

	<b>AVS</b> <b>Quality Management System</b>	<b>QPM #</b> AIR-001-007-F1	Revision 0
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CESNA

<b>REVISION HISTORY</b>		
<b>Rev</b>	<b>Description of Change</b>	<b>Effective Date</b>
0	Original	6/19/09

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<b>1. Document No.:</b> AC 20-24D, Approval of Propulsion Fuels and Lubricating Oils	<b>2. Project Manager:</b> Mark Rumizen	<b>3. Reviewing Office:</b> Poonam Richardet Analyst Engrg Procedures Regulatory Affairs/Dept.-381 Cessna Aircraft Company 316-517-5395 (office) 316-218-8638 (cell)	<b>4. Date of Review:</b> September 19, 2013	<b>5. Date of Disposition:</b>
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### Instructions for Completing the Document Review Log

**Blocks 1 & 2:** To be completed by project manager prior to sending out for comments.

**Blocks 3 & 4:** To be completed by reviewing office. Enter office symbol, reviewers name and phone number.

**Block 5:** To be completed by project manager after receiving comments from reviewing office. Enter date of disposition.

The below columns are to be completed by the reviewing office, except for the “Disposition” column.

Project manager’s disposition in comments in the last column below. Enter the reasons for non-incorporated comments. Identify each disposition as:

- Adopted;
- Partially Adopted;
- Non-Concur;
- Concur but Outside of Scope (Will be considered in next change/revision); or
- Answer to Question or Statement.

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Item No:	Page and Paragraph No:	Comment:	Reason:	Recommendation:	Disposition:
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1.

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8e

Cessna is concerned with the overall utility to the industry of the addition of guidance for independent fuel specifications to AC 20-24 as it is described. As a manufacture which sells to, and provides support for, a global customer base; Cessna's ultimate goal in any transition to alternatives to leaded aviation gasoline is for industry to offer solutions which are relevant and available to a global customer base. Use of consensus based fuel specifications has allowed for widespread buy-in across the refining, distribution, manufacturer, and regulatory structure to give the end user access to the fuels approved for their aircraft where they are being operated. Cessna's specific concern with independent fuel specifications is the pace at which the fuel can be safely propagated through the necessary approvals / reviews at the refiner, distributor, and manufacturer levels to build the necessary volume to support production and distribution of the fuel in the US and other major GA markets worldwide. Given the widespread approvals / reviews necessary, independent fuel specifications may only be appropriate in limited circumstances, such as:  
Development of fleet operational experience in pursuit of a consensus industry fuel specification, certification of fuels for special uses (racing, extreme climatic conditions), or certification of fuels to meet other specific performance goals in limited fleets that may be influenced by fuel properties.

Provide additional guidance as to the appropriate application of independent fuel specifications.

Non-concur. The FAA guidance is intended to provide the same level of certitude for all types of specifications, so there is no intent to place limitations on the independent specifications.

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2.	Page 10/ Para 8c(2)c(3)	<p>The requirement to include the revision to the ASTM specification as an operating limitation on the TCDS for an engine that was specifically designed to operate with that fuel is not necessary and imposes an unnecessary burden on both the applicant and the FAA.</p> <p>The wording “The ASTM specification for aviation turbine fuel is D1655. This is a non-applicable specification for diesel engines because the specification scope does not include aviation diesel engines” is not entirely true. Per Section 1.4 of D1655-13 “Aviation turbine fuels defined by this specification may be used in other than turbine engines that are specifically defined and certified for this fuel”.</p> <p>Therefore, if the engine was specifically designed to operate on fuel per ASTM specification D1655, there should be no requirement to include the revision level of the specification on the TCDS as an operating limitation.</p>		Delete the entire paragraph. The intent of the paragraph for cases where the specific revisions must be listed is already addressed in paragraph 8c(2)c.	Partially Adopted. Text changed to say “does not <u>specifically</u> include diesel engines.” However, the oversight and maintenance of D1655 performed by the ASTM aviation fuels subcommittee does not consider aviation diesel engine operating requirements when evaluating changes to the specification. Therefore, this oversight must be conducted by the TC/STC holder under FAA oversight.
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3.	Page 14 / Para 8f(6)(h)	How is the worst case cetane number determined? "There is no minimum number defined in the specification, but the engine manufacturer is supposed to demonstrate operability with the minimum expected." How is that minimum defined, how is the engine installer expected to show compliance with a requirement for a minimum cetane number when there is no practical way to measure it in operation?		Provide additional guidance on what the minimum expected (worst case) cetane number Jet A fuel is that should be tested.	Non-concur. The FAA does not have the capability or resources to determine the minimum expected cetane number in jet fuel. ASTM is currently investigating this issue. Until the ASTM investigation is complete, the TC/STC applicant will need to provide an analysis to the FAA that substantiates the cetane number of the jet fuel used for certification testing. As stated in the comment, cetane is an uncontrolled input condition. This policy was devised to accommodate the certification of diesel aviation engines.
4.		Section 4. Related Regulations does not list Section 23 Appendix G23.3(a)(4), Section 25 Appendix H25.3(a)(4), Section 27 Appendix A27.3(a)(4) or Section 29 Appendix A29.3(a)(4).		The AC should directly note the Instructions for continued Airworthiness requirements regarding servicing information on "types of fluid".	Adopted.

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5.	7.i.(1) and (2)	<p>The following statements do not include Instructions for continued Airworthiness guidance.</p> <p>“(1) Fuels should be described in the operating limitations (in the TCDS and AFM, or STC and Aircraft Flight Manual Supplement (AFMS)), whichever is applicable) in a manner...”</p> <p>“(2) Oils should be described in the operating limitations (in the TCDS and AFM, or STC and AFMS, whichever is applicable) in a manner...”</p>	<p>Modify 7.i.(1) and (2) to read:</p> <p>“(1) Fuels should be described in the operating limitations (in the TCDS and AFM, or STC and Aircraft Flight Manual Supplement (AFMS)), whichever is applicable) and the Aircraft Maintenance Manual in a manner ...”</p> <p>“(2) Oils should be described in the operating limitations (in the TCDS and AFM, or STC and AFMS, whichever is applicable) and the Aircraft Maintenance Manual in a manner ...”</p>	Adopted.
6.	8.f.(4)	This section should address ICA requirements for the Aircraft Maintenance Manual	<p>Change 8.f.(4) to read:</p> <p>“(4) An applicant’s compliance plan must address the effects of mixing the proposed new aviation fuel with other existing types of aviation fuel (for example, mixing conventional Jet A fuel with synthetic Jet A fuel). The applicant shall provide a plan for communicating these effects as part of the Instructions for continued Airworthiness ...”</p>	Non-concur. The existing text applies to all applicable sections of the compliance plan, not just the ICAs.

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7.	8.f.(7)	Recommend adding a paragraph to specifically address Instructions of Continued Airworthiness	add 8.f.(7)(g) “The applicant must identify any changes to the Instructions for continued Airworthiness, including, but not limited to: safety precautions, fluid compatibility, changes to placards, changes to service intervals and changes to maintenance practices.”	Adopted
8.	9.	Recommend more guidance specific to Instructions for Continued Airworthiness as noted for items in Section 8.	Update section 9 in a similar fashion to comments on Section 8, to specifically address ICA impact.	Adopted
9.	12.f.(2) & 17.c.(2)	These paragraphs appear to indicate that a certification plan is required for each model and the all deviations of an applicable model. For example a separate cert. plan would be required for the Model 172N, M, P, Q, R, and S ect.	Process should be defined in the AC on the requirements need to “mass approve” numerous models via an approved model list. Without such provisions it may not be cost effective to approve new fuels and oils.	Concur but Outside of Scope (Will be considered in next change/revision) (Assumed comment refers to pg 12, para. f.(2) and pg 17, para c.(2))

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10.	Page 17 – 18. Paragraph a - f	It appears that these recommended items should be similar, if not identical, to those items listed in AC 23-1521-2		Review AC 23-1521-2 section 6 to see if more items should be included. This should include, but not limited to, potential fuel gauging issue with alternative fuels.	Non-concur. This AC includes the technical requirements from AC 23-1521-2. Materials compatibility is addressed in paragraph 8.f.(7)(c) and fuel gauging is addressed in 8.f.(7)(f)(1).
11. <sup>1</sup>	Page 9, paragraph 8.c.(2)	The AC does not provide method of compliance guidance for the approval of drop-in fuels such as 100VLL.		FAA should provide policy describing a streamlined (or fleetwide) way to add 100VLL to the operating limitations of existing aircraft.	Adopted. See paragraph 8.c.(2)(d)

<sup>1</sup> This comment submitted separately during telecon from Nathaniel Diedrich to Peter White (AIR-20) on November 13, 2013.