

Environmental Protection Agency

§ 87.60

must indicate that the engine was produced as an excepted spare engine.

(6) Engines excepted under this paragraph (c) must be labeled with the following statement: “EXCEPTED SPARE”.

(d) *Annual reports.* If you produce engines with an exemption/exception under this section, you must submit an annual report with respect to such engines.

(1) You must send the Designated EPA Program Officer a report describing your production of exempted/excepted engines for each calendar year in which you produce such engines by February 28 of the following calendar year. You may include this information in the certification report described in § 87.42. Confirm that the information in your initial request is still accurate, or describe any relevant changes.

(2) Provide the information specified in this paragraph (d)(2). For purposes of this paragraph (d), treat spare engine exceptions separate from other new engine exemptions. Include the following for each exemption/exception and each engine model and sub-model:

(i) Engine model and sub-model names.

(ii) Serial number of each engine.

(iii) Use of each engine (for example, spare or new installation).

(iv) Types of aircraft in which the engines were installed (or are intended to be installed for spare engines).

(v) Serial number of the new aircraft in which engines are installed (if known), or the name of the air carriers (or other operators) using spare engines.

(3) Include information in the report only for engines having a date of manufacture within the specific calendar year.

Subpart G—Test Procedures

§ 87.60 Testing engines.

(a) Use the equipment and procedures specified in Appendix 3, Appendix 5, and Appendix 6 of ICAO Annex 16 (incorporated by reference in § 87.8), as applicable, to demonstrate whether engines meet the gaseous emission standards specified in subpart C of this part. Measure the emissions of all regulated

gaseous pollutants. Similarly, use the equipment and procedures specified in Appendix 2 and Appendix 6 of ICAO Annex 16 to determine whether engines meet the smoke standard specified in subpart C of this part. The compliance demonstration consists of establishing a mean value from testing some number of engines, then calculating a “characteristic level” by applying a set of statistical factors that take into account the number of engines tested. Round each characteristic level to the same number of decimal places as the corresponding emission standard. For turboprop engines, use the procedures specified for turbofan engines, consistent with good engineering judgment.

(b) Use a test fuel meeting the specifications described in Appendix 4 of ICAO Annex 16 (incorporated by reference in § 87.8). The test fuel must not have additives whose purpose is to suppress smoke, such as organometallic compounds.

(c) Prepare test engines by including accessories that are available with production engines if they can reasonably be expected to influence emissions. The test engine may not extract shaft power or bleed service air to provide power to auxiliary gearbox-mounted components required to drive aircraft systems.

(d) Test engines must reach a steady operating temperature before the start of emission measurements.

(e) In consultation with the EPA, the FAA may approve alternate procedures for measuring emissions as specified in this paragraph (e). This might include testing and sampling methods, analytical techniques, and equipment specifications that differ from those specified in this part. Manufacturers and operators may request this approval by sending a written request with supporting justification to the FAA and to the Designated EPA Program Officer. Such a request may be approved only if one of the following conditions is met:

(1) The engine cannot be tested using the specified procedures.

(2) The alternate procedure is shown to be equivalent to or better (e.g., more accurate or precise) than the specified procedure.

(f) The following landing and take-off (LTO) cycles apply for emission testing and calculating weighted LTO values:

TABLE 1 TO § 87.60—LTO TEST CYCLES

Mode	Turboprop		Subsonic turbofan		Supersonic turbofan	
	Percent of rated output	Time in mode (minutes)	Percent of rated output	Time in mode (minutes)	Percent of rated output	Time in mode (minutes)
Take-off	100	0.5	100	0.7	100	1.2
Climb	90	2.5	85	2.2	65	2.0
Descent	15	1.2
Approach	30	4.5	30	4.0	34	2.3
Taxi/ground idle	7	26.0	7	26.0	5.8	26.0

(g) Engines comply with an applicable standard if the testing results show that the engine type certificate family's characteristic level does not exceed the numerical level of that standard, as described in § 87.60.

[77 FR 36386, June 18, 2012]

§ 87.64 Sampling and analytical procedures for measuring gaseous exhaust emissions.

(a) [Reserved]

(b) Starting January 1, 2011, report CO₂ values along with your emission levels of regulated NO_x to the Administrator for engines of a type or model of which the date of manufacture of the first individual production model was on or after January 1, 2011. By January 1, 2011, report CO₂ values along with your emission levels of regulated NO_x to the Administrator for engines currently in production and of a type or model for which the date of manufacture of the individual engine was before January 1, 2011. Round CO₂ to the nearest 1 g/kiloneutron rO.

(c) Report CO₂ by calculation from fuel mass flow rate measurements in Appendices 3 and 5 to ICAO Annex 16, volume II or alternatively, according to the measurement criteria of CO₂ in Appendices 3 and 5 to ICAO Annex 16, volume II.

[74 FR 56374, Oct. 30, 2009, as amended at 77 FR 36386, June 18, 2012]

PART 88—CLEAN-FUEL VEHICLES

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