

VERSATILE LIGHT SEQUENCER

I was very pleased to see David Holmes's article on the versatile light sequencer in your June and July 1981 issues of **Radio-Electronics**.

The overall construction was quite simple and straightforward, though one feature—sound-sync-controlled light intensity—could be rewired so that each channel corresponds to a specific range of audio frequencies: channel 1, highs; channel 2, mid-highs; channel 3, mid-lows, channel 4, lows.

To accomplish that, the commons of each opto-isolator (IC8-IC11) should be isolated from each other as shown in Fig. 1 below. Four individual PNP transistors should be used, each with its own filter network for the corresponding frequency.

will help to contain the ozone produced.

Ozone can be quite dangerous. Prolonged exposure, as you may know, can result in serious diseases, such as emphysema.

Second, ordinary sewing needles will not work for long: Early ionizers used them, and they tended to give out in about a year, because the needles become blunt. Surgical stainless steel needles work far better and last much longer. They can be bought at surgical supply houses at a low cost.

Experimenters may be tempted to use other kinds of emitters, such as copper mesh or fuzz. Be careful. You can easily create an ionizer that is spraying off copper, tin, iron, and other molecules, which you might then breathe in. Most manufac-

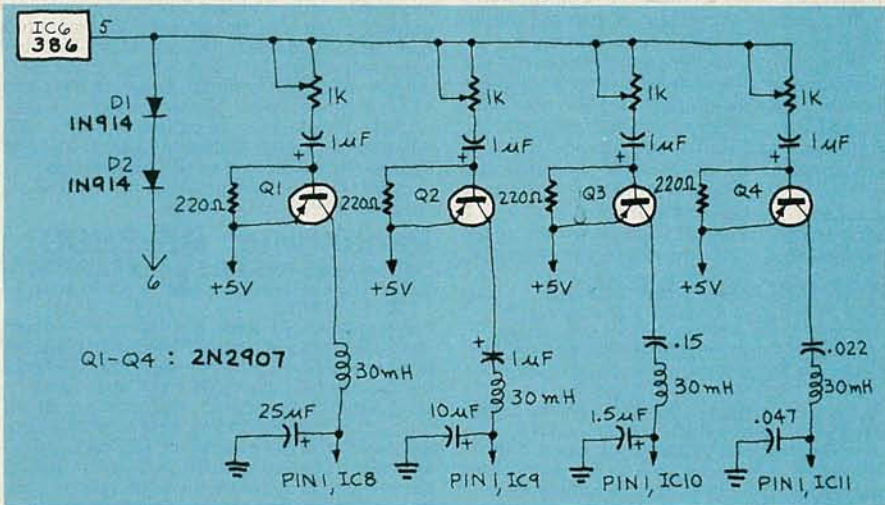


FIG. 1

I hope that suggestion will help make the versatile light sequencer even more versatile for your readers.

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turers now use stainless steel needles. There's a good reason: They seem to be both cheap and safe.

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NEGATIVE ION GENERATOR

Thanks for your excellent article on building a negative ion generator (**Radio-Electronics**, July 1981). I have built several, to find out what made them tick. Two points need to be emphasized.

First, the major problem with a negative ion generator is ozone production. Ozone, by and large, seems to be produced by internal high-voltage arcs due to sloppy construction. Any sharp solder joints, wire ends, etc., will tend to discharge to the nearest ground and produce ozone. All solder joints need to be quite round and smooth; all connections need to be as far as possible from ground. The sealed case

Many thanks for another fine project ("Negative Ion Generator," July 1981 **Radio-Electronics**), an interesting research idea that I've had pegged on the board a long while now. I immediately threw one together from loose parts, having all but the high-voltage rectifier, though, as of this writing I cannot comment on its usefulness. The devious simplicity of the unit design is a delight, as I was not enthusiastic about extracting a flyback coil from a junk black-and-white TV, which had been my previous intention. Some thoughts occurred during construction, which other readers may find useful.

The ECG513 HV diode stack appears to cost approximately twice that of a GE-513 equivalent, and SK3443 is an exact replacement, also.

Use a regular number-eight cylinder spark plug wire to connect the coil to the diode. The diode ends fit rather nicely, and if you leave access to the wire through a removable panel or otherwise, the ion generator makes an excellent spark plug dynamic tester and cleaning accessory. Be careful, though; I think that about one minute of higher-frequency discharge will pit the electrodes greatly. That is how I tested the oscillator coil before completing the diode assembly.

Even though free air flow around the emitter needle is essential, the needle should still be isolated from accidental touch by a wire cage at a radius greater than one inch. (Take a lesson from cattle prods and laser guns; an arc shock should not be lethal, but under the skin where body resistance may be less than 100 ohms, it could be pretty rough.)

Output voltage depends heavily upon frequency and duty cycle, as well as the coil ratio, and the transistor life expectancy is dependent as such also.

Your greenhouse plants may like this project.

One question: Does any reader know where to obtain a TI SN76489 sound generator controller? That appears to be an extremely useful microprocessor support IC, which I've had the applications notes to for a long time—but I haven't been able to find one.

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