

Keeley Parallel Mixer

In today's age of True-Bypass fervor, it is easy to shy away from the word buffer. Buffers however, can enhance your guitar's small signal level and create a signal that has more "sparkle" and "fatness". Many effects like chorus, flangers, phasers, delays, overdrives and distortions can work and sound much better with a buffered signal to them. Some other effects, like certain vintage fuzzes and wah pedals may not operate at their best or in a classic fashion with a buffered signal. The Parallel Mixer can be used after those and you can still reap the benefits of this tool.

I've chosen the TL072 for the IC in this project for a number of reasons. The TL072 has admirable qualities such as low cost, the "right" slew rate, and JFET input operational amplifiers with low input bias currents required. The TL072 also requires low supply current, great for us "battery only" guys and gals. Lastly, it has a huge gain bandwidth product (read to mean high fidelity). Many other dual op amps with FET inputs will work. You should use a socket during the build for experimenting with ICs later.

This project not only provides a buffer but a mixer for parallel operation of effects. Many guitarists have yet to experiment with this tonal possibility so this should be a project you need to consider. (The prototypes are the current "buzz thing" around the shop!) Keeley Electronics will be building these in the near future as soon as I make sure it is simple to use, ergonomic in the sense that connecting pedals to it isn't a pain or an ugly mess of wires and amended with just the right amount of features. A rack mount version would allow you more external controls. Our first rack mount is going out to Steve Honest, steel player on Dolly Parton recordings and current guitar tech for Ritchie Blackmore. (Don't miss his global tour! Ritchie is really stretching out and getting back to his roots at the same time I hear!)

This circuit has two switches. The first is for the input of the Parallel Mixer, a high impedance switch leading to the buffer. Some inputs to this circuit, such as certain effects, guitars, etc. may work or sound better when capacitively coupled. In general you will notice nothing at all as you toggle this switch, but it is a much needed feature "just in case". Again, this buffer will cure many of the "loss of highs when I turn my guitar volume down" or "certain effects seems to zap my guitar tone" problems because of low input impedances. The second switch is the phase switch. Since not all effects keep the phase of the signal the same (i.e., treble boosters, like our Java Boost) you need to be able to correct that. The symptom for an out of phase sound is loss of volume, bass, or a general hollowness to the sound, etc. If you are unsure, the best thing to do is just flip the switch back and forth and see what sounds "right" or best to you. What is of particular note is the fact certain combinations make brand new, never built before effects!

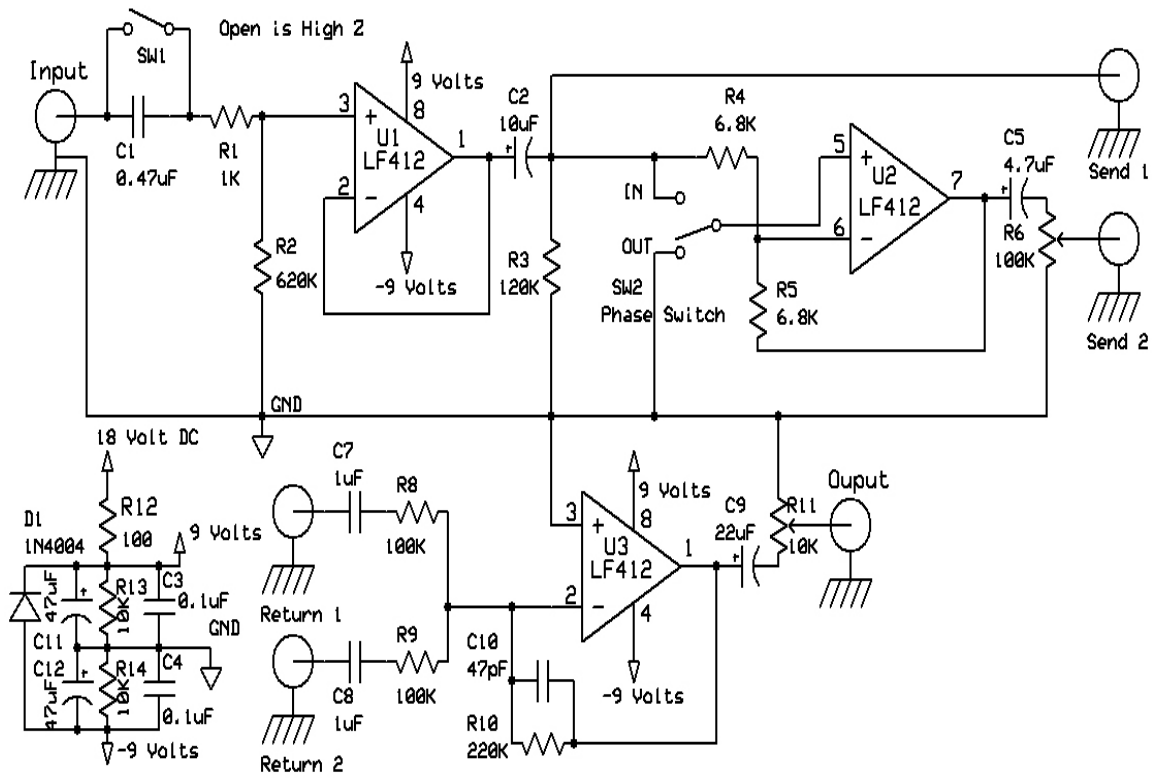
Parallel effect combinations offer interesting ways to connect effects and will give you nuances that are generally not possible with connecting effects in series. For example, you can take a compressor as effect 1 and a patch cord as "effect" 2 and you now have a blend control for your compressor. Take a TS9 as one effect and a patch cord as your second effect, and you have a blend control, blending a clean signal with any amount of sparkly overdrive you want. Try a cable in parallel with a chorus unit...then flip the phase switch so that it is out of phase with the straight through cable by using your ears. Wow, bizarre chorus indeed, almost like a nervous, detuned chorus at points. The more interesting possibilities occur when combining two effects that work on

different frequencies or different parts of your guitar tone. For example, take a really bassy fuzz face or big muff and put a chorus (where you listen to the trebly swoosh) in parallel with it for some really neat variations. Don't stop with just one effect in each loop either! The sound clips we will post on our site involve an envelope filter and a chorus unit. In series, no matter which way you connect them (say the Mutron III first and CE-2 second, or vice versa) sound dull, too bassy or in some cases terribly thin, and really not much inspirational tone going on. Then put the effects in parallel. Wow, THAT is the sound I've heard on Bob Marley records! Regardless of how Bob, Peter and Bunny did it, *for the first time there are sounds that I could just never dial in before, pure heaven!* The difference between a nightmare and bad tone is that bad tone is real! (Thanks Mr. Richards!) Try using an EQ pedal followed by a distortion unit on one side, and then an overdrive pedal followed by yet another EQ pedal on the other loop. Talk about getting *Your Own Sound!*

The potentiometer labeled R6 is for use with effects that may need some level adjustment. If one of your effects is simply louder than the other, connect the one that you need to reduce in volume to Effect Send 2. I have not tested it as a "stereo" splitter for amplifiers but it will work in some cases with certain amps. Lastly, U3, the final op-amp in this circuit does the mixing of the signals and does provide some gain (you can increase R10 for a little more gain out of the circuit if you desire, or reduce to about 100K for unity gain). (I made U3 a dual op-amp so that I could use the remaining half of the chip for a buffer to drive another source.) Potentiometer R11 is the final output volume control. For the guy wanting just a bit more control over the Return Levels, simply change R8 and R9 to 250K potentiometers. However, with a little experimentation R6 alone should do the trick. Do you have a little distortion in your signal now? Reduce the Output Level...remember this unit can provide some gain....so just turn down R11.

Capacitor number C10 is for reducing noise and radio interference. If you are not having a problem with such things, you can reduce or eliminate it. You can increase it if radio frequencies become a problem, eventually high frequency in your guitar tone will diminish.

The circuit is designed around an 18volt supply even though 9 volts would work OK but could lead to some unwanted clipping. The higher supply voltage does increase headroom and reduce unwanted distortions. Have fun and happy building. A larger copy of the schematic is available on my web site www.robertkeeley.com Feel free to let me know if you have any problems or suggestions to make it better.



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