

Comment Response Document (CRD) to Special Condition for Turboshift Engine Gearbox with Integrated Freewheel and Interconnect shaft

(published for consultation on 17 March 2016)

Date
 08th June 2016
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Comment from:	Turbomeca (08 April 2016)	Comment#	1
Paragraph	3		
Comment	In the paragraph 3, for the overtorque test, the objective is <i>"the maximum torque attainable under probable operating conditions (transient)"</i> , but the requirement of CS 27.927 (b) (1) (i) is not covered : <i>maximum torque used in meeting CS 27.923 <u>plus 10 %</u>.</i>		
EASA position	Accepted		
EASA response	EASA understands that the Maximum transient torque might not always be representative of the expected over torque test as required under 2X. 927 . The paragraph 3.B is modified accordingly in order to encompass the expected maximum torque at rotorcraft level.		
Proposed Text (if applicable) (added text in bold)	<i>"If the turbine engine is not directly controlled by the crew (i.e. governor-controlled engine), perform 200 applications for 10s each of torque which is at least equal to the lesser of:</i> - The maximum torque predicted to be used for Rotorcraft certification when showing compliance with 2X.923 plus 10% or - <i>the maximum torque attainable under probable operating conditions (transient).</i> The maximum torque used for showing compliance with the above paragraph should be included as an engine limitation."		

Comment from:	Turbomeca (08 April 2016)	Comment#	2
Paragraph	3		
Comment	The requirement concerning autorotation without oil of CS 27.927 (c) (15 minutes after the loss of pressure in the rotor drive primary oil system) is not covered in the special condition.		
EASA position	Noted		
EASA response	The requirement regarding loss of lubrication is defined in paragraph 3.A without specifying any time limits as this might be influenced by paragraph 5.A. EASA agrees that for a CS27 single engine application, 15 minutes operation after loss of pressure would need to be demonstrated.		
Proposed Text (if applicable) (added text in bold)	n/a		

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Comment from:	Turbomeca (08 April 2016)	Comment#	3
Paragraph	Statement of Issue		
Comment	We understand that the appendix A gives the additional requirements coming from the CS27/CS29 for the mentioned paragraphs of the CS-E, but the necessity of compliance with the other CS-E paragraphs (concerning the freewheel and interconnected shaft) does not appear clearly.		
EASA position	Rejected		
EASA response	It is clearly stated in the introduction of the Special condition (refer to Statement of Issue on page 1) that the special condition supplement CS-E. <i>"As these parts will be included in the engine configuration they will be the responsibility of the engine type certificate holder. Accordingly, as required by Part 21.A.16B, it is necessary to review CS-E and <u>supplement the engine requirements</u> as needed to address these items."</i>		
Proposed Text (if applicable) (added text in bold)	n/a		

Comment from:	Turbomeca (08 April 2016)	Comment#	4
Paragraph	2		
Comment	Due to the difficulty of running a 150H endurance test with the freewheel connected, the special condition paragraph 2 on E740 should leave the possibility to justify the freewheel (with the interconnect shaft) and the rest of the engine separately, provided both tests are justified as representative.		
EASA position	Partially Accepted		
EASA response	The test should normally be performed during the engine endurance test and with the freewheel connected to the engine. Other test configurations may be submitted to the Agency for acceptance.		
Proposed Text (if applicable) (added text in bold)	n/a		