Phil Bayarena, left, a systems engineer at Naval Air Warfare Center Weapons Division, is awarded a Navy patent by Jim Saunders, NAWCWD patent attorney, for his diode checker kit in November 2017 at China Lake. (U.S. Navy photo)

NAVAL AIR WARFARE CENTER WEAPONS DIVISION, CHINA LAKE, Calif. - Prior to joining the Naval Air Warfare Center Weapons Division workforce over 16 years ago, Phil Bayarena served in the Navy for six years. However, it’s the specific experience he’s gained at China Lake and his knack for repurposing materials that helped him build a diode checker kit, which earned him two patents in November 2017.

“I was kind of surprised when I found out,” Bayarena said. “My father-in-law has a couple patents and I remember him saying, ‘Hey, when you’re working on stuff out there, just keep in mind that if you have to make something because there’s nothing out there to test it, it might be patentable.’ Getting the award is pretty cool.”

Bayarena, a systems engineer for the Electronic Warfare Systems Division, works on radar system development and diodes are a basic component to radar receivers. While using a multimeter, a tool often used to measure voltage, resistance, current or continuity, to check his diodes for efficiency, Bayarena realized that the current coming from the multimeter would be too strong for the sensitivity of the diode needed for his equipment. Due to the
sensitivity of the diode, the multimeter would, essentially, destroy it.

In just one day, Bayarena researched, gathered materials from off the range and developed a kit that would adapt the multimeter to match the current of the diode for testing. His second patent came from making the kit scalable for different ranges within the limitations of the multimeter.

“I found the parts I used in a storage can of old parts,” Bayarena said. “The parts could have been bought in the ’80s as far as I know. It was just a matter of knowing how to configure them. Out at our range, we do a lot of fabrication; we always have. A lot of times, though, it’s very, very unique to one thing or one application. With this diode checker, I thought there’d be plenty of applications for other people, so I tried it and it worked.”

Continuing to heed his father-in-law’s advice, Bayarena is already working on developing his next patent. Senior technicians and engineers, Bayarena said, have had a hand in shaping him as he continues to grow in his field.

“I don’t know if I would be where I am today without their willingness to answer my questions or point me in the right direction,” he said, “and I can’t forget how much I’ve learned from working with such a diverse group of individuals. I appreciate them for that.”