EASA Proposed CM-PIFS-009 Issue 01 – Fuel Specification Changes - Comment Response Document

Comment				Comment summary	Suggested resolution	Comment is an observation or is a suggestion	Comment is substantive or is an objection	EASA comment disposition	EASA response
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1	*Defence Safety and Environment Authority* *Fuels & Gases Safety Regulator*	2, 3.1	6 and 8	Reference to AFC	References to AFC should be amended to either DStan or Defence Standard. The reasoning behind this is that the Defence Standard (91-91) which is managed by the AFC will be more easily recognisable to the user.			Accepted	Reference added as proposed.
2	*Defence Safety and Environment Authority* *Fuels & Gases Safety Regulator*	General	N/A	Consider including a reference to the major Jet fuel specification bodies of the ASTM and DStan within the document, so that people are aware where to go to for information. Membership of the both ASTM and AFC are not restricted and is the ideal way of obtaining early notification of changes to specifications and perhaps should be encouraged through this document?				Accepted	A new chapter 4.3 Jet Fuel Specification bodies is created including these references.
3	*FAA*	3.1 c 1)	8	The paragraph states that the suffix number of the spec is not required if the TC/STC holder has a robust system to evaluate changes to the spec. However, the TC/STC holder also must be able to prevent changes to the specification that will have an adverse safety impact on their product. This can only be accomplished if the TC/STC holder is a voting member of the aviation fuel committee, AND, if the TC/STC holder's product is within the stated scope of the fuel specification. If the product is outside the scope of the specification, then TC/STC holder will not be able to prevent changes that may have an adverse safety impact. Limiting this CM to turbine engines does not necessarily preclude the occurrence of this scenario. For example, an applicant might seek an STC for approval to use biodiesel on a turbine aircraft engine. In this case, it is unlikely that the TC/STC holder could prevent the biodiesel subcommittee from approving changes to the biodiesel specification based on impact on aircraft engines, because biodiesel is primarily a ground-transport fuel and impact on aircraft is of no concern to that committee.	The option of recording the specification root number only (without issue suffix number or revision level) requires that applicants and TC/STC/ETSO-APU holders can demonstrate that they have a robust system to follow all changes to the fuel specifications, ~~and~~ to evaluate any effect on their products, *and to prevent the incorporation of any changes that might have an adverse safety effect on their product.*	X		Accepted	Comment from FAA is agreed. However, this analysis has to be done by TC/STC/ETSO-APU holders at any circumstance. Therefore, an additional paragraph is added on this respect in 3.1: *"TC/STC/ETSO-APU holders have to evaluate any effect on their products, and to prevent the incorporation of any changes that might have an adverse safety effect on their product."*

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4	*Airbus*	3.1.b	7	This CM proposes that: " At aircraft level, the **fuel specifications** shall be recorded in the aircraft **TCDS and the AFM/RFM** as a limitation' CS 25.1521(c)(2) requires to record as a limitation the fuel designation **or** specification. Airbus questions whether it is pertinent and useful to record the complete list of the full name of all approved specifications into the operational documentation (AFM). For instance the full names for Jet A1 specifications are: • UK DEF STAN 91-91 Turbine Fuel, Aviation Kerosine Type, Jet A-1. • NATO Code: F-35. JSD: AVTUR ; ASTM International D1655 Standard Specification for Turbine Fuels Type JET A1; • National Standard of the Russian Federation GOST R 52050-2006 Aviation Turbine Fuel Type JET A1. Airbus considers that such information is probably too cumbersome and not really useful for an operational documentation. Airbus considers that the AFM should only list the approved fuel designations (e.g. JET A/JET A-1, TS-1, JP 5…) and possibly a reference to another documentation which would provide the complete list of the approved fuel specifications. Airbus already records the fuel specifications in the aircraft TCDS which is available to all operators.	Replace the following sentence: 'At aircraft level, the fuel specifications shall be recorded in the aircraft TCDS and the AFM/RFM as a limitation' By 'At aircraft level, the fuel designations shall be recorded in the aircraft TCDS and the AFM/RFM as a limitation. The fuel specifications shall be recorded in the aircraft TCDS and/or the AFM/RFM'.		Yes	Accepted	Comment recognised and accepted. Paragraph is rephrased as follows (taking into account also comment no. 11): *"At aircraft level, the fuel designations and fuel additives shall be recorded in the aircraft TCDS and the AFM/RFM as a limitation. The fuel specifications shall be recorded in the aircraft TCDS and/or the AFM/RFM"*
5	*Eurocopter*	§ 3.1 (a)	Page 7	"*It is the aircraft Type Certificate Holder's responsibility to ensure that the approved fuels are compatible with all aircraft parts, components and equipment, including the engine and APU (if relevant), throughout the operating envelope.*" The responsibility of the TCH cannot go behind the fuel specification level, i.e. it cannot cover the approval of the actual fuels according to the specification.	We suggest rephrasing the sentence the following way: "*It is the aircraft Type Certificate Holder's responsibility to ensure that the fuel specifications are compatible with all aircraft parts, components and equipment, including the engine and APU (if relevant), throughout the operating envelope.*"	No	Yes	Accepted	Comment recognised and accepted. Paragraph is rephrased as follows: "*It is the aircraft Type Certificate Holder's responsibility to ensure at product level that fuel specifications are compatible with all aircraft parts, components and equipment, including the engine and APU (if relevant), throughout the operating envelope. Compatible fuels at product level will then recorded in the list of approved fuels. See 3.1(b)"*
6	*Eurocopter*	/	/	To-day, the specification of fuels is facing a question of incomplete standards. For example, the JET A/A-1 standard (ASTM D 1655) does not include some physical characteristics which might have an influence, like permittivity, vapour pressure, water and gas solubility, thermal conductivity, speed of sound … Consequently, there is not absolute evidence that any new fuel type which should satisfy the standard will be totally compatible. Also, adding the revision number does not solve the problem.	(not a suggestion for the CM itself) We suggest EASA and other Airworthiness Authorities like FAA to associate their efforts with TCH so that ASTM D 1655 is amended to include all missing fuel characteristics.	Yes	No	Noted	Comment is noted. This is one important reason EASA recommends to Type Design Certificate Holders to be part of fuel committees and be able to influence on the evolution of the fuel specifications.

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7	*Eurocopter*	§ 3.1 (c)	Page 8	The second option, consisting in listing the fuel specification with the suffix number, is not considered feasible for the following reasons: - The suffix will not be an information accessible to the operators when they procure fuel, - This solution may be heavy for the TCH, because it may induce many updates of the AFM or ALS and major change approvals. Also, this solution would neither reduce the need to monitor fuel committees nor to evaluate the effects on their products.	Suggestion is to remove this option.	Yes	No	Not Accepted	The rationale of the argument is that if the TCH does NOT has a system to monitor fuel committees and be aware of fuel changes, the suffix number of the fuel specification shall be recorded in the product list of approved fuels. In that case, if there is an evolution of the suffix number, it will be a MAJOR change to type design. In case the TCH has a system to monitor fuel committees, it denotes awareness and confidence on punctual evaluation of the effect of fuel specification changes at production level. In this case, EASA allows not recording the fuel specification suffix number.
8	*UK CAA*	---	---	No comments.				Noted	---
9	*Rolls-Royce plc*	General	General	Agree with Proposal as we comply		---		Noted	---
10	*Rolls-Royce plc*	2. Background	6	AFC should say AFC (Defence Standards)	See Comment Summary	Yes		Accepted	Wording changed to *Aviation Fuel Committee (Defence Standards)."*
11	*Rolls-Royce plc*	3.1 EASA Policy	8 and throughout	Because approved "fuels" are a limitation, the CM should read "approved fuels and/or additives". Also "change to an existing fuel" should read "existing fuel and/or additive or new fuel or additive".	See Comment Summary	Yes		Accepted	"Additives" are included in pertinent paragraphs in section 3.1.
12	*Rolls-Royce plc*	1.2 / 3.2	4/9	Page 9 states "This Certification Memorandum is not applicable to piston engines and piston engine powered aircraft." However, page 4 does indicate an relationship with "CS-E 250 (a), (b)". CS-E 250 is in "Subpart B – Piston Engines, Design and Construction"	Please Clarify	Yes		Accepted	CS-E 250 is removed from the table in section 1.2.
13	*Turbomeca*	§3.1 c 1)	8	This certification memo allows the TC holders to list the approved fuels without specification issue or suffix number only if they have a robust system to follow all changes to the fuel specifications and to evaluate any effect on their products, one major element of such robust system being the active participation in the aviation fuel committee(s). What about the aviation fuel committees from countries like Russia and China for instance ? How can TC holders from the European Union participate actively to civil aviation fuel committees outside the USA and the European Union? Or to military fuel specification committees? How can the TC holders be warned sufficiently in advance of the fuel specification changes and, if necessary, obtain soon enough fuels samples conforming to the new suffix number, in order to evaluate the effect on their products?	This certification memo should give details, in §3.1 c 1), on what can be considered as a robust system to follow all changes to the fuel specifications and to evaluate any effect on the products, for civil specifications originating from countries other than the USA and European Union members, and for military specifications. In particular, this certification memo should clarify, in §3.1 c 1), if the system is not considered as robust when the participation to a specific fuel committee is not possible.	No	Yes	Noted	This comment is acknowledged by EASA but no change to the existing text is considered necessary. At product certification level, when the TC/STC/ETSO-APU holders propose the use of a certain fuel specification and/or additive for its product, there must be also a system in place at DOA level that allows the TC/STC/ETSO-APU holder to be aware of changes on such fuel specification, so effects on their product can be evaluated. Adaptation to each scenario and to the particularities of each fuel committee could be acceptable providing that the TC/STC/ETSO-APU holders can prove to the Agency an adequate level of awareness to ensure the evaluation of any effect on their products, and to prevent the incorporation of any changes that might have an adverse safety effect on their product.
14	*Turbomeca*	§3.1 c 2)	8	This certification memo requires the TC holders to list the approved fuels with the specification issue or suffix number when no robust system to follow the specification changes has been implemented. How can the aircraft operators know, in all cases, the issue or suffix number of the fuel specification that they are using ?	This certification memo should propose some guidance (possibly exemptions) for countries and/or for fuels specifications for which no robust system is implemented, allowing the aircraft operators to determine the issue or suffix number of the fuel specification that they are using.	No	Yes	Not Accepted	This Certification Memorandum establishes certification policy for TC/STC/ETSO-APU holders at product certification level.

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15	*Turbomeca*	§3.1 c 2)	8	This certification memo requires the TC holders to list the approved fuels with the specification issue or suffix number when no robust system to follow the specification changes has been implemented. This will increase the administrative burden of both the EASA and some TC holders, in order to treat in emergency the new major design changes associated to fuel specifications suffix numbers. Moreover, when the TC holder is not warned soon enough of the change, this could lead to situations where an aircraft would not be allowed to fly, only due to the administrative timescales.		Yes	No	Noted	The rationale of the argument is that if the TCH does NOT has a system to monitor fuel committees and to be aware of fuel changes, the suffix number of the fuel specification shall be recorded in the product list of approved fuels. In that case, if there is an evolution of the suffix number, it will be a MAJOR change to type design. In case the TCH has a system to monitor fuel committees, it denotes awareness and confidence on punctual evaluation of the effect of fuel specification changes at production level. In this case, EASA allows not recording the fuel specification suffix number. Therefore, the preferable scenario of EASA is that at DOA level a system to monitor fuel committees is implemented. In that manner, suffix number of fuel specification may not be recorded in the list of approved fuels and in consequence it will not be a major change to type design if the suffix number of a given fuel is changed by the fuel committee.
16	*Turbomeca*	§3.2	9	Some piston engine powered aircraft (rotorcraft for instance) are operated similarly to turbine engine powered aircraft. As fuel specification changes can obviously have also adverse effects on piston engines, and as fuels for piston engines are also evolving, this certification memo should also be applicable to piston engines.	The applicability of this certification memo should be extended to piston engines in paragraph 3.2	No	Yes	Noted	Current Avgas 100LL is a leaded fuel. Alternative unleaded aviation gasoline will be new fuel grades and/or new fuel specifications and therefore a MAJOR change to the type design. However, EASA will monitor the future developments and may consider extension of the applicability of this certification memorandum at a later time.
17	*Snecma*	1.1	4/9	In §1.1 there is no reference to the CS-E requirement to declare and substantiate fuel specifications for turbine engines (CS-E 560(a)). The reference to CS-E 40(d) is also pertinent, however through the AMC E 40(d)(3)(c) only. Note : the same consideration may apply for CS-E 250(a) and (b).	Proposal to add CS-E 560(a) : “1.1. PURPOSE AND SCOPE The purpose of this Certification Memorandum is to provide specific guidance for applicants when demonstrating compliance with CS-E 40(d) (AMC E 40(d)(3)(c)), CS-E 560(a), CS 23.901(e)…..”	Yes	No	Accepted	CS-E 560(a) is added in section 1.1.
18	*ANAC - Brazilian National Civil Aviation Agency*	3.1 (b)	7/9	Can the OEM comply with 25.1557 with references to the AFM, like OEM’s of part 23 and par 29 aircraft?	“(…) combined with an appropriate reference to the aircraft flight manual is only an acceptable means of compliance against CS 23/~~25~~/27/29.1557.”	Both	Objection	Not Accepted	The answer to the question is “Yes”. There is no reason to exclude CS-25 aircraft from this requirement.

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19	*Embraer*	3.1 (c)		3.1 (c) Fuel Specifications changes and evolutions Both options 1 and 2 suggest procedures that could be misleading for the operators at the moment of refueling. On both options, the applicant (Aircraft's TC Holder along with the engine and fuel manufacturers) needs to evaluate the impact of a new specification in his product. Only in the case when no impact is found it is possible to keep the fuel main designation approved. In fact, the intent of the Certification Memorandum is to claim the Aircraft's TC Holder to participate of the fuel spec changes analysis. As proposed there are two ways of participation, which one results in the AFM/TCDS unchanged, without inclusion of the spec suffix and other including the spec suffix, resulting for the operators different means to identify the approved fuel in different aircraft models. In the other hand, if the AFM/TCDS states the specification version with suffix, it is very likely that the aircraft crew and refueling operators in the airports will not have a way to pay attention to that, because the fuel distributor only identify just the main designation of the specification on the equipments. This different way of identification could result in misleading for operators. To include the spec suffix in the AFM could result in a difficulty to the crew to identify if the fuel type provided in the airport is in accordance with the approved fuel for the aircraft use. Embraer suggests that EASA could provide another way, in addition to option 1, to demonstrate to EASA that the fuel specification alteration was evaluated by the Aircraft's TC Holder without impacts on the AFM/TCDS.				Noted	This Certification Memorandum intends precisely to harmonise and standardise the industry approach at product certification level. In 3.1(b) says: *"In addition, the relevant Certification Specification (CS) requires that the fuel filler openings are marked at or near the filler cover with the permissible fuel designations. It is normally accepted that if it is impractical to give the complete details through this marking, a generic wording (e.g. 'Jet A/A-1' or 'Jetfuel') combined with an appropriate reference to the aircraft flight manual is an acceptable means of compliance against CS 23/25/27/29.1557.* *The fuel or additive specifications recorded in the AFM, intended to ensure that the operator complies with the limitations established during certification, should make reference to published documents available to the operators."* The rationale of the argument is that if the TCH does NOT has a system to monitor fuel committees and to be aware of fuel changes, the suffix number of the fuel specification shall be recorded in the product list of approved fuels. In that case, if there is an evolution of the suffix number, it will be a MAJOR change to type design. In case the TCH has a system to monitor fuel committees, it denotes awareness and confidence on punctual evaluation of the effect of fuel specification changes at production level. In this case, EASA allows not recording the fuel specification suffix number. The preferable scenario of EASA is that at the DOA level of a TC/STC/ETSO-APU holder, certain procedure(s) are implemented to monitor fuel committees. In that manner, suffix number of fuel specification may not be recorded in the list of approved fuels and in consequence it will not be a major change to type design if the suffix number of a given fuel is changed by the fuel committee.
20	*Embraer*	3.1 (c)		"Because the approved fuels are operating limitations, a change to an existing fuel specification leading to a change in the list of approved fuels listed in the AFM or RFM, or the introduction of a new fuel specification at product level, is a major design change to the type design of the particular product (GM 21.A.91(3.3)(v)) The definition of "type design" in IR 21 .A.31 does not include the flight manual, so we believe it is incorrect to characterize a revision to the AFM as a type design change, as proposed in Paragraph c of Section 3.1. In addition, the second option on page 8 would be more accurately stated as "In this case, the TC/STC holder should apply for ~~a TC/STC amendment~~ **an AFM revision approval** each time the revision number changes.				Not Accepted	Fuel specifications and fuel additives are Operating Limitations. These are then part of the Airworthiness Limitation Section (ALS) of the AFM. 21.A.31(a)(3) refers explicitly to the Airworthiness Limitation Section of the instructions for continued airworthiness as defined by the applicable airworthiness code. Therefore, a change to the ALS is a MAJOR change to type design on which the AFM results in a new revision. It is not a stand-alone change to AFM. Refer also to GM 21.A.91(3.3)(v) & GM 21.A.263(c)(4).