Proposed Special Condition "Engine Operation with selectable OEI Ratings Structure"

Commentator:	**FAA**
Question : 1	
Comment: The Statement of Issue states "The selectable OEI ratings structures will provide optimized OEI power levels appropriate for the intended mission." The purpose and need for the selectable OEI ratings structures is unclear from this statement. We find it difficult to comment on these proposed special conditions without knowing the purpose of having multiple OEI ratings and without knowing why the current regulations do not support the intended mission.	
EASA Response	**Rejected: while the origin from aircraft is not described here, the request at engine level is clearly defined in the text.**

Commentator:	**FAA**
Question : 2	
Comment: With regard to the intent of the selectable OEI ratings structure, what would be the reason a pilot would select an OEI structure that would provide a lower power setting under an OEI circumstance than another?	
EASA Response	**Noted: as aircraft operation it is not up to the engine to define the selection of the OEI structure. This SC describes the conditions and the limitations of engine usage.**

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Commentator:	**FAA**
Question : 3	
Comment: The paragraph for CS-E 20 for the installation manual should identify the provisions for instruments required under the special conditions for CS-E 60.	
EASA Response	**Rejected: CS-E 60(a) adequately covered the need.**

Commentator:	**FAA**
Question : 4	CS-E 25 Instructions for Continued Airworthiness
Comment: The type of maintenance that would be required to allow use of the alternate OEI rating when one OEI rating has been already used and whether these actions could be captured in the methods of compliance is unclear from this top level requirement.	
EASA Response	**Rejected: It is up to the authority to agree applicable ICA in accordance with CS-E 25.**

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Commentator:	**FAA**
Question : 5	CS-E 25 Instructions for Continued Airworthiness
Comment: The proposal states the different configurations can only be selected following maintenance action. The gauges and displays (limits) will have to be configured accordingly and would be performed by maintenance personnel. Should the selection of the rating structure be part of the maintenance action and not pilot action?	
EASA Response	**Noted: Selection of the rating structure is external to the engine: consideration here is given to insure proper engine response to adequate selection.**

Commentator:	**FAA**
Question : 6	CS-E 25 Instructions for Continued Airworthiness
Comment: The requirement "to permit the engine to operate in the other OEI ratings structure" is not sufficient on its own. The expectation is that the engine must operate safely until the next inspection interval per the engine Instructions for Continued Airworthiness (ICAs).	
EASA Response	**Accepted: wording will be added.**

Commentator:	**FAA**

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Question : 7	CS-E 25 Instructions for Continued Airworthiness
Comment: The proposed special conditions do not appear to provide the data needed to develop and validate the mandatory actions that would restore the availability of one rating structure after the use of the other rating structure. The basis for developing such data includes the endurance test. The mandatory actions after the use of one rating structure needed to restore the other rating structure involve mixing the effects of the two rating structures. Since the proposed special conditions permit the endurance test to be run for each rating structure on different engines, there is no basis for validating the mandatory actions. We recommend a single endurance test to cover both ratings.	
EASA Response	**Rejected: this SC does not impose the means to restore the availability of one rating structure after the use of the other rating structure. It requires the applicant to define adequate action and justify the sufficiency of these actions.**

Commentator:	**FAA**
Question : 8	CS-E 25 Instructions for Continued Airworthiness
Comment: The CS-E 740 special conditions allowing multiple tests on different engines (for each rating structure), have consequences for the ICAs because, as said in the AMC 740, "The maintenance actions are determined through certification testing, including, where applicable, endurance tests," Therefore, the separate endurance tests for the two rating structures will result in separate ICAs. Current regulations allow for a 2 single set of ICAs. We recommend a single set of ICAs based on an endurance test as recommend under CS-E 740 comments.	
EASA Response	**Rejected: This SC did not imply or authorise two single set of ICA.**

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Commentator:	**FAA**
Question : 9	CS-E 25 Instructions for Continued Airworthiness
Comment: There is a typographical error in the second sentence. It should read "… to permit the engine to operate …".	
EASA Response	**Noted**

Commentator:	**FAA**
Question : 10	CS-E 40 (b) (3)
Comment: The definition for the selectable OEI ratings is not clear. The OEI rating structure is defined in the parentheses and therefore deemphasized. We recommend providing a comprehensive description of the content within the parentheses.	
EASA Response	**Accepted: the definition will be amended and parentheses removed.**

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Commentator:	**FAA**
Question : 11	CS-E 40 (b) (3)
Comment: The paragraph states "Once an OEI ratings structure has been used, adequate means are required to ensure that the engine will not operate in the other OEI ratings structure…" What are adequate means? Would it be an automatic lockout after use and how does subsequent maintenance action permit use of the ratings structure again?	
EASA Response	**Noted: The purpose of this SC is not to impose a means but a result. It is up to the applicant to show that this condition are fulfilled.**

Commentator:	**FAA**
Question : 12	CS-E 50 Engine Control Systems
Comment: How is this rating structure selected by the pilot? How does the Engine Control System get that information? How is the selection verified?	
EASA Response	**Noted: Selection and verification of the rating structure by the pilot is beyond the responsibilities of the engine. Confirmation / verification of engine selected OEI rating is however identified in this SC.**

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Commentator:	**FAA**
Question : 13	CS-E 50 Engine Control Systems
Comment: The last sentence, "Automatic availability of power and control thereof must be demonstrated for the selected OEI ratings structure on any given flight.", is unclear. How would automatic availability be demonstrated on any given flight?	
EASA Response	**Noted: Automatic availability is only true for the selected OEI ratings structure.**

Commentator:	**FAA**
Question : 14	CS-E 60 Provision for instrument
Comment: How will the circumstance be managed if one engine on the rotorcraft uses one of the OEI ratings and the other has both ratings available? What happens if engines with different OEI ratings are on the same rotorcraft? The proposed special conditions do not safeguard against this possibility that could be a safety issue for AEO operation	
EASA Response	**Rejected: This SC did not imply or authorise anything new with regard to AEO.**

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Commentator:	**FAA**
Question : 15	CS-E 60 Provision for instrument
Comment: This paragraph cites some of the requirements in the regulations for the 30-second OEI rating and a 2-minute OEI rating. The EASA requirements that are similar to FAA requirements of §33.29 (c)(1) through (c)(4) must also be applied.	
EASA Response	**Noted: §33.29 (c)(1) through (c)(4) is CS-E 60(d) and apply.**

Commentator:	**FAA**
Question : 16	
Comment: The Statement of Issue does not reference CS-E 860 and CS-E 870 in which overtemperature testing requirements are addressed. In our view, the overtemperature testing must be conducted using the worst case OEI rating(s). While the temperature is significant in this application of OEI, the other parameters, such as overspeed, vibration, overtorque, etc. should also be considered.	
EASA Response	**Rejected: combination 30-Second/2-Minutes OEI and CS-E 870 is already described in AMC E 60(d)(5). With regard to CS-E 860, this SC did not imply or authorise anything new.**

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Commentator:	**FAA**
Question : 17	
Comment: The paragraph for CS-E 740 Endurance Tests / CS-E 750 Starting Tests states an endurance test in accordance with CS-E740 and the starting tests of CS-E750 be conducted for each Selectable OEI ratings structure proposed by the applicant. The paragraph further states that the applicant may elect a single endurance test encompassing the most severe combination of ratings and that if multiple endurance tests are required they need not be performed on the same engine. We recommend that the endurance test must be conducted using one set of hardware and encompassing the most severe combination of ratings. The rationale is that the endurance test and the findings from the teardown inspection contribute to establishing the engine ICAs and the power assurance data required by CS-E 20(f). Therefore, two endurance tests run on two different engines cannot provide the data supporting the use of the two rating structures on the same engine hardware	
EASA Response	**Rejected: See answer Question No 8.**

Commentator:	**FAA**
Question : 18	
Comment: In addition to the proposed special conditions, we recommend the following: - CS-E 20(f) Engine Configuration and Interfaces: special conditions to address the required power assurance data as applicable to the use of the two OEI rating structures on the same engine. - CS-E 515 Engine Critical Parts: special conditions requiring a single set of life limits for the engine; in other words, the critical parts must not have different lives depending on the OEI rating structure.	
EASA Response	**Rejected: it is EASA view that AMC E 20(f) and CS-E 515 give adequate information.**

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Commentator:	**FAA**
Question : 19	
Comment: The above comments address engine level concerns. When the Selectable OEI Ratings Structure is proposed at the rotorcraft level, there will be additional concerns. Part life monitoring for non-engine components, transmission certification testing requirements, and pilot awareness are just a few of the things that will have to be addressed in addition to the engine certification issues.	
EASA Response	**Noted**