

BY RICHARD PANOSH

Are you being lied to? For example, would you like to know if that politician on TV is really planning on lowering taxes? Let's face it, there are countless situations where knowing just who is telling the truth could come in handy. But how do you find out?

We've all heard of galvanic-skin-resistance (GSR) meters that attempt to measure a change in skin resistance that could be caused by nervousness. However, how many people would be willing to get "hooked up" to such a device? And even if they agreed to it, they would surely be insulted.

Now there's a better, less obtrusive method for finding out if you're being lied to. Simply use the *Voice-Stress Analyzer* described in this article. What's best about that device is that the suspected liar doesn't even have to be present—a tape recording of him or her will work just as well!

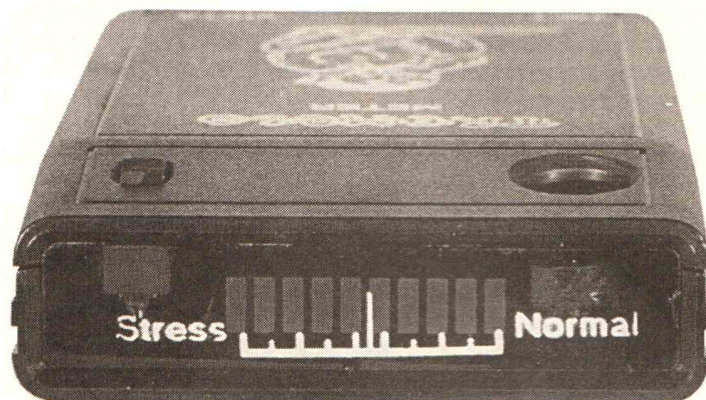
We'll get to how to build the Analyzer in a moment. But first, let's take a look at lie-detection methods of the past, and at how voice-stress analysis came about.

The History of Lie Detection. Since the earliest days of civilization, people have been faced with the problem of figuring out who's lying and who's telling the truth. To help determine that, truth seekers throughout the years have developed many methods to gauge a suspect's guilt or innocence. Most of those methods relied on physiological indicators such as sweating, rapid pulse rates, blushing, rapid breathing, trembling, or shifting gazes.

One of the earliest recorded examples of physiological lie detection is found in the Bible. That was when King Solomon stated he would divide a baby in half to determine by the reactions of two disputing women who the baby's real mother was.

In India, the guilt or innocence of a suspect was determined by forcing him or her to enter a dark room, alone, and grab an asp. Those that grabbed the asp and lived were innocent, while those that were bitten or failed to grab the asp were guilty (whether a suspect grabbed the asp was easy to determine, the snake was coated with a layer of black soot that would mark the suspect's hand).

BUILD A VOICE- STRESS ANALYZER



*See at a glance if you're being lied
to with this innovative, truth-seeking circuit.*

Needless to say, few grabbed the asp and lived.

But in 1927, that all changed. Torturous and inaccurate methods of lie detection were replaced as science was finally applied to the task of gauging a suspect's guilt. The invention that resulted was the polygraph.

The polygraph detects chemical changes that occur in the body under the effects of stress. Stress causes the adrenal glands to increase their output, resulting in increased pulse rate, higher blood pressure, deeper breathing, and GSR changes.

During the 1960s, the American military sponsored research to develop a covert lie detector (a polygraph machine is quite noticeable). Methods ranged from using complex optical scanners to measure pupil dilation, infrared scanners to monitor skin temperature, microwave interferometers to measure breathing, and even odor detectors. Also during that period, some research was directed at detecting stress levels in the voice.

Voice-Stress Analysis. It seems that a person's voice changes under stress. In rare instances, a voice can even "crack." Such changes make voice-stress analysis possible. Best of all, as hinted at earlier, a test subject need not be present; conversations taken from a radio, television, telephone, or even tape recording can be used.

Now we'll examine just what causes a stressed individual's voice to change. It has been known for a long time that all working muscles in a relaxed human body produce micro vibrations with approximately 10-Hz cycles. More recently, research has indicated that those micro vibrations might diminish with stress.

Because muscles only exert force by contracting, movement of the body is produced by muscles that work in opposing pairs. In a relaxed state, it is believed that the muscles in the body are similarly relaxed and somewhat sluggish, which results in a dead zone in the control position of a