

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
NR	Author	Section, table, figure	Page						
1	Airbus Helicopters	General comment	/	<p>Some existing processes can be used to collect data which could contribute to ensure the continued integrity of safety critical parts:</p> <ul style="list-style-type: none"> <li>- A periodic MRB process,</li> <li>- The occurrence reporting process and subsequent analyses by the TCH and EASA,</li> <li>- Reporting from maintenance activities,</li> <li>- Improvement teams with major operators.</li> </ul> <p>A list of data which can be potentially used for a CIVP is given in § 3.1 (c), based on engineering judgement.</p> <p>Nevertheless, a systematic collection will be practically difficult or even not feasible for some of these data and there is no evidence that the available data will be representative of the whole fleet.</p> <p>For example:</p> <ul style="list-style-type: none"> <li>- Only a little part of unscheduled removals is available; also, the unscheduled removal policy may vary depending on the operator,</li> <li>- The utilisation and operating environment can only be monitored from major operators and it has been sometimes observed that the most penalizing conditions could happen at small operators.</li> </ul> <p>If complementary data would be needed from service life, this could not result from a CM applied to the TCH, but should be based on adequate requirements to the operators and CAMOs through operational and continued airworthiness regulation.</p>	<p>Suggestion is to put the CM on hold and to establish a working group to develop a policy for the continued integrity of critical parts, based on:</p> <ul style="list-style-type: none"> <li>- Analysis of the types of events which have been observed due to in-service failures of critical parts and how they could have been prevented,</li> <li>- Analysis of the types of data which could be collected to ensure that the degradation of critical parts is controlled and the aircraft usage context is known,</li> <li>- Definition of means to collect these data, including possibly update of the continued airworthiness regulation for mandatory reporting.</li> </ul> <p>The existence of installed HUMS systems could also be considered.</p>		Yes	Partially accepted	<p>The intent of this CM is to agree a process for utilizing available data to confirm assumptions about Critical Parts made at the time of certification. EASA believe that much of the data to be collected and reviewed as part of this programme is already routinely gathered by TCHs. Accordingly, the additional work resulting from this CM will relate mainly to the initial agreement of the plan at the time of TC, collating / summarising the results of the review and providing the conclusions in a post-certification report.</p> <p>EASA's response to AH's specific concerns are summarised below.</p> <p>EASA accept that access to some data from service may not always be possible and where appropriate the responsibility for providing the data should be placed on the operators. In order for the CIVP to be realistically achievable the scope of the CIVP should only require service data which is readily available to the TCH.</p> <p>Regarding Critical Parts, the AC associated with 29.602 currently states:</p> <p>Paragraph b. (2) "<i>Documentation draws the attention of the personnel involved in the design, manufacture, <u>maintenance, inspection, and overhaul</u> of a critical part ..... The documentation should:</i></p> <p><i>(iv) Require notification of the manufacturer of any unusual wear or deterioration of critical parts and the return of affected parts for investigation when appropriate</i>" EASA believe that the intent of the above paragraph should be (and generally is) reflected in the ICA. Accordingly, in the case of a problem with a Critical Part resulting in unscheduled removal, this should be reported and the part(s) returned to the TCH."</p> <p>EASA also accept that the TCH will be partially reliant on the operators to provide data regarding the utilization and operation of helicopters. This CM is intended to apply to future helicopter certification programmes which are likely to utilise increasing flight data monitoring capability. This should assist in understanding some aspects of each helicopter's utilisation.</p> <p>EASA agree that a dedicated working group to study this subject might identify ways in which this CM could better achieve its objectives. However, EASA consider that due to the complexity of discussions involving Critical Parts such a working group could take a long time (years) before making its findings. As this CM is only proposing a possible method of compliance with one aspect of 29.602, EASA would prefer to proceed with a modified version of this CM which addresses AH's concerns. Accordingly, in order that this CM does not result in unforeseen workload, or problems relating to availability of data, changes have been made to ensure adequate flexibility. This should allow the applicant to organise the CIVP how they consider is most appropriate for performing this review. Accordingly, each TCH will be able to propose a CIVP that reflects experience of their helicopter designs using data collected via processes which are already established.</p> <p>Note: Should any TCH be willing to perform a review of their own products as proposed in this comment, EASA will be happy to participate if requested and will consider any subsequent recommendations for incorporation into a revision of the CM.</p>

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2	FAA, ASW-110	Title and throughout document	1, 3, 4	This certification memorandum (CM) uses the term "Safety Critical Parts" This term is not defined in the regulations, advisory material, or in the certification. Not defining the term may result in different interpretations and applications of the memorandum.	For the purpose of the CM, define the term "Safety Critical Parts"	Suggestion	Yes	Accepted	It would be ambiguous to state "Safety Critical Parts" without providing a definition. One alternative would be to simply state "Critical Parts". However, there are a variety of ways in which the industry interpret the term "Critical Characteristic" and in some cases many complex highly fatigue loaded components are classified in a similar but different category to "Critical". Accordingly, EASA believe that in the interest of consistency, this review should be applied to all Critical and 'Candidate Critical Parts' (i.e. Catastrophic failure hazard severity but determined not to have Critical Characteristics). In this way the review will also provide an opportunity for in-service revalidation of which characteristics are indeed Critical Characteristics. To reflect this approach we have changed the Applicability paragraph to state; "This programme should address all Critical Parts and any other parts for which failure could be Catastrophic". Consequently the term "Safety Critical Parts" has been removed from the CM.
3	FAA, ASW-110	2	4	This certification memorandum (CM) uses the term "Safety Critical functions" This term is not defined in the regulations, advisory material, or in the certification. Not defining the term may result in different interpretations and applications of the memorandum.	For the purpose of the CM, define the term "Safety Critical function"	Suggestion	Yes	Partially accepted	The words "safety critical function" were in the Background Section of this CM and were used only to provide context to potential maintenance tasks affected by this CM. The actual scope of maintenance tasks to which this CM is applicable is defined in Para 3.1(a), thus there is no need to define the term "safety critical function".  After reconsideration of this text we consider that this term does not add anything of significant value to the Background section. As pointed out by FAA, as this term could lead to unnecessary ambiguity, we have removed the words "when necessary to maintain the integrity of safety critical functions".
4	FAA, ASW-110	3.1.a	4	This paragraph defines performance of a Continued Integrity Verification Programme (CIVP) as part of compliance to the 27/29.602 Critical Parts rule. However, the CM may expand the scope of compliance to 27/29.602 to include parts that do not meet the regulatory definition of critical parts. The CM should not conflict with the existing rule and advisory material to 27/29.602.	Remove the reference to compliance with 27/29.602.	Suggestion	Yes	Partially accepted	EASA agree that the CM should not conflict with the existing rule and advisory material to 27/29.602.  AC 29.602 currently states "(2) The objective of identifying critical parts is to ensure that critical parts are controlled during design, manufacture, and throughout their service life so that the risk of failure in service is minimized by ensuring that the critical parts maintain the critical characteristics on which certification is based." As there is no further guidance in the AC of how to ensure that critical parts are controlled throughout their service life, the purpose of this Certification Memorandum is to supplement the existing guidance for compliance with CS 27/29.602 to propose an acceptable means of compliance.  EASA consider that the objective and scope of this CM should be in line with 29.602. Accordingly the use of the term "Safety Critical Part" has been replaced with "Critical Part".
5	FAA, ASW-110	3.1.a	4	Regulations 27/29.571 and 27/29.573 should be included in the list of regulations.	As stated		Yes	Accepted	Both of these requirements have been included.
6	FAA, ASW-110	3.1.b	4	Regulations 27/29.571 and 27/29.573 should be included in the list of regulations.	As stated		Yes	Accepted	As this CM relates to 29.602, this paragraph has been rewritten such that the applicability is now all parts the failure of which could be Catastrophic.

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7	FAA, ASW-110	3.1.c	4	The second sentence requires effectiveness of maintenance actions and monitoring provisions (Compensating Provisions) should also be assessed. A list of examples of these provisions should be included.	Reword second sentence as follows: "In addition, the effectiveness of any associated maintenance actions and monitoring/compensating provisions (e.g. health monitoring, usage monitoring, safety devices) should also be assessed"		Yes	Accepted	The Compensating Provisions referred to are design, maintenance and monitoring provisions. However, this term is only applicable to rotor and rotor drive system parts which are subject to a Design Assessment. To keep the CM generically applicable to the whole helicopter the term Compensating Provisions will be removed. The comment to provide examples of monitoring provisions is accepted and the text will be added "(e.g. health monitoring, usage monitoring, and safety devices)".  Note: Though usage monitoring would not typically be identified as a compensating provision it is a feature of the helicopter involving design assumptions affecting critical parts. Accordingly EASA agree with FAA to include this as an example.
8	FAA, ASW-110	3.1.c	4	Add bullet "Evaluate effectiveness of health monitoring program by reviewing results of health monitoring data of monitored high time part and parts removed and found damaged"	Add bullet "Evaluate effectiveness of health monitoring program by reviewing results of health monitoring data of monitored high time part and parts removed and found damaged"		Yes	Partially accepted	In order to "Evaluate effectiveness of health monitoring program" it might be necessary to define what we mean by the term "health monitoring program". The revised wording of paragraph 3.1.c clearly addresses assessment of performance of traditional types of condition monitoring, such as chip detectors. For vibration health monitoring, this is already addressed by paragraph (u) of CS 29.1465. However, health monitoring data should be considered where relevant to the CIVP and therefore has been added as a bullet point to the list in paragraph 3.1.c
9	FAA, ASW-110	3.1.d	4	Add bullet "Evaluate effectiveness of usage monitoring program by reviewing usage monitoring data of monitored high time part and parts removed and found damaged"	Add bullet "Evaluate effectiveness of usage monitoring program by reviewing usage monitoring data of monitored high time part and parts removed and found damaged"		Yes	Partially accepted	As stated in the response to Comment 6, usage monitoring is a feature of the helicopter involving design assumptions affecting critical parts. Accordingly usage monitoring data has been added as a bullet point to the list in paragraph 3.1