



Will your
generator
perform
when needed?

Load Banks Enable Reliable Operation

If your generator is not used frequently or is only run on light loads throughout the year, you might believe it's operating properly. In fact, most generators are not operated at (or near) full power and temperature unless it is supplying emergency power.

Load bank testing allows a standby generator to be tested and exercised to verify its overall reliability and its ability to run at its full rated kilowatt (kW) output.

During the load bank test, critical engine parameters such as: oil pressure, engine temperature, fuel pressure, etc. should be monitored. These parameters can be recorded to show that once the unit reaches full rated load, it runs at normal operating temperatures and pressures.

Generators need annual load bank testing in their maintenance schedule for the following key reasons: to ensure reliable operation during a power failure, to prevent "wet stacking", to extend the generator's engine life and to satisfy NFPA 110.

The basic fact is; "a generator is only as good as its last full load test."

Load Bank Preventive Maintenance

Wet Stacking

The unburned fuel and soot that accumulate in the engine exhaust due to under loading of the generator is called "wet stacking". Wet stacking can manifest in black exhaust, pooling fuel oil, and is damaging to the engine's efficiency, emissions and life span. A buildup of wet stacking is also a fire danger.

Regular load bank testing allows the engine to reach its full operating temperature, so it burns out accumulated fuel and prevents wet stacking. This ensures the engine runs cleaner and more efficiently.

Extending the Generator's Engine Life & NFPA 110

Most generator manufacturers agree that load bank testing is critical in extending your generator's engine life. Load testing is also required by the National Fire Protection Association (NFPA) for buildings and facilities with emergency or standby power supply systems (EPSS). NFPA 110* is the set of standards and requirements for acceptance testing of EPSSs in building and facilities.

NFPA 110 monthly load testing requirements include:

- Run the generator under load
- Diesel generators have a 20 minute minimum
- Exercise the transfer switch
- For monthly testing, load to recommended exhausted temperature, or 30% of nameplate kW rating
- Otherwise, perform an annual test using a supplemental load, for 30 minutes at 50%, 1 hour at 75%
- For level 1 systems (level 1 refers to a system in which failure of the equipment to perform could result in loss of human life or serious injuries
- 100% test for lesser of class duration or 4 hour every 3 years, at 30% and at recommended exhaust temperature

It is also best practice to test the entire EPSS whether your generator is diesel or gaseous fuel-driven, and whether it is run lightly loaded (or never loaded at all).

Summary

Load bank testing provides the best practical means of load testing your power source. Load bank testing is non-intrusive, and there is no interruption to your facilities loads during the test. Load banks also provide accurate and repeatable load steps that will properly test power source. ASCO Power Technologies offers the widest range of load bank testing solutions along with sophisticated data monitoring and capture.

"Things like light loading a generator or neglecting scheduled maintenance can lead to unexpected operating costs, excessive wear and increased emissions. Load bank testing is particularly important with prime power, Tier 4 generators."

- CK Power 2018

"A load bank test ensures that your generator will run when needed so that you can count on it producing power during any kind of emergency that may arise. A proper load bank test will give you an evaluation of your generator at its full kilowatt output rating."

- CD & Power 2018

"Load bank testing is the only way to safely test your generator set's ability to perform without risking a total loss of power or power quality by interrupting utility service."

- Curtis Engine 2011

"The buildup of unburned diesel fuel and carbon residues in the engine and exhaust system causing 65% of maintenance problems in generator sets. Principle cause, the under loading of the generator by operating at less than 50% of load. Reduce the problem by increasing power consumption above 70% of rated load."

- US Army CECOM,
TQG Generator 2014

"Placing a 100% capacity load on a generator and allowing it to run for a while not only brings to light any problems in the generator and in the engine and its cooling system; it also benefits the engine by properly seating the rings and dislodging build-up in the combustion chambers and on the valves. Diesel engines especially need a periodic load test in order to maintain performance and fuel economy."

- Care Labs 2017