

Design Service Goal

Hantering av demonterbara delar som ingår i
Fatigue Critical Baseline Structure List

Presentatör

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Innehåll

- Begrepp
- Allmänt om
AMC 20-20 Continuing Structural Integrity Programme
- Demonterbara delar från FCBS List
- Koppling till underhållsprogrammet
- Sammanfattning

- **Design Service Goal (DSG)**

- DSG is the period of time (in flight cycles/hours) established at design and/or certification during which the principal structure will be reasonably free from significant cracking including widespread fatigue damage.
- Other common terms used in the aircraft industry are Design Service Objective (DSO) and Design Life Goal (DLG).

- AMC 20-20 (Annex V till ED 2007/019/R)
Continuing Structural Integrity Programme
- Berör främst stora flygplan i CAT

AMC 20-20 Definition

Fatigue Critical Structure (FCS)

- FCS is structure that is susceptible to fatigue cracking that could lead to a catastrophic failure of an aircraft. For the purposes of this AMC, FCS refers to the same class of structure that would need to be assessed for compliance with § 25.571(a) at Amendment 25-45, or later. The term FCS may refer to fatigue critical baseline structure, fatigue critical modified structure, or both.

Fatigue Critical Baseline Structure (FCBS)

- is the baseline structure of the aircraft that is classified as fatigue critical structure.

Innehåll AMC 20-20

AMC 20-20 Continuing Structural Integrity Programme

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AMC 20-20 - Ansvarfördelning

Typcertifikathållaren/Designorganisationer

- The TCH is responsible for developing the **ageing aircraft structures programme** for each aircraft type, detailing the actions necessary to maintain airworthiness.
- Other DAH should develop programmes or actions appropriate to the modification/repair for which they hold approval, unless addressed by the TCH.
- All DAHs will be responsible for monitoring the effectiveness of their specific programme, and to amend the programme as necessary.

AMC 20-20 - Ansvarfordelning

Operatören

- The Operator is responsible for incorporating approved DAH actions necessary to maintain airworthiness into its aircraft specific **maintenance programmes**, in accordance with Part-M.

Olika förfaringsätt från olika tillverkare

- Olika delar som är berörda.
- TCH ska ha (ta fram) en lista på det som är "basen" för de delar som är berörda.
 - Denna lista kan kallas "*Fatigue Critical Baseline Structure List*"
 - Dessa delar är de som begränsar flygplanets DSG.

SAAB 2000 SRM

(b) List of fatigue critical elements

- 1 Forward Fuselage
 - a Skin Panels
 - b Skin cut-outs
 - Skin reinforcements and profiles around cut outs in the skin
 - c Skin splices
 - Longitudinal skin splice members
 - Circumferential splice members
 - d Front and Side window framing
 - Window posts and sills and doublers
 - e Pressure bulkhead and other pressurized panels
 - Forward pressure bulkhead
 - Cockpit centre floor
 - Nose gear well walls including NLG fittings

B737NG FCBS List + SRM

4.1 Fuselage FCBS List

4.1.1 Fuselage Doors (ATA 52) FCBS List

Table 4.1.1-1, Fuselage Doors (ATA 52) FCBS List

Fuselage Doors Item (737-600/700/700C/ 800/900/900ER)	Reference No. 737NG-FCBS-	Description
FWD ENTRY DOOR (Excludes seal retainers/depressors, brackets, handle pans, gates, mechanism (except as noted) and other items not listed)	52-0001	Horizontal Beam Assemblies (Ref SRM 52-10-02 ID 1)
	52-0002	Stop Fittings (Ref SRM 52-10-90 ID 1)
	52-0003	Intercostal Assemblies (Ref SRM 52-10-02 ID 1)
	52-0004	Window Frame (Ref SRM 56-30-02 ID 1)
	52-0005	Outer Skin (Ref SRM 52-10-01 ID 1)
	52-0006	Internal Skin (Ref SRM 52-10-01 ID 1)
	52-0007	Side Frame Assemblies (Ref SRM 52-10-02 ID 1)

10. Fatigue Critical Baseline Structure (FCBS) List.

NOTE: By definition FCBS does not include miscellaneous secondary structure such as clips. FCBS is limited to the structure explicitly identified on the following table.

A. Fuselage FCBS List

(1) Fuselage Doors (ATA 52) FCBS List

Table 6: Fuselage Doors (ATA 52) FCBS List

FUSELAGE DOORS ITEM	REFERENCE NO. 737NG-FCBS-	DESCRIPTION
FWD ENTRY DOOR (Excludes seal retainers/depressors, brackets, handle pans, gates, mechanism (except as noted) and other items not listed)	52-0001	Horizontal Beam Assemblies (Ref SRM 52-10-02 ID 1)
	52-0002	Stop Fittings (Ref SRM 52-10-90 ID 1)
	52-0003	Intercostal Assemblies (Ref SRM 52-10-02 ID 1)
	52-0004	Window Frame (Ref SRM 56-30-02 ID 1)
	52-0005	Outer Skin (Ref SRM 52-10-01 ID 1)
	52-0006	Internal Skin (Ref SRM 52-10-01 ID 1)
	52-0007	Side Frame Assemblies (Ref SRM 52-10-02 ID 1)

AMC 20-20 Appendix 3

Guidelines for establishing instructions for continued airworthiness of structural repairs and modifications.

- 3.3. Identifying Fatigue Critical Baseline Structure (FCBS)
- 3.14 Repairs to Removable Structural Components
 - ANNEX 3: REPAIRS AND MODIFICATIONS TO REMOVABLE STRUCTURAL COMPONENTS
 - **1. DETERMINING THE AGE OF A REMOVABLE STRUCTURAL COMPONENT**

AMC 20-20 Appendix 3, Annex 3

AMC 20-20 Effective: 26/12/2007

Annex V to ED Decision 2007/019/R of 19/12/2007

ANNEX 3: REPAIRS AND MODIFICATIONS TO REMOVABLE STRUCTURAL COMPONENTS

1. DETERMINING THE AGE OF A REMOVABLE STRUCTURAL COMPONENT

Determining an actual component age or assigning a conservative age provides flexibility and reduces operator burden when implementing DT data for repairs and modifications to structural components. In some cases, the actual component age may be determined from records. If the actual age cannot be determined this way, the component age may be conservatively assigned using one of the following fleet leader concepts, depending upon the origin of the component:

- (a) If component times are not available, but records indicate that no part changes have occurred, aircraft flight cycles or flight hours can be used.
- (b) If no records are available, and the parts could have been switched from one or more older aircraft under the same maintenance programme, it should be assumed that the time on any component is equal to the oldest aircraft in the programme. If this is unknown, the time should be assumed equal to the same model aircraft that is the oldest or has the most flight cycles or flight hours in the world fleet.
- (c) A manufacturing date marked on a component may also be used to help establish the component's age in flight cycles or flight hours. This can be done by using the above reasoning and comparing it to aircraft in the affected fleet with the same or older manufacturing date.

If none of these options can be used to determine or assign a component age or total number of flight cycles or flight hours, a conservative implementation schedule can be established by using the guidelines applied in paragraph 3. of this appendix, for the initial inspection, if required by the DT data.

AMC 20-20 Appendix 3, Annex 3

2. TRACKING

An effective, formal, control or tracking system should be established for removable structural components that are identified as FCBS or that contain FCS. This will help ensure compliance with maintenance programme requirements specific to repairs and modifications installed on an affected removable structural component. Paragraph 4 of this appendix, provides options that could be used to alleviate some of the burdens associated with tracking all repairs to affected removable structural components.

Innehåll AMP, Appendix I vs AMC 20-20

Appendix I to AMC M.A.302 and AMC M.B.301 (b) - Content of the maintenance programme

- 1.1.13 If **applicable details of specific structural maintenance programmes** where issued by the type certificate holder including **but not limited to**:
- a. Maintenance of structural Integrity by damage Tolerance and Supplemental Structural Inspection Programmes (SSID).
 - b. Structural maintenance programmes resulting from the SB review performed by the TC holder.
 - c. Corrosion prevention and control.
 - d. Repair Assessment.
 - e. Widespread Fatigue Damage

AMC 20-20 Paragraph:

- 6-Supplemental Structural Inspection Programme (SSIP)
- 7-Service Bulletin Review and Mandatory Modification Programme
- 8-Corrosion Prevention and Control Programme (CPCP)
- 9-Repair Evaluation Guidelines (REG) and Repair Assessment Programme (RAP)
- 10-Limit of Validity (LOV) of the Maintenance Programme and Evaluation for Widespread Fatigue Damage (WFD)

Summering demonterbara ”FCBS-delar/komponenter”

För att underlätta och att kunna utnyttja DSG bör man ha kontroll på demonterbara ”FCBS-delar/komponenter” i ett så tidigt stadium som möjligt.

Tre sätt att ha kontroll på ”FCBS-delar/komponenter”:

- Bara ersätta med nya delar
- Uppföljning
- Applicera tiderna från "*fleetleader*"

Beskriv i AMP hur ni gör.

Sammanfattning

- Begrepp
- Allmänt om
AMC 20-20 Continuing Structural Integrity Programme
- Demonterbara delar från FCBS List
- Koppling till underhållsprogrammet

Detta var lite om DSG

- **Nästa steg är ESG**
 - Extended Service Goal