

Better Reliability?

• I believe I found a possible problem in Fig. 4 of "Electronics Notebook" October 1985. The potentiometer shown connecting between the supply voltage and pin 7 could be adjusted to zero ohms, thus damaging the 555 timer. Inserting a 10-k ohm fixed resistor in series with this potentiometer would produce a more reliable circuit without seriously altering its performance.

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This raises an interesting point, particularly since I have used variations of the basic circuit cited in his letter for many years without damaging any 555 chips. Therefore, I conducted a few simple tests. When the potentiometer between the supply voltage and pin 7 is shorted, the current flowing into pin 7 of several standard 555s I tried ranged from 60 to 70 milliamperes. This much current should not damage a standard 555. I left a shorted 555 circuit switched on for an hour or so, and though the chip became warm, the circuit functioned normally when the short was removed. Of course, shorting the chip reduces battery life.

MOS versions of the 555 are another matter. Shorting the power supply voltage directly to pin 7 gives a current of several hundreds of milliamperes. Brief shorts will not damage the chip, but longer duration shorts will quickly cause the chip to become overheated.

My conclusion is that if the 555 circuit is intended for a commercial application or if a CMOS 555 is used, Mr. Halbern's suggestion should be heeded. For experimental applications with standard 555s, the use of the 10k series resistor is optional.—Forrest Mims, III

Kudos

• Since the old *Popular Electronics*, I have not found a magazine such as yours, where the news is always crisp and seems to be just the kind of things I want and need to know. The product evaluations are insightful and informative, giving me a complete overview of new products in a matter of minutes that would take me hours on my own, if I could get my hands on the equipment.

It is a rare issue of *Modern Electronics* that does not have at least one project I have been waiting to see. Each construction project seems to be carefully scrutin-

ized for simplicity and ease of building. Each feature article gives me the important facts and cuts the heavy theory, yet always seems to reinforce the basics.

Of particular interest to me are Forrest Mims' and Don Lancaster's columns. My major in college was automated manufacturing, and I love information about making electronic circuits and computers control real-time events.

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At Sea

• Re: "A °C/°F Thermometer Accessory," October 1985, the calibration section states: Then immerse the sensor probe in the boiling water and readjust R9 to obtain 100 °C reading." That works fine at sea level, but not all of your readers live at sea level.

According to The World Almanac 1985, the boiling point of water drops by 1 °F for each 550 feet in elevation above sea level. That would make it 1 °C for each 990 feet above sea level. Thus, here in Cody R9 should be adjusted to obtain a 95 ° reading in boiling water, and 93 ° in Laramie, Wyoming.

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