



LX-800 Chaser & Strobe

Introduction

The strobe controller is essentially a stand-alone device, even though it is part of the console PC connects through a two-wire cable to the remote strobe head. Control, input source selection and output routing are on the console.

WARNING - Strobes can be DANGEROUS and can induce epileptic fits. Use sparingly and with caution.

The input to the strobe controller and/or chaser is either through a bass-beat extractor circuit or a free-running oscillator, both of which are shared by the chaser and the strobe controller.

Bass Beat Extractor

The bass beat extractor is shown in Figure 5, and consists of an automatic gain control circuit followed by a low pass filter. The output from this circuit is fed to the next, which converts the beat into a sharp pulse suitable for triggering the strobe or chaser.

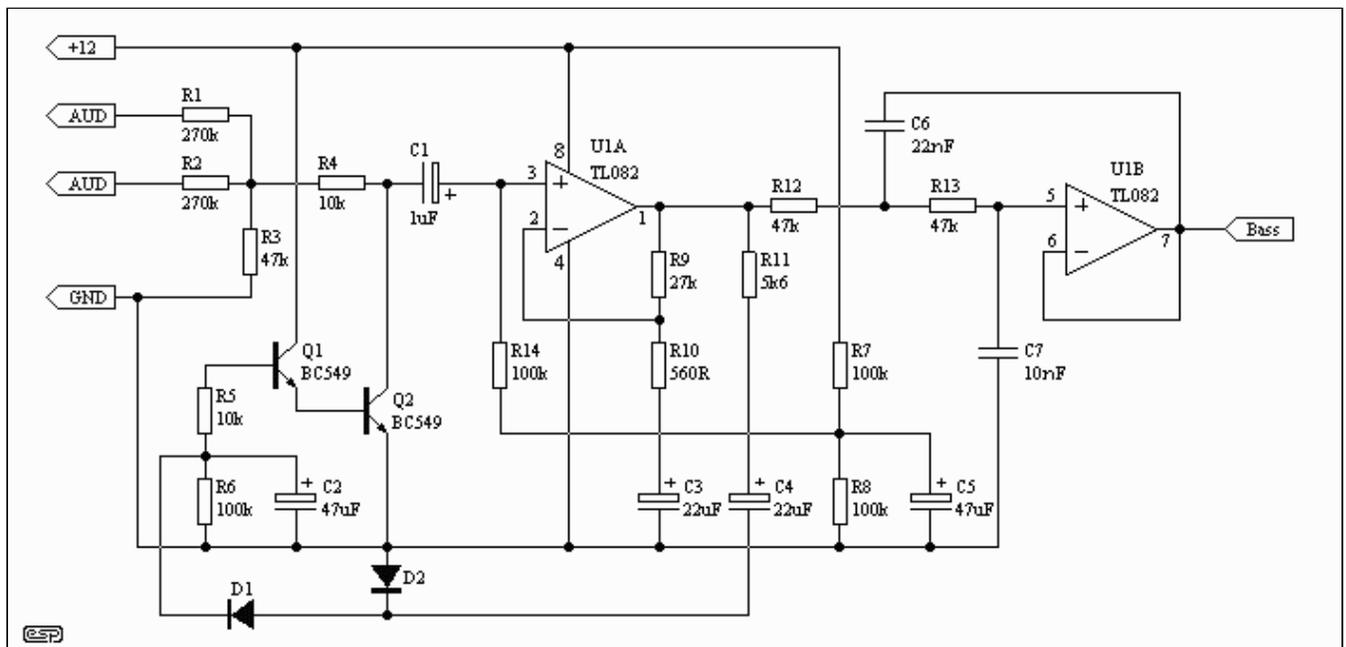


Figure 5 - Bass Beat Extractor

This circuit uses only the +12V supply. The limiter circuit will not win any prizes for linearity or

Strobe / Chaser Controller

The controller is based on a pair of 555 timers. One is used to clean up the bass signal into a suitable pulse, and the other is running as an astable oscillator. The maximum frequency can be limited by adjusting the trimmer and the speed control through the front-panel control. The switch select either the bass-beat extractor output, or the free-run oscillator described here.

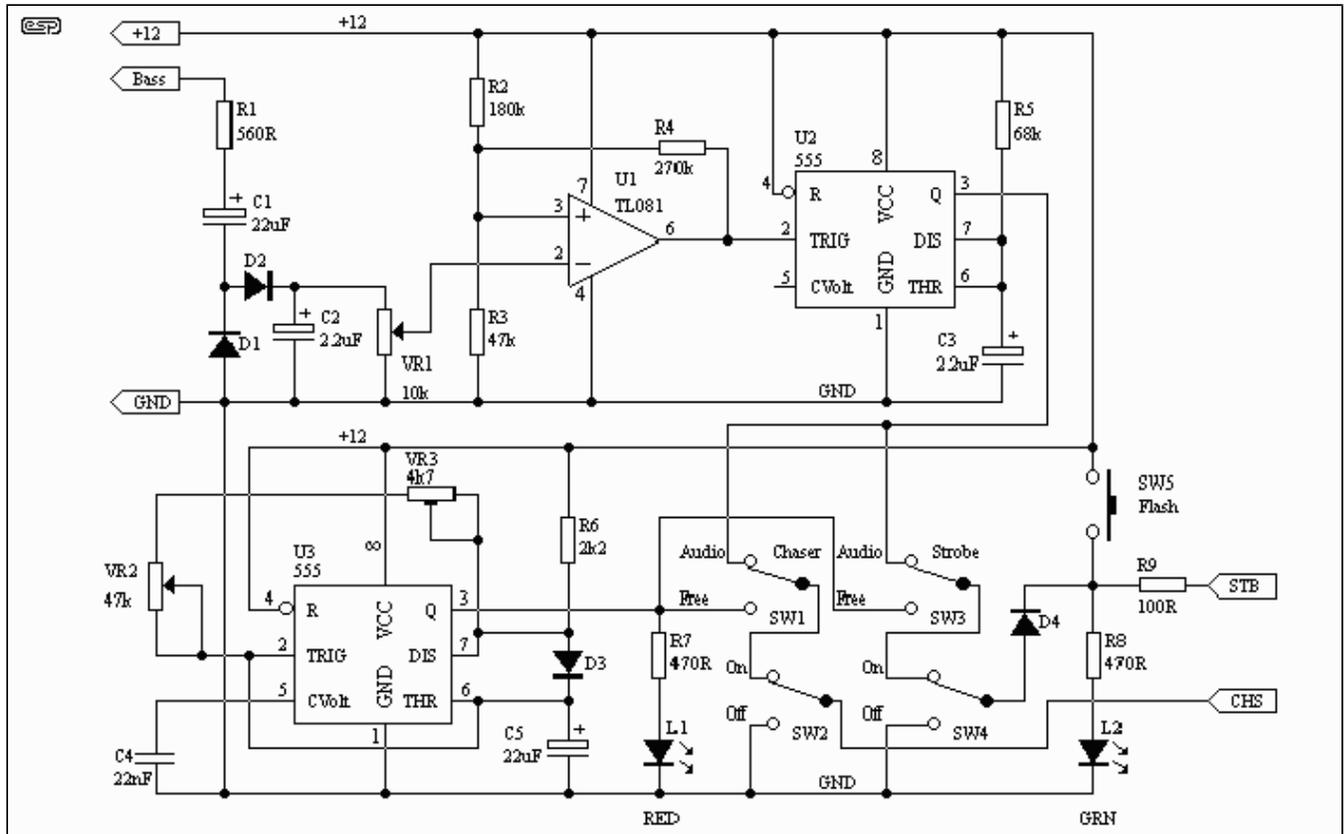


Figure 6 - Strobe and Chaser Controller

The first section is used to capture the bass peaks. The sensitivity of the bass beat extractor is adjusted with VR1. The free running oscillator is based on U3, a 555 timer. The speed is controlled by VR2, and VR3 (a trimpot) is used to set the maximum frequency. The switching determines if strobe and/or chaser are controlled by the oscillator or the bass beat, and each is independently selectable. The signal to either can also be switched off entirely. The Flash button is used to create a single strobe flash - really useful for creating lightning effects. Diodes are 1N4148, resistors are 1/4W. Capacitors should be rated at 25V minimum.

Chaser

The chaser was developed out of an urgent need by one of the directors of a show I was involved in. It was designed, de-bugged and constructed in a single evening - because the director wouldn't take no for an answer (show me a theatrical director who does!) Consequently, it is simple in the extreme - but still effective.

It is based on a CMOS 4017 decade counter, forced to reset at the nine count and resume from count 1. There are eight steps in each cycle before it repeats itself. Outputs are routed through the usual diode-coupled precedence hook-up. Input is either from the bass-beat extractor or from the free-run oscillator.

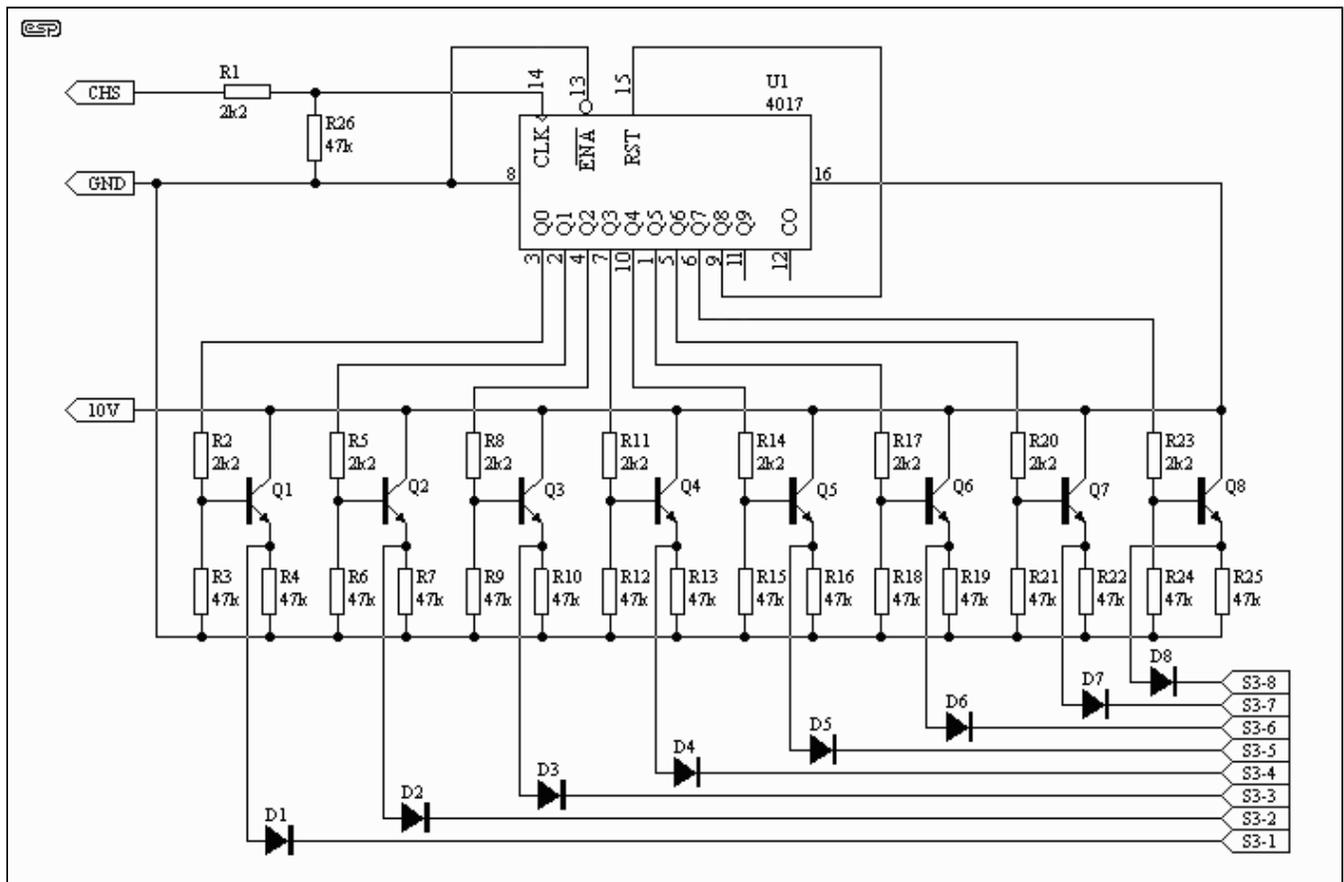


Figure 7 - Chaser

The circuit uses transistors to buffer the outputs from the CMOS counter. This is done for two reasons. Firstly, the output current from a CMOS IC is not great, and secondly the buffers provide protection from external static fields, which will damage a CMOS device instantly. All transistors BC548 or similar (e.g. 2N2222), and diodes are 1N4148, resistors are 1/4W. Capacitors should be rated at 25V minimum.

Strobe Head

WARNING - The circuitry in the strobe head operates at very high DC levels. These voltages are LETHAL. Take adequate precautions when testing, fault-finding and so on. If you are unsure of how to work with potentially lethal voltages - DO NOT ATTEMPT TO BUILD THIS CIRCUIT. Ask a competent person for help.

I am not at all comfortable designing, testing and building circuits like this. The voltages are very high, with some potentially lethal potentials lurking behind capacitor terminals. So, in my typically cowardly fashion, I went looking for a solution on the web, and found this. It works well, is relatively simple and the parts are easily acquired.

The strobe circuit was not available at the time of writing. You may browse the web to see what you can find. The only requirement is that the strobe head can be triggered by a positive-going pulse about 12V. Strobes that rely on a contact closure (for example a modified photo-flash) will not work without further modification.

Editor's note: Although I have built a number of strobes - including a 1000 Joule unit that could strobe a small city - the circuits are long gone, and some of the parts used at the time are no longer available. A new circuit with design notes is available as [Project 65](#). Note the link will open a new browser window.

Copyright Notice. This article, including but not limited to all text and diagrams, is the intellectual property of Brian Connell and Rod Elliott and is Copyright (c) 2000. Reproduction or re-publication by any means whatsoever, whether electronic, mechanical or electro-mechanical is strictly prohibited under International Copyright laws. The author/editor (Brian Connell/Rod Elliott) grants the reader the right to use this information for personal use only, and further allows that one (1) copy may be made for reference while constructing the project. Commercial use is prohibited without express written authorisation from Brian Connell and Rod Elliott.