Q & A

READERS' QUESTIONS, EDITORS' ANSWERS

BNC: The Answer?

Readers wrote from as far away as Australia to tell us what "BNC" stands for. The trouble is, they didn't agree! "Bayonet Navy Connector" was one of the most popular answers, sanctioned by a Hewlett-Packard catalog. Others include "British Navy Connector" and "Baby 'N' Connector."

The most authoritative source was an article in *Electronic Packaging and Production*, 1980, which cites a "legend" that BNC stands for "Bayonet Neill-Concelman." Paul Neill and Carl Concelman definitely did invent the earlier N connector and C connector respectively. It's certainly plausible that the B stands for bayonet, because a TNC connector is the same thing, with threads instead of a bayonet attachment.

We thank everyone who wrote.

Pulley Correction

Your answer to the question on slowing down a tape recorder ("Q&A," September 1997, page 11) is incorrect. A larger pulley on the motor shaft will cause the recorder to speed up. You need a smaller pulley on the motor shaft to slow it down. — Robert Blum, Huntington Station, NY

Oops! You are correct. We also thank Vincent Sullivan, for pointing out that the *torque*, not the *power*, is what changes when you change the pulley or gear ratio. He also points out that gears are not used in good tape recorders, though we've seen them in talking toys.

Power-On Sequence

Q *I need to turn on the components of my audio system in a particular sequence, about five seconds apart, to prevent loud transients in the speakers. Can you suggest a circuit that would automate the process, and would also turn off the equipment in the opposite order? — T. M., Pleasant Grove, UT*

A Power-on and power-off sequences are a classic problem in industrial electronics; old-fashioned solutions involve thermal-delay relays and other awkward circuits.

Figure 1 shows a thoroughly modern solution using an LED bargraph chip. In effect, the chip displays the gradual charging and discharging of a capacitor. But instead of turning on a set of LEDs, it drives a set of solid-state relays (up to ten) which can control AC loads. Adjust C1 until the timing suits you; you may need to make it as large as 220 µF. The power-down sequence will be slower than the power-up sequence.

Artificial Voice Box

Q *I am a laryngectomee; my larynx has been removed surgically. In order to speak, I use a vibrating device that I hold against my throat. Unfortunately, it makes me sound like an alien from outer space. I hate it!*

Is there a device I can build or buy that will smooth out the vibrations? I would use my vibrator to speak into the device which would remove some of the buzz, making the speech sound closer to normal. — E. C., Las Vegas, NV

A That's a very interesting idea. As you've found out the hard way, intonation (tone of voice) is the hardest part of speech synthesis. The human voice box varies in pitch and loudness, and even turns its vibrations on and off many times during the articulation of a single word. Your artificial larynx can't do anything but buzz continuously at a fixed frequency.

It would probably require digital signal processing, but it ought to be possible to filter your speech to remove some of the buzz and amplify the harmonics added by your vocal tract. Even then, your speech would be far from natural, but it ought to be easier to understand.

Thinking even more futuristically, why not pick up the nerve impulses that would have gone to your larynx if it were still there and use them to control the artificial larynx? Then you might be able to achieve much more natural speech.

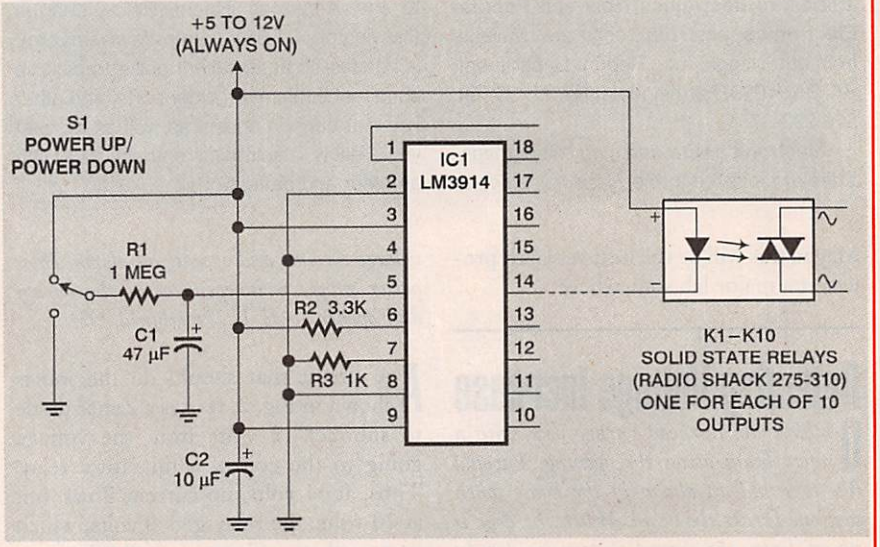

FIG. 1—A MODERN SOLUTION TO A CLASSIC PROBLEM—here an LED bargraph-driver IC is used as the heart of a circuit to turn equipment on and off in sequence.