



ADDENDA

**ANSI/ASHRAE Addendum d to
ANSI/ASHRAE Standard 161-2013**

Air Quality within Commercial Aircraft

Approved by the ASHRAE Standards Committee on June 23, 2017; by the ASHRAE Tech Council on June 28, 2017; and by the American National Standards Institute on June 29, 2017.

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ISSN 1041-2336



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Co-Cognizant TC: 4.3 Ventilation Requirements and Infiltration
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FOREWORD

Addendum d expands on the design and operational requirements intended to prevent overservicing of the aircraft engines and auxiliary power unit (APU) with engine oil.

Note: In this addendum, changes to the current standard are indicated in the text by underlining (for additions) and ~~strikethrough~~ (for deletions) unless the instructions specifically mention some other means of indicating the changes.

Addendum d to Standard 161-2013

Revise Section 8.7 as shown. The remainder of Section 8.7 is unchanged.

8.7 Engine Oil. See also Section 8.2.

Control Measures

Design	<p>a. Engine Ddesign featuresmeasures that minimize the potential for engine oil and/or its by-products to entering the cabin and flight deck air supplies shallshould be evaluated and implemented, where possible, on new and current engine designs. Such measures include, but are not limited to, the design of a more robust oil seals and improved oil reservoir design to include a placard at each servicing point with specific instructions not to overservice and to preventreduce/minimize spillage. Based on this evaluation, such measures should be installed on new engines by incorporating them into the engine design requirements.</p> <p>b. [. . .]</p>
Maintenance	<p>a. Operational procedures to prevent overservicing of each engine/APU oil reservoir shall be applied to reading the oil level, adding oil, and keeping an accurate record of oil additions, as follows:</p> <ol style="list-style-type: none">Oil consumption in the engines/APU shall be accurately assessed in accordance monitored. Oil levels shall be assessed with engine-manufacturer recommended practices or airline-specific standardized measurement practices. Such practices shall ensure that the oil level is read and recorded within the recommended time frame, preferably shortly after engine shutdown when the oil is still in an expanded state, but after allowing airline-specific standardized measurement practices that ensure adequate time forto allow any circulating oil to return to the reservoirump before measurements are collected.Maintenance protocols shall ensure suitable education/training according to manufacturer-recommended procedures intended to prevent overservicing of each engine/APU oil reservoir and to prevent spillage. Manufacturers' procedures for oil servicing typically include sequence of steps to ensure engine/APU is shut down properly, appropriate time frame for servicing, the required condition of the engine/APU, the level to which each reservoir shall be serviced, and the necessary equipment/methods. Informative Note: Normally, an open air-intake door indicates that the APU was not shut down properly. If the APU is not shut down properly, then it will not de-oil. This could lead to oil weeping from a compressor seal or potentially result in overservicing due to misreading of the oil level. <u>Equipment shall be provided that allows addition of fractions of a packaging size of oil wherever a complete addition of the smallest available oil packaging size can lead to overservicing.</u>The addition of oil shall be logged according to. Measurements recorded shall be the actual amounts addedconsumed, not the package size used to service the particular unit, as described in Section 2. <p>b. [. . .]</p>

POLICY STATEMENT DEFINING ASHRAE'S CONCERN FOR THE ENVIRONMENTAL IMPACT OF ITS ACTIVITIES

ASHRAE is concerned with the impact of its members' activities on both the indoor and outdoor environment. ASHRAE's members will strive to minimize any possible deleterious effect on the indoor and outdoor environment of the systems and components in their responsibility while maximizing the beneficial effects these systems provide, consistent with accepted Standards and the practical state of the art.

ASHRAE's short-range goal is to ensure that the systems and components within its scope do not impact the indoor and outdoor environment to a greater extent than specified by the Standards and Guidelines as established by itself and other responsible bodies.

As an ongoing goal, ASHRAE will, through its Standards Committee and extensive Technical Committee structure, continue to generate up-to-date Standards and Guidelines where appropriate and adopt, recommend, and promote those new and revised Standards developed by other responsible organizations.

Through its *Handbook*, appropriate chapters will contain up-to-date Standards and design considerations as the material is systematically revised.

ASHRAE will take the lead with respect to dissemination of environmental information of its primary interest and will seek out and disseminate information from other responsible organizations that is pertinent, as guides to updating Standards and Guidelines.

The effects of the design and selection of equipment and systems will be considered within the scope of the system's intended use and expected misuse. The disposal of hazardous materials, if any, will also be considered.

ASHRAE's primary concern for environmental impact will be at the site where equipment within ASHRAE's scope operates. However, energy source selection and the possible environmental impact due to the energy source and energy transportation will be considered where possible. Recommendations concerning energy source selection should be made by its members.

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