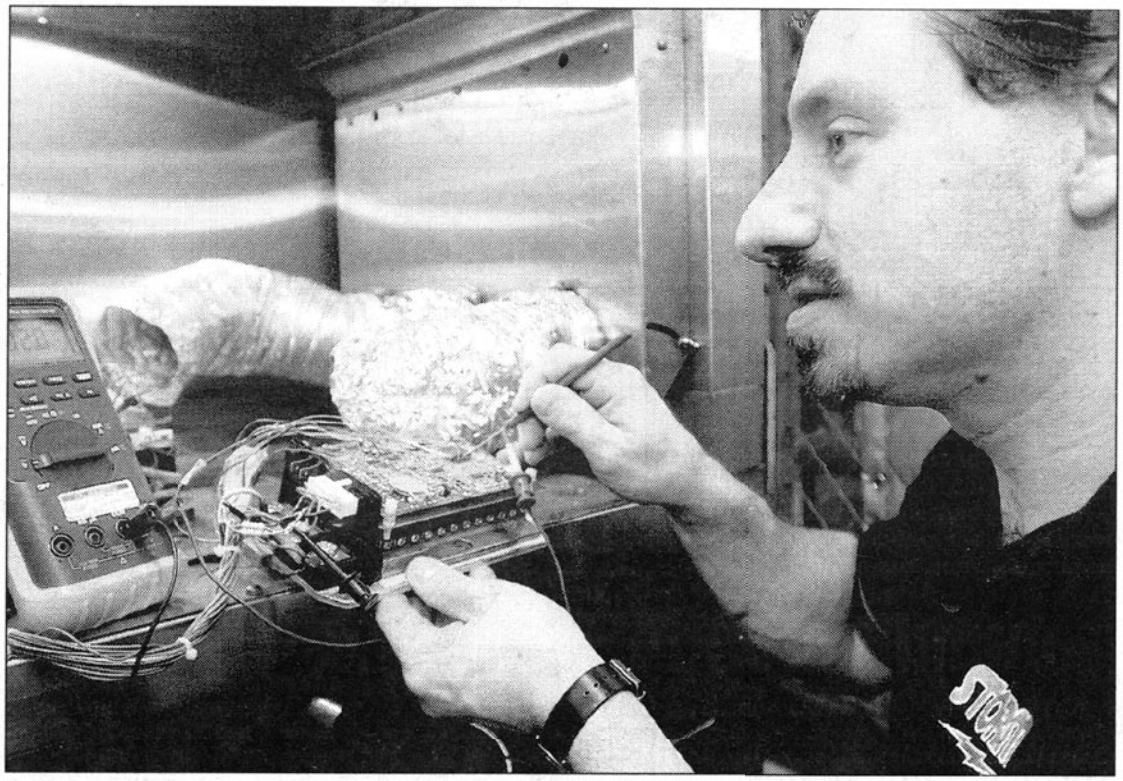
RESEARCH LABORATORY

Curtis pushes products to the limit

Jay Loomis
The Journal News



Carmen Troesser/The Journal News
Tom Bufi works in the quality assurance lab at Curtis Instruments. Here he tests an electric motor speed controller in the HALT chamber, which subjects the instrument to extreme temperatures and vibrations.

MOUNT KISCO — Tom Bufi routinely watches through an ice-coated window as the thermometer dips to -150 degrees inside a cabinet-sized chamber that holds small parts. He is testing how the parts, under study for future use in bulldozers, boats or everyday products, hold up to cold far worse than the North Pole.

In about two minutes, he warms the test chamber to the opposite extreme — 320 degrees — good enough to bake cookies.

A torture chamber?

Bufi doesn't disagree.

As he pushes buttons on the humming lab equipment at Curtis Instruments Inc. to inflict the ultimate pain, Bufi makes a reference to Capt. James T. Kirk at the helm of the starship Enterprise. But he doesn't look the part of Kirk with his blue jeans, sneakers and sweater. In reality, he toils in a cluttered basement at the bottom of a steep flight of stairs as motorists drive by unaware on nearby Kisco Avenue.

It's his job to subject the instruments and gauges developed by Curtis to more rigorous conditions than anything they will likely face on Earth. In addition to temperature, Bufi and other technicians shake the products on a vibration table for six hours, drown them in water, drop them 3 feet, unleash 20,000-volt shocks and inflict drenching humidity.

In one corner of the basement, 20 products are running day and night to see how long they last. So far, it's a combined 58,000 hours and counting. If Bufi or the other technicians need a detailed look at problem parts, they turn to microscopes 400 times more powerful than the human eye.

"It's all about testing and testing to make sure the products perform in the real world," said Stephen Tomasiewicz, vice president of engineering.

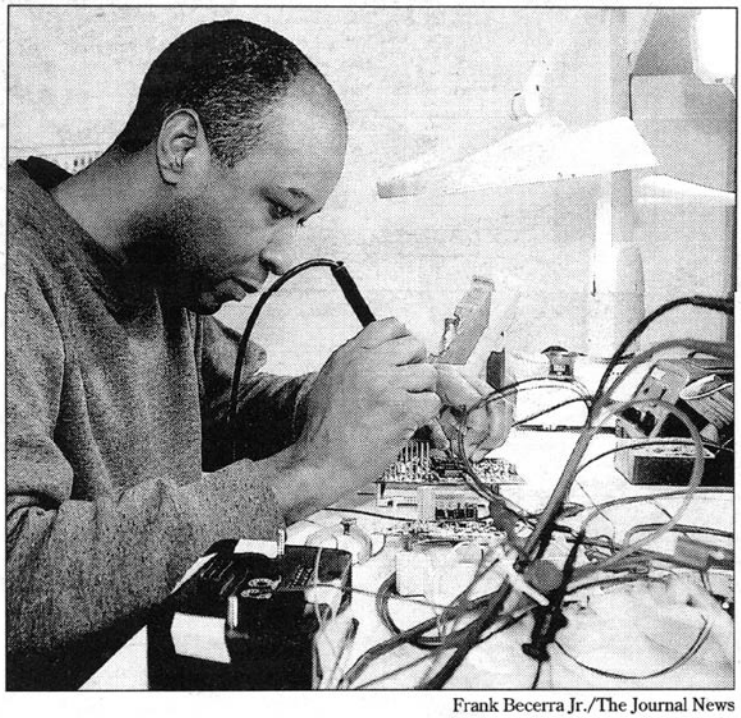
It's a formula that has worked at Curtis for more than 40 years.

Even though the Mount Kisco-based company is not a household name, its instruments, gauges, battery chargers and other devices are part of familiar products, including golf carts, lawn mowers, forklifts, wheelchairs and buses.

In addition, Curtis is one of those rare companies whose products rocketed to the moon. During the Apollo missions, Curtis made more than 50 instruments for the lunar rovers and command modules, including a fuel gauge for the rover.

"Everyone got an emotional charge knowing that they were part of this huge undertaking," said Mike Miller, director of product management. "It was a great accomplishment that set the stage for a lot of what Curtis did afterward."

These days, commercial markets are a bigger driver of Curtis' business than NASA. Space and military programs make up only 5 percent of the $100 million in annual sales. But executives say that Apollo was a huge boost for Curtis' research and development as the company opened factories in China, Bulgaria and Puerto Rico.



Frank Becerra Jr./The Journal News
Nesly Desir, a technician at Curtis Instruments, works on the circuitry of a new device in the company's lab.

"Apollo taught us how to get to the root of problems technically," he said. "We are still getting PR out of it (30 years) later. You take a picture of a man on the moon anywhere in the world — China or Russia — and people understand it."

Curtis has 50 active patents. Twenty of the 130 employees in Mount Kisco work in research and development. And 95 additional R&D employees work in California, Switzerland and China.

One invention was a new way of propelling electric golf carts that saves power and allows more rounds of golf to be played between charges, the company said. In addition, Curtis electronic instruments improved the safety of bulldozers, buses and other vehicles, the company said.

"There is always a need for dreaming," said Eugene P. Finger, vice president and technical adviser. "That's what helps you forge long-term visions."

Finger has witnessed much of the R&D evolution in his 40 years at Curtis. R&D has helped make products faster, more efficient and less expensive. Timing devices, for example, are 1,000 times more accurate than when Finger joined Curtis in 1963.

Curtis executives said no company can afford to rest on its laurels. Global competition and advancing technology means that today's products may have a shelf life of 10 years, compared to 15 to 20 years in the past, Miller said. Curtis averages three to five product introductions per year. The company has more than 200 product models.

"People aren't standing still," Miller said. "Behind every corner, there is potentially a new and better solution to every problem. ... When markets change you have to be able to respond very quickly."

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