

at the control panel did not respond. He was pressed rigidly against the fence, and his hands gripped the generator frame. After several seconds, he collapsed, falling clear of both the generator and the fence.

Personnel immediately secured the generator by opening the main circuit breaker, then stopping the engine. First aid and CPR were administered, and nearby corpsmen were summoned for the fallen Marine. Despite prompt actions and the use of an automatic external defibrillator (AED), he died from cardiac arrest.

In normal operation of optimal equipment, there is no dangerous voltage present that could harm personnel. The grounding rod and its associated grounding lead are designed to provide a safe path to dissipate hazardous voltages should an electrical fault occur in the generator set.

In this mishap, no grounding rod was used, and no earth ground was established for the equipment, despite very explicit warning placards and strong warnings in the equipment technical manuals. Why? Habit and complacency are to blame. In other areas of the compound, the concrete made establishing a ground difficult, and it became common practice for workers to skip this step in operating equipment, even though a grounding rod easily could have been driven into the soil at the perimeter of the paved area.

The mishap equipment was found to have a simple improper connection in an electrical junction box on the frame of the light set, allowing full generator voltage to be present on all external metal surfaces of the unit. By not using the grounding equipment, the generator frame became energized when the main breaker was closed, and deadly current flowed through the mishap Marine to the fence, which provided a ground.

Warnings and cautions were ineffective in preventing this mishap because they routinely were ignored. Interviews with the peers and supervisors of the dead Marine indicated they routinely operated the equipment differently in the equipment yard than “in the field.” In their words, the ground rod provided safety should the equipment develop faults “in the field.” It was “not needed” when the equipment was operated for brief periods within the equipment compound. They were wrong—dead wrong. **GW**

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A clearly visible placard adjacent to the generator’s operator panel reads:

WARNING - DO NOT OPERATE THE GENERATOR SET UNTIL IT HAS BEEN CONNECTED TO A SUITABLE GROUND. SEE OPERATORS MANUAL.

Similar warnings and cautions are repeated in the technical manuals:

(GENERATOR SET, SKID MOUNTED TACTICAL QUIET, MARINE CORPS TM 09247A/09248A-10/1. FLOODLIGHT SET, SKID MOUNTED WITH TOWER, MARINE CORPS TM 08857A-14/1.)

NEVER ATTEMPT TO START GENERATOR SET IF IT IS NOT PROPERLY GROUNDED. PERSONAL INJURY OR DEATH DUE TO ELECTROCUTION MAY RESULT.

WHEN ELECTRICAL POWER IS APPLIED TO FLOODLIGHT SET, DANGEROUS VOLTAGES ARE PRESENT WHICH CAN CAUSE DEATH OR SERIOUS INJURY TO PERSONNEL.

DO NOT OPERATE THE GENERATOR SET UNTIL IT HAS BEEN CONNECTED TO A SUITABLE GROUND. SERIOUS INJURY OR DEATH CAN RESULT FROM OPERATING AN UNGROUNDED GENERATOR SET.

