Diesel Engine Analysis — study guide

Analysing diesel engine performance tells you whether the engine is running efficiently and warns you of faults before they become breakdowns. This guide covers indicator cards, dual pickups, mean effective pressure and the safety of the work itself.

Why analyse performance

Regularly monitoring the engine's performance is important to ensure the engine is operating at optimal condition and to diagnose any potential faults as early as possible.

Indicator cards

The most commonly used indicator cards are **power cards** and **draw cards**. Most electronic indicator devices can produce both power and draw cards, and normally have a small **display screen** showing the data being captured.

Dual pickups

On slow speed engines, **dual pickups** are used to reduce the effects of speed variations and to increase the accuracy of the power figures.

Mean effective pressure

The **mean effective pressure** is the average net pressure that acts on the piston area during one full power stroke — a key figure for comparing cylinder performance.

Safety of the work

The risks of working with electricity must be considered in a structured manner by competent personnel. In every case the aim of a risk assessment is to reduce risks to **As Low As Reasonably Practicable (ALARP)**. Before manual switching operations can be carried out, a risk assessment must be carried out and the personnel performing the operation must be wearing the correct specialist PPE.

Key facts to remember

- Monitor performance to keep the engine optimal and catch faults early.
- Indicator cards: power cards and draw cards; electronic devices show captured data on a display screen.
- Dual pickups (slow speed engines): reduce speed-variation effects, improve power-figure accuracy.
- Mean effective pressure = average net pressure on the piston area over one full power stroke.
- Aim of risk assessment: reduce risk to ALARP. Before manual switching: risk assessment + specialist PPE.

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