


<b>EASA</b>	<b>COMMENT RESPONSE DOCUMENT</b>
	<p><b>EASA PAD No. 13-033</b></p> <p><b>[Published on 06 February 2013 and officially closed for comments on 06 March 2013]</b></p>

**Commenter 1: Company name – Ken Dickenson – 04.03.2013**

**Comment # 1**

**COMMENTS FOLLOWING THE NOTIFICATION OF A PROPOSAL TO ISSUE AN AIRWORTHINESS DIRECTIVE – EASA PAD 13-033**

**A. COMMENTERS, THEIR OBJECTIVE AND THEIR COMMENTS:**

**COMMENTERS & THEIR COMMENTS**

The comments in this document are a consensus of those from several engineers having many years of experience within the environment of aircraft maintenance engineering & planning, and within the domain of Instructions for Continued Airworthiness (ICA), particularly for airworthiness limitations and Certification Maintenance Requirements (CMR), developed by Type Certificate (TC) holders. Such experience includes work in the Design, Customer Support and Airworthiness departments for aircraft manufacturers and also some years in Reliability, Maintenance Planning and Airworthiness departments of several large operators/leasing companies and Maintenance & Repair organisations.

Since March 2011, these commenters took the opportunities the Aviation Authorities have given to the public to comment different regulation material projects.

**COMMENTERS' OBJECTIVE**

The subject commenters have the objective to bring to the attention of these Authorities, in particular the European Aviation Safety Authority (EASA) and the Federal Aviation Administration (FAA) of the United States of America, their observations of possible gaps in the maintenance-related regulation material for large aeroplanes (e.g. the Part 21 and the Certification Specifications, CS 25 for the EASA and the Federal Aviation Regulations, FAR 21 and FAR 25 for the FAA) in attempting to fulfil the objectives of Notice of Proposed Amendments (NPA) or of a Proposal to issue an Airworthiness Directives (PAD)/Notice of Proposed RuleMaking (NPRM).

This document aims at contributing to this objective.

Engineers who contributed to this review carried out their duties with the greatest possible professional integrity and the greatest possible technical competence. Their comments and recommendations take also into account experience gained on human factors.

The commenters have chosen to report their findings through the channel of Mr Kenneth Dickenson.

**B. COMMENTS ON PAD 13-033:**

**1. INTRODUCTION**

The pieces of information chosen by Airbus, and accepted by the EASA, to form an ICA sometimes complicate the activities of maintenance organisations approved under Part-145 and Continuing Airworthiness Management Organisations (CAMO) approved under Part-M. This is the case with the instructions for Damage Tolerant Airworthiness Limitation Items (a part of ICA specified as mandatory in approval of the type design).

The issue of an AD to address new or amended mandatory instructions and/or airworthiness limitations may cause additional prejudice to maintenance organisations and CAMO. The AD calls the attention of the competent authority for the oversight of the continuing airworthiness of individual aircraft to the matter and may amplify the difficulties of CAMO/maintenance organisations, especially when the data selected are not sufficient to form an ICA.

This PAD/AD is founded on an unstable basis.

The review of PAD 13-033 has to take into account the context in which the mandatory instructions and corresponding airworthiness limitations are introduced, and the rules governing this context. This is a requisite to achieve a correct introduction of mandatory directives compatible with the activities of maintenance organisations and CAMO.

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To make this report easier to read, the subject context and the rules governing this context are described in the Appendix to this report. The Appendix to this report describes a process for the certification of a (recent) aeroplane type (and the benefits to properly comply).

The EASA stressed the impact of using ambiguous terms and the importance for providing clarity and accuracy<sup>1</sup>. We have tried to pay particular attention to the terms used in the subject PAD and in this discussion: For example, “approved” does not mean “mandatory”, and “safety task” does not necessarily imply “mandatory compliance”.

## 2. SECTION ‘REASON’

Please could the EASA provide its answers to the following questions?

- ☐ Would not the use of a unique term for “maintenance instructions”, “maintenance requirements”, and “instructions” improve the section “Reason”?

The International Standards and Recommended Practices in the paragraph 10.4 of Chapter 10 in the Part IIIA of the Annex 8 (Amdt 103) to the Convention on International Civil Aviation refer to “maintenance tasks and frequencies that have been specified as mandatory by the State of Design in approval of the type design” (ref. to the Appendix to this report, Part I, paragraph A.).

- ☐ Would the following proposal for the section “Reason” be more appropriate?

“The Instructions for Continued Airworthiness (ICA) that have been specified as mandatory in approval of the type design for Airbus A340 aeroplanes are currently collected in the Airworthiness Limitations Section (ALS).

The maintenance tasks for Damage Tolerant Airworthiness Limitation Items (DT ALI) and their respective airworthiness limitations were previously listed in Airbus A340 ALI Document reference AI/SE-M4/95A.0051/97. EASA issued AD 2010-0036 to require compliance with the mandatory maintenance tasks and airworthiness limitations as specified in the issue 11 of this document.

The maintenance tasks for DT ALI and corresponding airworthiness limitations are now specified in Airbus A340 ALS Part 2, which is approved by the EASA. The revision 01 of this ALS Part introduces more restrictive maintenance tasks and/or airworthiness limitations, including modifications to prevent the occurrence of widespread fatigue damage (WFD) on the affected aeroplanes. These modifications and corresponding airworthiness limitations (i.e. maximum embodiment points) are listed in a new Section 3.

Failure to comply with the mandatory maintenance tasks or airworthiness limitations contained in this ALS Part revision could result in an unsafe condition.

The new maintenance tasks 571123-01-01 and 571123-01-02 introduce the inspections of the frame foot junction with lateral frame previously required by

**EASA AD 2008-0050.**

For the reasons described above, this AD retains the requirements of EASA AD 2010-0036 and those of EASA AD 2008-0050, which are superseded, and requires the implementation of the mandatory maintenance tasks and airworthiness limitations as specified in Airbus A340 ALS Part 2 revision 01.

1 Refer to the EASA Proposed CM-21A-J-001 issue 01. Refer also to the FAA Advisory Circular (AC) 20-176 “Design Approval Holder Best Practices for Service Bulletins Related to Airworthiness Directives”.

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Finally, this AD requires to refer to the Weight Variant (WV) Group Table published in Variation to Airbus A340 ALS Part 2 revision 01 ref. 0FVLG120020/C0S issue 01, instead of the table of paragraph 1.2.B in the Section 1 of Airbus A340 ALS Part 2 revision 01, due to an identified error.”

**3. SECTION ‘REQUIRED ACTION(S) AND COMPLIANCE TIME(S)’**

☐ Would the following proposal for the paragraph (3) be more appropriate?

“(3) Compliance with the requirements of paragraphs (1) and (2) of this AD can be demonstrated by:

(3.1) Revising as follows the approved Aircraft Maintenance Programme (AMP), on the basis of which the operator or the owner ensures the continuing airworthiness of each operated aeroplane:

Incorporate all maintenance tasks and airworthiness limitations specified in Airbus A340 ALS Part 2 revision 01 that are relevant to the model and weight variant, as defined in the Variation to Airbus A340 ALS Part 2 revision 01 ref. 0FVLG120020/C0S issue 01,  
and

(3.2) Complying with the approved AMP described in paragraph (3.1) of this AD.”

Although the modifications listed in the Section 3 of Airbus A340 ALS Part 2 revision 01 are not repetitive, they are scheduled maintenance tasks. The point 1. of AMC M.A.302 states “The term ‘maintenance programme’ is intended to include scheduled maintenance tasks the associated procedures and standard maintenance practices. The term ‘maintenance schedule’ is intended to embrace the scheduled maintenance tasks alone.”. Therefore, they should be introduced into the maintenance schedule of the AMP.

**4. COMPLIANCE WITH THE A340 ALS PART 2 REVISION 01****a. APPLICABLE INSPECTION PROCEDURES**

The GM No. 1 to 21.A.239(a) indicates that the Office of Airworthiness<sup>2</sup> should ensure<sup>3</sup> that the manuals approved by the EASA (the Aircraft Flight Manual, Master Minimum Equipment List, the ALS of the ICA and the CMR document, where applicable), including any subsequent revisions, are checked to determine that they meet the respective requirements, and that they are provided to the EASA for approval (ref. subparagraph w, paragraph 3.1.4 of the GM). The subject check is a compliance verification (ref. paragraph 3.1.3 of the GM).

We infer from this GM that (i) the EASA Certification Directorate<sup>4</sup> has checked Airbus A340 ALS Part 2 revision 01 before approving it, and (ii) the TC holder has produced Airbus A340 ALS Part 2 revision 01 (ALS Part 2 author role) and performed an independent check (ALS Part 2 Compliance Verification Engineer (CVE) role).

Please could the EASA tell how the following issues have been taken into account by the stakeholders?

2 Office of Airworthiness of the Design Approval Holder organisation.

3 The term “ensure” is important as it implies that the compliance verification is not necessarily performed by the Office of Airworthiness.

**4 Probably an EASA Structure Expert and the EASA Project Certification Manager.**

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JAR 25 states in the Appendix H:

**“H25.4 Airworthiness Limitations section**

The Instructions for Continued Airworthiness must contain a section titled Airworthiness Limitations that is segregated and clearly distinguishable from the rest of the document. This section must set forth each mandatory replacement time, structural inspection interval, and related structural inspection procedure approved under JAR 25.571. If the Instructions for Continued Airworthiness consist of multiple documents, the section required by this paragraph must be included in the principal manual. This section must contain a legible statement in a prominent location that reads: ‘The Airworthiness Limitations Section is approved and variations must also be approved’.”

This paragraph of JAR 25 finds its roots in the FAR 25 amendment 25-54. The final rule explains that “FAA does not agree that inspection intervals and related procedures can be omitted from the Airworthiness Limitations section of the Instructions for Continued Airworthiness. For example, the proposed Airworthiness Limitations section on a transport category airplane must contain mandatory inspection intervals and related procedures because the damage-tolerance concept described in Sec. 25.571 is predicated upon the use of such inspections to detect initial cracks in principal structural elements before crack growth under repeated loads could progress to a degree which would cause catastrophic failure of the airplane. However, the FAA does agree that Secs. 43.16 and 91.163(c) should permit modification of these intervals and procedures by other FAA approved methods”.

In other words, the application of an inappropriate inspection procedure, even at the correct interval, cannot guarantee the timely detection of cracks. Although the approved structural inspection procedures are crucial for the activities of maintenance organisations and CAMO, this information is obviously not given in Airbus A340 ALS Part 2 revision 01.

☐ Can the EASA confirm whether it has reviewed and approved basic5 structural inspection procedures necessary to the demonstration of compliance with all inspections specified in Airbus A340 ALS Part 2 revision 01?

JAR 25 Appendix H25.4 states that the ALS “must set forth each [...] structural inspection procedure approved under JAR 25.571” and the ALS “[...] is approved and variations must also be approved”. Should not these structural inspection procedures have been approved by the Agency no later than Airbus A340 ALS Part 2 revision 01, as the Part 21.A.263(c) does not list any approval privilege for the ALS?

☐ Can the EASA tell if the absence of references to basic structural inspection procedures to conform in order to declare the compliance with all inspections specified in Airbus A340 ALS Part 2 revision 01 (and with the AD resulting from this PAD, a fortiori), can be considered as a non-compliance with JAR 25 Appendix H, paragraph H25.4?

☐ Can the EASA tell if a compliance verification of the MPD is carried out?

With the inspections of Airbus A340 ALS Part 2 revision 01, CAMO and maintenance organisations are taken for a ride from a document to another, i.e. ALS Part 2 ☐ Maintenance Planning Document (MPD) ☐ Aircraft Maintenance Manual (AMM)/Non-destructive Testing Manual (NTM). To the best of our knowledge, Airbus

5 Reference is made to the inspection procedure developed by the TC holder: some alternative inspection procedures may exist.

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considers that ICA do not embrace the MPD and some operators do not develop their Aircraft Maintenance Programme on the basis of the MPD.

☐ Is this interruption in the ICA chain acceptable for the demonstration of compliance with AD, taking into account the potential MPD quality issues?

The combination of data chosen by Airbus, and accepted by the EASA, to form an ICA specified as mandatory in approval of the type design, contributes sometimes to make more complex the activities of maintenance organisations and CAMO. This is the case with Airbus A340 ALS Part 2 revision 01. The adequate combination for an inspection includes:

- (i) A unique inspection task identifier,
- (ii) An inspection task description,
- (iii) The direct cross-reference (at least) to the inspection procedure(s) to fulfil the inspection task objective,
- (iv) The airworthiness limitations, and
- (v) The applicability.

Neither the MRBR (approved, compliance not mandatory) nor the MPD (not approved, compliance not mandatory) is an appropriate repository for referencing the maintenance procedure(s) necessary to show compliance with mandatory instructions (as described in this report). A misleading message is therefore conveyed when an ALS Part references MRBR or MPD tasks instead of the relevant maintenance procedure.

Refer also to the paragraph E. of the Part II in the Appendix to this report.

The EASA correctly recommends<sup>6</sup> that in their Service Bulletins (SB) related to AD, design organisations should “not refer to documents that simply refer to other documents. Instead [they should] refer to the end document that provides the actual instruction”. But, why would this apply only to SB?

The application of the EASA’s recommendation to Airbus A340 ALS Part 2 would (i) minimize the possibility of errors or extensive judgment, and (ii) alleviate the burden AD and Airbus A340 ALS Part 2 revision 01 generate on operators (without jeopardizing safety) for aeroplanes that have been previously processed in accordance with the end manual that provides the actual procedure.

#### **b. ROR PAGES**

☐ Can the EASA confirm if it is acceptable to deviate from the maintenance tasks or maintenance procedures corresponding to airworthiness limitations of A340 ALS Part 2 revision 01?

The subparagraphs 1. and 2. of paragraph “COMPLIANCE TIME FOR SECTIONS 1 AND 2” in the ROR refer to airworthiness limitations, but not to the respective maintenance tasks or maintenance procedures.

#### **c. SECTION 1**

☐ Could the EASA confirm that “the Certification Maintenance Requirements (given in ALS Part 3), the Ageing Systems Maintenance (given in ALS Part 4), the Fuel ALIs (given in ALS Part 5) and the Aircraft Information System Security (given in ALS Part 6) satisfy the requirements given in JAR Part 25.571/25.1529/appendix H25.4.”, as stated in paragraph 1-1?

<sup>6</sup> Refer to Proposed CM-21A-J-001 issue 01.

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For example, Airbus A340 ALS Part 3 revision 01 indicates in the sub-part 3-0, paragraph 1. that CMR are not addressed by the paragraph H25.4 of JAR 25 Appendix H. In the paragraph 4., it indicates that CMR have been shown to be necessary either by System Safety Assessment (e.g. JAR 25.1309 compliance) or, in a minority of cases, by engineering judgement.

☐ Can the EASA tell what a Damage Tolerant Airworthiness Limitation Item is?

The section 1 paragraph 1.1. indicates that “The requirements quoted in this document are classed as Damage-Tolerant Airworthiness Limitation Items (DT ALIs)”. The Appendix C to Airbus A340 ALS Part 2 revision 01 indicates that “They [DT ALI] are all those parts of the structure whose failure could result in

catastrophic failure of the airplane and that are designed to fatigue and damage-tolerance concept”.

☐ Can the EASA tell what the source document to identify the weight variant of an Airbus A340 aeroplane at the time of its initial delivery is? Could it be the Aircraft Inspection Report of the aeroplane? Why is this source document not referenced in Airbus A340 ALS Part 2 revision 01?

The paragraph 1.2.B. states “The applicable WV for each individual aircraft at delivery can be found in the Aircraft Cross Reference table in the A340 SRM Front Matter.”.

☐ Can the EASA confirm the meaning of the Limit Of Validity (LOV)?

The paragraph 1.3. states (for Airbus A340 WV 050 series) that “The LOV reflects the limit of validity of the engineering data that supports the structural maintenance program”.

The FAA AC 120-104 defines the LOV as “[...] the period of time (in flight cycles, flight hours, or both), up to which it has been demonstrated that WFD is unlikely to occur in an airplane’s structure by virtue of its inherent design characteristics and any required maintenance actions.”

The LOV seems to be strictly associated to widespread fatigue damage.

☐ Can the EASA tell if it is necessary to assure traceability (of in-service history) and monitoring of transferable damage tolerant structural parts, which failure is potentially catastrophic?

There is a number of components in the aeroplane structure that are involved in catastrophic failure conditions (e.g. in landing gear assemblies, engine mount assemblies, as life limitations and inspections, respectively, can be found in Airbus A340 ALS). The demonstrated operational life for damage tolerant components has not been specifically and systematically published: CAMO/ maintenance organisations are informed only when the operational life for a specific component is less than the aeroplane operational life. They are informed by the publication of a mandatory life limitation in Airbus A340 ALS, or in an AD. Traceability of in-service history for affected components has been enforced only for Safe Life Airworthiness Limitation Items (ALS Part 1).

Unfortunately, this practice exposes public to unnecessary risks in the case of damage tolerant components that can be removed from an aeroplane to be fitted to another, as many times as necessary<sup>7</sup>. Compliance with JAR 25.571 may not be maintained

<sup>7</sup> Reference is made to “transferable components”.

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when transferable components are operated beyond their demonstrated operational life.

Operation beyond the applicable demonstrated operational life has already been observed for such components.

☐ Can the EASA tell if it is necessary to obtain an EASA approval for variations to the ALS as stated in JAR 25 Appendix H, paragraph H25.4?

The paragraph 1.4.A. states “Thresholds and intervals of the DT ALIs cannot be increased, unless advised by the manufacturer following approval by the Authority of the State of aircraft registry.”

☐ Can the EASA tell what the metallic structural items to be inspected for corrosion are?

The paragraph 1.4.A. states “The ALS Part 2 requires also to control corrosion to Level 1 or better on all metallic structure details, elements or assemblies, which contribute significantly to carrying flight, ground, pressure or control loads and whose failure could result in catastrophic failure of the aircraft.”

Airbus A340 ALS Part 2 revision 01 does not provide the list of subject metallic structure details, elements or assemblies. So, what should be inspected?

☐ Can the EASA tell what the minimum maintenance requirements resulting from JAR 25.571 to address corrosion are?

The paragraph 1.4.A. states “The Corrosion Prevention and Control Program (CPCP) defined in the Structure Section of the A340 MRB Report is an

acceptable mean of compliance.”

If the CPCP is one means (so not the only means to demonstrate compliance), what are the minimum maintenance requirements? Further, compliance with the MRBR is not mandatory (ref. to the Appendix to this report, Part I, paragraph C.).

So, should the minimum maintenance requirements resulting from JAR 25.571 to address corrosion be given in Airbus A340 ALS Part 2?

☐ Can the EASA tell what the applicable airworthiness limitations for repaired structure are?

The paragraph 1.4.B. states “Limitations quoted in Section 2-2 are applicable to the undamaged and unrepaired structure.”

The paragraph 1.4.D. states “Limitations of the ALS Part 2 may be superseded by instructions given in either Airworthiness Directives (AD) or production Concessions or a Repair Approval Sheet (RAS) or an Alternative Means<sup>8</sup> Of Compliance (AMOC).

It is Operator’s responsibility to refer to the applicable limitations.”

What should be done for airworthiness limitations stated in these documents, when the corresponding airworthiness limitations stated in Airbus A340 ALS Part 2 revision 01 have been reduced?

8 Alternative Method Of Compliance?

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☐ Could the following statement for the paragraph 1.4.C. be appropriate to alleviate the burden on maintenance organisations and CAMO?

“Any damage exceeding the scope of Airbus SRM or corrosion greater than Level 1 (regardless where and when the corrosion is detected) on DT ALI shall be reported to Airbus. [...]”

## 5. WAY FORWARD

We recommended to:

- ☐ Cancel the EASA PAD 13-033,
- ☐ Require the publication of an Airbus A340 ALS Part 2 revision that will address the subject within a reasonable timeframe (e.g. before the end of 2013),
- ☐ Issue an AD requiring compliance with this Airbus A340 ALS Part 2 revision.

## 6. CONCLUSION

It is our considered opinion that the PAD 13-033 may contribute to the confusion and could expose the public to its potential consequences. We therefore believe that corrective action is necessary. Consequently, the engineers who have commented the PAD 13-033 would respectfully request if the answers to these questions could be developed by the EASA.

It could be felt that, within various departments of the TCH, a shortfall in direction or experience in the management of aircraft continuing airworthiness could be holding an unmerited influence when addressing ALS issues.

We would like to express in anticipation our thanks to the EASA for the consideration given to our comments and for the release of public answers.

Mr K. Dickenson

(Independent Consultant, Airworthiness)

On behalf of all contributors

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## APPENDIX

### REGULATIONS REVIEW & IMPLEMENTATION

#### Part I

To understand the concerns identified within the frame of this PAD/AD, background information has to be presented on the regulations related to Instructions for Continued Airworthiness (ICA):

#### A. CERTIFICATION SPECIFICATIONS FOR THE DEVELOPMENT OF ICA

It is Type Certificate (TC)/Supplemental Type Certificate (STC) holders' responsibility to develop ICA in accordance with the paragraphs CS/FAR 25.1529, 25.1729, and the related CS 25/FAR 25 Appendix H.

The paragraphs H25.3(b)(1) and the paragraph H25.4 of the CS 25/FAR 25 Appendix H require respectively:

- ☐ The scheduling information that provides the recommended periods at which the aeroplane (including any of its parts/components) should undergo work, and the recommended work at these periods, and
- ☐ The mandatory airworthiness limitations and associated mandatory instructions.

The paragraph H25.5 of the CS 25/FAR 25 Appendix H requires the establishment of ICA for the Electrical Wiring Interconnection System (EWIS), but it does not explicitly state the nature of these ICA (recommended or mandatory). We understand that compliance with the ICA developed as a result of the paragraph H25.5 of the CS 25/FAR 25 Appendix H is recommended. This is based on the fact that the mandatory instructions for EWIS (currently limited to mandatory replacement times for EWIS components) are already covered by the paragraph H25.4 of the CS 25/FAR 25 Appendix H.

The paragraph H25.4 of the CS 25/FAR 25 Appendix H relates to the following International Standards and Recommended Practices of the Annex 8 (Amdt 103) to the Convention on International Civil Aviation:

- ☐ For aeroplanes over 5700 kg for which application for certification was submitted on or after 13-Jun-1960, but before 02-Mar-2004:

Standard: "Maintenance tasks and frequencies that have been specified as mandatory by the State of Design in approval of the type design shall be identified as such."

Ref.: paragraph 10.4 of Chapter 10 in the Part IIIA.

- ☐ For aeroplanes over 5700 kg for which application for certification was submitted on or after 02-Mar-2004:

Standard: "Mandatory maintenance requirements that have been specified by the State of Design as part of the approval of the type design shall be identified as such and included in the maintenance information [...]."

Recommended practice: "Note.— Mandatory requirements identified as part of the type design approval are often referred to as Certification Maintenance Requirements (CMR) and/or airworthiness limitations."

Ref.: paragraph 7.7.4 of Chapter 7 in the Part IIIB

The ICA originate from outcomes of the aeroplane design reviews carried out in accordance with CS 25/FAR 25 technical standards.

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#### B. PUBLICATION OF ICA

Once the aeroplane design reviews are completed, some of the outcomes are converted into ICA, which are made available to operators (refer to EASA Part



**21.A.61/FAR 21.50):** It is operators' responsibility to ensure the aeroplane continuing airworthiness. This is mainly ensured by compliance with the Instructions for Continued Airworthiness published by holders of a design approval.

### **C. ICA DELIVERABLES**

The Maintenance Review Board Report (MRBR) is the usual main means to publish the recommendations referred to in the previous paragraph (i.e. Appendix Part I paragraph A.). It is developed in accordance with the Air Transport Association (ATA) of America MSG-3.

**Note:** Additional recommendations may need to be published separately from the MRBR. The MSG-3 analyses do not always cover the requirements of CS 25/FAR 25 entirely: for example, it is possible that MSG-3 does not consider systems failure conditions that have three or more failures<sup>9</sup>.

At the end of the process, the MRBR is approved, but compliance is not mandatory for operators: When the MSG-3 analysis activity produces airworthiness-related maintenance tasks<sup>10</sup>, their frequency should at the same time take into account operational and/or economic considerations (e.g. reparability). The ATA MSG-3 Revision 2007.1 explains that the approach is to accomplish the goals of efficient aeroplane scheduled maintenance "at a minimum total cost, including maintenance costs and the costs of resulting failures".

These economic considerations perfectly suit the requirements of the CS 25/FAR 25 Appendix H paragraphs H25.3(b)(1) and H25.5. However, the tasks and frequencies the MRBR process gathers must not be mistaken for mandatory instructions and associated airworthiness limitations, which relate only to precise qualitative and quantitative safety objectives specified in the airworthiness codes.

The Airworthiness Limitations Section (ALS) is the means to publish the mandatory instructions and airworthiness limitations not to exceed<sup>11</sup>. It includes instructions necessary to maintain those design features of the structure and systems that have been defined in the type design<sup>12</sup> to preclude the development of major, hazardous and catastrophic failure conditions<sup>13</sup>. This

<sup>9</sup> Refer to "Disposition of public comments AC No. 25-19X", page 17, FAA's answer to comment "Page 10/11, para 13b(4)(a)1" using the following link: [http://rgl.faa.gov/Regulatory\\_and\\_Guidance\\_Library/rgAdvisoryCircular.nsf/0/fab5c2606a93d0248625792f00514dc8/\\$FILE/AC%2025-19A%20Final%20disposition%20of%20public%20comments.pdf](http://rgl.faa.gov/Regulatory_and_Guidance_Library/rgAdvisoryCircular.nsf/0/fab5c2606a93d0248625792f00514dc8/$FILE/AC%2025-19A%20Final%20disposition%20of%20public%20comments.pdf).

<sup>10</sup> For example, tasks which Failure Effect Category (FEC) is 5 or 8. The ATA MSG-3 Revision 2007.1 refers to "safety related task", "safety effects", etc... It is sometimes better to refer to "airworthiness-related task", "effects on airworthiness", etc... Safety is an objective while airworthiness is one of the necessary means to achieve this objective.

<sup>11</sup> No explicit requirement exists to impose the inclusion of the Certification Maintenance Requirements in the ALS. However, it is strongly advisable to do it.

<sup>12</sup> The EASA Part 21.A.31 states that the type design includes "an approved airworthiness limitations section of the instructions for continued airworthiness as defined by the applicable airworthiness code". A similar requirement can be found in the FAR 21.

<sup>13</sup> Refer to: - CS/FAR 25.1309 for systems (Maj/Haz/Cat), and

- CS/FAR 25.571 for structure (Cat). Haz/Cat for aeroplanes for which application for certification will be submitted on or after 24-Feb-2013 (Refer to the Annex 8 to the Convention on International Civil Aviation).

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information is crucial to ensure that maintenance (modifications, alterations, repairs, etc...) do not unintentionally violate the integrity of the aeroplane type design (e.g. to ensure that this important information is evident to organizations, other than the TC holder and the EASA, that may develop, perform and/or approve such maintenance).

Finally, it is to be noted that the MRBR deals with scheduled maintenance only, while the scope of the ALS is not restricted and can cover unscheduled

maintenance<sup>14</sup> as well: The ATA MSG-3 is “a means for developing the scheduled maintenance tasks and intervals which will be acceptable to the regulatory authorities, the operators, and the manufacturers” (extracted from the ATA MSG-3 Revision 2007.1, Chapter 1, paragraph 1-1).

#### **D. CHANGES TO TYPE DESIGN – EXAMPLE: AEROPLANE OPERATIONAL LIFE EXTENSION**

Once the certification of the aeroplane type design is successfully completed, the Type Certificate and the Type Certificate Data Sheet (TCDS) are issued. From the standpoint of information on ICA, the TCDS EASA.A.036 (Fokker F27) is an excellent example. But, what does the TCDS EASA.A.015 for Airbus A340 series aeroplanes show in terms of segregation of mandatory instructions and airworthiness limitations from other ICA? The issue 20.0 of this TCDS does not segregate the MRBR from the different ALS Parts<sup>15</sup>...

After initial certification of the aeroplane, changes to type design are frequently necessary. Their development is governed by the EASA Part 21 subpart D. For example, the extension of the aeroplane operational life modifies, at the product level, an assumption used for certification: e.g. the operational life is taken into account in many system safety assessments. Therefore, the changes to mandatory instructions and related airworthiness limitations should result in an amendment of the ALS to allow aeroplane operation between the operational life previously approved and the new one. The revised ALS should be submitted to the EASA for approval, at the same time as the Major Change dossier.

#### **E. NEED FOR AN AIRWORTHINESS DIRECTIVE – EXAMPLE: AEROPLANE OPERATIONAL LIFE EXTENSION**

The need for an AD should be reviewed at the same time as the Major Change dossier. The question is “Are the restrictive changes (i.e. to instructions and airworthiness limitations in question) mandatory for aeroplanes that accrued a life less than the operational life previously approved (aeroplanes in pre-Major Change configuration)?” Only a positive answer to this question would justify the need for an AD. Then, an AD should be issued to require the compliance with the revised ALS.

No operation beyond the approved operational life should be allowed. Therefore, no AD is necessary if these intervals are a maximum only for aeroplanes operated between the operational life previously approved and the new one (aeroplanes in post-Major Change configuration). In such a case, the revised ALS should limit the applicability of the affected tasks accordingly.

<sup>14</sup> Mandatory unscheduled maintenance is sometimes found in the applicable Aircraft Maintenance Manual chapter 05-50 (e.g. inspections following hard landings, operation in heavy turbulences or through volcanic ash plumes, etc...).

<sup>15</sup> For example, for CMR it should indicate that the ROR and the sub-part 3-1 only are approved, not the whole ALS Part 3...

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### **Part II**

The manner these standards for initial airworthiness are implemented has a substantial impact on the activities performed to ensure the continuing airworthiness of aeroplanes:

#### **A. INTERDEPENDENCE**

We strongly believe that the ALS and the MRBR are complementary, but not opposed to each other. Unfortunately, experience confirms the lack of coordination in the demonstration of compliance with both the paragraphs H25.3(b)(1) and H25.5, and the paragraph H25.4 of the CS 25/FAR 25 Appendix H:

☐ Can it be concluded that the publication of recommended frequencies is unnecessary when airworthiness limitations are listed in the ALS? No, of course not.

The economical and operational aspects taken into account during the establishment of such frequencies must not be forgotten. When maintenance tasks are accomplished beyond the recommended frequency, operators are exposed to extra repair/maintenance costs; therefore they need this information.

Operators will compare the benefit of performing the task later with the potential extra repair/maintenance costs, and will adjust the frequency to the preferred balance. At no time safety will be affected, thanks to the corresponding airworthiness limitation(s) not to exceed published in the ALS.

☐ Can it be also concluded that there is a burden resulting from the mandatory task (of the ALS) in comparison with the corresponding recommended task (of the MRBR, or other documents)? Not if properly managed.

Both the ALS task and the corresponding MSG-3 task are airworthiness-related tasks. Therefore, the requirements in terms of accomplishment (EASA Part M.A.302), independent check (e.g. EASA Part M.A.402(a)), accomplishment recording (e.g. EASA Part M.A.614(a) & EASA Part 145.A.55(a)), and records keeping (e.g. EASA Part M.A.305(h)) will be the same. Misunderstandings on this issue are frequently originating from the poor consideration given to the terms used.

The compliance with the ALS task is demonstrated for a periodic task as long as the MSG-3 task is performed as frequently as, or more frequently than, the airworthiness limitation(s). Then, no separate accomplishment is necessary. That is what we call “taking credit for the accomplishment of MSG-3 tasks to claim compliance with the ALS tasks”.

## **B. INTERDEPENDENCE BENEFITS**

When the aeroplane design review outcomes are appropriately converted into recommended and mandatory ICA, operators can optimally manage the aeroplane continuing airworthiness:

Operators and their competent National Aviation Authorities (NAA) can reasonably and safely manage (without requiring the involvement of TC/STC holders and/or EASA) some temporary and/or permanent escalations that may be justified as a result of experience or operational needs, thanks to the publication of both the recommended schedule and the airworthiness limitation(s) not to exceed.

It can be concluded with this approach that whatever happens to the MRBR tasks in the operator's aeroplane maintenance programme (e.g. schedule escalation of 400%), compliance with the mandatory tasks and associated airworthiness limitations of the ALS will be demonstrated.

From our standpoint, a reference to the relevant ALS task(s) is necessary in the MRBR (or other documents) for each (appropriate) MSG-3 task fulfilling the ALS task objectives and effectivity, (i)

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to show compliance with CS/FAR 25.1529, and CS 25/FAR 25 Appendix H, paragraph H25.3(b)(1), and (ii) to support operators and their NAA in managing this flexibility: The appropriate MSG-3 tasks must be identified to prevent selection of unsuitable task(s) on operators/NAA side.

Significant savings (on time and cost) could be made by all involved parties (i.e. operators, their NAA, TC/STC holders and the EASA) provided:

- ☐ Both the recommended schedule and the airworthiness limitation(s) not to exceed are systematically published respectively in the MRBR (or other documents) and in the ALS, and
- ☐ Cross references to the ALS are included in the MRBR (or other documents) for allowing credit for accomplishment of appropriate MSG-3 tasks to declare compliance with the referenced ALS tasks.

This will limit, without jeopardizing safety, TC holder/STC holder/EASA involvement in operators' practices on (temporary/permanent) schedule escalations to those exceeding the airworthiness limitations published in the ALS. This will focus TC holder/STC holder/EASA resources to overseeing more important issues. This is in line with one objective of the EASA, as defined in Article 2 of Regulation (EC) No 216/2008, which is to promote cost-efficiency in the regulatory and certification processes.

## **C. MAINTENANCE PROCEDURES**

Some operators may comply with MRBR/Maintenance Planning Document (MPD) tasks using maintenance procedures alternative to the ones given in the

Aircraft Maintenance Manual (AMM), for example. Care should be exercised to ensure that such alternative procedures are acceptable for the compliance with the ALS tasks.

#### **D. SCATTERING PUBLICATION: BETWEEN AMBIGUITY, INACCURACY AND CONTRADICTION**

The way chosen by Airbus, and accepted by the EASA, to publish the mandatory instructions and corresponding airworthiness limitations is a concern. It contributes to the dissemination of mandatory instructions and related airworthiness limitations within different documentations (ALS and ADs) and/or, even worse for some Airbus aeroplane types, within recommendations (MRBR or MPD). Experience has confirmed the following:

- ☐ The lack of consolidation significantly complicates the management of continuing airworthiness, and
- ☐ The lack of segregation introduces an ambiguity on the nature of instructions (including related schedule data, if any) in a same document: Is compliance with recommended instructions compulsory or is compliance with mandatory instructions recommended only?

These are hazards that expose the public to an unnecessary risk.

##### **a) Consolidation**

The regulation materials referred into this appendix clearly participate in the effort to gather all mandatory instructions and airworthiness limitations in a single location, i.e. the ALS. This consolidation has also been required within the frame of the INT/POL/25-1216.

This raises the question why this effort should be stopped once aeroplanes have entered service. It cannot be stressed enough that Airworthiness Directives are the unique tool to restore an acceptable level of safety, when evidence shows that the safety level of in-service aeroplanes may be compromised. However, the management of airworthiness issues affecting fleets and planned on a term sufficiently long (i.e. other than immediate or 16 Refer to the paragraph 6 of the INT/POL/25-12.

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short term), including repetitive instructions, should be organised with the help of the ALS. The less active AD there are for a given Product, the more attention will be given to AD when they are issued. For example:

At the end of July 2012, the EASA publishing tool recorded approximately 365 AD for the Airbus A340-200/-300 series (for example). Amongst these 365 AD, almost 90 were cancelled or superseded. So, about 275 were effective at that time. At the same time, the EASA publishing tool recorded 36 AD for whole B777 family. 6 were not adopted, cancelled, or superseded. So, 30 were effective for this aeroplane family.

This difference in the number of effective AD generates an unnecessary pressure on the person or organisation accountable under Part-M that manages the continuing airworthiness of some Airbus A340-200/-300 (human factors).

Of course, not all instructions of the subject 275 AD can and should be transferred into the Airbus A340 ALS. But the generic instructions<sup>17</sup> made mandatory by AD should be transferred into Airbus A330/A340 ALS.

So, the point is whether the EASA will require this transfer or not. This practice has already been accepted by the EASA for the Airbus A330/A340 aeroplane programme: Several AD have been superseded by one single AD that requires the compliance with an ALS revision, which incorporates the instructions (still active) of the superseded AD. It helped at identifying some long overdue ADs (to be cancelled), confusing/inaccurate instructions, and contradictions.

A special treatment for some AD applicable to a same aeroplane type/programme could confuse persons or organisations managing the continuing airworthiness of such Airbus aeroplanes. Therefore, this practice needs to be applied homogeneously (i.e. across all Parts of all ALS of an Airbus programme, e.g. Airbus A300/A310/A300-600/A300-600ST, Airbus A318/A319/A320/A321, Airbus A330/A340, or A380).

Some airlines operate Airbus aeroplanes of different types/programmes (e.g. both Airbus A330/A340 and A318/A319/A320/A321 aeroplanes). The question arises... “Why does the ICA/Aircraft Maintenance Programmes have to be managed differently for two aeroplane types/programmes from the same

manufacturer”? This can lead to difficulties or instructions being overlooked if, for example, the same team of Planning Engineers is responsible for planning maintenance checks for different aeroplane types/programmes.

Therefore, this practice needs to be applied homogenously across all Parts of all Airbus ALS.

#### b) Segregation

The regulation materials referred into this appendix participate also in the effort to segregate the mandatory instructions and airworthiness limitations from the other ICA. The paragraph H25.4(a) of the CS 25/FAR 25 Appendix H require that “The Instructions for Continued Airworthiness must contain a section titled Airworthiness Limitations that is segregated and clearly distinguishable from the rest of the document. [...]”. This segregation has also been organised within the frame of the INT/POL/25-1218.

17 Generic instructions are applicable to a fleet of aeroplanes/components (defined at the model, weight variant, part number or modification level) as opposed to specific instructions applicable to a limited number of aeroplanes/components (defined at the manufacturer serial number level).

18 Refer to the Appendix C of the INT/POL/25-12.

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Should the lubrication requirement for the McDonnell Douglas MD-83 Horizontal Stabiliser Actuator, together with its maximum interval (as justified by TC holder design engineers) had been specified in the MD-83 ALS, Alaska Airlines would had not been authorized by the local FAA Flight Standards District Office (FSDO), without consulting the FAA Aircraft Certification Office (ACO), to excessively escalate this lubrication interval.

This raises the question why this effort of segregation made during type certification should be stopped once aeroplanes have entered service.

The EASA also acknowledged in the paragraph ‘reason’ of the EASA PAD 12-029, the difficulties encountered by operators and their competent authority in dealing with interval escalations: “[...] It is common practice to escalate the intervals of many MPD tasks, based on operator’s experience and service records. Whether such escalation is acceptable from a safety perspective is usually difficult to determine by the competent authority”. Since, this statement disappeared from the final text (refer to EASA AD 2012-0233). It gives the impression that the EASA is embarrassed to have acknowledged these difficulties, does not it?

For a number of years, the policy at Airbus and other manufacturers has been to publish mandatory instructions and airworthiness limitations separately from the recommendations of the MRBR/MPD. Airbus has published them in the:

- ☐ ALS Part 1 (Safe Life Airworthiness Limitation Items),
- ☐ ALS Part 2 (Damage Tolerant Airworthiness Limitation Items),
- ☐ ALS Part 3 (Certification Maintenance Requirements),
- ☐ ALS Part 4 (Ageing Systems Maintenance),
- ☐ ALS Part 5 (Fuel system Airworthiness Limitations), and
- ☐ ALS Part 6 (Aircraft Information System Security).

During this process, the content of several earlier ADs containing relevant requirements, have been transferred into the appropriate ALS Part. Several airline operators have expressed the view that having the mandatory instructions and airworthiness limitations published in a separate dedicated document (the ALS) has been helpful to their planning departments and has helped ensure that no requirements have been inadvertently overlooked. It is therefore considered to be a backward step to have some airworthiness limitations published in the ALS and others, for the same structure, systems, or components, published in ADs or in the MRBR/MPD. It can also place an additional burden on Planning/Technical Records departments in maintaining their

technical records systems.

The lack of consolidation and segregation is misleading (some airworthiness limitations exceeded) and this hazard may unleash its damaging potential (serious events or accidents). Although experience has proven that accidents may occur when some maintenance is not complied with at an appropriate time, this dissemination can still be observed.

#### **E. UNSUITABLE REFERENCES IN AIRWORTHINESS DIRECTIVES**

The EASA correctly reminds in its Proposed CM-21A-J-001 issue 01 that in their SB related to AD, design organisations should “not refer to documents that simply refer to other documents. Instead [they should] refer to the end document that provides the actual instruction”. But, why would this apply only to design organisations and their SB?

With some AD, operators and maintenance organisations are taken for a ride from a document to another (MRBR□MPD□AMM). The application of the EASA’s recommendation to AD would (i) minimize the possibility of errors or extensive judgment, and (ii) alleviate the burden AD

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generate on operators (without jeopardizing safety) for aeroplanes that have been previously processed in accordance with the end document that provides the actual procedure.

##### **a) Actions required by the PAD/AD**

It is usually inappropriate to refer in the frame of PAD/AD to the MRBR19 or the MPD20 to impose the compliance with a scheduled task: neither the MRBR (approved, compliance not mandatory) nor the MPD (not approved, compliance not mandatory) is an appropriate repository for mandatory instructions and airworthiness limitations. For example, the following sentence of the section “Reason” of the EASA AD 2012-0210 is incorrect:

“Analysis results have shown that such rupture could happen during the current inspection interval imposed by the Maintenance Review Board Report (MRBR), task 274000-12”

The term “impose” is inappropriate when it is associated with the MRBR. The MRBR imposes neither a task nor its threshold/interval, but provides recommendations only.

A misleading message is therefore conveyed when a PAD/AD is released to require the compliance with MRBR or MPD tasks. The danger of this aspect can be summarised by the slogan included in all FAA Special Airworthiness Information Bulletins (SAIB): “Recommendations aren’t mandatory”.

Depending on the case, the suitable reference will be the ALS task or, for example, the AMM procedure.

##### **b) Credit taken for previous accomplishment**

It may be acceptable to take credit for the previous accomplishment of an AMM procedure for example, to demonstrate compliance with an AD. The work described in the AMM procedure may have already been accomplished at an unscheduled opportunity and/or to comply with the maintenance schedule of the approved Aircraft Maintenance Programme (AMP), when it includes the MRBR task or the MPD task.

Some operators may have complied with MRBR/MPD tasks using maintenance procedures alternative to the ones given in the AMM, for example. It is usually not possible to review whether such alternative procedures are acceptable or not for the compliance with the AD. It is therefore inappropriate within the frame of an AD to:

- ☐ Refer to the MRBR/MPD tasks.
- ☐ Take credit for the previous accomplishment of MRBR/MPD tasks.

From the standpoint of communication in AD on the segregation<sup>21</sup> of mandatory instructions and airworthiness limitations, the EASA AD 2012-0109

(Fokker F27) is an example of a clearer direction (experience shows that a complete separation of the ALS from the MRBR, even from MRBR annexes, prevents misunderstandings).

19 E.g. refer to EASA AD 2010-0192, section “Required action(s) and Compliance Time(s)”, paragraph (3).

20 E.g. refer to EASA PAD 12-029 Appendix 1.

21 Refer to the Annex 8 to the Convention on International Civil Aviation (e.g. refer to the paragraph 10.4 of Chapter 10 in the Part IIIA).

**EASA response:**

**EASA agrees with the following comments:**

**2. Section ‘Reason, and**

**3. Section ‘Required Action(s) and Compliance Time(s)’**

**Final AD has been amended accordingly.**

**For all other comments: EASA acknowledge the comments, however these comments are not linked to the AD directly but to ALSs in general and, to a certain extent, can be applicable to ALS documents published by other Type Certificate Holder. EASA PAD 13-033 is not the lieu to debate ALS content and the EASA Safety Information Section recommends to address these type of comments to the EASA Rulemaking Group that will address the rules concerning ICAs part of the 2013-2016 Rulemaking Programme: task RMT.0252 (MDM.056), more information are available here:**

**<http://www.easa.europa.eu/rulemaking/terms-of-reference-and-group-composition.php#MDM>**

**Commenter 2: INDAR – Juan L. Vélez – 04.03.2013**

**Comment # 2**

PAD 13-033 is advising the issuance of a new AD to require the implementation of A340 ALS Part 2 Revision 01. This new AD will supersede requirements of older ADs 2008-0050 and 2010-0036 (this later still in force requires the application of A340 ALS Part 2, ALI Issue 11).

Airbus SB A340-00-4050 Rev. 00, once implemented, allows operators to increase the LOV (Limit of Validity) from the current 80,000 FH and 20,000 FC, whichever occurs first, to the new LOV of 100,000 FH and 20,000 FC, whichever occurs first.

SB A340-00-4050, Rev 00 does not require any physical work on the aircraft, but the operator is required to show on its maintenance documentation that it complies with “The Airworthiness Limitation Section (ALS) Part 2 for Damage Tolerant Airworthiness Limitation Items (DT ALI) that refers to the ALI Document (ref. AI/SE-M4/95A.0051/97) issue 11.” (SB A340-00-4050 Rev 00, 3. ACCOMPLISHMENT INSTRUCTIONS, C. PROCEDURE, (a), Page 9).

The SB also requires that the operator shows compliance to other ALS parts to be able to increase the LOV:

- ALS Part 1, Rev 03 or later

- ALS Part 3, Rev 01 or later
- ALS Part 4, Rev 01 or later

From the above, we understand that in order to be able to increase the LOV you need to show compliance to ALS Part 2, Issue 11 only. No further revision is authorized by the SB to take such credit.

Now the new AD based on PAD 13-033 will require the implementation of ALS Part 2 Revision 01, which supersedes ALI Issue 12, which supersedes ALI Issue 11. This new ALS Part 2 Revision 01 eliminates some of the inspection requirements in Issue 11 (it also implements new ones).

Taking all the above as preamble, can you please explain us how can the operators maintain the increased LOV after implementation of SB A340-00-4050 Rev 00 if this requires that the operator has to show compliance of ALS Part 2, ALI Issue 11, and the new AD will supersede this ALI Issue 11?.

Please let us know your comments.

***EASA response:***

***There is a typo error in SB A340-00-4050 Rev 00. Operators can take benefit of later revisions of A340 ALS Part 2 to increase the Limit of Validity of their A/C maintenance planning. This point is acknowledged by Airbus, and it will be corrected at next revision opportunity of this applicable SB.***

**Commenter 3: Deutsche Lufthansa AG – Brigitte Gilles – 05.03.2013**

**Comment # 3**

Regarding the PAD 13-033 (Time Limits and Maintenance Checks - Damage Tolerant Airworthiness Limitation Items – ALS Part 2 – Amendment), which was published February, the 06th **2013**, Lufthansa have some comments to the upcoming AD and the required Airbus A340 Airworthiness Limitation Section Part 2 Revision 01 document.

With introduction of this new format of ALS Part 2 Airbus implements the “SECTION 3 – WFD RELATED MANDATORY MODIFICATIONS”, a table that details several structural modifications and the related embodiment points SMP.

PAD 13-033 splits the requirements in two paragraphs, one for the classic inspection program (previously known and covered as ALI document) and the second paragraph for the modifications named in Section 3 and asks for compliance of both.

Putting mandatory modifications in the ALS Part is seen very critical due to the following reasons:

- The requirements for maintenance program related (including life limits) tasks and modification related tasks should be clearly separated. Since the diluted contents of current ALS documents have several addressees within a typical operators organization, the need to show compliance with all contents of the ALS is



spread over several parties. Means the new procedure does not fit at all to the current typical setup of an operator.

- The ALS Part is revised periodically and thus a new AD superseding the preceding AD is issued. In the current setup every single mandatory modification in the ALS Part is linked to the AD to show compliance. Taking into consideration that additional work will be required in the future for up-date of the MRB and ALS for implementation of new Weight Variants, Fleet Survey outcomes and ESG activities etc. the related AD for the ALS Part 2 will be updated also often. Therefore at every ALS revision, the reference to show compliance with, changes. The administrative burden and the susceptibility for mistakes rises. Therefore DLH would like to have the mandatory modifications separated from the ALS Part.

DLH already discussed the current procedure during last year's structure working group (with participation of EASA/OSAC/DGAC members), as well as in the FAIR screening community, at meetings with other airlines (e.g. AFR) and Airbus and at the EASA-BDLI Round Table 2 weeks ago in Hamburg.

We think it is worth to mention that other airlines face similar problems with the current approach. Operators addressed that this Airbus solution is not appreciated by the Airlines due to the fact that scheduled maintenance inspections are mixed with additional modification requirements which are covered in other processes than the operator maintenance programs.

Our intention is to maintain a clear and transparent way of showing compliance with the upcoming AD. Separation of the mandatory SB's from the ALS Part would be the best solution and means to use well established procedures for everybody involved into this process.

***EASA response:***

***EASA partially agrees. The ALS part 2 including the new Section 3 has been approved by EASA. The modifications listed in the section 3 are due before the Intermediate Service Goal and hence are mandated by this AD. However, prompted by your comment, EASA and Airbus have agreed on the deletion of this Section 3 in the future ALS part 2 revisions and will instead mandate the modifications due before the Intermediate Service Goal by ADs, according to normal continued airworthiness process. The modifications which are due after ISG (to reach the ESG) are considered by EASA as optional improvements and hence will not be mandated.***