

SAE J1667 Snap-Acceleration Smoke Test

Field Checklist



Heavy-duty diesel · California Clean Truck Check and other J1667 state programs · one vehicle per sheet

Date	Tester / CTC ID	VIN	Plate	Engine MY
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1 Vehicle

J1667 §5.1

- ☐ **Engine at normal operating temperature.** If not, run under load 15 min or until oil and water gauges read normal.
- ☐ Transmission in neutral (or park), parking brake set, wheels chocked.
- ☐ Accessory loads off (A/C, PTO, auxiliary equipment).
- ☐ Driver briefed on throttle movement (Section 3) before the first snap.

2 Smoke meter

J1667 §5.2, §5.4.2

- ☐ Meter warmed up per manufacturer. Test mode, units (opacity), and exhaust pipe diameter (EOPL) entered.
- ☐ **Zero:** clear beam reads $0.0\% \pm 1.0\%$ opacity. This is the baseline for the post-test zero check.
- ☐ **Full scale:** beam fully blocked reads $100.0\% \pm 1.0\%$ opacity.
- ☐ Span with the neutral-density filter if the manufacturer requires it.
- ☐ Sensor mounted on the stack per manufacturer; full plume crosses the beam. Ambient T / RH / P recorded.

3 Throttle technique — every cycle

J1667 §5.3.2

- ☐ From low idle, move the throttle to fully open as rapidly as possible.
- ☐ Hold fully open until maximum governed speed, then 1 to 4 s more.
- ☐ Release and let the engine return to low idle.
- ☐ **Idle at least 5 s and no more than 45 s** before the next snap (turbo spool-down).

4 Preliminary cycles

J1667 §5.3.3

- ☐ At least three preliminary snaps, same technique. Clears loose soot and settles the driver.
- ☐ Idle smoke trending up cycle to cycle? Suspect sooted optics: re-zero now (idle smoke $< 2.0\%$) or clean.

5 Test cycles

J1667 §5.4.3

- ☐ **Within 2 minutes** of the last preliminary snap, run exactly three test cycles.
- ☐ Record the corrected maximum 0.5 s average for each: 1 _____ % 2 _____ % 3 _____ %
- ☐ Post-test zero check with the beam clear of exhaust: _____ %

6 Validation — both must pass

J1667 §5.4.4, §5.4.5

- ☐ **Zero shift** within $\pm 2.0\%$ opacity of the pre-test zero.
- ☐ **Spread** (highest minus lowest of the three) no more than 5.0% opacity.
- ☐ If invalid: check engine temperature, re-brief the driver, re-zero or clean optics, then repeat from Section 4.
- ☐ Still invalid after those checks? The engine likely needs service. Do not average an invalid set.

7 Result

J1667 §5.5

- ☐ Final result = average of the three corrected values: _____ %
- ☐ Compare to the applicable cut-point (California: by engine model year and DPF status). PASS / FAIL.
- ☐ Visual inspection completed. Report given to the customer. CTC-VIS record submitted.