

U.S. Fire Administration / National Fire Academy

*Coffee Break Training***Topic: Batteries for Diesel Engine-Driven Fire Pumps**

Learning objective: The student shall be able to explain the requirements for storage batteries for diesel engine-driven fire pump assemblies.

Diesel engine-driven fire pump assemblies are commonly installed for backup systems to electric-drive fire pumps, or where electrical power may be unreliable. The required power source for electrically starting diesel engine-driven fire pumps is storage batteries. The batteries may be lead-acid, or they may be nickel cadmium if the code official approves.

According to NFPA 20, *Standard for the Installation of Stationary Pumps for Fire Protection*, each diesel engine driving a fire pump must have at least two storage battery units for starting. At 40 °F (4.5 °C), each battery unit must have twice the power capacity to sustain the cranking speed recommended by the diesel engine manufacturer through a 3-minute “attempt-to-start” cycle. This works out to be six consecutive cycles of 15 seconds of “cranking” and 15 seconds of “rest”.

Storage batteries must be on a rack above the floor and secured so they cannot be displaced. They should be located where they will not be subject to excessive temperature, vibration, mechanical injury, or flooding with water.

The batteries must be readily accessible for servicing, and, unlike those in the illustration, not located in front of the engine-mounted instruments and controls. Current-carrying parts must be at least 12 in. (305 mm) above the floor.



The storage batteries also must be equipped with two recharging power sources. One must be the generator or alternator furnished with the engine, and the other must be an automatically controlled charger that takes power from an alternating current power source such as a standard wall outlet. If an alternating current power source is not available or is not reliable, another charging method must be provided as the second source.

For additional information, refer to NFPA 1, *Uniform Fire Code*[™], Chapter 13; *International Fire Code*[®], Chapter 9; or NFPA 20, *Standard for the Installation of Stationary Pumps for Fire Protection*, Chapter 11.

This battery set should be on a rack above the floor, and not in front of the engine controls.