

§ 34.30

manufactured on or after January 1, 1984:

$SN=187(ro)^{-0.168}$ (ro is in kilowatts)

(f) The standards set forth in paragraphs (a), (b), (c), (d), and (e) of this section refer to a composite gaseous emission sample representing the operating cycles set forth in the applicable sections of subpart G of this part, and exhaust smoke emissions emitted during operations of the engine as specified in the applicable sections of subpart H of this part, measured and calculated in accordance with the procedures set forth in those subparts.

[Doc. No. 25613, 55 FR 32861, Aug. 10, 1990; 55 FR 37287, Sept. 10, 1990, as amended by Amdt. 34-3, 64 FR 5559, Feb. 3, 1999]

Subpart D—Exhaust Emissions (In-use Aircraft Gas Turbine Engines)

§ 34.30 Applicability.

The provisions of this subpart are applicable to all in-use aircraft gas turbine engines certificated for operation within the United States of the classes specified, beginning on the dates specified in § 34.31.

§ 34.31 Standards for exhaust emissions.

(a) Exhaust emissions of smoke from each in-use aircraft gas turbine engine of Class T8, beginning February 1, 1974, shall not exceed a smoke number (SN) of 30.

(b) Exhaust emissions of smoke from each in-use aircraft gas turbine engine of Class TF and of rated output of 129 kilonewtons (29,000 pounds) thrust or greater, beginning January 1, 1976, shall not exceed

$SN=83.6(ro)^{-0.274}$ (ro is in kilonewtons).

(c) The standards set forth in paragraphs (a) and (b) of this section refer to exhaust smoke emissions emitted during operations of the engine as specified in the applicable section of subpart H of this part, and measured and calculated in accordance with the procedure set forth in this subpart.

Subparts E-F [Reserved]

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Subpart G—Test Procedures for Engine Exhaust Gaseous Emissions (Aircraft and Aircraft Gas Turbine Engines)

§ 34.60 Introduction.

(a) Except as provided under § 34.5, the procedures described in this subpart shall constitute the test program used to determine the conformity of new aircraft gas turbine engines with the applicable standards set forth in this part.

(b) The test consists of operating the engine at prescribed power settings on an engine dynamometer (for engines producing primarily shaft power) or thrust measuring test stand (for engines producing primarily thrust). The exhaust gases generated during engine operation must be sampled continuously for specific component analysis through the analytical train.

(c) The exhaust emission test is designed to measure concentrations of hydrocarbons, carbon monoxide, carbon dioxide, and oxides of nitrogen, and to determine mass emissions through calculations during a simulated aircraft landing-takeoff cycle (LTO). The LTO cycle is based on time in mode data during high activity periods at major airports. The test for propulsion engines consists of at least the following four modes of engine operation: taxi/idle, takeoff, climbout, and approach. The mass emission for the modes are combined to yield the reported values.

(d) When an engine is tested for exhaust emissions on an engine dynamometer or test stand, the complete engine (with all accessories which might reasonably be expected to influence emissions to the atmosphere installed and functioning), shall be used if not otherwise prohibited by § 34.62(a)(2). Use of service air bleed and shaft power extraction to power auxiliary, gearbox-mounted components required to drive aircraft systems is not permitted.

(e) Other gaseous emissions measurement systems may be used if shown to yield equivalent results and if approved