

EASA	COMMENT RESPONSE DOCUMENT
	EASA PAD No. 12-150 [Published on 28 November 2012 and officially closed for comments on 12 December 2012]

Commenter 1: Various – Ken Dickenson – 10/12/2012

Comment # 1

[Please see the attachment]

The EASA stressed the impact of using ambiguous terms and the importance for providing clarity and accuracy¹. 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”.

1. SCATTERING PUBLICATION: BETWEEN AMBIGUITY, INACCURACY AND CONTRADICTION

Experience gained in the LEAN technics is leading us to share some lessons learnt. One of the main goals of LEAN is to eliminate the overburden or stress in a system (Muri). Muri is pushing a machine or a person beyond the natural limits. Overburdening people may ultimately result in (quality and) safety problems. Muri is caused by the respect of unsuited standards.

At the end of November 2012, the EASA publishing tool recorded 49 Airworthiness Directives (AD) for the whole Airbus A380 family (after 5 years of service). Amongst these 49 AD, 10 were superseded. So, 39 were effective at that time (7.8 AD per year of service). At the same time, the EASA publishing tool recorded 47 AD for whole Boeing B777 family (after 7.5 years of service). 5 were not adopted or superseded. So, 42 were effective for this aeroplane family (5.6 AD per year of service).

This difference in the number of effective AD (a rate per year of service of almost 40% greater for the Airbus A380) indicates a greater pressure on the person or organisation accountable under Part-M for the management of the Airbus A380 continuing airworthiness (human factors).

This disproportionate pressure can be reduced by transferring the mandatory instructions and associated airworthiness limitations of AD in the Airbus A380 ALS, when it is possible. The Appendix to this document provides further details on this consolidation.

Of course, not all instructions of the subject 39 AD can and should be transferred into the Airbus A380 ALS². But those of the EASA PAD 12-150 are a typical example of generic instructions³ that should be transferred into the Airbus A380 ALS Part 4.

So, the point is whether the EASA will require or not the transfer of candidate mandatory instructions and airworthiness limitations from their AD into the Airbus A380 ALS. Additional clarifications on the hazards and risks resulting from the dissemination of mandatory instructions and associated airworthiness limitations are given in the Appendix to this document.

2. TYPE DESIGN AND CHANGES TO TYPE DESIGN

The Appendix to this document describes a process for the certification of a (recent) aeroplane type (and the benefits to properly comply). 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. Unfortunately, the TCDS for the Airbus A380 series aeroplanes does not show the same quality in terms of segregation of mandatory instructions and airworthiness limitations.

One can reasonably ask why there are such disparities between TC holders under the same jurisdiction.

After initial certification of the aeroplane, changes to type design are frequently necessary. Their development is governed by the EASA Part 21 subpart D. The Airbus modification (MOD) 68762/Service Bulletin (SB) A380-32-8015 is one of such changes to type design. We infer from the section “Reason” of the EASA PAD 12-150 (and for other reasons) that this change has been classified ‘Major’: the failure of the retraction actuator pin collar of a Body Landing Gear (BLG) “could result in collapse of a BLG unit, adversely affecting the structural integrity of the aeroplane”.

Therefore, the Major Change dossier should have included an Airbus A380 ALS Part 44 revision to reflect the replacement requirement and related airworthiness (/life) limitations referred to in the section ‘Reason’ of this PAD. The revised Airbus A380 ALS Part 4 should have been submitted to the EASA for approval, at the same time as the Major Change dossier.

3. NEED FOR AN AIRWORTHINESS DIRECTIVE?

The need for an AD should have been reviewed at the time of the Major Change dossier compilation. The question is “Is a new restriction (new task/item, reduced airworthiness limitation, etc...) introduced in the Airbus A380 ALS, as result of the Major Change?” Only a positive answer to this question justifies the need for an AD. Then, the EASA PAD 12-150 should have been issued to require the compliance with the revised Airbus A380 ALS Part 4. It can be concluded that an AD is needed as the revised Airbus A380 ALS Part 4 should (have) introduce(d) a new item (i.e. the retraction actuator pin collar) with two part numbers (i.e. the PNR 2144M5279-1 and PNR 2144M5279-2).

An AD should have already been issued, at least for the revision 08 of the Airbus A380 ALS Part 4, which reduced life limitations due to a revised analysis.

Some airlines operate Airbus aeroplanes of different types/programmes (e.g. both Airbus A330/A340 and A380 aeroplanes). Consequently, it is essential that the EASA applies the same policy for the issuance of AD related to the ALS: The question arises... “Why do the AD, ICA, Aircraft Maintenance Programmes have to be managed differently for two aeroplane types/programmes from the same manufacturer”? Different policies 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.

4. ADDITIONAL QUESTIONS

The contents of the EASA PAD 12-150, with due consideration for the outcomes of demonstrations made in the previous paragraphs, lead us to ask the following questions:

- ☐ Why does this PAD crop up 3.5 years after the issuance of the Airbus SB A380-32-8015?
- ☐ Why does a revision of the Airbus A380 ALS Part 4, reflecting the replacement requirement for the retraction actuator pin collar Part Number (PNR) 2144M5279-1 and related airworthiness (/life) limitation, has not been approved by the EASA at the same time as the MOD 68762?
- ☐ How operation beyond the Design Service Goal (DSG) will be prohibited for the new retraction actuator pin collar PNR 2144M5279-2 (in absence of life limitation explicitly published for this PNR)?
- ☐ What is the DSG applicable to the new retraction actuator pin collar PNR 2144M5279-2? The current Airbus A380 ALS Part 4 revision states different DSG (one for the system installations, one for the airframe, and one for the landing gears of the Airbus A380).

☐ Why should the left hand and right hand BLG be modified concurrently? As long as the life limitation is not exceeded, there is no unsafe condition. Is not it an excessive flexibility reduction imposed on the persons or organisations managing the Airbus A380 continuing airworthiness?

☐ Why does this PAD require to not install any retraction actuator pin collar having PNR 2144M5279-1 after an aeroplane has been modified (or from the effective date of the AD, as appropriate)? As long as the life limitation is not exceeded, there is no unsafe condition. Is not it, again, an excessive flexibility reduction imposed on the persons or organisations managing the Airbus A380 continuing airworthiness?

It could be concluded that this EASA PAD might generate more problems than it would solve.

5. WAY FORWARD

So what is the alternative solution in the present case? We would like to propose the following answer:

☐ Cancel the EASA PAD 12-150,

☐ Require the publication of an Airbus A380 ALS Part 4 revision that will address the subject within a reasonable timeframe (by the end of Jan-2013),

☐ Issue an AD requiring compliance with this Airbus A380 ALS Part 4 revision, as usually done for the other Airbus Products.

6. CONCLUSION

We believe that the proposal presented in the EASA PAD 12-150 will regrettably contribute to:

☐ the confusion, and exposes the public to the potential consequences, and

☐ an excessive flexibility reduction (cost increase with no safety benefit).

The engineers who have commented the EASA PAD 12-150 would like to express in anticipation their thanks to the EASA for the consideration given to their comments and for the release of public answers.

EASA response:

Comment understood. Life limited items are covered whenever possible by the ALS documentation. EASA is closely working with Airbus to review Airbus rules with regards to the introduction of Life limited items into the ALS documentation.

With regards to the retraction actuator pin collar, the consequences of pin collar P/N 2144M2579-1 failure are clear but this item was not included in the ALS documentation at TC because it was thought not to be a life limited item. At time of SB issuance, it was demonstrated that post mod steel collar P/N 2144M2579-2 was not a life limited item, and there was a good level of confidence that all the pre mod retraction actuator pin collar will be replaced by post mod steel collar.

As of today, the number of pre-mod retraction actuator pin collar is very limited and the spare gears have been upgraded. However EASA has no more guarantee that all parts would be replaced and scrapped before the limit is exceeded.

Based on the above consideration, it was decided to issue an Airworthiness Directive to cover the replacement of pre-mod retraction actuation pin collar and to prohibit the reinstallation of the pre-mod pin collar.

The Final AD has been amended to clarify that the modification of the LH and RH BLG is not to be done concurrently, provided that the threshold on the LH or RH BLG, as applicable, is not exceeded

Commenter 2: Qantas Airways Ltd – Stuart Roach – 12/12/2012**Comment # 2**

1. The PAD indicates the compliance time is 2895 FC rather than the 2598 FC that was specified in Airbus SB A380-32-8015 (and Goodrich SB 2144A5305-32-014). Could EASA please advise why this was changed (i.e. was it a typographical error in the SB or has there been a revalidation of the interval) ?
2. Requirement (1) of the PAD indicates the BLG should be modified in accordance with Airbus SB A380-32-8015, however there is a basic problem with this SB. The SB is only applicable to Pintle Frame Assy P/N 2144A5305-16 and P/N 2244A5305-16 and does not cover the modification of earlier dash number Pintle Frame Assy's. Qantas has several aircraft installed with earlier dash number Pintle Frame Assy's (e.g. P/N 2144A5305-11 and P/N 2244A5305-11) and the Airbus SB does not directly apply to them. As such, Qantas believes the PAD should remove any reference to the Airbus SB and should mandate modification of the Pintle Frame Assy's in accordance with Goodrich SB 2144A5305-32-014 which covers all Pintle Frame Assy's up to and including P/N 2144A5305-16 and P/N 2244A5305-16 not incorporating strike -17.
3. Requirement (1.2) of the PAD indicates the BLG pintle frame is to be reidentified. It should be noted that SB 2144A5305-32-014 does not change the P/N to a -17 but simply requires position -17 on the nameplate to be struck with an "X". As such, Qantas believes this requirement should be clarified to state that the BLG pintle frame nameplate is to be marked with an "X" on strike position -17.
4. Qantas believes Requirement (2) should be rewritten to state that aircraft modified by Mod 68762 in production or SB 2144A5305-32-014 in service are not affected as long as it can be demonstrated that pin collar P/N 2144M5279-1 or pintle frame assy not having an "X" on the position -17 of the nameplate have not been installed on the aircraft.
5. Qantas believes Requirement (3) should also be rewritten to simply state that after modification or after effective date of the AD for aircraft that have already been modified, retract actuator pin collars P/N 2144M2579-1 or pintle frame assy's not having an "X" on the nameplate may not be installed on an aircraft.

Qantas would appreciate if the above comments could be considered for this PAD. Qantas would also appreciate if the PAD could be reissued for review prior to final release for the AD. Please feel free to contact me if you wish to discuss these comments further.

EASA response:

- 1 - Airbus SB 32-8015 was issued in 2009 covering a Goodrich VSB referencing the not accurate life limitation.**
- 2 - Comment understood. Airbus SB 32-8015 revision 01 is in line with Goodrich VSB 2144A5305-32-014 revision 01 and clarify now that this SB covers all Pintle Frame Assy's up to and including P/N 2144A5305-16 and P/N 2244A5305-16.**
- 3 - The Final AD has been amended to clarify that the re-identification of the BLG pintle frame shall be done by striking number 17 on the BLG pintle frame nameplate in accordance with Airbus SB 32-8015 revision 01 instructions.**
- 4 and 5 - EASA agreed. The Final AD has been amended to clarify paragraphs (2) and (3).**