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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 34

[Docket No.: FAA–2023–2434; Amdt. No. 34–7]

RIN 2120–AL83

Control of Non-Volatile Particulate Matter From Aircraft Engines: Emission Standards and Test Procedures

AGENCY: Federal Aviation Administration (FAA), Department of Transportation (DOT).

ACTION: Final rule; confirmation of effective date and response to public comments.

SUMMARY: This action confirms the effective date of the final rule published on April 24, 2024, and responds to the comments received on that final rule. The FAA published a correction on May 7, 2024, to the final rule that established a compliance date of 90 days after the effective date. The rule adopts standards for measuring non-volatile particulate matter (nvPM) exhaust emissions from aircraft engines. With this rulemaking, the FAA implemented the nvPM emissions standards adopted by the Environmental Protection Agency (EPA), allowing manufacturers to certificate engines to the new nvPM emissions standards in the United States, and fulfilling the statutory obligations of the FAA under the Clean Air Act.

DATES: The effective date of the final rule published on April 24, 2024 (89 FR 31078), is confirmed as May 24, 2024. Compliance was required by August 22, 2024.

ADDRESSES: For information on where to obtain copies of rulemaking documents and other information related to this action, see ''How To Obtain Additional Information'' in the **SUPPLEMENTARY INFORMATION** section of this document.

FOR FURTHER INFORMATION CONTACT: For technical questions concerning this action, contact Ralph Iovinelli, Office of Environment and Energy (AEE–300), Federal Aviation Administration, 800 Independence Ave. SW, Washington, DC 20591; telephone (202) 267–3566; email *Ralph.Iovinelli@faa.gov.*

For legal questions concerning this action, contact Jacob Keohane, Office of the Chief Counsel (AGC–200), Federal Aviation Administration, 800 Independence Ave. SW, Washington, DC 20591; telephone (202) 355–5491; email *jacob.w.keohane@faa.gov.*

SUPPLEMENTARY INFORMATION:

Background

Non-volatile Particulate Matter (nvPM) is a standard for measuring the amount of solid particles (*e.g.* soot, *etc.*) emitted by an aircraft. The Environmental Protection Agency (EPA) has adopted nvPM-based standards for aircraft engine emissions and certification test procedures to replace the old ''Smoke Number'' (SN) standard.[1] On May 24, 2024, the Federal Aviation Administration (FAA) implemented EPA's nvPM standard in *Control of Non-Volatile Particulate Matter From Aircraft Engines: Emission Standards and Test Procedures* (89 FR 31078).

The FAA was statutorily required (*see* 42 U.S.C. 7572; Clean Air Act sec. 232) to incorporate the EPA's nvPM emissions standards into its own regulations and apply the regulatory requirements that will allow applicants to demonstrate compliance with the emissions standards at the time of engine airworthiness certification. Because the FAA does not have authority to make changes to the standards or procedures adopted by the EPA, and because the EPA issued its proposed rule for notice and sought public comment on these standards and test procedures prior to promulgating them on November 23, 2022, the FAA published the standards as a final rule with request for comment instead of seeking comment beforehand (*see* 5 U.S.C. 533(b)(3)(B), outlining the requirements under the Administrative Procedure Act for waiving prior notice and comment in informal rulemaking).

In its final rule, the FAA requested comment from interested parties regarding the parts of that rulemaking that adopted the certification regulations in 14 CFR part 34 and implemented them at the time of aircraft engine certification. This document is a response to those comments.

Discussion of Comments

The FAA received six comments on the rule, addressing several issues. The FAA received comments from five organizations and an individual.

Many comments raised the issue of compliance dates. The rule was originally published without a compliance date, but a compliance date of 90 days after the effective date of May 24, 2024, was added to the rule when the FAA published a correction to the final rule on May 7, 2024.[2] A trade association wrote a comment in support of the standard. One commenter raised issues of environmental justice that are out of scope regarding this FAA rulemaking, as the FAA lacks authority to change EPA emissions standards.

The FAA has determined that no changes to the final rule are necessary based on the comments received.

A. Ultrafine Particles and Environmental Justice Issues

One commenter suggested that the FAA's Aviation Environmental Design Tool (AEDT) model include all particulate matter including ultrafine particulates (UFP) for mass and made additional comments on other various subjects including: EPA addressing environmental justice, EPA certification of engines, EPA technology following regulations, EPA regulation of UFP, limiting engines that may operate at a single location, health analysis for airports, and data input to models.

The nvPM standards adopted by the FAA include UFP, which are defined as particles in the atmosphere smaller than 100 nanometers in diameter. Particulate emissions from aircraft engines covered by this rule range from approximately 5 to 40 nanometers (nm) in diameter. The EPA and FAA worked together to implement nvPM regulations per the Clean Air Act (CAA) and the United States' responsibilities under the

[1] 87 FR 72312 (Nov. 23, 2022), *Control of Air Pollution From Aircraft Engines: Emission Standards and Test Procedures.*

[2] 89 FR 37971 (May 7, 2024), *Control of Non-Volatile Particulate Matter From Aircraft Engines: Emissions Standards and Test Procedures; Correction.*

International Civil Aviation Organization (ICAO) Conventions. The other subjects this commenter raised are beyond the FAA's authority and are addressed in the EPA final rule.[3]

B. Purported Change in Emissions Standards

One commenter stated that the FAA does not have the authority to change the emissions standards adopted by the EPA. That commenter argued that the FAA ''changed the nvPM standard set by the EPA in 40 CFR 1031.140(f)'' by adopting thrust (F_N) as the correlating factor instead of the combustor inlet temperature (T_3) as adopted by the International Civil Aviation Organization (ICAO). It referenced ''Section 4.2.2 of ICAO ETM Doc 9501, Fifth Edition, 2023 and EPA 40 CFR 1031.140(f)'' as evidence.

The EPA limits are based on thrust, not combustor inlet temperature. *See* 40 CFR 1031.140(f). The EPA limits for nvPM are contained in 40 CFR 1030.60(b), which sets particulate limits in terms of particulate mass per kilonewton (maximum rated thrust output). These regulations do not set T_3 as the correlating factor.

Furthermore, in ICAO Annex 16 Volume II, Section 4.2.2, all applicable limits are stated in terms of ''maximum rated thrust'' not ''T_3''. In 40 CFR 1031.140(f) of the EPA regulations, only the equipment and procedures of Annex 16 Volume II are incorporated by reference. The regulation states: ''Use the equipment and procedures specified in ICAO Appendix 7 and ICAO Appendix 6, as applicable.'' There is no mention of any limits in this section.

Emissions testing using T_3 is acceptable when an approved thrust vs T_3 correlation curve is available for the engine being tested.

C. Showing of Compliance, Foreign Emissions Standards

Two commenters made the following identical statement: ''Regarding the rule being effective May 24, 2024; this does not provide adequate time to compile, submit, approve, and revise the required FAA paperwork given the multiple engines in production by multiple Aircraft Engine manufacturers feeding into one FAA office.'' In addition, the same two commenters also stated concerns about compiling the information required by 14 CFR 34.73(e) for submittal.

Although the initial rule did lack an implementation timeframe for manufacturers to show compliance, the FAA subsequently issued an amendment to the rule change, Amendment 7A, that added an implementation requirement time of 90 days after the effectivity date of the rule as 14 CFR 34.25(d).

The data reporting requirements shown in § 34.73(e) list the data currently needed to show compliance. This is the same data needed to determine the final approved values for ICAO Annex 16 Volume II. The FAA needs this data to verify the results and conduct appropriate oversight when reviewing submitted reports for approval. Reports showing compliance should include the data used for that showing and how it was obtained. Manufacturers that have already submitted compliance reports to a foreign authority can use data compiled for those reports to show compliance with this requirement. Therefore, the FAA concludes 90 days to be sufficient.

In response to Amendment 7A, another commenter stated, ''Most engine manufactures have already shown EASA that their in-production aircraft engines meet ICAO CAEP/10 and CAEP/11 nvPM standards equivalent to the nvPM limits described in 14 CFR 34.25 at Amendment 7A.'' The commenter requested that the compliance deadline be extended to 240 days after the effectivity date, arguing that, since most manufacturers have already shown EASA that their engines meet ICAO Annex 16 Volume II, an even later deadline to show compliance with the FAA rule would not harm the public. The commenter also stated its perception that this rule amendment was intended to apply to in-production aircraft as well as engines.

This rule does not hold up shipment of aircraft, because part 34 applies only to engines, not aircraft. Once the engines were type certificated and shipped, they became valid engines. There is a misperception that this requirement extends to airplane manufacturing as well as engines. The applicability section in 14 CFR 34.25 only considers the manufacturer date of the engines. These requirements are only applicable to engines produced by the engine manufacturer after January 1, 2023.

Moreover, as noted above, manufacturers that have already submitted compliance reports to a foreign authority can use data compiled for those reports to show compliance with this requirement. Therefore, the FAA concludes the 90-day deadline to show compliance with this rule to be sufficient.

D. 90% Confidence Interval

A commenter asked why the FAA included a requirement for a 90% confidence interval at 14 CFR 34.73(d), since this requirement is not included in ICAO Annex 16 Volume II, Appendix 1.

The FAA concludes it is in harmony with the international community because ICAO Annex 16 Volume II, Appendix 6, ''Compliance Procedure for Gaseous Emissions, Smoke, and Particulate Matter Emissions,'' recommends demonstrating a 90% confidence interval. The FAA concludes this recommendation should be mandatory to ensure that the data provided to the FAA is appropriately representative of the population. Under United States domestic law, all mandatory regulations must be in the CFR, not supplementary guidance documents. Therefore, the FAA has included this requirement here.

E. Standard Temperature Correction

One commentor questioned the necessity of correcting for standard temperature and pressure, as indicated in the preamble of the rule, and the commentor posed the same comment on 14 CFR 34.73.

The FAA notes that 14 CFR 34.73 correctly refers to the standard temperature and pressure (STP) corrections detailed in ICAO Annex 16 Volume II, Appendix 7. Section 3.1 of that Appendix requires the applicant to ''determine nvPM at STP''. Per this requirement, nvPM must be corrected to STP. The FAA also notes that corrections to standard temperature and pressure are generally automatically included in the instrumentation.

F. Typographical Errors

Some commenters pointed out several typographical errors (''typos'') in the preamble of the final rule, which the FAA acknowledges. They are:

- The preamble refers to ICAO Annex 16 Volume II, Appendix 1, rather than to the correct reference of Appendix 7. (89 FR 31082)
- The end applicability date of the SN standard is given as January 1, 2023, as opposed to January 1, 2020. (89 FR 31087)
- The FAA preamble reads ''manufactures'' in a line of text that should read manufacturers.'' (89 FR 31083)

A commenter also observed that the definition for ''reference day condition'' includes the phrase ''. . . the measured smoke, nvPM, and gaseous emissions must be corrected.'' 14 CFR. 34.1 (''Reference day condition''). The FAA

[3] 87 FR 72312 (Nov. 23, 2022), *Control of Air Pollution From Aircraft Engines: Emission Standards and Test Procedures.*

acknowledges that ''smoke'' was erroneously included in this definition, as there are no corrections to reference day conditions required for smoke measurements. However, regarding nvPM emissions, the FAA notes that corrections to reference day conditions are required, and that the measurement instrumentation corrects to reference day corrections.

For clarity, a commenter suggested that the internal references in § 34.73(c)(1) include a greater level of detail, specifically:

- Paragraph (c)(1)(i)(B), when referencing ''paragraph (c)(1),'' should reference ''paragraph (c)(1)(i)(A).''
- Paragraph (c)(1)(ii)(B), when referencing ''paragraph (c)(1),'' should reference ''paragraph (c)(1)(ii)(A).''
- Paragraph (c)(1)(ii)(C), when referencing ''paragraph (c)(1),'' should reference ''paragraph (c)(1)(ii)(B).''
- Paragraph (c)(1)(iii)(B), when referencing ''paragraph (c)(1),'' should reference ''paragraph (c)(1)(iii)(A).''

The FAA thanks this commentor for its detailed and accurate suggestions. The FAA is declining to make these suggestions at this time, as such changes are not necessary.

G. Average of One

A commenter noted that 14 CFR 37.73(c)(1)(iii)(D) requires an ''average'' of engines tested, but ''[w]hat is missing is saying that this average has to be done if several engines have been tested.''

The FAA concludes that adding additional text to § 34.73(c)(1)(iii)(D) is not necessary as taking the average of a single engine does not change the results of the calculations.

H. Comments in Support

Finally, the FAA received positive feedback from multiple organizations.

Conclusion

After consideration of the comments submitted in response to the final rule with request for comment, the FAA has determined that no further rulemaking action is necessary. Therefore, amendment 34–7 remains in effect.

How To Obtain Additional Information

A. Rulemaking Documents

An electronic copy of a rulemaking document may be obtained by using the internet—

1. Search the Federal eRulemaking Portal (*www.regulations.gov*);
2. Visit the FAA's Regulations and Policies web page at *www.faa.gov/regulations_policies/* or
3. Access the Government Printing Office's web page at *www.gpo.gov/fdsys/*.

Copies may also be obtained by sending a request (identified by notice, amendment, or docket number of this rulemaking) to the Federal Aviation Administration, Office of Rulemaking, ARM–1, 800 Independence Avenue SW, Washington, DC 20591, or by calling (202) 267–9680.

B. Comments Submitted to the Docket

Comments received may be viewed by going to *www.regulations.gov* and following the online instructions to search the docket number for this action. Anyone is able to search the electronic form of all comments received into any of the FAA's dockets by the name of the individual submitting the comment (or signing the comment, if submitted on behalf of an association, business, labor union, etc.).

C. Small Business Regulatory Enforcement Fairness Act

The Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996 requires FAA to comply with small entity requests for information or advice about compliance with statutes and regulations within its jurisdiction. A small entity with questions regarding this document may contact its local FAA official or the person listed under the **FOR FURTHER INFORMATION CONTACT** heading at the beginning of the preamble. To find out more about SBREFA on the internet, visit *www.faa.gov/regulations_policies/rulemaking/sbre_act/*.

Issued under authority provided 49 U.S.C. 40101, *et seq.*, in Washington, DC, on November 18, 2024.

Brandon Roberts,

Executive Director, Office of Rulemaking.

[FR Doc. 2024–27390 Filed 11–22–24; 8:45 am]

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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA–2024–2537; Project Identifier MCAI–2024–00631–E; Amendment 39–22892; AD 2024–24–02]

RIN 2120–AA64

Airworthiness Directives; Safran Helicopter Engines, S.A. (Type Certificate Previously Held by Turbomeca S.A.)

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule; request for comments.

SUMMARY: The FAA is adopting a new airworthiness directive (AD) for all Safran Helicopter Engines, S.A. (Safran) Model ARRIUS 2F engines. This AD was prompted by a report of an uncommanded in-flight shut-down (IFSD) of a Safran Model ARRIUS 2F engine, followed by an investigation that revealed the IFSD was due to a missing lubricating and balancing groove on one of the bearings of the fuel control unit (FCU) fuel pump related to a non-conforming manufacturing process. This AD requires removal of the affected fuel pump from service and replacement with a serviceable part, as specified in a European Union Aviation Safety Agency (EASA) AD, which is incorporated by reference. The FAA is issuing this AD to address the unsafe condition on these products.

DATES: This AD is effective December 10, 2024.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of December 10, 2024.

The FAA must receive comments on this AD by January 9, 2025.

ADDRESSES: You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

- *Federal eRulemaking Portal:* Go to *regulations.gov.* Follow the instructions for submitting comments.
- *Fax:* (202) 493–2251.
- *Mail:* U.S. Department of Transportation, Docket Operations, M–30, West Building Ground Floor, Room W12–140, 1200 New Jersey Avenue SE, Washington, DC 20590.
- *Hand Delivery:* Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

AD Docket: You may examine the AD docket at *regulations.gov* under Docket No. FAA–2024–2537; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this final rule, the mandatory continuing airworthiness information (MCAI), any comments received, and other information. The street address for Docket Operations is listed above.

Material Incorporated by Reference:

- For EASA material identified in this AD, contact EASA, Konrad-Adenauer-Ufer 3, 50668 Cologne, Germany; phone: +49 221 8999 000; email: *ADs@easa.europa.eu;* website: *easa.europa.eu.* You may find this material on the EASA website at *ad.easa.europa.eu.*
- You may view this material at the FAA, Operational Safety Branch, 1200