

KNOWLEDGE PROBE 4: PORTABLE POWER TECHNOLOGY

Battery Service, Maintenance, and Replacement

Learning Objectives

1. Identify correct disposal methods for different battery types.
 2. Describe methods of testing batteries.
 3. Identify safety precautions to be used while charging batteries.
 4. Identify safety precautions to be used while working with batteries.
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1. The best battery test is an open circuit no load voltage measurement.
 - a. True
 - b. False
 2. A good test for a battery is
 - a. Current drain test
 - b. Loaded voltage test with C/10 discharge current
 - c. Open circuit voltage test
 - d. To see how hot the battery gets under normal load
 3. An alkaline cell is tested with C/10 discharge load. What is the minimum useful voltage value?
 - a. 0.7 volt
 - b. 1.0 volt
 - c. 1.1 volts
 - d. 1.5 volts
 4. Alkaline cells can be replaced with NiCd or NiMH cells with the same size package if the voltage level is sufficient.
 - a. True
 - b. False
 5. What is a good storage temperature range for batteries not in use?
 - a. Above 80° F
 - b. Below 40° F
 - c. Between 30 and 90° F
 - d. Between 50 and 77° F
 6. What condition will quickly discharge or destroy a battery or produce a fire?
 - a. Open circuit
 - b. Excessively high temperature
 - c. Excessively low temperature
 - d. Short circuit



7. What is the main safety hazard when recharging unsealed lead acid batteries?
 - a. Battery explosion
 - b. Excessive temperature
 - c. Release of oxygen and hydrogen which could explode
 - d. Release of sulfuric acid
8. When working with batteries, what personal safety advice is best?
 - a. Always wear a rubber apron and safety goggles
 - b. Always wear rubber gloves
 - c. Take off all jewelry
 - d. Use plastic tools
9. Which battery types may be disposed of in the normal trash?
 - a. Alkaline
 - b. Li^+
 - c. NiCd
 - d. NiMH
10. What can happen if a Li^+ or NiMH battery is burned?
 - a. Melting of the battery case
 - b. Nothing
 - c. Release of toxic fumes