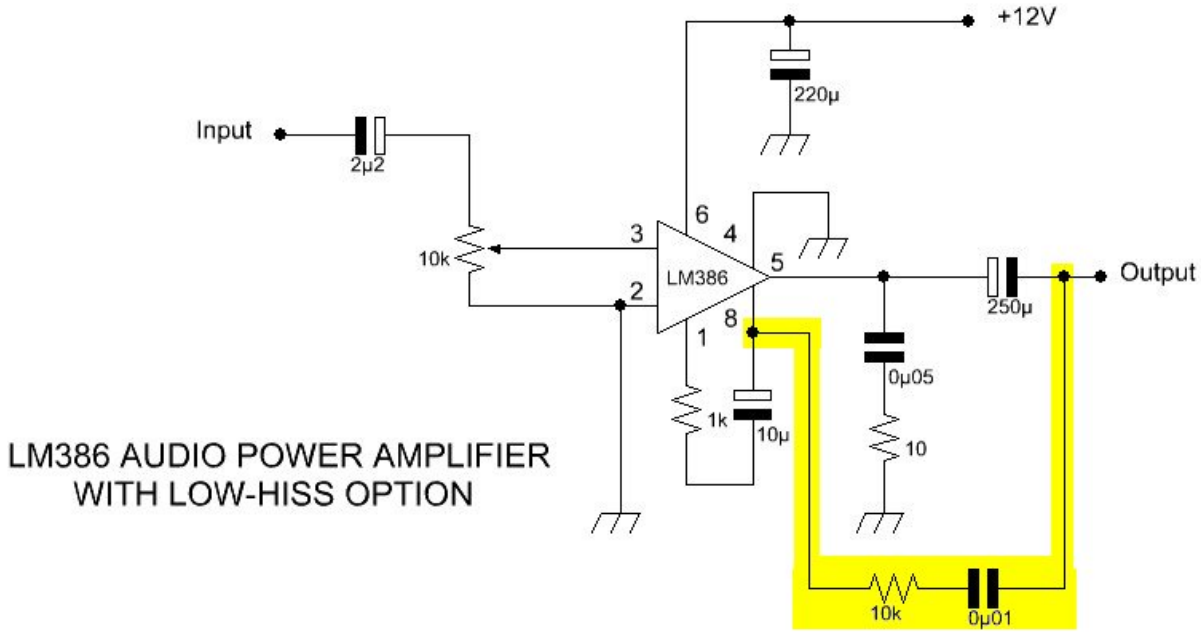
When I joined QRP ARCI a couple of years ago I decided to read my way through as many QRP Quarterlies as I could lay my hands on. That quest is another story of its own but one of the items that stood out was from early in 1994. The magazine reprinted an idea by KA5UOS that had been reported in the Oklahoma QRP Group Newsletter. This may all be a load of old hat but it was, at the time, news to me! And I'm still surprised to often see LM386 audio final stages today that don't address hiss. So I think this is worth sharing!

Don, KA5UOS said that he created his hiss filter feedback using a 10k resistor and a 0.01µF capacitor.

Here is a fairly standard LM386 amplifier without anti-hiss feedback:



Don's feedback takes a signal from the amplifier's output and return it to pin 8 of the LM386, as shown in the second schematic diagram:



The additional circuitry does very effectively reduce the presence of hiss and it is especially beneficial when signal levels are low. So far as I can tell it doesn't reduce the quality of the audio and, when I was testing a Wien oscillator recently, I used this circuit with the prototype oscillator. Listening to the note it sounded pure and using a scope showed no distortion of the oscillator's waveform.