

*Commercial aircraft gas turbine engine* means a turboprop, turbofan, or turbojet commercial aircraft engine.

*Emission measurement system* means all of the equipment necessary to transport and measure the level of emissions. This includes the sample system and the instrumentation system.

*Engine Model* means all commercial aircraft turbine engines which are of the same general series, displacement, and design characteristics and are usually approved under the same type certificate.

*Exhaust emissions* means substances emitted to the atmosphere from the exhaust discharge nozzle of an aircraft or aircraft engine.

*Fuel venting emissions* means raw fuel, exclusive of hydrocarbons in the exhaust emissions, discharged from aircraft gas turbine engines during all normal ground and flight operations.

*In-use aircraft gas turbine engine* means an aircraft gas turbine engine which is in service.

*New aircraft turbine engine* means an aircraft gas turbine engine which has never been in service.

*Power setting* means the power or thrust output of an engine in terms of kilonewtons thrust for turbojet and turbofan engines and shaft power in terms of kilowatts for turboprop engines.

*Rated output (rO)* means the maximum power/thrust available for takeoff at standard day conditions as approved for the engine by the Federal Aviation Administration, including reheat contribution where applicable, but excluding any contribution due to water injection.

*Rated pressure ratio (rPR)* means the ratio between the combustor inlet pressure and the engine inlet pressure achieved by an engine operating at rated output.

*Sample system* means the system which provides for the transportation of the gaseous emission sample from the sample probe to the inlet of the instrumentation system.

*Secretary* means the Secretary of Transportation and any other officer or employee of the Department of Transportation to whom the authority involved may be delegated.

*Shaft power* means only the measured shaft power output of a turboprop engine.

*Smoke* means the matter in exhaust emissions which obscures the transmission of light.

*Smoke number (SN)* means the dimensionless term quantifying smoke emissions.

*Standard day conditions* means standard ambient conditions as described in the United States Standard Atmosphere, 1976, (i.e., Temperature =15 °C, specific humidity =0.00 kg/ H<sub>2</sub> O/kg dry air, and pressure =101325 Pa.)

*Taxi/idle (in)* means those aircraft operations involving taxi and idle between the time of landing roll-out and final shutdown of all propulsion engines.

*Taxi/idle (out)* means those aircraft operations involving taxi and idle between the time of initial starting of the propulsion engine(s) used for the taxi and turn on to duty runway.

[47 FR 58470, Dec. 30, 1982, as amended at 49 FR 31875, Aug. 9, 1984; 62 FR 25365, May 8, 1997]

#### § 87.2 Abbreviations.

The abbreviations used in this part have the following meanings in both upper and lower case:

CO Carbon Monoxide  
 FAA Federal Aviation Administration, Department of Transportation  
 HC Hydrocarbon(s)  
 hr. Hour(s)  
 LTO Landing takeoff  
 min. Minute(s)  
 NO<sub>x</sub> Oxides of nitrogen  
 rO Rated output  
 rPR Rated pressure ratio  
 sec. Seconds  
 SP Shaft power  
 SN Smoke number  
 T Temperature, degrees Kelvin  
 TIM Time in mode  
 W Watt(s)  
 ° Degree  
 % Percent

[47 FR 58470, Dec. 30, 1982, as amended at 49 FR 31875, Aug. 9, 1984; 62 FR 25365, May 8, 1997]

#### § 87.3 General requirements.

(a) This part provides for the approval or acceptance by the Administrator or the Secretary of testing and

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sampling methods, analytical, techniques, and related equipment not identical to those specified in this part. Before either approves or accepts any such alternate, equivalent, or otherwise nonidentical procedures or equipment, the Administrator or the Secretary shall consult with the other in determining whether or not the action requires rulemaking under sections 231 and 232 of the Clean Air Act, as amended, consistent with the Administrator's and the Secretary's responsibilities under sections 231 and 232 of the Act. (42 U.S.C. 7571, 7572).

(b) Under section 232 of the Act, the Secretary issues regulations to insure compliance with this part.

(c) With respect to aircraft of foreign registry, these regulations shall apply in a manner consistent with any obligation assumed by the United States in any treaty, convention or agreement between the United States and any foreign country or foreign countries.

### § 87.4 [Reserved]

### § 87.5 Special test procedures.

The Administrator or the Secretary may, upon written application by a manufacturer or operator of aircraft or aircraft engines, approve test procedures for any aircraft or aircraft engine that is not susceptible to satisfactory testing by the procedures set forth herein. Prior to taking action on any such application, the Administrator or the Secretary shall consult with the other.

### § 87.6 Aircraft safety.

The provisions of this part will be revised if at any time the Secretary determines that an emission standard cannot be met within the specified time without creating a safety hazard.

### § 87.7 Exemptions.

(a) *Exemptions based on flights for short durations at infrequent intervals.* The emission standards of this part do not apply to engines which power aircraft operated in the United States for short durations at infrequent intervals. Such operations are limited to:

(1) Flights of an aircraft for the purpose of export to a foreign country, including any flights essential to dem-

onstrate the integrity of an aircraft prior to its flight to a point outside the United States.

(2) Flights to a base where repairs, alterations or maintenance are to be performed, or to a point of storage, and flights for the purpose of returning an aircraft to service.

(3) Official visits by representatives of foreign governments.

(4) Other flights the Secretary determines, after consultation with the Administrator, to be for short durations at infrequent intervals. A request for such a determination shall be made before the flight takes place.

(b) *Exemptions for very low production models.* The emissions standards of this part do not apply to engines of very low total production after the date of applicability. For the purpose of this part, "very low production" is limited to a maximum total production for United States civil aviation applications of no more than 200 units covered by the same type certificate after January 1, 1984.

(1) A maximum annual production rate after January 1, 1984 of 20 units covered by the same type certificate; and

(2) A maximum total production after January 1, 1984 of 200 units covered by the same type certificate.

(c) *Exemptions for New Engines in Other Categories.* The emissions standards of this part do not apply to engines for which the Secretary determines, with the concurrence of the Administrator, that application of any standard under § 87.21 is not justified, based upon consideration of:

(1) Adverse economic impact on the manufacturer.

(2) Adverse economic impact on the aircraft and airline industries at large.

(3) Equity in administering the standards among all economically competing parties.

(4) Public health and welfare effects.

(5) Other factors which the Secretary, after consultation with the Administrator, may deem relevant to the case in question.

(d) *Time Limited Exemptions for In Use Engines.* The emissions standards of this part do not apply to aircraft or aircraft engines for time periods which the Secretary determines, with the