

Malfunctions Caused by Light-Load Continuous Operation and Their Prevention Measures

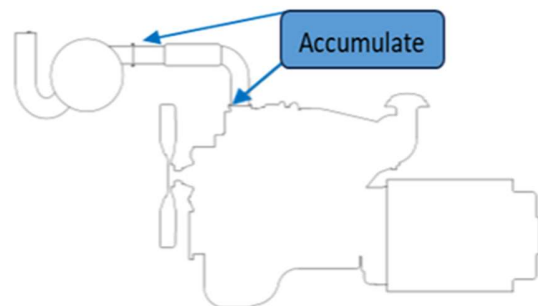
Diesel engines are designed to operate under appropriate load rates, and it is undesirable for them to run under light or no load for excessively prolonged periods relative to their rated output. While this varies depending on the characteristics of each engine, light load is generally considered to be less than 30% of the rated output.

What Problems Can Arise from Extended Light-Load or No-Load Operation?

Here, we will introduce some of tally observed.

Under Light-Load Conditions

The temperature inside the combustion chamber does not reach the operating temperature. If this continues for some time, unburned substances (such as fuel or oil) accumulate as carbon in the exhaust system (including the exhaust manifold and muffler).

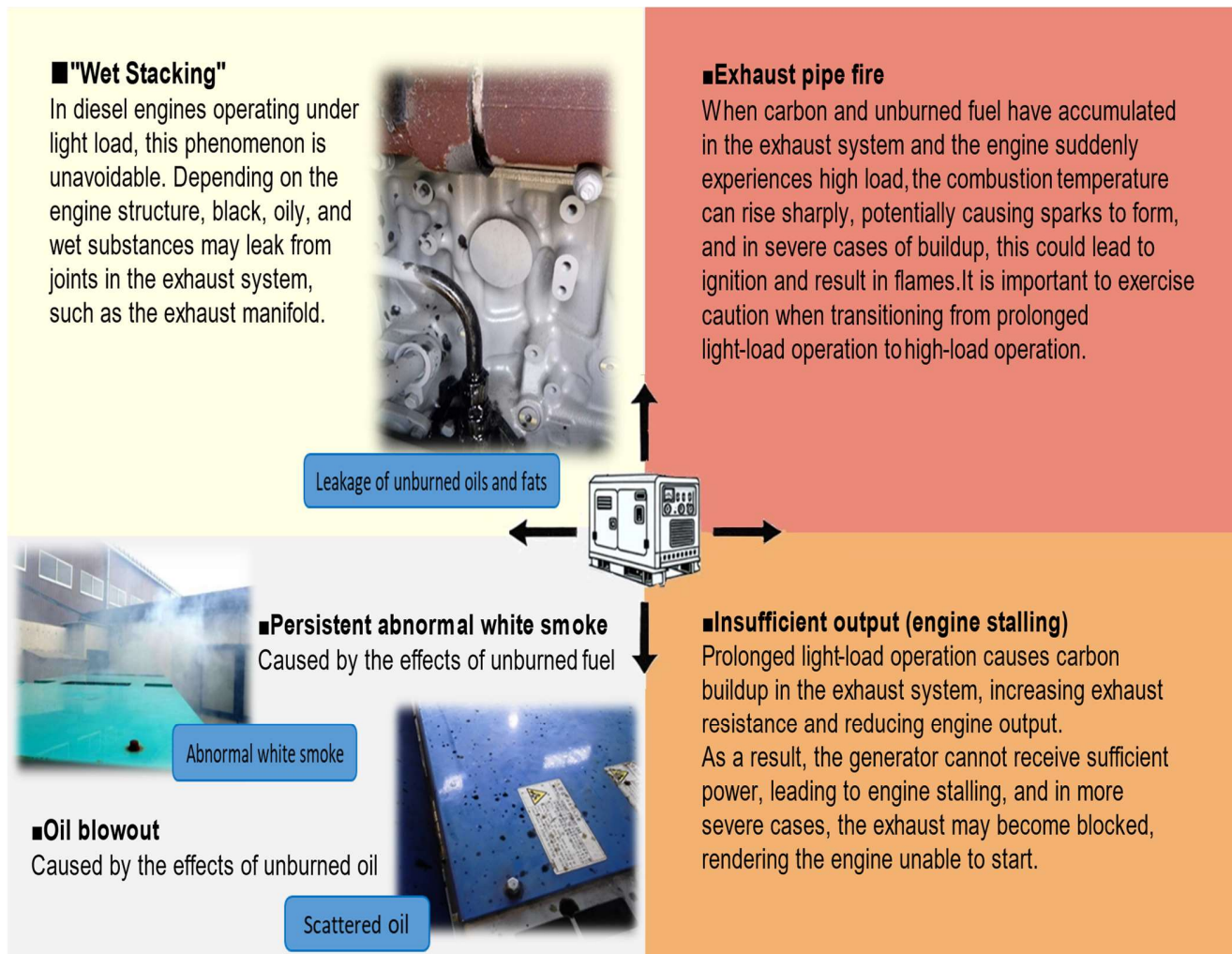


Specific Malfunctions and Risks

Key risks associated with extended Light-Load Operation include

- * **Pollution**
- * **Engine damage**
- * **Performance degradation**
- * **Fire hazard**

Examples of some adverse effects caused by the accumulation and retention of unburned fuel, unburned oil, and carbon in the exhaust system



How to Avoid These Malfunctions

First, it is important to select a generator with a capacity that matches the load to be used. Additionally, always maintain a load rate of 50% or more and avoid running the engine under light load. If it is unavoidable to run the engine under a load of less than 30% of its rated output for extended periods, periodically perform high-load operation to raise the engine's combustion temperature and burn off any unburned substances that have accumulated in the exhaust system. If unburned substances have temporarily accumulated or been retained, including cases of wet stacking, high-load operation can help improve the situation.

In such cases, using a load testing equipment, available from Denyo, is effective.

Precautions for Load Application and Fire Safety

Dangers of Sudden High Load Application

It is extremely dangerous to suddenly apply a high load from the start, as accumulated unburned substances may ignite.

Safe Load Application Procedure

Always observe the exhaust condition and ensure that white smoke decreases before gradually increasing the load rate. When the generator reaches about 50% load, thick smoke will be emitted from the muffler.

Wait until the smoke becomes lighter, then gradually increase the load rate up to a high load (rated), continuing until the smoke becomes clear.

Fire Safety Preparation

When applying load, make sure to remove all combustible materials and keep a fire extinguisher within reach as a precaution.

Summary

In this article, we have introduced several examples of malfunctions associated with continuous light-load or no load operation and their prevention measures, but these are just a few examples.

The actual occurrence and impact of malfunctions may vary depending on the characteristics of each engine.

Continuous light-load or no load operation requires careful attention, so regular inspections and proper operation are essential.

* The content provided here is subject to change without notice.



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