Turbocharger Diagnostic Report

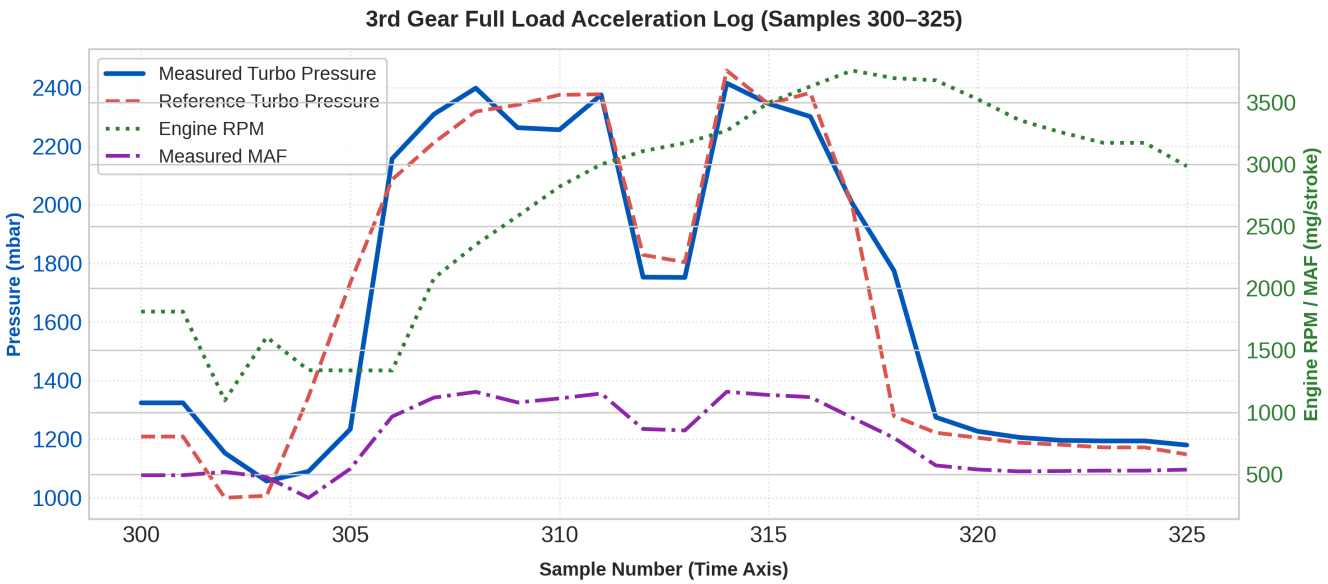
Live Data Analysis & Boost Leak Integrity Verification

TEST DATE	TEST CONDITIONS	RPM SWEEP
2026-07-26	3rd Gear WOT Pull	1,338 – 3,628 RPM

PASS — Turbocharger & Boost Circuit Integrity Normal

The live data confirms that the turbocharger core (CHRA) is operating at full performance with immediate response times. Peak measured boost reaches **2,415 mbar** with an average tracking deviation of only **2.5%** against ECU targets. No intake boost leaks or shaft drag detected.

Telemetry Chart (3rd Gear Full Load Pull)



Key Metric Breakdown

PARAMETER	MEASURED VALUE	REFERENCE TARGET	STATUS / EVALUATION
Peak Boost Pressure	2,415 mbar (~1.41 bar)	2,458 mbar	PASS (98.2% Target)
Average Boost Deviation	± 63.6 mbar	< ± 150 mbar	PASS (2.5% Deviation)
Peak Airflow (MAF)	1,166 mg/stroke	1,100 – 1,200 mg/stroke	PASS (Sealed System)
Boost Spool Response	1.0 sec (1090 → 2157 mbar)	< 1.5 seconds @ WOT	PASS (Fast Response)

Diagnostic Findings & Technical Interpretation

- **Boost & Air Leak Check:** In the event of an intercooler or hose leak, the gap between reference pressure and measured pressure widens significantly as engine speed increases. Here, measured pressure tracks reference pressure smoothly throughout the entire pull up to 3,628 RPM.
- **Mass Air Flow (MAF) Correlation:** Air mass reaches 1,166 mg/stroke at peak boost. A boost leak post-MAF would cause artificially inflated MAF numbers relative to lower boost pressure; the observed ratio confirms all metered air reaches the cylinders.
- **Turbo Core (CHRA) Condition:** Building 2.15 bar absolute in 1 second from low RPM demonstrates zero mechanical resistance, dragging bearings, or damaged turbine blades.
- **Tailpipe Dry Soot Conclusion:** The light dry soot inside the tailpipe is standard combustion byproduct (typical for diesel/direct-injection engines under heavy load) and is not indicative of turbo failure or intake system leaks.