

Generator Testing & Inspections

The following information is derived from NFPA 110-2010, which says the routine maintenance and operation testing program must be based on the manufacturer's recommendations and instruction manuals (section 8.1.1):

Weekly Inspections:

- Inspection per manufacturer's recommendation
- Storage batteries, including electrolyte levels or battery voltage, used in conjunction with systems must be inspected weekly and maintained in accordance with the manufacturer's specifications. (8.3.7)
- Emergency Power Supply Systems (EPSS), including all appurtenant components, must be inspected weekly. (8.4.1)

Monthly Inspections:

- Maintenance of lead-acid batteries must include the testing and recording of electrolyte specific gravity, Battery conductance testing is permitted in lieu of the testing of specific gravity when applicable or warranted. (8.3.7.1)
- Emergency Power Supply Systems (EPSS), including all appurtenant components, must be exercised under load at least monthly. (8.4.1)
- Diesel generator sets in service shall be exercised at least once monthly, for a minimum of 30 minutes, using one of the following methods (8.4.2):
 - Loading that maintains the minimum exhaust gas temperatures as recommended by the manufacturer
 - Under operating temperature conditions and at not less than 30 percent of the EPS nameplate kW rating
- Diesel-powered EPS installations that do not meet the requirements of 8.4.2 shall be exercised monthly with the available EPSS load and shall be exercised annually with supplemental loads at not less than 50 percent of the EPS nameplate kW rating for 30 continuous minutes and at not less than 75 percent of the EPS nameplate kW rating for 1 continuous hour for a total test duration of not less than 1.5 continuous hours (8.4.2.3).
- Spark-ignited generator sets shall be exercised at least once a month with the available EPSS load for 30 minutes or until the water temperature and the oil pressure have stabilized (8.4.2.4).

Annual Test:

- A fuel quality test must be performed annually in accordance with ASTM D 975 *Standard Specification for Diesel Fuel Oils*.

3-Year Testing:

- Level 1 EPSS shall be tested at least once within every 36 months (8.4.9)
- Level 1 EPSS shall be tested continuously for the duration of its assigned class (8.4.9.1).
- Where the assigned class is greater than 4 hours, it shall be permitted to terminate the test after 4 continuous hours (8.4.9.2).
- The test shall be initiated by operating at least one transfer switch test function and then by operating the test function of all remaining ATs, or initiated by opening all switches or breakers supplying normal power to all ATs that are part of the EPSS being tested (8.4.9.3).

Automatic Transfer Switches:

- Transfer switches shall be operated monthly (8.4.6).
- The monthly test of a transfer switch shall consist of electrically operating the transfer switch from the standard position to the alternate position and then a return to the standard position (8.4.6.1).

Circuit Breakers:

- EPSS circuit breakers for Level 1 system usage, including main and feed breakers between the EPS and the transfer switch load terminals, shall be exercised annually with the EPS in the “off” position (8.4.7).
- Circuit breakers rated in excess of 600 volts for Level 1 system usage shall be exercised every 6 months and shall be tested under simulated overload conditions every 2 years (8.4.7.1).
- The routine maintenance and operational testing program shall be overseen by a properly instructed individual.