

European Aviation Safety Agency

**Certification Specifications
and
Acceptable Means of Compliance and
Guidance Material**

for

**Aircraft Engine Emissions and Fuel
Venting**

CS-34

Amendment 2
12 January 2016¹

¹ For the date of entry into force of this Issue, please refer to Decision 2016/001/R in the [Official Publication](#) of the Agency.

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Aircraft Engine Emissions and Fuel Venting

PREAMBLE

BOOK 1 – AIRCRAFT ENGINE EMISSIONS AND FUEL VENTING REQUIREMENTS

BOOK 2 – ACCEPTABLE MEANS OF COMPLIANCE AND GUIDANCE MATERIAL

CS-34**PREAMBLE****CS-34 Amendment 2 — Effective: 26/01/2016**

The following is a list of paragraphs affected by this amendment.

Title page	Amended
<u>Book 1</u>	
CS 34.1	Amended
CS 34.2	Amended
<u>Book 2</u>	
AMC 34.2(a) to (f)	Amended
GM 34.2(a) and (b)	Amended
GM 34.2(f) to (i)	Amended
GM 34.2(j) to (p)	Added
GM 34.2 final section	Amended

CS-34 Amendment 1 — Effective: 29/01/2013

The following is a list of paragraphs affected by this amendment.

Title page	Amended
Contents	Contents page added
Preamble	Preamble page added
<u>Book 2</u>	
GM 34.2(c) to (i)	Added
GM 34.2 final section	Added

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Book 1

Certification Specifications

CS-34 BOOK 1

CS 34.1 Fuel venting

The aircraft must be designed to comply with the applicable fuel venting requirements defined under 21.A.18(b)(1).

[Amdt 34/2]

CS 34.2 Aircraft engine emissions

(See AMC 34.2 and GM 34.2)

The aircraft engine must be designed to comply with the applicable emission requirements defined under 21.A.18(b)(2) and (3).

[Amdt 34/2]

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Book 2

**Acceptable Means of Compliance and
Guidance Material**

CS-34 BOOK 2

AMC 34.2 Aircraft engine emissions

The acceptable means of compliance for aircraft engine emissions are presented in:

- (a) for measurement of reference pressure ratio, Appendix 1 to ICAO Annex 16, Volume II;
- (b) for smoke emission evaluation, Appendix 2 to ICAO Annex 16, Volume II;
- (c) for instrumentation and measurement techniques for gaseous emissions, Appendix 3, except for its attachments, to ICAO Annex 16, Volume II;
- (d) for specification for fuel to be used in aircraft turbine engine emission testing, Appendix 4 to ICAO Annex 16, Volume II;
- (e) for instrumentation and measurement techniques for gaseous emissions from afterburning gas turbine engines, Appendix 5, except for its attachments, to ICAO Annex 16, Volume II; and
- (f) for compliance procedure for gaseous emissions and smoke, Appendix 6 to ICAO Annex 16, Volume II.

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GM 34.2 Aircraft engine emissions

Guidance material for the application of the certification specifications for aircraft engine emissions is presented in:

- (a) for instrumentation and measurement techniques for gaseous emissions, the attachments to Appendix 3 to ICAO Annex 16, Volume II;
- (b) for instrumentation and measurement techniques for gaseous emissions from afterburning gas turbine engines, the attachments to Appendix 5 to ICAO Annex 16, Volume II;
- (c) for definitions and symbols, Part I of the ICAO Environmental Technical Manual, Volume II;
- (d) for emissions certification of turbojet and turbofan engines intended for propulsion only at subsonic speeds, Part III, Chapter 2 of the ICAO Environmental Technical Manual, Volume II; except for the exemption process from the NO_x emissions production cut-off requirements;
- (e) for turbojet and turbofan engines intended for propulsion at supersonic speeds, Part III, Chapter 3 of the ICAO Environmental Technical Manual, Volume II;
- (f) for smoke emission evaluation, Appendix 2 to the ICAO Environmental Technical Manual, Volume II;
- (g) for instrumentation and measurement techniques for gaseous emissions, Appendix 3 to the ICAO Environmental Technical Manual, Volume II;
- (h) for specification for HC analyser, Attachment A to Appendix 3 to the ICAO Environmental Technical Manual, Volume II;
- (i) for specification for fuel to be used in aircraft turbine engine emission testing, Appendix 4 to the ICAO Environmental Technical Manual, Volume II;

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- (j) for measurement of reference pressure ratio, Appendix 1 to the ICAO Environmental Technical Manual, Volume II;
- (k) for specification for CO and CO₂ analysers, Attachment B to Appendix 3 to the ICAO Environmental Technical Manual, Volume II;
- (l) for specification for NO_x analyser, Attachment C to Appendix 3 to the ICAO Environmental Technical Manual, Volume II;
- (m) for calibration and test gases, Attachment D to Appendix 3 to the ICAO Environmental Technical Manual, Volume II;
- (n) for calculation of the emissions' parameters, Attachment E to Appendix 3 to the ICAO Environmental Technical Manual, Volume II;
- (o) for specification for additional data, Attachment F to Appendix 3 to the ICAO Environmental Technical Manual, Volume II; and
- (p) for compliance procedure for gaseous emissions and smoke, Appendix 6 to the ICAO Environmental Technical Manual, Volume II.

References throughout these certification specifications to the ICAO Environmental Technical Manual, Volume II, refer to ICAO Doc 9501 — Environmental Technical Manual, Volume II — Procedures for the Emissions Certification of Aircraft Engines, Second Edition 2014.

[Amdt 34/1]

[Amdt 34/2]