# Plot file recording best practice

Important → Start the plot recording before engine cranking.

Engine Test Sequence – Mobile Industrial Applications

1. **Idle, No Load:** Run the engine at idle with no load for 2–3 minutes.
2. **Mid RPM Hold:** Increase RPM to ~1,600 RPM and hold for 1–2 minutes.
3. **High RPM Hold:** Raise RPM to near max and hold for 1–2 minutes.
4. **Return to Idle:** Let the engine return to idle.
5. **Varying Load Test:** Apply load and vary RPM smoothly. Avoid abrupt changes to prevent noisy data.
6. **Additional Testing:** Perform any RPM/load combinations that are likely to reproduce the event you're diagnosing.

Engine Duty Cycle with Cranking Starting at 2 Seconds

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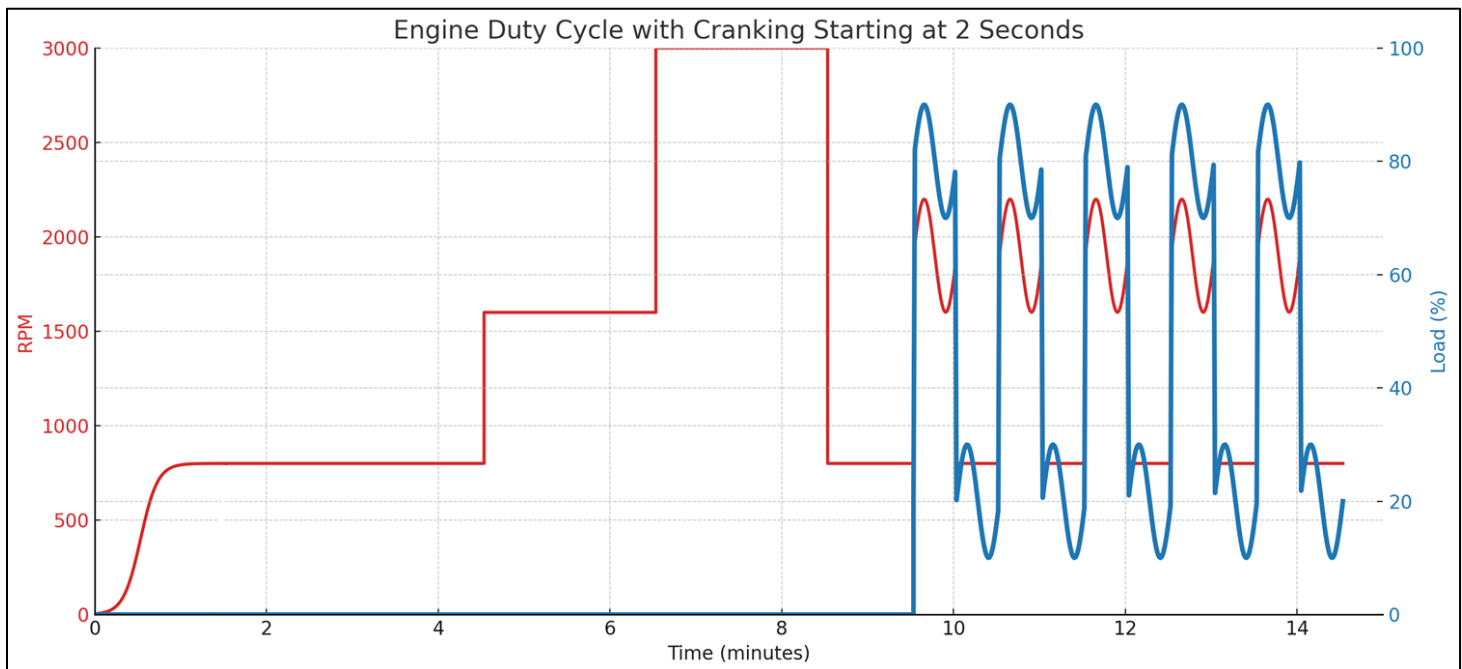
Engine Test Sequence – Stationary Applications

1. **Start and Reach Operating RPM:** Crank the engine and allow it to stabilize at 1,800 RPM.
2. **No-Load Steady-State:** Let the engine run at 1,800 RPM with no load for at least 2 minutes.
3. **Gradual Load Stepping:** Apply load in the following increments, maintaining each level for 30–45 seconds. These transitions should be smooth and deliberate to prevent data spikes.
   A. 0% → 25%
   B. 25% → 50%
   C. 50% → 100%
4. **Full Load Step Transition:** After completing gradual steps, perform a direct step from 0% to 100% load and hold for 30–45 seconds to observe transient behavior and system response.
5. **Varying Load Conditions:** If possible, vary the applied load smoothly to simulate operating conditions and capture any abnormal behavior.
6. **Event Reproduction:** Perform any load transitions or auxiliary system activations (e.g., ATS transfer, block heater, load bank) necessary to recreate the issue being diagnosed.

Stationary Gen-Set Diagnostic Plot