

(c) Engines (including engines that are determined to be derivative engines for the purposes of emission certification) type certificated with characteristic levels at or below the NO<sub>x</sub> standards of § 34.21(d)(1)(vi) of this part (as applicable based on rated output and rated pressure ratio) and introduced before July 18, 2012, may be produced through December 31, 2012, without meeting the NO<sub>x</sub> standard of paragraph (a)(2) of this section.

[Doc. No. 34-5, 77 FR 76851, Dec. 31, 2012]

### 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 kN (29,000 lb) thrust or greater, beginning January 1, 1976, shall not exceed  $SN=83.6(rO)^{-0.274}$  (rO is in kN).

(c) The standards set forth in paragraphs (a) and (b) of this section refer to exhaust smoke emission emitted during operation of the engine as specified in the applicable sections of subpart G of this part, and measured and calculated in accordance with the procedures set forth in subpart G.

[Doc. No. FAA-2012-1333, 77 FR 76852, Dec. 31, 2012]

### Subpart E—Certification Provisions

#### § 34.48 Derivative engines for emissions certification purposes.

(a) *General.* A derivative engine for emissions certification purposes is an engine configuration that is determined to be similar in design to a pre-

viously certificated (original) engine for purposes of compliance with exhaust emissions standards (gaseous and smoke). A type certificate holder may request from the FAA a determination that an engine configuration is considered a derivative engine for emissions certification purposes. To be considered a derivative engine for emission purposes under this part, the configuration must have been derived from the original engine that was certificated to the requirements of part 33 of this chapter and one of the following:

(1) The FAA has determined that a safety issue exists that requires an engine modification.

(2) Emissions from the derivative engines are determined to be similar. In general, this means the emissions must meet the criteria specified in paragraph (b) of this section. The FAA may amend the criteria of paragraph (b) in unusual circumstances, for individual cases, consistent with good engineering judgment.

(3) All of the regulated emissions from the derivative engine are lower than the original engine.

(b) *Emissions similarity.* (1) The type certificate holder must demonstrate that the proposed derivative engine model's emissions meet the applicable standards and differ from the original model's emission rates only within the following ranges:

- (i)  $\pm 3.0$  g/kN for NO<sub>x</sub>.
- (ii)  $\pm 1.0$  g/kN for HC.
- (iii)  $\pm 5.0$  g/kN for CO.
- (iv)  $\pm 2.0$  SN for smoke.

(2) If the characteristic level of the original certificated engine model (or any other sub-models within the emission type certificate family tested for certification) before modification is at or above 95% of the applicable standard for any pollutant, an applicant must measure the proposed derivative engine model's emissions for all pollutants to demonstrate that the derivative engine's resulting characteristic levels will not exceed the applicable emission standards. If the characteristic levels of the originally certificated engine model (and all other sub-models within the emission type certificate family tested for certification) are below 95%