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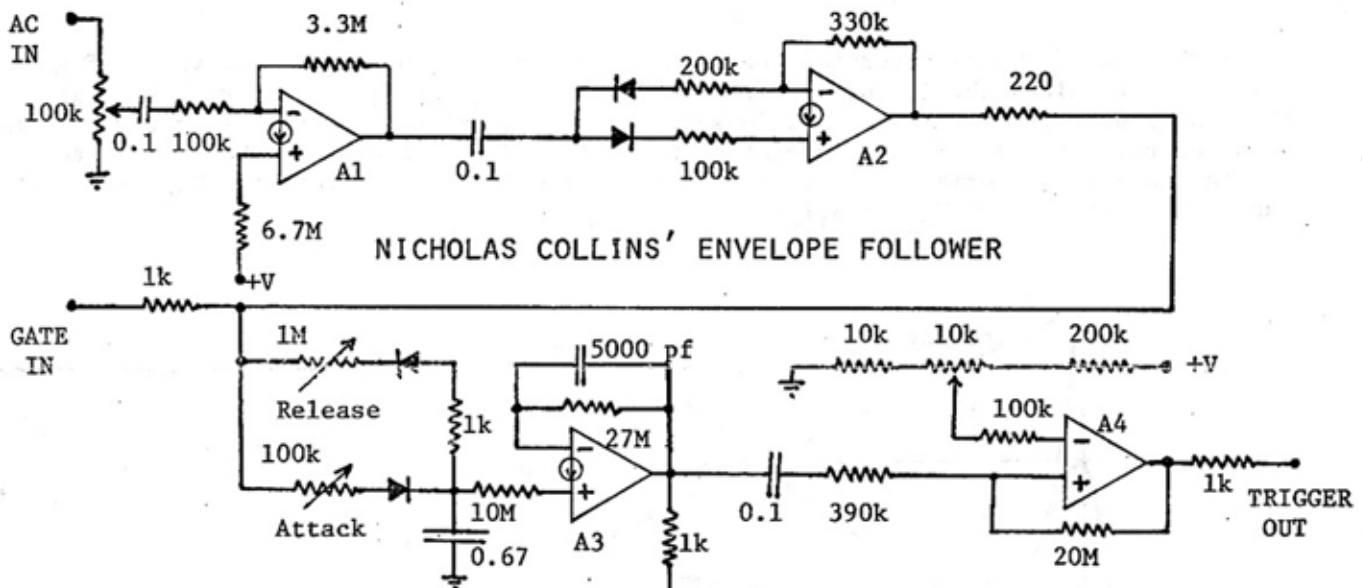
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4A. READER'S EQUIPMENT:

Most envelope follower circuits we have seen consist of some sort of peak detector or full-wave rectifier followed by a low-pass filter. This arrangement is satisfactory in some applications, but there is a basic problem of setting the time constant of the filter to a value where the "ripple" of the input signal will not appear in the envelope and yet so that short envelopes will not be attenuated and smeared out by the filter. [For more information, see EN#43, pg. 2 in answer to a reader's question.] What this comes down to is that it is usually necessary to adjust the time constant of the filter if the nature of the input signal or the envelope change significantly, and some combinations (i.e., short envelopes at low frequencies) just can't be handled satisfactorily.

The circuit below which was submitted by Nicholas Collins does not avoid the pitfalls described above, but it does add a degree of control that could well give a substantial improvement in some areas. This circuit has as its heart an actual envelope generator which serves as the "low-pass filter." The attack and release controls of the generator adjust the time constants of the "filter" so that increasing and decreasing voltages are handled differently. If you like, you can think of this circuit as an AR envelope generator which is driven by a funny sort of "gate." This "gate" is the output of the full wave rectifier, and it varies in peak amplitude. The ripple of this "gate" is filtered by the low-pass action of the AR generator.

Amplifier A1 is just a signal amplifier, while A2 is a full-wave rectifier. A3 is a buffer for the AR generator setup. Finally A4 serves as a differentiator which produces a trigger whenever the envelope changes rapidly. This permits the unit to be used to trigger other envelope generators from a live signal for example. As can be seen, the entire unit is built from a single LM3900 quad CDA, making it inexpensive and compact. Note that an actual gate can be applied to the circuit to make it serve as an AR type of envelope generator when not in use as an envelope follower.



A1, A2, A3, A4
each 1/4 LM3900

ENVELOPE OUT

Power supply +9 to +18