This Is the Story of Ohms

By LCdr. Walter Banks,
Naval Safety Center

We all believe Sailors love life and are concerned with not just their own well-being, but also with that of their shipmates. That's why the Navy spends great capital and time educating Sailors to perform their work without mishaps. However, after reading reports about numerous recent electrical-shock mishaps, I wonder if those who work with electrical equipment and systems are aware of available training and required precautions for working with energized equipment and circuits.

We should be concerned about the high number of electrical shocks being reported from the fleet. I screen these reports and look for answers as to why the Navy has so many electrical-shock mishaps. I won't give you a reason just yet, but I want to share with you some recent incidents. Digest them and ask yourself how you can improve electrical safety in your work area. Remember, safety is an all-hands responsibility, "24 hours a day," 365 days a year. Following are some condensed reports from the fleet.

☛ AN HT2 delivered a new welder to the electrical tool-issue room to have the proper plug installed for shipboard use. The next day, tool-issue personnel returned the TIG (tungsten inert gas) welder to the HT2 without a completed safety tag. Three days later, the HT2 and a shipmate tried to use the welder without properly grounding it. When the HT2 energized the welder to check its zero-setting, he found it still was not grounded. His co-worker then grabbed the grounding cable to try and ground it to a piece of aluminum. This created a minor arc so the petty officer grabbed the grounding strap, trying to "adjust" it for a good ground. He got a shock: The jolt was strong enough to knock him backward. He was momentarily disoriented and his hands were reddened. Both Sailors realized it was time to return the welder to the tool-issue room and have it properly checked and tagged.

☛ An ET3 was troubleshooting an antenna control unit (ACU) that was connected to both an AC and a DC power source. While troubleshooting, he removed one of the ACU's bottom plates for a maintenance check. He didn't replace the plate when done, leaving exposed a 208-volt AC terminal. He then disconnected the cannon plug in the back of the ACU to check DC input voltage, but didn't secure the terminal. After completing his DC input check, the ET3—working in a confined space—held the control unit with one hand while reconnecting the plug with the other. Once the plug was connected, the hand with which he was holding the unit came into contact with 208 volts AC and he got quite a shock!

☛ Meanwhile, an AT2 was calibrating an altimeter tester on a workbench. He felt a shock while plugging the tester into the workbench as his arm was resting on the altimeter tester's metal casing. Chalk this one up as a mystery because he dutifully returned the altimeter tester to electrical tool-issue for safety checks. The gear was cleared by the AIMD QA department and given a clean bill of health.

These are but a few examples of Sailors shocking themselves. No matter how much you concentrate on completing your work, you cannot

take anything for granted about your safety and well-being.

Do you think you can determine why each of the aforementioned mishaps took place?

With the HT2 and his TIG welder: The electrical tool-issue room had released equipment before properly checking it. The HT2 also failed to follow electrical safety procedures when he energized the welding machine before making sure it was properly grounded. There also appears to have been a lack of supervision. Both he and his supervisor should review NSTM 300, Electric Plant-General.

The petty officer working on the antenna control unit should have had someone working with him, and he should have secured and tagged out all power sources before working on the ACU. He, too, should review NSTM 300.

As for the AT2 who got shocked with the altimeter tester: he completed a path for current when his arm touched the case and he simultaneously energized the equipment. He did not adhere to standard electrical safety precautions for portable electrical equipment in Chapter C9, paragraph C0903, of OpNavInst 5100.19D (change 1).

When it comes to working with electricity, respect "ohm" and "he" will respect you!

Photo by Matthew J. Thomas