

Generator Safety

Definition - Portable generators" are engine-driven power generators that are intended for multiple uses and designed for portability, though not necessarily with wheels. Portable generators, by this definition, do not include trailer-mounted generators, generators in motor homes, generators intended to be pulled by vehicles, and standby or stationary generators that are permanently connected. This document covers general topics to be aware of when operating portable generators on construction sites.

Risk of Shock - Generators can pose a risk of shock and electrocution, especially if they are operated in wet conditions. If a person must use a generator when it is wet outside, protect the generator from moisture (as described in the owner's manual) to help avoid the shock/electrocution hazard, but do so without operating the generator indoors or near openings to any building that can be occupied in order to help avoid the CO hazard. Operate the generator on a dry surface where water cannot reach it or puddle or drain under it. Drying hands, if wet, before touching the generator is an important consideration .

Using the Manual of Instruction- If a person has access to the original manufacturers instruction manual it should be used to perform maintenance.

1. Installation, repair and maintenance should always be in accordance with the manufacturer's instructions and recommendations.
2. Exhaust fumes emitted by generator sets contain poisonous gases like carbon monoxide that can be life threatening and result in death. Exhaust systems must be properly installed, adequate ventilation must be provided to ensure unobstructed flow of cooling and ventilating air, and emissions must be directed away from inhabited zones.
3. The area around the generator must be clean and free of clutter and any combustible material that can be hazardous.
4. The equipment must be regularly inspected and defective or damaged parts must be replaced in a timely manner.
5. It is essential that the operating personnel remains alert at all times while working with the generator.
6. The unit should not be opened or dismantled while it is functioning. Moving or hot parts should not be tampered with. Battery cables should be disconnected before proceeding to work on the generator to eliminate any possibility of an accidental start-up.
7. Smoking in the vicinity of the equipment is prohibited.
8. Fuel or oil spills around the generator, leakages from the unit's fuel system and fuel supply lines, and presence of combustible materials around the generator will pose a risk of an explosion.
9. A fire extinguisher should be readily available. Use of extinguishers that operate on carbon tetrachloride is strictly prohibited since the fumes are toxic and can deteriorate the insulation on the wiring of generators.

Maintenance schedules - Maintenance, repair and installation absolutely must follow the manufacturer's instructions to the letter. The worst case scenario is of course that somebody might get seriously injured if maintenance or repair are improperly handled. The best case scenario is that a lot of insurance and warranty issues are resolved when you follow the manufacturer's. In either case, it's simply not worth the risk to ignore the manufacturer's instructions. Annual, semi-annual or quarterly maintenance schedules ought to be strictly followed to increase the reliability of the equipment. When the unit is inspected and exercised regularly, it continues to deliver consistent output as per expectations. Proactive maintenance also helps in detecting damages and defects at an early stage allowing preventive measures to be taken in a timely fashion. Following is a short list of items that need to be inspected and updated or changed regularly;

1. Cooling system for radiator air restriction, hoses, connections, fluid concentration, belts and louver operation

2. Air intake system for leakages and loose connections
3. Air cleaner, turbocharger, muffler, traps
4. Fuel system for fuel levels, sediments, and proper functioning of the pump
5. Exhaust system for leaks, chokes and flush condensation cap
6. Electrical system to review meters and batteries to be recharged, if required
7. Change oil and filters annually.
8. Diodes, end bearing, brushes and folder, A.C. wiring, exciter stator, over-speed switch and breakers
9. Controls like voltage regulator, wiring, relays, monitors and bulbs
10. Transfer switch for time delays and exerciser clocks to be adjusted or reset
11. Performance parameters such as A.C. output and frequency

For additional information please check out the following:

<http://www.cpsc.gov/PageFiles/69756/portgen.pdf>

<http://www.pgmaonline.com/>

https://www.osha.gov/OshDoc/data_Hurricane_Facts/portable_generator_safety.pdf