

Date: Thu, 21 Dec 2000 16:12:33 -0800
From: PHMC_Lessons_Learned@rl.gov
Subject: Yellow Alert- Miswired Plug Creates Electrical Hazard

Title: Yellow Alert- Miswired Plug on Rented Elevating Work Platform Creates Electrical Hazard

Date: December 21, 2000 Identifier: 2000-RL-HNF-0053

Lessons Learned Statement: Rental equipment may not meet its design specifications when received because of prior renter misuse or inadequate maintenance by the owner. It should be thoroughly inspected and test operated to ensure safety and functionality before being used on Site.

Discussion of Activities: On December 12, 2000, two electricians were assigned to install conduit in the shipping/receiving area at the Waste Receiving and Processing Facility (WRAP). Before starting work, they performed a pre-job inspection of the rented elevating work platform (commonly called a man-lift) that they had planned to use. This specific model is equipped with an onboard electrical outlet located in the basket, which requires an external power source for operation. In order to energize and check this onboard outlet, the electricians supplied facility power by plugging an extension cord into the 120-volt alternating current (AC) receptacle located at the base of the unit. After the connection was made, they discovered that the onboard outlet in the basket was not operational. The electricians tested the facility outlet, the extension cord, and the receptacle and concluded that the hot wire and the ground wire of the receptacle were reversed. The electricians then checked the voltage between the elevating work platform frame and a building ground and discovered 119 volts AC.

Analysis: The electricians found all the wires on the male plug on the unit installed incorrectly resulting in voltage being applied to the frame of the unit. That deficiency could have had serious consequences to workers in the basket had it not been discovered before use.

Recommended Actions: The elevating work platform was unplugged. The Person-in-Charge (PIC) notified the supplier of the rental unit who authorized the PIC to make any necessary repairs. Continued testing found that the ground fault current interrupter (GFCI) on the onboard outlet also was not operating correctly. The defective electrical service on the elevating work platform was tagged "Danger, Do Not Operate" and locked out of service. The other two similar platforms at the facility were inspected. Both were found to be in good condition. Facilities with this type of rented equipment should check it for proper wiring configuration in onboard receptacles. These units should be plugged into GFCI outlets even if they have one installed. ALL GFCI devices should be appropriately tested. Rental equipment is inspected when it comes on Site by Fleet Support personnel to check for obvious problems. Facilities requesting rental equipment should also check and test operate it before use to ensure it is functionally adequate for the task and is safe to operate.

Estimated Savings/Cost Avoidance: \$3,000 assuming one minor injury (shock) was prevented.
Priority Descriptor: YELLOW/Caution

Work / Function: Construction; Maintenance - Electrical; Maintenance- Equipment; Operations- Equipment

Hanford Functional Categories: N/A

Hazard: Electrical/NEC

ISM Core Function: Analyze Hazards

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Authorized Derivative Classifier: Not required

Reviewing Official: John Bickford

Keywords: elevating work platform; electrical shock; ground wire

References: Occurrence Report RL--PHMC-WRAP-2000-0005

HNF-PRO-093, Elevating Work PlatformsHNF-IP-0842, RPP Administration