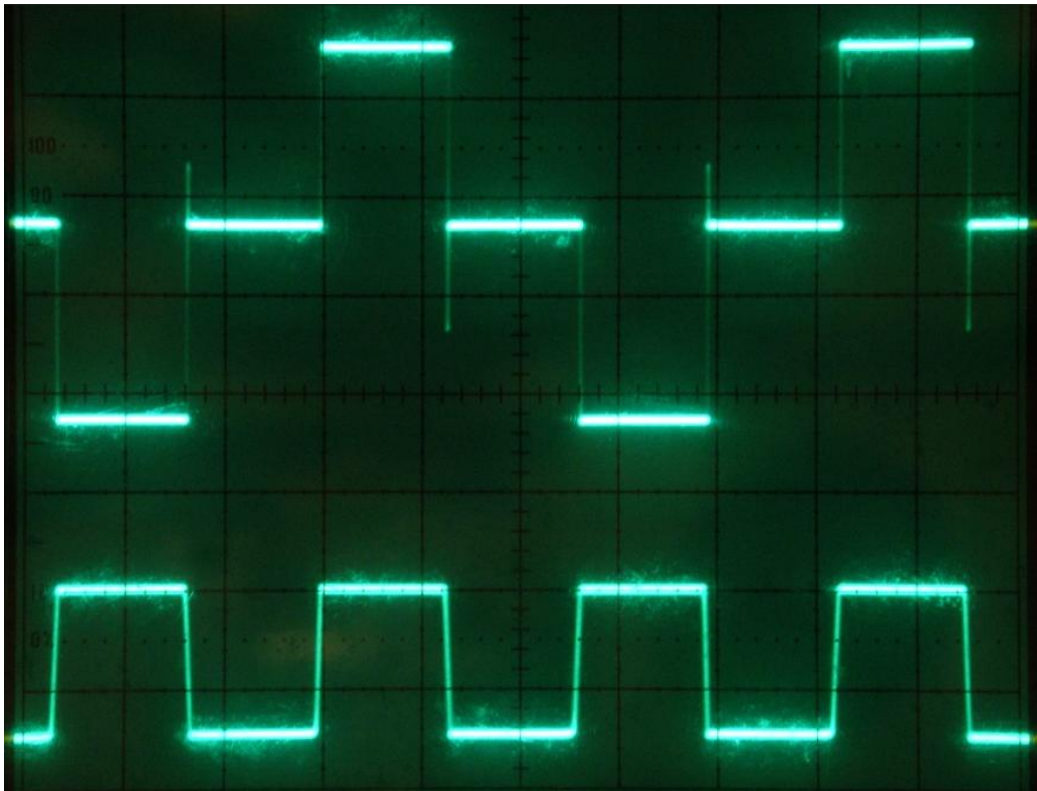


Modified Sine Wave Generator. Ben Ward 11 Sep 2016.

As part of an effort to develop a 400Hz power supply for my APN-9 LORAN receiver, I designed a circuit to generate a “modified sine wave” with the intention of using it to drive a high-power audio amplifier. The circuit is shown below. An 800Hz square wave is generated using an op amp. The frequency and duty of the square wave are independently adjustable. The output follows two paths. In path one, it is differentiated and clipped to provide negative going spikes which drive a bistable multivibrator. The two outputs from the bistable are combined with the original square wave (the other path) in a pair of AND gates. The output of one AND gate is input to a follower, and the other output is fed into an inverter. The output of these is added, producing the desired modified sine wave at half the frequency of the original square wave.

The power supply was not successful. The amplifier proved inadequate to supply the necessary power, and ultimately blew up. I eventually used a sine wave signal generator with a more powerful (3kW) audio amp. This might sound a strange way of creating a power supply, but the amplifier was quite cheap (c. \$100), and I had a signal generator and step up transformers on hand.



Upper Trace shows the output of the generator at U4/U5 as shown below.

