



COMMENT RESPONSE DOCUMENT

EASA PAD No. 16-009

[Published on 26 January 2016 and officially closed for comments on 23 February 2016]

Commenter 1: AMAC Aerospace – Pavol Sikula – 26 January 2016

Comment # 1

We recommend to add into “Reference Publications:” as well Vendor SB Goodrich Aerostructures No. V2500-NAC-71-0331, that is referenced in Airbus SB A320-71-1069 Accomplishment instruction

EASA response:

Comment not agreed. The “reference publication” section list the documents that are quoted within the AD. No changes have been made to the Final AD in response to this comment.

Commenter 2: Austrian Airlines – Erwin Fleberger – 28 January 2016

Comment # 2

We propose to add “equipped with IAE V2500” to the Applicability paragraph. This would clarify the applicability of the AD without digging thru the referenced modifications and SBs.

EASA response:

Comment partially agreed. All models listed in the applicability are equipped with IAE engines. Title of the AD has been modified, also considering a similar AD is being issued applicable to aeroplanes equipped with CFM engines.



Commenter 3: Cathay Pacific Airways – Edie Abdul Kadir – 29 January 2016

Comment # 3

PAD Para 2: We are wondering why EASA put 35 months as a compliance threshold and not 36 months (4 years). Is there any reason for that 35 months requirement? Perhaps EASA also can consider to extend the threshold to make it 36 months or even longer.

Comment # 4

PAD Para 3: What is the meaning of the “p/no must be approved by EASA or Airbus DOA”? Is the installation of the FCD with a new part number must be reported to EASA or Airbus before it can be fitted on the aircraft? Or as long as the airlines can confirm that component has accomplished the required mod (through the evidence from Component Release Certificate and shop report), this is good enough to show compliance to the paragraph 5.1 ? Please clarify.

Comment # 5

PAD Para 3: For the component in the workshop, the MRO will do the rework and change the p/no as per Goodrich SB V2500-NAC-71-0331 and not the Airbus SB since this rework is on component level. Thus the rework perform i.a.w Goodrich SB V2500-NAC-71-0331 can be consider satisfying the requirement of AD para 5.1 and 5.2? The PAD only mention about Airbus SB and does not callout any reference to Goodrich SB.

EASA response:

Comment # 3: Comment agreed: the compliance time has been extended to 36 months.

Comment # 4: Comment noted. Paragraph (5) of the PAD (para (6) of the final AD) is applicable to installation of new FCD, still to be designed and approved on the effective date of the AD. Since the AD requires installation of a clearly identified FCD new P/N, installation of any new FCD, having a different P/N that will be possibly certified after the AD effective date, would need, as a general rule, an application for an Alternative means of Compliance (AMOC). Anyway, if conditions, listed in paragraph (5) of the ADs are met, an AMOC application will not be necessary.

“P/N must be approved by EASA or Airbus DOA” means that the new possible FCD P/N will be approved for installation on aeroplane by means of an EASA approved Supplemental Type Certificate (STC), or by means of an Airbus modification (possibly available for retrofit by means, e.g., of an Airbus Service Bulletin).

Please note that, after installation of an FCD, having a P/N listed in table 1 of the AD, the AD does not require reporting to EASA nor Airbus.

Please also note that the “date of approval of the new P/N” is the date when the design of the P/N is approved (i.e., STC approval date, or Airbus modification approval date). This is not the date of release of, e.g., the Form 1 (or the FAA Form 8130-3) relevant to the specific equipment.

No changes have been made to the Final AD in response to this comment

Comment # 5: Comment partially agreed. A clarification has been added in the final AD, in paragraph (3).



Commenter 4: Monarch Aircraft Engineering – Bizhan Perrotta – 01 February 2016**Comment # 6**

Further to the release of PAD 16-009, we would like to know the effectivity status for our STC (RTI Monolithic) Fan Cowl Doors, and whether these will be included in the initial issue of the AD. The STC holder is Bombardier Shorts PLC via STC Number 10029547, which I have attached for your review.

As per previous communication, we have been advised by your colleagues to contact the STC holder and your department.

We have already contacted the STC holder and advised them of the PAD. However, we would like to know from yourselves if the STC part numbers will also be included on the new AD.

EASA response:

Comment noted: The STC holder has been contacted, and a review of its design is in progress. Should a mandatory action be deemed required on FCD modified by means of STC (and having a P/N not listed in table 1 of the AD), a specific AD will be issued.

The requirement of paragraph (2) of the AD are not applicable to aeroplanes having an FCD with a P/N approved before the effective date of the AD, and not listed in table 1 of the AD.

No changes have been made to the Final AD in response to this comment.

Commenter 5: All Nippon Airways (ANA) – Norio Kushida – 12 February 2016

ANA reviewed the PAD from the point of operator's view and side effect of the key modification. Understanding the concept of this key modification which enables visual cue (Key and Flag) in the cockpit ensures pilots that the Fan Cowl is securely closed and locked. Side and adverse effect of this modification is that the Key, which is contained in the cockpit, becomes essential tool to open the Fan Cowl even in emergency situation.

Comment # 7

In case, such as after push back from a gate, mechanic find emergency situation of the engines which requires immediate reaction with cowl open, time delay of setting stair or bridge at the gate, opening the door and round-trip to cockpit it will definitely slow this action. Probable cases are like fluid leakage, unusual sound and smoke or mist.

As there is no alternate / emergency method to open cowl is provided, please clarify the risk assessment for above case.

Comment # 8

There is a maintenance procedure in the AMM to run an engine up to idle with Fan Cowl open to monitor leakage. This key with flag cannot be removed when fan cowl is open. Engine run up with a key and flag attached is not desirable for FOD perspective.

How is this case assessed?

EASA response:

Comment # 7: Comment noted: This scenario has been addressed to Airbus that may define as needed a procedure. Operator may seek advice from Airbus. No changes have been made to the Final AD in response to this comment.

Comment # 8: Comment not agreed. No Airbus AMM procedures require engine running with FCD open. Anyway, if an engine is run with FCD open, it is assumed that standard practice may be used to manage the risk of FOD related to the flag linked to the key (e.g., the flag can be secured by means of adhesive tape). In case of doubt, the operator may seek advice from Airbus. No changes have been made to the Final AD in response to this comment.

Commenter 6: Lufthansa Technik AG – Carsten Burk – 22 February 2016

Comment # 9

Many operators have A320 Family aircraft with both, IAE V2500 and CFMI CFM56 Engines. For both engine types the same modifications will be implemented within the aircraft, required by PAD 16-009 and PAD 16-022. The only difference will be the modification of the Fan Cowl Latch itself. Nevertheless for planning purposes it is easier to manage both ADs together. This would only be possible in case of the effective date of both ADs will be the same. Please consider to publish both Ads at the same date.

It would be very helpful if the applicability would be more specified like the example below, marked in red

Applicability: Airbus A319-131, A319-132, A319-133, A320-231, A320-232, A320-233, A321-131, A321-231 and A321-232 aeroplanes, all manufacturer serial numbers **equipped with IAE V2500**

Comment # 10

Paragraph (3) of EASA PAD 16-009 (V2500 related) states that an aeroplane on which Airbus modification 157516 and 157718 have been embodied in production, is compliant with the requirements of paragraph (2). According Service Bulletin A320-71-1069 also the modification combination 157516 and 157520 is possible.

Please consider to add this combination to the AD as well. EASA PAD 16-022 (CFM56 related) also includes both modification combinations (“157517 & 157519” and “157517 & 157521”) to be compliant with the AD.

EASA response:

Comment #9: Comment partially agreed. See EASA answer to comment # 2



Comment # 10: Comment not agreed. Mod 157520 is only available as retrofit installation, by means of Airbus Service Bulletin. This MOD is not supposed to be validated in production. No changes have been made to the Final AD in response to this comment.

Commenter 7: United Airlines – Eugene Liow – 22 February 2016

Comment # 11

United Airlines (UAL) has reviewed EASA PAD No. 16-009, dated 26 Jan 2016, which proposes to mandate a new fan cowl latch installation which requires a specific key to latch and unlatch the cowls. This proposed action is prompted by occurrences of fan cowl door loses during take-off. While UAL shares EASA's concerns on these incidents, we strongly disagree with the proposed airworthiness directive to make the new latch keys installation mandatory on our airplanes.

The airline industry has seen a number of fan cowl door losses during takeoff. However, each one of these events can be attributed solely to human error specifically mechanics not correctly latching the fan cowl after maintenance and flight crew not checking that the latches are secured before departure. UAL does not believe that introduction of the new latch design will resolve a human error problem due to the following reasons:

Ineffectiveness of using visual cues in the past

Photographs in Air Incident Report 1/2015 had inadvertently captured evidence that the fan cowl doors on both engines in the unlatched condition prior to departure. Gaps between the fan and nose cowls and also latches protruding visibly below the cowl doors were clear indications of an unlatched fan cow. These are obvious visual cues but were still missed by both the mechanics who worked on the airplane and again by the flight crew during walk around. Although the proposed latch key with flag will hang lower than the latches, UAL does not believe that mandating and relying on yet another visual cue will be the solution to the fan cowl loss issue. If the mechanic/flight crew is negligent and inattentive, the key/flag will just as likely be missed.

Additional complications during routine maintenance

Adding yet another loose piece part on the airplane which needs to be maintained introduces its own set of issues and complications. The key could either become missing or get damaged due to unproven reliability, both of which are common occurrences during operation which would result in the inability to open and close the fan cowl. The fan cowls are routinely accessed for engine and thrust reverser related maintenance and if the keys are missing or damaged, this would effectively prevent such maintenance action from being performed and a prompt return of the aircraft back to service. A scenario where maintenance is required to open the fan cowls to service the engine but the key gets broken and stuck in the latch would then cause the airplane to go out-of-service waiting for the latch to be replaced and a new key to be available. UAL recommends against attempting to solve one problem by introducing a new one.

Not all operators have the same risk level

Certain airlines have taken additional countermeasures including modifications to the fan cowl and training to increase awareness and have been successful in preventing another incident. Other airlines may not have done as much while some may not have done anything at all. As such, it would be impractical to subject all operators to the same level of scrutiny by mandating the latch key as a corrective action. Mandating the fan cowl latch modification would impose unnecessary financial and maintenance burden to operators who have successfully implemented alternate procedures.



Previous Manufacturer Improvements

Airbus/IAE/Goodrich has released various fan cowl improvements and preventative mods over the years, all of which have been incorporated by UAL:

- a) Installation of Hold Open Device to prevent fan cowl from closing fully when not latched per SB V2500-NAC-71-0259
- b) Installation of new swivel plates and weights to make sure latches hang down when not fully engaged per SB V2500-NAC-71-0256
- c) Application of florescent paint for increased visual awareness to latch handles per SB V2500-NAC-71-0227
- d) Application of fan cowl caution decal on both left and right doors to raise awareness of personnel working around the airplane per SB V2500-NAC-71-0235

Other Improvements

Fan cowl loss events continued to occur throughout the industry even after complying with AD 2001-381(B). As such, UAL recognized that further improvements are necessary and implemented the following actions:

- a) Dual Inspection Sign off – UAL has revised the AMM section for fan cowl closing procedures to add a second person verification as a redundancy step to ensure that the fan cowl is properly latched. This same requirement also exists in the IDG oil level check task card.
- b) According to Air Incident Report 1/2015, 69% of the events followed IDG servicing which requires cowl to be opened. MRB Rev. 19 October 2014 escalates the IDG servicing interval from 150 flight hours to 300 flight hours, thus reducing the frequency of fan cowls open/closing and the risk of improper latching.
- c) UAL has released training/alert type bulletins in the past to remind maintenance and flight crew on the important of ensuring fan cowls are properly latched and secured. UAL plans to continue doing this as a recurring training to ensure a heightened level of awareness among personnel working around the aircraft at all times.
- d) Lubrication and Functional Check of the Hold Open Device every 2,400 FH/4A4 to ensure proper operation of the component.
- e) General Visual Inspection of the fan cowl latches every 608 days/1C1 to ensure condition of fluorescent paint is maintained and weights are present.

These additional improvements, especially the dual inspection sign off, have proven to be greatly effective in preventing another fan cowl loss event as it uses proper accountability and awareness of the maintenance personnel working around the fan cowls. The effectiveness is further demonstrated even after the merger with subsidiary Continental Airlines where the Airbus airplanes have been maintained at various stations by different mechanics and we have not had another incident since 2006. UAL believes that we have made significant improvement both mechanically to the fan cowl doors and also enhanced our maintenance procedures to prevent another fan cowl loss incident. Instead of mandating the modification of the latches to accept a new key, UAL believes that more emphasize should be placed on addressing the root cause.

Comment # 12

Nevertheless, UAL has completed our reviewed of EASA Pad No 16-009 and Airbus Service Bulletin A320-71-1069 Rev 00, dated Dec 18, 2015, which requires the replacement of the fan cowl latch in accordance with Goodrich SB V2500-NAC-71-0331 in addition to installing a placard at the stowage boxes in the cockpit. UAL has identified several issues with the SB and requests that EASA also address these concerns during review of the PAD.



Para. 3.C. of Airbus SB A320-71-1069 requires the installation of the new latch along with modification of existing boxes in the cockpit to store the key. UAL disagrees with mandating the exact stowage location of the key and flag as operators may have modified and relocated the landing gear pin boxes illustrated in the service bulletin Figure A-FBAAA and Figure A-FBAAB. Instead, it should be left to the operator's discretion where to store the keys as required to support their operational needs. Also, the installation of the placard on the box should not be mandated as the placard itself does not prevent a fan cowl door loss event nor does it raise awareness to the issue. This will prevent any operation disruption should the placard be found to be missing/deteriorated prior to airplane departure and no replacement is available. UAL requests that provisions be made within the final airworthiness directive to not mandate the exact stowage location and installation of the placard.

Comment # 13

In addition, Para 3.C.(1) of Goodrich SB V2500-NAC-71-0331 requires recording of SB accomplishment in the aircraft log book. This is not a common practice at UAL as the aircraft log book is primarily used for the flight crew to report operational discrepancies of the aircraft. Instead, SB accomplishments are typically stamped or etched on the fan cowl modification data plate. UAL requests that provisions be made within the final airworthiness directive to not mandate SB accomplishment in the aircraft log book.

Comment # 14

Considerations need to be given towards instructions for continued airworthiness due to additional complications introduced during routine maintenance. If the new key and flag will become the subject of an airworthiness directive, allowance needs to be built into the MEL or CDL to allow dispatch of the airplane with one or both of the keys missing from the cockpit provided latches are secured. We also request provisions to allow the key to be cut off or flag removed if the key is jammed inside the latch after maintenance has successfully been performed. The key itself does not affect latch strength or load transfer and as long that the cowls are properly latched, we do not feel the aircraft should be grounded for a stuck or missing key.

Comment # 15

Lastly, neither the PAD nor the Airbus SB addresses airplanes with monolithic fan cowl doors installed. UAL has certain A319/A320 airplanes installed with the new one piece monolithic fan cowls P/N 745G4000-() and 745B4000-() which can be intermixed with the old honeycomb-sandwich construction. These fan cowls have the added advantage of an IDG oil level viewing panel assembly on the RH door which decreases the frequency of opening/closing the cowls and subsequently reduces the risk of improper latching. The monolithic fan cowls are currently not covered under the Goodrich SB nor are they listed in the old and new part number identification table to reflect pre and post mod configuration. If EASA intends to include the monolithic fan cowls as part of the final rulemaking, modification instructions need to be made available prior to issuance of the airworthiness directive.

EASA response:

Comment # 11: comment noted. The operator may apply for an Alternative Means of Compliance to the AD, providing data supporting his request.

Comment # 12: comment not agreed. An AD can not require an undefined modification (as it should be if box position would not be clearly identified). An operator may always propose a different box location and have it approved thru the AMOC process.

The placard is considered part of the modification, increasing the awareness of the flight crew. A damaged or missing placard can be anyway managed under dispatch conditions. In case of doubt, the operator may seek advice from Airbus.



Comment # 13: Comment partially agreed. Modification of A/C configuration has to be recorded in aircraft documentation. Depending on the operator procedures used to record the A/C configuration, different documents should be used.

Comment # 14: Comment noted. It is expected that Airbus will update relevant maintenance and operational instructions.

Comment # 15: Comment noted. These monolithic FCD are not Airbus certified parts, refer to answer comment 6.

No changes have been made to the Final AD in response to these comments

Commenter 8: American Airlines – Lucas Yen – 22 February 2016

Comment # 16

The reference EASA PAD proposes the mandate of Airbus SB 71-1069 which in turn implements UTAS (Goodrich Aerostructures) SB V2500-NAC- 71-0331.

American Airlines performed a Safety Risk Assessment of the implementation of Airbus SB 71-1069 and determined the following operational risk was present.

In the event a lockable Latch Assembly is inoperable in the locked position (example: fan cowl closed and latch assembly closed and locked with key broken), procedures need to be published to allow an operator to externally disengage the forward latch. AAL was told by Airbus that this condition would be handled on a case by case basis. Waiting for repair guidance will add unnecessary time to flight delays or could even lead to cancellations. Having at least one primary procedure published will allow operators to minimize the operational impact in restoring the function of the fan cowl forward latch

EASA response:

Comment noted. It is expected that Airbus will update relevant maintenance and operational instructions. See also EASA answer to Comments # 7 and # 14. No changes have been made to the Final AD in response to this comment

