

## AMC 20 Amendment 22 — Change information

EASA publishes amendments to the General Acceptable Means of Compliance for Airworthiness of Products, Parts and Appliances (AMC-20) as consolidated documents. These documents are used for establishing the certification basis for applications made after the date of entry into force of the applicable amendment.

Consequently, except for a note '[Amdt 20/21]' under the amended paragraph, the consolidated text of the AMC does not allow readers to see the detailed amendments that have been introduced compared to the previous amendment. To allow readers to see these amendments, this document has been created. The same format is used to show the amendments as for the publication of notices of proposed amendments (NPAs):

The text of the amendment is arranged to show deleted, new or amended text as shown below:

- (a) deleted text is ~~struck through~~;
- (b) new or amended text is highlighted in **blue**;
- (c) an ellipsis '[...]' indicates that the rest of the text is unchanged.

## SUBPART A — GENERAL

### AMC 20-20AB Continuing structural integrity programme

#### 1. PURPOSE

[...]

- (f) This AMC also supports compliance with the ageing structural integrity requirements in point 21.A.65 of Part 21 as well as compliance with the certification basis established in accordance with points 21.A.101(h) and 21.A.433(a)(5) of Part 21.

#### 2. RELATED REGULATIONS AND DOCUMENTS

- (a) Implementing Rules and Certification Specifications:

[...]

Point 21.A.65 Continuing structural integrity for aeroplane structures

Point 21.A.101 Type-certification basis, operational suitability data certification basis and environmental protection requirements for a major change to a type-certificate

[...]

- (b) EASA AMC and FAA Advisory Circulars

AMC 25.571 Damage tolerance and fatigue evaluation of structure

AMC1 21.A.65 Continuing structural integrity programme for aeroplane structures

AMC1 21.A.101(h) Type-certification basis for changes to large aeroplanes subject to point 26.300 of Part-26

AMC1 21.A.433(a)(5) Requirements for the approval of repairs to large aeroplanes subject to point 26.302 of Part-26

[...]

#### 3. BACKGROUND

[...]

Points 26.300 through 26.370 of Part-26 provide the requirements for a complete retroactively applicable continuing structural integrity programme for specific categories of large aeroplanes. The principal means of compliance with those requirements regulations may be found in CS-26, which, in turn, refers to this AMC.

Additionally, this AMC supports (R)TCH compliance with the requirements introduced by Commission Delegated Regulation (EU) 2021/699 of 21 December 2020 on continuing structural integrity of large aeroplanes, amending Annex I (Part 21) to Commission Regulation (EU) No 748/2012.

[...]

## 5. CONTINUING STRUCTURAL INTEGRITY PROGRAMME AND WAY OF WORKING

### (a) General

The programmes and processes described in this and the subsequent paragraphs of this AMC are all part of an acceptable process to provide a continuing structural integrity programme that precludes unsafe levels of cracking.

DAHs and operators are expected to work together to ensure that their continuing structural integrity programmes remain valid.

Point 21.A.65 of Part 21 has been introduced in order to require that (R)TCHs establish a process to ensure that the continuing structural integrity programme for large aeroplanes remains valid throughout the operational life of the aeroplanes.

Points 26.300 through 26.309 of Part-26 provide retroactive requirements for TCHs to establish a continuing structural integrity programme for ~~the~~ existing type designs of large aeroplanes. Furthermore, the level of safety achieved for these products is then ensured for future changes and repairs to these aeroplanes through compliance with points 21.A.101(h) and 21.A.433(a)(5). Aeroplanes certified in accordance ~~compliance~~ with CS-25 Amendment 19 or later amendments have acceptable structural maintenance programmes. Nonetheless, in both cases, there is a need to ensure that the continuing structural integrity programme remains valid throughout the operational life of the aeroplane.

### (b) Maintaining the validity of the continuing structural integrity programme

Points 21.A.65 of Part 21 and 26.305 of Part-26 requires (R)TCHs to establish a process that ensures that the continuing structural integrity programme remains valid throughout the operational life of the aeroplane, considering in-service experience and current operations. AMC1 21.A.65 and CS 26.305-(a) and (c) describe the core content of the process required as the means of compliance with ~~these points~~ ~~point 26.305~~, and further details are provided in Appendix 5 to this AMC.

The intent is for ~~the~~ (R)TCHs ~~for~~ ~~of~~ large transport aeroplanes to monitor the continued validity of the assumptions upon which the maintenance programme is based, and to ensure that unsafe levels of fatigue cracking or other structural deterioration will be precluded in service. It should be noted that this requirement applies to all structures whose failure could contribute to a catastrophic failure, and it is not limited to metallic structures or fatigue cracking, but should also encompass composite and hybrid structures.

[...]

### (e) Continued airworthiness and management of cracks and other damage findings in service

Point 26.305 of Part-26 and point 21.A.65 of Part 21 require ~~requires~~ a process to be established that ensures that the continuing structural integrity programme remains valid throughout the operational life of the aeroplane, considering in-service experience and current operations.

[...]

## 8. LIMIT OF VALIDITY OF THE MAINTENANCE PROGRAMME AND WIDESPREAD FATIGUE DAMAGE (WFD) EVALUATION

[...]

### (b) Revision of WFD evaluation and LOV

New in-service experience findings, improvements in the prediction methodology, better load spectrum data, a change in any of the factors upon which the WFD evaluation is based or economic considerations, may dictate a revision to the evaluation. Accordingly, associated new recommendations for service action should be developed including a revised LOV, if appropriate, and submitted to EASA for review and approval of both engineering and maintenance aspects.

An LOV may be extended under the provisions of Part 21. In such cases, the applicant must demonstrate that WFD will not occur in the aeroplane up to the proposed extended LOV. The applicant should consider the age (flight cycles or flight hours or both) of high-time aeroplanes relative to the existing LOV to determine when to begin developing data to extend it. Because the data is likely to include additional full-scale fatigue testing, the applicant should allow sufficient time to complete such testing and to submit the compliance data for approval. An extended LOV is a major change to the type design of an aeroplane and according to point 21.A.101(h) the level of safety provided by the existing LOV must be maintained up to the extended LOV. An extended LOV may also include specified maintenance actions, which would be part of the new LOV approval. Extended LOVs, along with any required maintenance actions for the extended LOV, would be incorporated into the ALS.

[...]

**Appendix 1 to AMC 20-20-AB Guidelines for the development of a supplementary structural inspection programme**

[...]

**Appendix 2 to AMC 20-20-AB Guidelines for the development of a programme to preclude the occurrence of widespread fatigue damage**

[...]

**Annex 1 to Appendix 2 to AMC 20-20-~~A~~<sup>B</sup> Full-scale fatigue test evidence**

[...]

**Annex 2 to Appendix 2 to AMC 20-20-~~A~~<sup>B</sup> Example of how to establish an LOV**

[...]



**Appendix 3 to AMC 20-20-AB Guidelines for establishing instructions for continued airworthiness of structural repairs and modifications**

[...]

## Annex 1 to Appendix 3 to AMC 20-20A B Approval process for new repairs

[...]

## Annex 2 to Appendix 3 to AMC 20-20A **B** Assessment of existing repairs

[...]

**Annex 3 to Appendix 3 to AMC 20-20A B Repairs and modifications to removable structural components**

[...]

Annex 4 to Appendix 3 to AMC 20-20A B Service bulletin review process

[...]

**Annex 5 to Appendix 3 to AMC 20-20A B List of major changes and STCs that may adversely affect fatigue-critical structure**

[...]

**Annex 6 to Appendix 3 to AMC 20-20A B Background to the need for damage-tolerance-based inspection programmes for repairs**

[...]

## Appendix 4 to AMC 20-20AB Guidelines for the development of a corrosion prevention control programme

[...]



## Appendix 5 to AMC 20-20AB — Guidelines for ensuring the validity of continuing structural integrity programmes

### 1. GENERAL

Point 21.A.65 of Part 21 and point 26.305 of Part-26 require requires a process to be established that ensures that the continuing structural integrity programme remains valid throughout the operational life of the aircraft, considering in-service experience and current operations.

[...]

### 2. CONTENT OF THE PROCESSES FOR COMPLIANCE WITH POINT 26.305 OF PART-26

AMC1 21.A.65 and CS 26.305 establishes compliance on the basis of sub-paragraphs (a) to (g), reproduced below, and consideration of the criteria of sub-paragraph (h):

[...]

The audit report should summarise the processes and their evolutions. The report should describe any measures taken in the audit that are beyond the basic processes established in accordance with point 21.A.65 of Part 21 or as described in the original summary report prepared in accordance compliance with point 26.305 of Part-26 (e.g. additional field inspections or tear-down inspections of fleet leading aircraft in terms of age and usage). The report should summarise the status of each part of the continuing structural integrity programme, the findings of the audit and proposals for the actions to be taken.

The audit should provide evidence that the processes required by point 21.A.65 of Part 21 and point 26.305 of Part-26 have been properly implemented, such that:

[...]

**SUBPART B — LIST OF AMC-20 ITEMS****LIST OF AMC-20 ITEMS****INDEX 1**

EASA AMC-20 reference	Title	Last amended by
[...]		
AMC 20-20	Continuing structural integrity programme	AMC-20 Amdt <del>20</del> 22
[...]		

~~{Amdt 20/20}~~

{Amdt 20/22}