


EASA	COMMENT RESPONSE DOCUMENT
	<p>EASA PAD No. 10-101</p> <p>[Published on 22 September 2010 and officially closed for comments on 17 November 2010]</p>

Commenter 1 : AirBridgeCargo Airlines – Valentina Shipilenko – 23/09/2010

Comment # 1

EASA PAD No 10-101 for KOITO passenger seats states effectivity for Boeing 747-400 that supposed to be passenger 747-400 but it is not clearly stated.. However some Boeing 747-400F have KOITO supernumeraries seats in upper deck.

Proposal: It is better the final AD states that Boeing 747-400 freighters are excluded from the AD effectivity.

EASA response:

EASA disagrees to the proposed wording, there is no basis to exempt cargo aircraft (with Koito Seats) from the actions required by this AD and therefore the B747-400F has been added to the applicability of the AD.

Commenter 2: All Nippon Airways Co.(ANA) – KOJI OKU – 01/10/2010

Comment # 2

We are operating quite a few old airplanes with Koito seats installed. When we try to obtain EASA airworthiness certificate to sell or lease back such airplanes from our country to any country under EASA regulation after this AD effective date, I am very concerned if the airworthiness certificate could not be issued if the installed Koito seats would not be still re-tested as per this AD. That is because this AD does not allow to install any non re-tested Koito seats as per this AD after this AD effective date, and when the airplane with such affected Koito seats installed is 'newly' imported and registered to EASA country, this situation could be considered as new installation mentioned in this AD, clause (6) in 'Required Actions and Compliance Times'.

I desire that my understanding above is incorrect, but I would appreciate it if you could clarify this point.

EASA response:

Moving an a/c from one register to another would not be classified as a new installation if there is no physical design change to the subject a/c. The AD text is not amended for this aspect.

Commenter 3: Abu Dhabi Aircraft Technologies - Mohamad Al Charif – 05/10/2010

Comment # 3

Further to proposed PAD, Please note the below comments based on our in service experience with various customers:

- Customers would take this issue for fleet retrofit with new seats.
- Seat manufacturing would take at least 12 months (adding to that seat selection process and contracts etc...)
- Fleet retrofits would vary based on affected fleet size, noting that preferred retrofits are in C checks to avoid additional act grounding which would impact airlines operations... (in other words, a retrofit plan would easily take more than 1 year)

The proposed interval of 2 years look too short for fleet retrofits, while other listed solution would only increase financial expenses without giving the airlines a root solution especially the problem that will be faced later with spares.

We propose to review the time interval given, or specify interval based on seat models.

EASA response:

The timescales for required action are based on the airworthiness risk they present to the fleet. Response to Comment 15 of this CRD provides more details with reference to the AD compliance times.

Commenter 4: Cathay Pacific Airways Limited Engineering – Stanley Yau – 14/10/2010

Comment # 4

Cathay Pacific Airways Limited located in Hong Kong, China would like to make the following comment on the PAD 10-101 as follow:

Cathay has a total of 22 aircraft currently installed with passenger seats manufactured by Kotio industries seats affected by this PAD. Of the total 22 aircraft, 17 are passenger planes consisting of A330, A321 and 773 type; the remaining 5 aircraft are all B744BCF.

Our major concern in responding to this EASA PAD is the very short compliance time to complete the replacement program in our fleet. We like to propose the EASA can consider a more pragmatic and risk balanced approach to establish a practically feasible timeline for compliance.

A typical seat development will take generally 18-24 months including design definition, integrate IFE and certification testing. With this timescale, it will be practically not possible to implement new seats across the fleet within the proposed 2 years period.

Also consider there are a large number of Airlines currently using the affected seats, responding to this AD will create a sudden high demand from the industry. There is concern that seat suppliers might not have sufficient capacity to cope with this high demand for all the affected Airlines at the same time. Hence constrained the ability to comply with the AD without impacting Airlines' business operation.

From operational perspective, we plan to carry out this seat replacement program during our scheduled heavy maintenance checks. So we are proposing a compliance period of 4 years allowing sufficient time to develop the seats and installation across the affected aircraft.

EASA response:

The replacement (or modification with full re-certification) of seats within the initial 2 year compliance time will only be required in the event that the seat model is not capable of withstanding the minimum static forward and side loads as required by the a/c cert basis. Those seats models passing these criteria will be allowed to remain in service more than 2 years after the AD effective date, until the next defined action of the AD.

Please see EASA response to Comment 15 for additional justification on the AD compliance times.

Commenter 5: C EVA Airways Corp – Ching-Far Yeh – 18/10/2010
Comment # 5

Comment on PAD 10-101 / EVA Airways

PLEASE FIND FOLLOWING COMMENTS FROM EVA AIRWAYS Subject: The comments for FAA NPRM and EASA PAD 10-101

[With same text provided as a Word file attachment, named 'FAA NPRM and EASA PAD Comments.doc' and same email received twice (at 07:58 and 08:01)]

We have completed our review of FAA NPRM and EASA PAD 10-101 that address the safe issues of Koito seats and mandate operators to perform static, dynamic and flammability test to determine the remaining in service time for those seats. Our comments for FAA NPRM and EASA PAD 10-101 are described as follows.

1. The conformity inspection for in service seats

FAA NPRM said the test results from the new seats produced per the production drawing may not be entirely usable due to drawings control issues. As an operator, we need a feasible method provided by AD to perform conformity inspection for in service seats. If we find some parts are not conformable with production drawings, we will replace those parts to make in service seats conform to the production drawings. This procedure will allow operators to purchase new seats produced per production drawings for test.

2. In service seats removed for test

We have objection to remove in service seats for test, because operators have to recertify the new interior, how can we explain to passengers the seats are removed for tests? If the press reports this situation related to safety concerns, it will disrupt our daily operation.

3. Grouping seat models with similar seat structures into "clusters"

Operators are not capable of grouping seats models with similar seat structure, but that is very important for operators to reduce the test cost. Therefore, we would like to ask AD to specify who will be responsible for grouping the seats models to "clusters" and also specify which seats test will be responsible for each operator.

4. Costs of Compliance

FAA NPRM estimates approximately USD875,000 for 40,365 passenger seats installed on airplane in the U.S. fleet. Since there is no idea to know how many tests will be done and how many seats will be modified or replaced, this is very difficulty to exactly estimate the cost of this proposed AD. We know it costs about USD20,000 to 50,000 for one dynamic test, we think USD875,000 is a low estimate for this proposed AD.

5. Compliance time

FAA NPRM and EASA PAD both request 2 years after the effective date of this AD to remove the non-compliance seating system. The 2 years compliance time is not feasible for operators to execute this AD because of the following factors to be considered.

- (1) There is not detailed step by step method approved by FAA or EASA to execute this AD.
- (2) The availability of test facilities world-wide to perform static, dynamic and flammability test.
- (3) The availability of airworthiness authority (or delegated agent) to approve test plan and witness static, dynamic and flammability test.
- (4) The capability of other seats manufacturer to produce seats to replace Koito seats within 2 years that fail dynamic test or has sharp edges.

6. Limitation on seats remaining in service

In FAA NPRM, as of the effective date of this AD, a seat, seating system, or component may be re-installed on the airplane from which it was originally removed, provided it is removed from service within the applicable compliance time specified in this AD, but it also states these seats can be used as a direct spare for the same part number seat. We think these two statements are inconsistent with each other.

7. The difference of remaining in service time between FAA NPRM and EASA PAD

In FAA NPRM, the seats may remain in service as they meet 14 CFR 25.562(b)(2) and (c)(7) Amendment level 25-64, but in EASA PAD, the seats must be removed within 10 years after the effective date of this AD that have passed JAR/CS 25.562(b)(2) and (c)(7). We would like to ask EASA PAD can follow the same remaining in service time as FAA NPRM.

RECOMMENDATIONS

1. FAA NPRM certifies this proposed regulation as not a “significant regulation action” and not a “significant rule”. In order to minimize the impact on daily operation and minimize the cost impact on operators. We prefer an alert SB to be issued instead of AD, and prefer to modify the non-compliance seats. Therefore, we would like to recommend operators perform conformity inspection for in service seats and replace non-conformance parts to conform the production drawings. Simultaneously, Koito perform static, dynamic and flammability test with new production seats according to the AD requirements in the specified period under witness by JCAB. Koito will publish alert SB to operators to modify non-compliance seats as soon as tests are completed.

EASA response:

- 1 For the AD static testing requirements ,the wording has been revised to allow testing newly built test articles in lieu of in-service seats. For the AD dynamic requirements, in-service seats will still be required as production non-conformities could not be adequately represented otherwise.**
- 2 Refer to the response above.**
- 3 EASA has worked with TC holders to identify clusters of Koito Industries seat models, and the most critical seat p/n in each cluster. This information will be made available by separate means after the issue of the AD.**
- 4 This is applicable to the FAA NPRM only, no cost data is provided within the EASA PAD.**
- 5 While EASA understands the issues associated with the accomplishment of the AD requirements, the AD compliance times are based on the airworthiness risk associated to identified test failures. The comment is incorrect w.r.t. sub-comment 4, seat removal within 2 years is only required for static test failures. See Comment 15 for further compliance time justification.**
- 6 This is applicable to the FAA NPRM only.**
- 7 In performing the limited tests as required by this AD and in consideration of the regulatory differences between EASA Part 21 and FAR 21, EASA has concluded that a final terminating action end date has to be established to remove the unsafe condition. The required testing is limited in scope, to**

reduce the associated burden and does not fully address the unsafe condition before the final 10 year compliance time.

Recommendations: This is applicable to the FAA NPRM only.

Commenter 6: ASSOCIATION OF ASIA PACIFIC AIRLINES – Martin Eran-Tasker – 25/10/2010

Comment # 6

The Association of Asia Pacific Airlines (AAPA) appreciates this opportunity to submit initial comments on the EASA Proposed Airworthiness Directive (PAD) 10-101, concerning Koito seats and seating systems.

The AAPA is the principal trade and service organization for the leading scheduled international air carriers in the Asia Pacific region¹. AAPA members traffic represents more than 17% of the global passenger traffic and more than 30% of the global freight traffic.

First, and foremost, AAPA would like indicate it appreciates this opportunity to comment on the proposed AD but more importantly for the unique opportunity to engage with the FAA and EASA at the recent dialogue session on the AD in Singapore.

As noted by the FAA and EASA representatives in attendance at the recent FAA-EASA AD briefing on Koito seats in Singapore on 21 October 2010 the Japanese Civil Airworthiness Bureau (JCAB) provided a briefing outlining JCAB efforts and progress with its investigation into problems relating to aircraft seats manufactured by Koito seats.

From the presentation, it was evident to all that new information and evidence on the Koito seat problem was now available, which could impact the EASA and FAA proposed ADs. From the meeting discussion it is clear that there is a need, in the near term, for the authorities concerned with the support of Boeing and Airbus to meet and review the new evidence and determine the implications to the proposed AD.

Consequently, taking the aforementioned situation into account the AAPA would therefore like to request for an extension of the period comment by 90 days in order to provide time for the parties concerned to better understand the new JCAB data.

On a point of clarification and with reference to the recent FAA- EASA AD briefing on Koito seats in Cologne on 14 October we understand that it has been agreed to carry out a follow-up briefing session due to the comments raised. We would like therefore to understand if a similar follow-up briefing session will be offered to the carriers from the ASPAC region.

To conclude, the AAPA would like to reiterate its appreciation to the FAA and EASA for holding the briefing session in Singapore. We trust you will give due consideration to our request for an extension to provide comments. In the event that you require any clarification or further comment we are willing and prepared to respond.

EASA response:

EASA and FAA have reviewed the data generated by Koito, under the oversight of JCAB and concluded that test data from newly built test articles can be used to demonstrate compliance with the static requirements of the AD. Test data from newly built test articles can also be used for the flammability requirements in combination with seat cushion conformity of in-service items. This is reflected in the AD text. Finally, results of tests performed by Koito

under JCAB supervision, and after the falsifications came to light, may be acceptable to show compliance with the static and flammability requirements of the AD.

From EASA review of Koito data, no extension to the comment period is considered as justifiable; nevertheless the AD text has been revised to take into account EASA latest determinations.

Follow up briefing sessions will be held by EASA and FAA after issuance of the respective ADs.

Commenter 7: EVA Airways Corp. – Ching-Far Yeh – 26/10/2010

Comment # 7

EVA AIR appreciates this opportunity to submit initial comments on the EASA Proposed Airworthiness Directive (PAD) 10-101, concerning Koito seats and seating systems.

First, and foremost, EVA AIR would like indicate it appreciates this opportunity to comment on the proposed AD but more importantly for the unique opportunity to engage with the FAA and EASA at the recent dialogue session on the AD in Singapore.

As noted by the FAA and EASA representatives in attendance at the recent FAA-EASA AD briefing on Koito seats in Singapore on 21 October 2010 the Japanese Civil Airworthiness Bureau (JCAB) provided a briefing outlining JCAB efforts and progress with its investigation into problems relating to aircraft seats manufactured by Koito seats.

From the presentation, it was evident to all that new information and evidence on the Koito seat problem was now available, which could impact the EASA and FAA proposed ADs. From the meeting discussion it is clear that there is a need, in the near term, for the authorities concerned with the support of Boeing and Airbus to meet and review the new evidence and determine the implications to the proposed AD.

Consequently, taking the aforementioned situation into account the AAPA would therefore like to request for an extension of the period comment by 90 days in order to provide time for the parties concerned to better understand the new JCAB data.

On a point of clarification and with reference to the recent FAA- EASA AD briefing on Koito seats in Cologne on 14 October we understand that it has been agreed to carry out a follow-up briefing session due to the comments raised. We would like therefore to understand if a similar follow-up briefing session will be offered to the carriers from the ASPAC region.

To conclude, the EVA AIR would like to reiterate its appreciation to the FAA and EASA for holding the briefing session in Singapore. We trust you will give due consideration to our request for an extension to provide comments. In the event that you require any clarification or further comment we are willing and prepared to respond.

EASA response:

See EASA response to comment 6 above.

Commenter 8: Japan Airlines International Co., Ltd. – Satoshi Okuyama, for Ryuji Ogura – 26/10/2010

Comment # 8

Japan Airlines International Co., Ltd. (JAL hereafter) appreciates this opportunity to submit initial comments on EASA Proposed Airworthiness Directive (PAD) No.10-101, concerning aeroplanes equipped with passenger seats and seating systems manufactured by Koito Industries, Ltd. (Koito hereafter).

First, and foremost, JAL would like to indicate that it appreciates this opportunity to comment on the proposed AD but more importantly for the unique opportunity to engage with the FAA and EASA at the recent dialogue session on the AD in Singapore.

As noted by the FAA and EASA representatives in attendance at the recent FAA-EASA AD briefing on Koito seats in Singapore on October 21, 2010, Japan Civil Aviation Bureau (JCAB) provided a briefing outlining their efforts and progress with its investigation into problems relating to aircraft seats manufactured by Koito.

From the presentation, it was evident to all that new information and evidence on the Koito seat problem was now available, which could impact the EASA and FAA proposed ADs. From the meeting discussion it is clear that there is a need, in the near term, for the authorities concerned with the support of Boeing and Airbus to meet and review the new evidence and determine the implications to the proposed AD.

Consequently, taking the aforementioned situation into account JAL would therefore like to request for an extension of the period comment by 90 days in order to provide time for the parties concerned to better understand the new JCAB data.

On a point of clarification and with reference to the recent FAA- EASA AD briefing on Koito seats in Cologne on October 14, we understand that it has been agreed to carry out a follow-up briefing session due to the comments raised. We would like therefore to understand if a similar follow-up briefing session will be offered to the carriers from the ASPAC region.

To conclude, JAL would like to reiterate its appreciation to the FAA and EASA for holding the briefing session in Singapore. We trust you will give due consideration to our request for an extension to provide comments. In the event that you require any clarification or further comment we are willing and prepared to respond. Yours faithfully.

EASA response:

See EASA response to comment 6 above.

Commenter 9: Airbus – Jean-Philippe Tarres – 28/10/2010

Comment # 9

Please find hereunder Airbus comments on above PAD.

1/ EASA PAD wording is misleading and should be better harmonised with FAA wording

2/ EASA PAD should be against the seat, not against the aircraft as there is no clue on what happens to the seats after being removed from the Airbus aircraft on which they were initially installed.

3/ EASA PAD should list both the seat model and P/N (may be generic P/N in order to cover all possible evolutions)

4/ EASA PAD Comments period should be extended to allow EASA and FAA to review Koito/JCAB tests results as per the action taken during October 21st, 2010 presentation to the airlines

5/ EASA PAD 10 years limit is not understandable versus the “non limited” period allowed by FAA NPRM. The difference of regulation basis is well understood, but either there is no safety issue and EASA PAD should allow a much longer period or there is a safety issue and FAA position can’t be acceptable;

6/ EASA PAD should clarify that tests to be done against JAR 25.561 in § 4.1 & 5.1 should be done consider the version of the regulation used for initial certification of the seat. Seats initially certified against 1.5G lateral loads can’t be tested at 4G.

7/ EASA PAD and FAA NPRM should provide more guidance on how the seat cushion can be tested according to JAR/FAR 25.8853(c), as:

It is impossible to prepare a test article as per Appendix F without gluing parts of the cushion. Preparing the test article may even prove impossible to do.

An in service test cushion will by definition have degraded flammability characteristics and be unable to pass the requirement criteria. Adapted PASS/FAIL criteria need thus to be defined.

8/ EASA PAD & FAA NPRM should allow provisions for filling the gap in the cabin following removal of seats for confidence tests (by allowing production and installation of complete seats of the same design) or authorising a re-pitch of the cabin without full requalification of the seats.

9/ EASA PAD and FAA NPRM should provide more guidance on how to check conformity of the seat to be tested.

EASA response:

- 1 **EASA has harmonised its AD to that of the FAA to the maximum extent, taking also into account the regulatory differences between EASA Part 21 and FAR 21 (see also response to comment 5 above).**
- 2 **In the majority of cases EASA has not issued ETSO approval for Koito Seats installed on Airbus a/c, therefore the AD refers to the a/c model for AD applicability. 3rd party installations of 2nd hand seats are also captured within the applicability of the AD on those a/c types. The a/c types were defined from original Airbus, Boeing and Koito data and EASA DOA holders.**
- 3 **As in response to comment 2, EASA has determined that in order to ensure capture of all Koito seats (including third party modified seats), reference to the a/c type (and not the seat part number/ model) is the most appropriate for the AD applicability.**
- 4 **Refer to EASA response to Comment 6 above.**
- 5 **Refer to EASA response to Comment 5 above.**
- 6 **The AD has been amended to refer to the certification basis of the a/c type or modification installation.**
- 7 **For what concerns seat cushions, EASA will allow compliance with the AD requirements using newly built test articles (with in-service article conformity); test plans and test reports must be presented to EASA for approval. Any difficulties encountered with test articles and result interpretation can be discussed with EASA. Aging effects on test results will be taken into consideration.**
- 8 **The intent of the PAD text is to allow such provisions. The final AD text has been modified to clarify this point.**
- 9 **EASA agrees to the intent of the comment, the AD has been amended to included clarification.**

Commenter 10: CAA-NL – Dirk-Jan de Lange – 28/10/2010**Comment # 10**

Add the MD-11F since this is not a pure freighter
 with the A318 add a space between -121 and "and"
 add the 737-900ER
 add 757-200CB: combi; only a single airplane (s/n 23863) manufactured.

EASA response:**Agreed****Agreed****Agreed****Agreed. The AD test has been modified accordingly.****Commenter 11: ALL NIPPON AIRWAYS CO LTD – H. OGAWA for Susumu Sato – 29/10/2010****Comment # 11**

All Nippon Airways Co., Ltd. (ANA hereafter ANA) appreciates this opportunity to submit initial comments on the EASA Proposed Airworthiness Directive (PAD) 10-101, concerning Koito seats and seating systems.

First, and foremost, ANA would like indicate it appreciates this opportunity to comment on the proposed AD but more importantly for the unique opportunity to engage with the FAA and EASA at the recent dialogue session on the AD in Singapore.

As noted by the FAA and EASA representatives in attendance at the recent FAA-EASA AD briefing on Koito seats in Singapore on 21 October 2010 the Japanese Civil Aviation Bureau (JCAB) provided a briefing outlining JCAB efforts and progress with its investigation into problems relating to aircraft seats manufactured by Koito.

From the presentation, it was evident to all that new information and evidence on the Koito seat problem was now available, which could impact the EASA and FAA proposed ADs. From the meeting discussion it is clear that there is a need, in the near term, for the authorities concerned with the support of Boeing and Airbus to meet and review the new evidence and determine the implications to the proposed AD. Consequently, taking the aforementioned situation into account ANA would therefore like to request for an extension of the period comment by 90 days in order to provide time for the parties concerned to better understand the new JCAB data.

On a point of clarification and with reference to the recent FAA- EASA AD briefing on Koito seats in Cologne on 14 October we understand that it has been agreed to carry out a follow-up briefing session due to the comments raised. We would like therefore to understand if a similar follow-up briefing session will be offered to the carriers from the ASPAC region.

To conclude, the ANA would like to reiterate its appreciation to the FAA and EASA for holding the briefing session in Singapore. We trust you will give due consideration to our request for an extension to provide comments. In the event that you require any clarification or further comment we are willing and prepared to respond.

EASA response:

Please see response to Comment 6.

Commenter 12: Boeing – Jill DeMarco for Terry L. McVenes – 29/10/2010

Comment # 12

Boeing Commercial Airplanes respectfully requests EASA to extend by 90 days the consultation period for the subject proposed AD that addresses Airbus and Boeing airplanes equipped with Koito seats.

Recently, the Japanese Civil Aviation Bureau (JCAB) brought to light new information regarding the conformity of the structural aspects of the suspect Koito seats. The new information not only may have a direct bearing on how the industry can demonstrate the safety of the seats, but it also may have a direct bearing on the suitability of the current provisions of the proposed AD.

In light of this, we request a 90-day extension of the consultation period to allow time for EASA, the U.S. Federal Aviation Administration (FAA), Boeing, and affected manufacturers to examine and better understand the new evidence and data. These data may influence whether new seats can be produced to re-perform structural tests, in lieu of testing seats from the fleet.

Please direct any comments or questions you may have to Ms. Jill DeMarco of this office at (425) 237-3253 or via e-mail at jill.demarco@boeing.com.

EASA response:

Please see Response to Comment 6.

Commenter 13: China Airlines – Sandy Tsao for Syun Lee – 01/11/2010

Comment # 13

China Airlines is pleased to submit initial comments on the EASA Proposed Airworthiness Directive (PAD) 10-101, concerning Koito seats and seating systems.

First, and foremost, China Airlines would like to express its appreciation for this opportunity to comment on the proposed AD but more importantly for the unique opportunity to engage with the FAA and EASA at the recent dialogue session on the AD in Singapore.

As noted by the FAA and EASA representatives at recent FAA-EASA AD briefing on Koito seats in Singapore on 21 October 2010, the Japanese Civil Airworthiness

Bureau (JCAB) provided a briefing outlining JCAB efforts and progress of its investigation into problems relating to aircraft seats manufactured by Koito.

From the presentation, it appeared that new information and evidence available on the Koito seat problem, could impact EASA and FAA proposed ADs. The meeting discussion concluded that there is a need, in the near term, for the authorities concerned with the support of Boeing and Airbus to meet and review the new evidence and determine the implications to the proposed AD.

EASA response:

Please see response to Comment 6.

Commenter 14: Japan Transocean Air Co., Ltd – For Masateru Jahana Kazunori Kato – 09/11/2010

Comment # 14

Japan Transocean Air Co., Ltd. (JTA hereafter) appreciates this opportunity to submit initial comments on EASA Proposed Airworthiness Directive (PAD) No.10-1 0.1, concerning aeroplanes equipped with passenger seats and seating systems manufactured by Koito Industries, Ltd. (Koito hereafter).

And, JTA would like to appreciate the unique opportunity to engage with the FAA and EASA at the recent dialogue session on the AD in Singapore on October 21, 2010.

As noted by the FAA and EASA representatives, Japan Civil Aviation Bureau (JCAB) provided a briefing outlining their efforts and progress with its investigation into problems relating to aircraft seats manufactured by Koito at the session;

From the presentation, it is evident to all that new information and evidence on the Koito seat problem is now available, which would impact the FAA and EASA proposed ADs. From the meeting discussion it is clear that there is a need, in the near term, for the authorities concerned with the support of Boeing and Airbus to meet and review the new evidence and determine the implications to the proposed AD.

Consequently, taking the aforementioned situation into account, JTA would therefore like to request for an extension of the period comment by 90 days in order to provide time for the parties concerned to better understand the new JCAB data.

To conclude, JTA would like to reiterate its appreciation to the FAA and EASA for holding the briefing session in Singapore. We trust EASA will give due consideration to our request for an extension to provide comments. In the event that EASA require any clarification or further comment. JTA is willing to respond.

Yours faithfully.

EASA response:

Please see response to Comment 6.

Commenter 15: Association of European Airlines – Ms. Araceli CAL – 10/11/2010

Comment #15

Based on the comments below the AEA is of the opinion that the proposed AD in the current format lacks the appropriate safety justification whereas it would lead to hundreds of millions of Euros of costs for the affected airlines.

General Comments**Comment 1.**

Following industry meetings with EASA on the 14th October and 21st October 2010, industry expressed many concerns regarding justification, the timescales for compliance, the ability to comply with various aspects of the EASA PAD and the impact on operators. The AEA requests that EASA either halts the issue of the AD or extends the comment period for at least 6 months to allow operators to meet with relevant parties, including TC holders and EASA in order to discuss alternate methods of meeting EASA's safety objectives and to carry out a formal Regulatory Impact Assessment (RIA) on this rule making. This request is based on the following :-

1. The EASA safety analysis carried out for the PAD is fundamentally flawed as it does not take any credit for the seat as it assumes a catastrophic failure.
2. New test data is available to EASA. Koito (witnessed by the JCAB) has carried out extensive retesting of the seats to prove they are safe and meet all of the certification criteria. This data has not been evaluated by EASA which could even negate the issue of an EASA AD.
3. The terminating action of removing all Koito seats after 10 years, even after seats have been tested and shown to be safe (at a significant cost to operators), appears to be driven by EASA bureaucracy rather than by safety. This aspect of the EASA PAD differs significantly from the FAA NPRM which allows the seats to remain on the aircraft indefinitely once they are shown to be safe. This difference in regulation will result in a significant uneven playing field between European and the majority of operators around the world that use FAA compliance.

Due to the significant impact and costs involved; 100's of Millions of € in retrofitting seats including; months, possibly years of ground time if seats cannot be sourced, operators strongly urge EASA to halt the issue of this AD to allow time for a thorough evaluation to be carried out.

Comment 2.

The Japanese Authorities (JCAB) has instructed Koito to carry out an extensive series of tests to confirm compliance of in-service seat models which has been taking place over the past 12 months. All testing has been witnessed (and processes scrutinised) by the JCAB or by reliable 3rd parties. These tests include showing compliance with 25.561, 25.562 and 25.853 etc. that are identified in the EASA PAD and also including other testing outside the confidence testing proposed like HIC and lumbar testing which could be used to show compliance with section 1 of the EASA PAD, clearing all aspects of the seats. The JCAB are willing to share all of this data with EASA. The EASA should be able to work with the JCAB despite the lack of an EASA / JCAB bilateral agreement as it is currently common practice to work with other authorities where there is no bilateral, for example the FAA.

The EASA PAD calls for in-service seats to be used for testing to be confident that seats representing in-service seats are correctly evaluated. Operators feel that this same goal can be achieved by carrying out a conformity evaluation of in-service seats against those tested by Koito under JCAB supervision.

In addition the JCAB determined that the KOITO wrong doings did not affect the production of metallic parts. Therefore the dynamic / static tests performed on new seats that were produced in accordance with the production drawing should also be accepted.

The AEA strongly urge EASA to work with TC holders / operators / JCAB to evaluate this data to allow credit to be taken. Failure to do so would mean a massive missed opportunity in alleviating the huge burden on operators which have to remove seats from aircraft in-service for testing and in addition possibly completely clear the seats avoiding hundreds of millions of € in retrofitting seats in the timeframes given in the PAD. Evaluation and use of this crucial data could even negate the reasons for issuing an AD.

Comment 3.

The AEA have identified a significant world wide shortage of new seats available for purchase from seat manufactures. In the case where operators were required to replace seats within 2 years it would be impossible to comply with, forcing aircraft to be grounded for extended periods at significant cost to operators (in Europe alone around 100 aircraft are potentially affected by this PAD). The AEA request the opportunity to work with EASA in a RIA (ref comment 1) in order to extend the 2 year time limit based on a safety analysis.

Comment 4.

Per the PAD seats with a 16g certification basis that fail the 16g test are required to carry out a 9g test and if passed receive a 6 year grace period. During the 16g rulemaking it was determined that 9g was the basis and the 16g rule was not made retrospective. On this basis the AEA request that all seats that pass the 9g test have shown compliance to the minimum standard and are subject to the maximum grace period.

In its final rule (Federal Aviation Administration, 14 CFR Part 121, [Docket No. FAA-2002-13464 2; Amendment No. 121-315]) , the FAA clearly confirms that there is no justification for a 16g retrofit rule as initially proposed in the FAA NPRM from 1988. Quote „Based on the comments received to the SNPRM, we decided to re-evaluate the retrofit requirements of proposed Sec. Sec. 121.311(j)(2) and 121.311(k). After detailed consideration, we now believe the final rule should not contain these retrofit requirements and that we should proceed with the requirement for newly manufactured airplanes only. „

Translating the same safety criteria/policy, to the Koito seat PAD/NRPM, should lead to the same conclusions e.g. that there is no justification to require retrofit of those seats meeting the 9g standard.

Comment 5.

Over the past 12 months operators / TC holders have attempted to find a solution to find alternate routes to set up an alternate DOA / POA agreement using 3rd parties. These have all failed mainly due to the enormity of the task faced by the DOA having to re-evaluate the 1000□s of spare parts required by operators. The loss of Koito POA is central to the costly and difficult issues that operators face in supporting the fleet with spare parts. Once the confidence tests are complete and compliance has been shown with the AD, operators face the same spares situation. Whilst it is understood that there may be a number of issues that need to be resolved at Koito, the AEA urge EASA to take a more proactive role in assisting Koito regain its POA to alleviate the significant burden on operators. This is a far more feasible route than setting up a new DOA / POA using 3rd party companies

Comment 6

Estimated Catastrophe rate.

In the safety case which was provided by EASA the estimated catastrophe rate is $1.5 \cdot 10^{-7}$

Based on the Boeing statistical Summary of Commercial jet Airplane Accident (Worldwide Operations 1959 – 2009), July 2010, using this rate assumes that all hull loss without fatalities will become hull loss with fatalities.

AEA is of the opinion that an estimated catastrophe rate of $1.5 \cdot 10^{-7}$ is not realistic. Based on the reported wrong doings and 16G test results stored in KOITO computers it can be concluded that even the non-compliant seats still offer a high level of protection.

Based on the pessimistic scenario in which the affected seats would have a reduction in performance of 10% compared to the certification requirement, there is no justification to assume this potential non-compliance will cause all hull loss accidents to result in fatalities.

AEA is of the opinion that an estimated catastrophe rate of $0.15 \cdot 10^{-7}$ is more realistic. Following the approach mentioned above the compliance times of 2, 6 and 10 years would become 5, 15 and 25 years. In addition AEA expects that the investigations performed by JCAB will further limit the risk and will allow further extension of the compliance times. As already mentioned in the previous comments AEA request the EASA to take the JCAB investigation results into account and provide the opportunity for AEA and relevant parties to be involved in a formal regulatory impact assessment (RIA).

In addition to the general comments above and the fact that the AEA does not acknowledge the safety justification for the proposed AD the following detailed comments are made:

Specific comments to the PAD

Comment 7.

Note 5 of the AD states that the seats that pass the test and remain on the aircraft are „limited on how they can be used□. EASA have clarified that this means that seats have to remain in the currently approved config and cannot be changed, including moving, re-pitching seats. In order to remain competitive in today□s changing market, it is essential for operators to have the ability to amend the configuration of their aircraft to suit the market needs. The AEA requests that EASA remove the wording that restricts operators from reconfiguring aircraft containing Koito seats. The justification for this being;

- 1 Seats that have passed the confidence test will have been shown to be safe.
2. Certain reconfigurations may actually improve safety.
3. Reconfigurations are usually STC□s, in addition all changes (including minor) related to Koito seats are EASA approved
4. EASA has previously stated that Koito data is approved.
5. In order to provide test specimens, some operators will need to remove seats from in-service aircraft, this will leave a large gap in these aircraft unless the

remaining seats can be re-pitched.

Comment 8.

Operators should only be obliged to comply with the original type certification basis of the aircraft, testing the seats to the latest or later requirements cannot be justified and would increase the risk of failures dramatically as the original seat design would not allow for this. The AEA request that the regulations quoted in the EASA PAD should also include reference to FAR regulations and FAA TCDS and include a specific statement allowing seats to be tested according to the original certification basis of the aircraft.

Comment 9.

Paragraph 5. The AEA request that the amendment of regulations be specified when referring to compliance with JAR/CS [FAR] 25.561(b)(3) and (b)(3)(iii). Regulation 25.561(b)(3)(iii) changed in 1986 to require a sideways 4.0g test on the seat, prior to this the requirement was 1.5g. Seats should only be retested in accordance with the original Type Certification Basis, it would be unreasonable to expect operators to comply with newer regulations for the confidence testing.

Comment 10.

Paragraph 2. Operators do not believe it is possible to make up test samples of in-service Koito foams. The make up of test samples for flammability required by Appendix F requires foam build up which has dimensions greater than production seat foams. In addition it does not appear possible (per the regulations) to „make up□ a production foam using adhesives as these would affect the results of the tests. It is also not possible to manipulate the fire blocking layer without damage to the foam or fire blocking material. Furthermore it would not be possible to use in-service foams as these would be contaminated and compressed through use, rendering it impossible to show conformity to the original design. Currently it is not possible to procure new foam from Koito (Yokohama rubber) as EASA has revoked the POA. The AEA request that EASA provide a practical means to allow operators / TC holders to conform and procure foam test samples to allow compliance with the AD to be shown.

In addition if circumstances so dictate an operator should be allowed to deviate from the test criteria with respect to the number of required test specimen sets.

Comment 11.

Note 1. For operators that do not have new spare Koito foams, it is not possible to show similarity for seat stiffness and seat reference locations due to the fact that it is not possible to establish a datum from foams in-service as they have been compressed and cannot be conformed. In addition design data is not available from Koito to establish this. As per Comment 7. operators request that EASA provide a means to allow operators / TC holders to procure foam / use Koito design data in order to establish a datum for new foams.

Comment 12.

Note 1. In the case a seat experiences a „minor□ failure of a structural test. As in the case where a 9g seat is tested the AD implies that if it fails in any way it would require replacement in 2 years. The AEA request that a logical safety based approach is applied to tests and grant the maximum allowed grace period should a failure be deemed as minor.

Comment 13.

During the Q&A session in Cologne EASA have stated that relevance of Bunsen burner test results is negligible and that absence of such test data does not lead to an unsafe condition.

The AEA request EASA to waive the Bunsen burner (Appendix F Part I) requirement when operators elect to perform a complete re-certification program as mentioned under Par. 1.1 of the PAD.

Comment 14.

Par. 1.1 of the PAD states: In addition it must be shown, through a process agreed by EASA, that each seat installed on an aeroplane is in conformance to the approved design.

The AEA request EASA to confirm and clarify that a 100% conformity inspection of all seats installed is not required and that – based on analysis – the recertification of a representative test article is acceptable.

Comment 15.

Note 1 on page 3 of the PAD (regarding replacement of seat bottom cushions) is too restrictive.

As written, it suggests that the referenced guidance of FAA Advisory Circular 25.562-1B, Appendix 3, paragraph 9 applies to all seats (i.e. both 9G seats and 16G seats), whereas the referenced guidance is relevant for 16G seats only.

Comment 16.

Although not explicitly mentioned in paragraph (2) on page 3 of the PAD, AEA request EASA to limit the applicability of this paragraph to seat bottom and seat back cushions only, as these represent the majority of foams on the seats.

Legrest cushions and headrest cushions are significantly smaller when compared to bottom and back cushions. In addition it is nearly impossible to manufacture representative test sample sets of these small sized cushions on in-service seats

Comment 17.

According paragraph (4) of the PAD, for aeroplanes required to meet JAR/CS 25.562 requirements, dynamic testing on passenger seats is limited to a 16G forward load condition. Showing compliance with requirements regarding 14G down (and lumbar, HIC, femur etc.) is not required.

However, strict adherence to the referenced guidance of FAA Advisory Circular 25.562-1B, Appendix 3, paragraph 9c(2) (ref. Note 1 on page 3 of the PAD) would require to conduct a 14G down lumbar load test, if the original bottom cushion material (i.e. foam) is not available for the manufacturing of replacement cushions.

As it is accepted under Par.1.3 of the PAD that the in-service seats might not meet the 14G down lumbar load requirement, it would be unreasonable to require the showing of full compliance with this part of the regulations in case an operator is forced to replace bottom cushions because of non-compliance with the Oil Burner test or because spare cushions can not be obtained.

Therefore AEA request EASA to accept similar bottom cushions with respect stiffness and density (measured according to accepted industry standards) to show that the performance of a replacement bottom cushion is not worse than that of the in-service cushion.

Comment 18.

During one of the presentations EASA mentioned that all modifications to the affected Koito seats must be submitted to EASA for approval.

The AEA is of the opinion that an appropriately approved DOA is in a position to determine if a proposed minor modification would affect properties or capabilities of seats which would interfere with the requirements of the PAD. Therefore only modifications related to the specific areas of the AD would need to be submitted to EASA for approval.

Comment 19.

If structure testing is to be conducted for showing compliance with the applicable portions of the AD, one method to determine the “critical” seat(s) for testing is mentioned in the referenced guidance of FAA Advisory Circular 25.562-1B Appendix 3. One element in this determination is taking into account the highest loaded seat leg of a seat within a “family of seats”, which can be concluded from the calculated Interface Loads for these seats. As falsification involved “static, dynamic and flammability testing, as well as uncontrolled changes to production data (material and dimensional)”, the AEA requests EASA to accept the use of Koito Interface Loads Reports for the analysis to determine for which seat(s) testing is required.

EASA response:

- 1 Failure of the Seat in combination with a crash landing is considered catastrophic, which is the purpose of the required initial testing.**
See EASA response to comment 6 for the use of Koito test data. EASA is not bound to conduct a RIA, the purpose of an AD is to address the unsafe condition by restoring the required level of safety in the affected fleet.
There is no requirement within the AD to remove all seats after 10 years. Seats can remain installed for 10 years if they pass the test required by the AD. After 10 years such seats must be removed only if their design is not shown to be fully compliant with the relevant certification basis. In addition it must be shown, through a process agreed by EASA, that the seats conform to the approved seat design.
- 2 See EASA response to comment 6.**
- 3 Replacement of seats after 2 years is only applicable to those seats failing the static testing requirements of this AD and therefore posing a significant airworthiness risk.**
- 4 There is no provision within the EASA regulations that allow EASA to downgrade the certification basis of a/c required to be compliant to CS/JAR 25.562 to only JAR/CS 25.561 levels. The unsafe condition exists for both 25.561 and 25.562 compliant seat installations, and in accordance with the provisions of Part 21A.3B(b)(c) guidance material, EASA mandates action to restore the fleets to the same level of safety defined in the applicable certification basis.**
- 5 The Koito POA is outside the scope of the AD required actions.**

- 6 *EASA does not agree with the AEA suggestion that there is evidence that the level of safety of Koito seats is only 10% below the applicable certification requirements. Furthermore, the figure of $1.5 \cdot 10^{-7}$ represents the likelihood of higher impact severity survivable accidents. EASA does not consider appropriate a further trade-off between the reduction of level of performance of the seat and the rate of catastrophic accident, as proposed by the Commenter. Therefore no change will be made to the required compliance times. See also EASA response to Comment 6.*
- 7 *See EASA response to comment 9.*
- 8 *See EASA response to comment 9.*
- 9 *See EASA response to comment 9*
- 10 *See EASA response to comment 9.*
- 11 *The PAD did not exclude the use of Koito data, the final AD text has however been changed to further clarify this issue.*
- 12 *EASA disagrees, the failure criteria are those required by the applicable regulations.*
- 13 *EASA never stated that 25.853(a) compliance has no influence on the determination of the unsafe condition. EASA considers instead, that Bunsen burner testing, together with certain static tests (Up, Down and Aft load cases) and some 25.562 occupant injury criteria (HIC, Lumbar load, etc), does not need to be successfully performed in order to allow Koito seats to remain in service for more than 2 years after the AD effective date. The AD states that full compliance to the relevant certification basis will be required as the final terminating action of the AD.*
- 14 *EASA confirms that it is not required to perform a 100% conformance inspection, a sampling programme will be allowed.*
- 15 *Agreed, AD text has been amended accordingly.*
- 16 *EASA agrees with the comment. While 25.853(c) also applies to headrest and legrest cushions, non-compliance of these types of cushions would not have as much effect on safety as would non-compliance of the bottom and back cushions. We have determined that addressing only bottom and back cushions provides an adequate level of safety. AD text has been amended accordingly.*
- 17 *Agreed, the AD text has been modified accordingly.*
- 18 *The comments made by EASA during the Briefing session need further clarification. EASA does not require all modifications to be submitted for approval. The AD covers all certification data used for the original seat qualification; therefore for future modifications DOAs cannot demonstrate compliance to the applicable requirements of their modification if they are taking credit for any of the original data. The intent of EASA statement is to assist the DOAs on a case by case basis, as the use of original certification data may be allowed depending on the extent of the modification, as long as it is agreed by EASA (which does not necessarily involve any EASA approval of that modification).*
- 19 *Agreed, the use of the AC material is allowed within the AD, which in turn allows for the use of the Koito interface load analysis reports.*

Commenter 16: Virgin Atlantic Airways Ltd – David H Napper – 11/11/2010

Comment #16

Comments from Virgin Atlantic have been captured within the AEA position paper dated 10 November 2010. Virgin Atlantic are also of the opinion that the proposed AD lacks the appropriate safety justification. Of particular interest is comment 6 where if assumed that seats have a reduction in performance of 10% compared to the certification requirement, then the compliance times of 2/6/10 years are changed to 5/15/25 years. This 10% figure is pessimistic based on reported Koito 16g test data. Virgin Atlantic has a significant number of Koito Economy seats fitted to our fleet. Virgin Atlantic request a formal RIA on this rule making and that the AD is halted or the comment period extended to allow this to be completed.

EASA response:

See response to Comment 15 above.

Commenter 17: Nippon Cargo Airlines CO., LTD.(NCA) – Hiroshi Ueda for Yoshio Yamamoto – 12/11/2010

Comment #17

Our comments for the subject PAD are described as follows:

1. Compliance Times

We cannot accept the issuance of EASA PAD prior to completion of all appropriate action (re-testing, conformity assessment, establish the refurbishment plan) which should be performed by Koito.

After completion of the re-testing and corrective action planning by Koito, EASA should establish the feasible compliance period based on SB compliance and/or status of parts availability, as required.

2. Re-Testing Data

To accomplish the conformity test efficiently, the followings should be considered (1) A sample seat from one model can represent a group of models when the each model in the group is considered to be technically equivalent (structures, materials, etc.)

(2) The result of the test currently underway by Koito should be considered valid because the test is being done under JCAB supervision, and is in accordance with the EASA requirements.

3. Work Instructions

This problem stems from Koito's falsification of the certification test data and use of improper material. Operators are not in position to take responsibility of the manufacturer. We understand that, upon completion of investigation by Koito, Koito should issue the work instructions (SB), if applicable; then AD is to be issued referring to the SE.

4. Industry wide cooperation

We support the idea of industry wide cooperation to accelerate the re-testing, and *FAA/EASA /Boeing/Airbus* coordination for the industry" wide cooperation is very much appreciated.

EASA response:

- 1 EASA has considered the actions of Koito to address the unsafe condition. Not all of the concerns have been addressed nor the Airworthiness Risk fully mitigated, therefore AD action is still required at this time.**
- 2 (1) EASA has worked with TC holders to identify clusters of Koito Industries seat models, and the most critical seat p/n in each cluster. This information will be made available by separate means after the issue of the AD. (2) See EASA response to Comment 6.**
- 3 The AD requires the testing of in-service seats/components; therefore it is only through the accomplishment of this AD action that EASA can ensure that such testing is performed.**
- 4 Noted.**

Commenter 18: Singapore Airlines – Kess Chiang – 16/11/2010**Comment #18****1. Review of JCAB's Investigation Data**

In the light of new investigation data JCAB presented at the EASA and FAA conference in Singapore on 21 Oct 2010, and as requested by operators at that meeting, we recommend that EASA and FAA review the JCAB data prior to issuance of the AD to avoid duplication of re-testing requirements.

Of significance was JCAB's presentation, which showed that they had performed the following checks:

- a) Koito Drawings - All design changes made to in-service seat models have been identified and analyzed.
- b) Koito's Suppliers - No problem identified relating to metallic parts.
- c) Seat Conformity - No significant differences between seats manufactured and production drawings.

2. Compliance Timeframes

a) The two-year compliance timeframe for confidence testing and rectification action (if necessary) is too short and not feasible, owing to several factors explained below:

- i. While it is possible to conduct the three confidence tests as required by the PAD, the two-year time limit to remove the seats from service, if they fail the 16g and 9g tests, would pose hardship for operators.
- ii. In such instances, operators would have to source for new seat vendors. Seat vendors today are already heavily involved with ongoing seat programs, and therefore would not have sufficient resources to cater to such seat replacement programs at short notice. The two-year time constraints would be even more acute for First and Business Class seat programmes, where many stakeholders are involved in defining the seat requirements.
- iii. In addition, it would not be pragmatic to impose the two-year compliance timeframe for airlines having a large fleet of aircraft with the affected seats, as seat vendors would need time to design, manufacture and install new seats on the large fleet of aircraft.
- iv. We therefore recommend that affected airlines provide a new seat programme timeline for review and approval by the relevant authorities.

b) While we understand that EASA Part 21 regulation requires full compliance and therefore the proposed 10-year life-limit on the affected Koito seats, we request that EASA provide your safety assessment data to other authorities for their evaluation to allow for the seats to continue operation without limitation if they pass the confidence tests, similar to FAA's criteria.

3. Spares Support from Koito

- a) Airlines require continual spares support from Koito, for the in-service seats, to sustain operations. Whereas EASA and FAA have processes in place to allow Koito to produce and ship spares, JCAB indicated at the conference that they require full certification testing for the spares.
- b) We request that EASA and FAA harmonize the requirements with JCAB, so as to facilitate Koito's production and shipment of spares to airlines. This is especially important as airlines expect to continue operations with the Koito seats if their seats pass the confidence tests stipulated in EASA and FAA impending ADs.

4. Confidence Tests with In-service Seats

- a) As mentioned at the conference, many airlines do not have spare seats. Without JCAB's approval for Koito to produce spare seats for replacement of in-service seats for the confidence testing, airlines will be faced with the following problems:
 - i. A "hole" in the airplane (e.g. impact on IFE systems and wiring),
 - ii. A new cabin layout configuration that would need to be re-assessed and approved,
 - iii. As the 16g dynamic test is destructive in nature, seats used for testing cannot be re-installed back onto the aircraft. Again, without replacement seats from Koito, airlines will lose their seat-count on those airplanes.
 - iv. Commercial impact that may affect route performance and viability of certain routes.
- b) EASA and FAA need to provide better clarity of test instructions, such as approval for test plans, if there is a need for authorities' presence during testing, and acceptance of test results.

5. Grouping of seat models

As agreed at the conference, EASA and FAA were requested to work with Airbus and Boeing to group the Koito seats according to similarity (e.g. low-tube, high-tube, etc), thereby streamlining testing requirements, minimizing resources and time spent to repeat identical tests on similar seat models.

6. Cushion Flammability Tests

In-service seat cushions could be contaminated or degraded and therefore are not representative of initial flammability certification conditions. We recommend that new test cushion coupons that are built according to the approved drawings for testing be used.

7. Lease Aircraft Requirements

a) Although airlines generally need only to comply with their CAA's AD requirements, in practise airlines are also required to meet EASA or FAA ADs in order to satisfy lessors' requirements.

b) We recommend that EASA and FAA set up a mechanism for such airlines to work with EASA or FAA through our local CAA for approval of test plan, witness and review of test results to testify compliance to ADs

EASA response:

1 See EASA response to Comment 6.

2 EASA appreciates the difficulties which may be faced by Airlines in replacing seats as noted by the commentator. However, seats will have to be removed within 2 years after the AD effective date only in one of the following cases:

- **none of the structural (static/dynamic) tests required by the AD are performed;**
- **the static testing required by the AD is performed and fails. ;**
- **the dynamic testing required by the AD is performed and fails, and the static testing required by the AD is not performed.**

Such seats will pose a significant airworthiness risk.

3 The production of Seats and/ or spares is outside the scope of this AD.

4 The AD requires that test plans are submitted and accepted by EASA, at that time EASA will indicate the level of involvement required in the subsequent testing. Cabin modifications to account for seat testing may be permitted after discussion with EASA. In addition static and, in certain cases, seat cushion oil burner tests are permitted on newly built test articles.

5 Seat clustering is allowed by the AD. See also EASA response to Comment 5.

6 See response to Comment 9.

Commenter 19: SWS CERTIFICATION SERVICES LTD – John Sissons – 16/11/2010

Comment #19**1 COMMENT 1**

Why does the difference in the safety case exist between EASA and the FAA?

It is understood that the 10 year limit in the PAD is applied because a safety case still exists around occupant safety or other (i.e. 14g) structural issues. The FAA therefore don't consider the occupant safety aspects to be a significant enough issue to require the removal of the seats?

The difference means that there is an uneven playing field between operators under EASA and those under FAA. This could have significant implications for lessors who wish to move aircraft between the European and worldwide markets.

2 COMMENT 2

Extend the consultation period prior to the introduction of the AD.

It is clear that the airlines do not have the sufficient information and understanding of the issues surrounding the Koito seats in order to meet the requirements of the PAD. Further liaison with Airbus/Boeing and EASA/FAA is requested in order to have fuller understanding of the issues and potential methods of compliance with the requirements of the PAD/NPRM.

It is proposed that an fixed time agenda is put in place to define a series of meeting with EASA / Airbus / Boeing / operators (and their representatives) to fully define the process. This will lead to a better understanding of the safety case that exists and also for full assessment of the design data that exists and the revised testing being performed by JCAB/Koito (see also comment 3).

3 COMMENT 3

Establishment of the safety case.

The feedback received has been that the safety case driving the timescales is based upon the catastrophic failure of the seat in the case of a 16g event. The seat structure will take some credit for reacting the pulse, even if the passed testing was 15g (for instance). I understand that more detail of the safety case has been made available to the airlines, via the AEA, but without published data for the safety case, alternative assessments are not readily possible. This is another reason for delaying the introduction of the AD and entering into a period of consultation. (See comment 2).

4 COMMENT 4

The JCAB / Koito are currently performing a significant test program.

Will EASA make public the results of this testing for the airlines to review? While this testing may not be acceptable for showing compliance of the seats, the justification for families of seats and therefore, test article identification, should aid in significantly reducing the burden of testing for airlines and increase the chances of successful tests being completed.

5 COMMENT 5

Test Articles.

Airlines are typically reporting that they don't have any, or have very limited stock of spare seats. The same is true for spare seat cushions.

Therefore, the optimisation of tests to follow the original baseline seats certification principles (also as defined for the JCAB / Koito testing programme) will improve the process of showing compliance.

Given the test article situation, then the requirement for the airlines to review the JCAB/Koito testing, as well as the original design data, is even more important.

6 COMMENT 6

If minor changes to Koito seats are to be applied to installed seats within the initial 2 year period, can DOA's assume that the existing compliance data is valid? i.e. as long as the change doesn't affect any aspect of the PAD? i.e. Changes that don't affect seat weight, etc.

7 COMMENT 7 – PAD SPECIFIC COMMENTS AND QUESTIONS

General:

Why are seat model numbers not identified in the PAD? The FAA NPRM lists the affected model numbers.

If testing is to be performed, then how will the application for approval of the test plans / reports be made to EASA? Is it required to be a design change?

After successful testing, what marking requirements, if any, are there for the seat models? Will the TSO/ETSO label be struck out?

What will constitute a 'certification programme' as required by section 1.1? i.e. is it required that all electrical systems on Koito seats will be subject to re-validation?

How will flam testing, other than seat cushions, be performed? Etc.
Will original Koito design data (if available) be acceptable for defining the families of seats?

Section 1.1: How is it proposed that operators can show that all installed seats are in conformance to the approved seat design?

Section 2.1 & Note 1: Seat cushion samples are larger than actual seat cushions. Therefore, in order to produce samples for test, more than 1 cushion will need to be joined together. Furthermore, the fire-blocker layer is typically bonded to the foam and the removal of the fire blocker layer will further damage the foams.

How is it proposed that cushions be joined to produce samples? There is no method to bond cushions together without changing the layup and hence the test article, which defeats the objective. Clearer guidance of how this is to be achieved is required.

Section 4.1: Can the original certification basis of the aircraft be used?

Section 6, Note 5: How will the comment '...are limited to how they can be used...' be implemented?

EASA response:

- 1 See response to Comment 5.
- 2 See response to Comment 6.
- 3 See response to Comment 15.
- 4 See response to Comment 6 for the use of Koito test data, however, EASA is not in a position to publicly release company data.
- 5 See response to Comment 5.
- 6 As a general statement, initial Koito certification data are not considered to be valid, however limited use of this data may be accepted by EASA, See response to Comment 15.
- 7 See response to Comment 9.
For Test Plans, etc, See response to Comment 1.5
The AD does not require removal of existing seat marking. The AD does not require introduction of additional marking on seats.
Original Koito certification data will be required to be re-performed as per the applicable certification basis.
As per the requirements of the applicable certification basis.
Yes, original Koito data can be used for the definition of seat clusters.
Section 1.1, See EASA response to Comment 15.
Section 2.1, See EASA response to Comment 9.
Section 4.1, Yes, the original certification basis of the type can be used unless modified by a post TC change.
Section 6, Noted, the wording has been clarified.

Commenter 20: The Boeing Company – Jill De Marco for Terry L. McVenes – 16/11/2010

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Boeing Commercial Airplanes
Comments to EASA PAD No. 10-101

COMMENT #1 of 10

Specific section of the proposed document that is of concern.

Required Action(s) and Compliance Time(s):

Sections (4.1) and (5.1)

What is the proposed requirement or text?

"... static testing to JAR/CS 25.561(b)(3)(ii) and (b)(3)(iii),"

What about this proposed requirement do we want changed?

We request that the text be revised as follows:

"... static testing to JAR/CS 25.561(b)(3)(ii) and (b)(3)(iii) (amendment level per TCDS),"

Why is the change justified?

Although EASA has listed this on its website under FAQ about the Koito AD, adding this clarity to the AD itself is appropriate.

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COMMENT #2 of 10

Specific section of the proposed document that is of concern.

Required Action(s) and Compliance Time(s):

Sections (3), (4.1), and (5.1)

What is the proposed requirement or text?

"Within 2 years after the effective date of this AD remove Koito Industries passenger seats that are ..."

What about this proposed requirement do we want changed?

We recommend revising the text as follows:

"Within 2 years 5 years after the effective date of this AD remove Koito Industries passenger seats that are ..."

Why is the change justified?

Section (1.3) still requires the test results to be obtained within 2 years, but our recommended revision adds an additional 3 years to then work the new seat program. Retrofit programs take at least 2 years to certify the first shipset. Time is needed to perform the test, obtain knowledge of a failure, and then initiate a new seat program. In addition to certifying the first shipset within 2 years, additional time is required afterward to manufacture and install the remaining shipsets to retrofit the whole fleet.

Further, all the falsified tests showed that the forward dynamic test pulses were greater than 14G. Although not 16G, it indicates a level of safety higher than that of 9G-only seats. Moreover, many of these tests were witnessed by FAA delegates (DERs or ARs); thus, the seats were reviewed for sharp edges. Even after DERs discontinued witnessing TSO tests, the photos from the tests were provided in the test report, which was provided to the installer. (Unlike other suppliers that simply provided a TSO-approved Installation Instructions and Limitations document, Koito always provided the entirety of the TSO application package, which included the dynamic test report.) Had any of the photos exhibited sharp edges, the AR would have questioned this and required additional data or tests in order to make the compliance finding on the installation. This indicates no immediate safety hazard.

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COMMENT #3 of 10

Specific section of the proposed document that is of concern.

Required Action(s) and Compliance Time(s):

Section (7) - Changes to Seats

What is the proposed requirement or text?

"Wear-out component replacement parts such as food trays, arm rest covers, and non-structural members may be manufactured and installed on seats affected by this

AD, until the compliance time as specified in this AD. These parts must be shown to comply with the flammability and injury prevention provisions as required by this AD. Any other category of change (e.g. In-Flight Entertainment upgrade) must be submitted to EASA for approval.”

What about this proposed requirement do we want changed?

We recommend adding the following text to the paragraph:

“ ... Entire seat assemblies may also be produced and installed to explicitly replace any seat removed from the fleet for testing under this AD.”

Why is the change justified?

Removing a seat for testing without allowing for a new, replacement seat assembly to be produced leaves a “hole” or unused space in the airplane. The replacement seat will be identical or, at least, representative of the one removed for testing, which achieves an identical or representative level of safety between the newly installed seat and others on the airplane.

Additionally, leaving a “hole” or unused space in the airplane leaves passengers without tray tables (which were seat-back-mounted on the removed seat). The “hole” also leaves the electrical daisy-chain interrupted, which eliminates reading lights, attendant call, and IFE to the seat assemblies beyond the missing one

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COMMENT #4 of 10

Specific section of the proposed document that is of concern.

Required Action(s) and Compliance Time(s):

Section (4), Note 3

What is the proposed requirement or text?

Missing details

What about this proposed requirement do we want changed?

We recommend adding the following text below Note 3:

“The minimum level of structural compliance (under 4.1 below) can be demonstrated by testing the one seat in the seat model with the highest loaded leg. The dynamic test is to be yawed +/- 10 degrees, whatever achieves the highest leg load. It is also acceptable to show similarity from one model of seats in the same grouping (of multiple seat models) to this tested seat. Additionally, it is acceptable to ballast a different (but available spare) seat in the grouping to achieve leg loads equal to the highest loaded leg. Surrogate parts are permissible outside of the primary load path (e.g. monitor or electronics box).”

Why is the change justified?

Compliance is dictated by the regulations (CS 25.561 and 25.562). The above recommendation does not violate the regulations. While it is recognized that one acceptable means of compliance used for years has been FAA’s AC 25.562-1B (“Dynamic Evaluation of Seat Restraint Systems and Occupant Protection on Transport Airplanes”), it represents one set of guidance. That one set of guidance would require, for example on a Model 777 economy class cabin, five 16G forward structural tests (front row outboard, front row center, standard row outboard, standard row center, standard row at the track break). Using our recommendation above would test two seats (front row outboard and standard row outboard, because they are two different seat models due to leg and structure differences). These tests would present a representative level of safety for the model of seats, without disobeying the wording of the regulation. Further, considering that the existing wording of the proposed AD does not establish full compliance to the entirety of either CS 25.561 or 25.562 (until 10 years), our recommendation still performs the same intent – to establish a partial level of full compliance and to validate a level of safety.

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COMMENT #5 of 10

Specific section of the proposed document that is of concern.

Required Action(s) and Compliance Time(s):

Section (4), Note 3

What is the proposed requirement or text?

Missing details

What about this proposed requirement do we want changed?

We recommend adding the following text below Note 3:

"Typically, the pass/fail criteria of AC 25.562-1B, Section 13 is to be used. However, post-test cracks of structural elements may be acceptable on a case-by case basis (e.g., crack in rear fitting is not acceptable, while a crack in the front fitting may be acceptable). Present any departure from AC 25.562-1B, Section 13, to EASA."

Why is the change justified?

Departing from AC 25.562-1B does not dictate that one is departing from the regulation. Some test failures (such as a failed front stud) have little impact on the behavior of the occupant or the seat. In this example, the seat (as a whole) and occupants remain attached. This establishes a level of safety to give confidence for the seats in the fleet.

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COMMENT #6 of 10

Specific section of the proposed document that is of concern.

Required Action(s) and Compliance Time(s):

Section (4), Note 3

What is the proposed requirement or text?

Missing details

What about this proposed requirement do we want changed?

We recommend adding the following text below Note 3

"If the test article consists of a seat from the fleet (or from spares), conformity should consist of matching the seat part number to that noted in the test plan, of noting the general condition of the seat, of noting revisions/modifications that have been made to the seat (typically noted on modification placards), and of verifying the date of manufacture."

Why is the change justified?

A used seat cannot be fully conformed like unto a newly manufactured seat. However, the readers of the AD need direction regarding what is acceptable conformity.

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COMMENT #7 of 10

Specific section of the proposed document that is of concern.

Required Action(s) and Compliance Time(s):

Section (4), Note 3

What is the proposed requirement or text?

Missing details

What about this proposed requirement do we want changed?

We recommend adding the following text below Note 3:

"If the original seat was certified to TSO-C127 (rev new) or tested before 1998, then it is acceptable to perform the dynamic tests using the pulse shape from AC 25.562-1a, appendix 1. If the original seat was certified to TSO-C127a or tested 1998 and after, then the pulse shape from AC 25.562-1b, appendix 1, should be used for new testing."

Why is the change justified?

Because testing before 1998 was performed using the prior pulse shape, it is consistent to repeat those tests using an equivalent pulse shape. Seats tested in the 1990s with that prior pulse shape were safe and were allowed to remain in the fleet as fully compliant. Testing with the prior pulse shape creates an "apples-to-apples" scenario. Moreover, seats tested with the prior pulse shape have structural properties that still achieve 16G and greatly exceed the minimum structural safety levels of the world's fleet, which is 9G static.

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COMMENT #8 of 10

Specific section of the proposed document that is of concern.

Required Action(s) and Compliance Time(s):

Section (6), Note 5

What is the proposed requirement or text?

“Non-compliant seats and their components that are removed from service are not eligible for installation on another aeroplane or by another operator except as a direct spare for the same part number seat or component. Any other use would be considered a new installation approval and must comply with all regulations.”

What about this proposed requirement do we want changed?

We request the following text be added to this section:

“ ... As an exception, when a seat(s) is removed from an airplane for the direct purpose of testing under the context of this AD, the remaining seats can be re-pitched to fill the vacant spot. This one-time re-pitch following a test-seat-removal is to follow the same installation instructions and limitations as the original certification (e.g., if the original limitations allowed 32” to 34” pitch, the new layout shall be pitched within that range). “

Why is the change justified?

Although re-pitching is not a simple solution, removing a seat for testing without allowing for a solution produces a “hole” or unused space in the airplane. The re-pitch will be equally as safe as the seats were before the removal of the test seat. Additionally, leaving a “hole” or unused space in the airplane leaves passengers without tray tables (which were seat-back- mounted on the removed seat). The “hole” also leaves the electrical daisy-chain interrupted, which eliminates reading lights, attendant call, and IFE to the seat assemblies beyond the missing one.

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COMMENT #9 of 10

Specific section of the proposed document that is of concern.

Required Action(s) and Compliance Time(s)

What is the proposed requirement or text?

Missing details

What about this proposed requirement do we want changed?

We recommend adding the following text:

“Tests conducted as part of the JCAB investigation are acceptable if the seat model in question is part of the family of the tested seat and if the tested seat included the highest loaded leg.”

Why is the change justified?

Boeing requests that the FAA and EASA meet with the JCAB to review the JCAB's efforts in establishing that the Koito drawings represent what has been produced. The JCAB reports that falsification of data did not relate to the structural components of the seat. As such, testing of test articles that are manufactured to the level of drawings at the time of production can establish a level of safety for the fleet.

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COMMENT #10 of 10

Specific section of the proposed document that is of concern.

Required Action(s) and Compliance Time(s)

What is the proposed requirement or text?

Missing details

What about this proposed requirement do we want changed?

We recommend adding the following text:

"If a seat fails the tests required by (4.1) or (5.1), it is permissible for a re-designed part to be installed and for a re-test to occur. But the re-designed part must be installed on all affected seat part numbers to permit the seats to remain in the fleet for 10 years."

Why is the change justified?

This is perceived to be a quicker path to ensuring seats that have a proven level of safety. This encourages airlines to move faster at achieving seats that have this proven level of safety. It is surmised that a goal of the AD is to prove safety in a timely manner, not to be punitive to the airlines.

EASA response:

- 1 Agreed, AD text has been amended accordingly.**
- 2 See EASA response to Comment 5, 15 and 22.**
- 3 Agreed, the intent to allow new seats to be installed to replace in-service seats used as test articles has been incorporated into the AD.**
- 4 Although EASA agrees with the intent of the comment it is not appropriate to include this level of detail in the AD. It is required to submit test plans to EASA for acceptance, such proposals will be agreed at that point.**
- 5 EASA disagrees with proposed text addition. It is not appropriate to include this level of detail in the AD. It is required to submit test plans/ results to EASA for agreement, deviations from established norms will be agreed at that point.**
- 6 EASA agrees to the intent of the comment, the AD text has been amended to included clarification.**
- 7 EASA disagrees, Pulse shapes for any dynamic test must satisfy the applicable criteria. Current criteria are simply a better statement of the original intent of 25.562 (b)(2).**
- 8 See EASA response to comment 9.**
- 9 See EASA response to comment 6.**
- 10 EASA disagrees, Seat models failing the tests proscribed in the AD will be subject to the associated limitations. Any future design change must therefore fully re-certify the seat.**

Commenter 21: China Airlines – Sandy Tsao for Syun Lee – 17/11/2010

Comment #21

China Airlines appreciates this opportunity to submit further comments on the EASA Proposed Airworthiness Directive (PAD) 10-101, concerning Koito seats and seating systems and trusts our comments will be given due consideration.

A. General:

On 22nd September 2010, the European Aviation Safety Agency (EASA) issued a notice of a proposal to issue an Airworthiness Directive (PAD) No 10-101, affecting Koito Seats installed on Airbus, Boeing and McDonnell Douglas Corporation aircraft. EASA is seeking public comments before 17/11/2010. Based on the comments below China Airlines is of the opinion that the PAD in the current format; will require operators to take actions beyond their normal level of responsibility and competence; provides compliance requirements that ignores operational constraints and historical safety data; makes pessimistic assumptions on the safety justification. In addition, the PAD ignores the economic and operational burden that will be faced by air carriers of which the majority impacted operate in Asia. Notwithstanding, be assured airlines are supportive of Airworthiness Directives providing compliance requirements are justifiable, practical, cost-effective, and take into

account realistic operational timeframes. We draw to the attention of EASA that as a consequence of the problems with Koito seats aircraft have been and are grounded. More importantly to resolve this situation, air carriers have no suitable alternative pragmatic solution available, plus the situation has been compounded due to the lack of certified spares and the long lead-time of sourcing replacement seats from other seat manufacturers. China Airlines acknowledges the unique problem that regulators and operators are confronted with as a result of JCAB informing EASA and FAA of possible non-compliance issues with the Koito Seats. At the Industry dialogue session, organised by the Boeing Company, 21 st October 2010, Regent Hotel, Singapore, the FAA and EASA provided briefings on their proposed Airworthiness Directives to address Koito Seats. In- addition, the JCAB presented new evidence on their compliance testing of Koito seats. As reported by the Japanese Civil Aviation Bureau (JCAB) approximately 1000 aircraft are in operation using Koito seats with about 150,000 seats affected. During the Singapore meeting, industry and regulators from the region expressed many concerns regarding the PAD justification timescales for compliance, the need for FAA, EASA and JCAB to meet, the capability and competence of operators to comply with various aspects of the EASA PAD, the lack of available spare parts and the potential for mixed standard fleets. China Airlines observations on EASA PAD 10-110 are provided below as general and detailed comments.

B. General Comments:

1. Regulatory:

As noted in our earlier comments (Dated 28 October, Our Ref: ME20101028002) China Airlines requests that EASA extends the period of comments by a minimum of 90 days to enable EASA, FAA, JCAB and TC holders to meet and review new JCAB evidence with the objective to either halt the issuance of the AD or to discuss alternate methods of meeting EASA's safety objectives. The outcome of this discussion should modify the compliance requirements operators must demonstrate to their National Aviation Authority (NAA). Due to the unique nature of the problem a further extension may be necessary to enable parties concerned to fully understand and confirm the efforts of the JCAB. Going forward China Airlines would urge EASA to provide a formal Regulatory Impact Assessment (RIA) on this rule making taking into account the global impact the PAD will have.

2. Compliance:

Within 2 years after the effective date of the PAD, specific actions are required to be taken by the air carrier. We consider that the proposed compliance time of two years to carry out testing and rectification action is inadequate as it ignores a number of constraints on the carrier to demonstrate compliance to the PAD. Furthermore, China Airlines considers that it is the responsibility of the JCAB and Koito Industries to first demonstrate compliance to the design and certification requirements. China Airlines would argue:

- a) It is the responsibility of the primary design and certifying authority the JCAB, as the competent authority, with the support of Koito Industries, in collaboration with EASA and FAA to develop a plan of action to ensure compliance of in-service Koito seats.
- b) The design and certification of passenger seats is not within the normal competence of air carriers.
- c) Agencies capable of performing the testing of in-service seating are limited and may not have sufficient resources to support the affected air carriers. Consequently delays can be expected.
- d) Testing of in-service seats requires their removal which will leave empty spaces on the aircraft. The reason for this is that in the majority of cases air carriers do not hold in stock complete spare seats and Koito Industries is not allowed to provide replacement seats or spares.
- e) Passenger seats are customised to air carrier requirements taking into account the level and type of customer service provided including in-flight entertainment systems. Seats are not interchangeable between air carriers.
- f) The metallic passenger seat frame in principle remains unchanged in spite of air carrier seat customisation.
- g) There is limited number of passenger seat providers. They are currently supporting new aircraft production and ongoing airline cabin upgrades. These providers do not necessarily have the resources or spare capacity to support requests from air carriers required to change their seats. Long lead-times can only be expected if air carriers look to change their seat providers.
- h) The PAD requires the air carrier to replace seats within the two year compliance period if they have failed the testing. In this event, based upon in-service experience, replacing passenger seats could take more than two years to be delivered. The lead-time for seats could be greater depending on the type of seats to be replaced.
- i) On removing in service seats for testing purposes some regulators are of the opinion it is simple to reconfigure aircraft cabins and absorb the available space. For

some authorities it would require air carriers to seek approval for a reconfiguration.

j) Risk analysis has been carried out. On considering the abovementioned observations and comments it is evident that the testing and replacement of in-service seats is impractical and would impose a significant burden on carriers and unjustified additional costs. We would therefore recommend EASA increase the proposed compliance time from 2 years to 5 years. Furthermore, EASA has taken the decision to put a maximum 10 year limit for the continued service of in-service seats, even if they have successfully passed all test requirements as required by the PAD. At the meeting in Singapore, 21 October 2010, EASA and FAA informed Industry:

a) FAA does not require a maximum limit for the continued service for in-service seats once compliance has been demonstrated.

'b) EASA and FAA have agreed a harmonised approach and require air carriers to carry out a certification programme on in-service seats to demonstrate that the seats and its installation comply with the appropriate certification basis (JARICS 25.562 or FAR 25.562). This will include static and dynamic testing.

c) Under the EASA regulatory framework it states that an "unsafe condition exists if (c) design features intended to minimise the effects of survivable accidents are not performing their intended function (ref AMC 21A.3B(b)). China Airlines would argue that the EASA 10 year maximum limit on continued service of in-service seats even after they have successfully passed all test requirements required under the AD is not driven by safety. FAA and EASA are harmonised on the appropriate certification basis except on this point that an "unsafe condition will remain". JCAB has confirmed that the production of metallic parts has not been compromised therefore structurally able to meet the certification basis. This must be reconfirmed with JCAB. No historical data supports the EASA concerns that the considered "unsafe condition" has resulted in additional fatalities due to seat failures following a major accident. The safety criterion, which is discussed later in this paper, is based upon a pessimistic formula. China Airlines urges for greater transparency in the EASA process and requests that the supporting risk analysis be made available to air carriers. In addition, China Airlines would recommend on finalising any AD proposal it be supported with a Regulatory Impact Assessment which is the norm for rule making. The FAA and EASA must take note that this difference in approach can only result in mixed fleets depending upon which AD the NAA's follow and how they apply it. The overall consequence is an unnecessary cost burden on those air carriers required to follow the EASA AD based upon a questionable safety basis.

3. Japan Civil Aviation Bureau (JCAB)

JCAB are the primary certification and design authority for Koito seats. At the October FAA-EASA AD Briefing held in Singapore the JCAB reported on the status of their ongoing investigation into Koito seat design and certification discrepancies. Under the oversight of the JCAB, Koito has carried out extensive retesting of the impacted seat models to demonstrate that they are in compliance with certification design criteria.

As a result of these efforts the JCAB have been able to confirm:

a) All production drawings were retained by Koito and checked for conformity.

b) All design changes made to each in-service seat model have been identified, checked and analysed.

c) No problems have been identified relating to the metallic parts provided by suppliers and used in the construction of Koito seats.

d) All materials that were used on Koito seats have been identified.

e) Tear down inspections have demonstrated that there were no significant differences.

Since the JCAB has confirmed that the production of metallic parts has not been compromised, therefore the dynamic I static tests performed on seats that were produced in accordance with the production drawings should also be accepted. Going forward, the JCAB has identified a plan of action to determine the compliance status of In-service seats which could satisfy certain requirements of the EASA PAD. China Airlines strongly urges EASA to work with the JCAB TC holders I air carriers to evaluate and consider the new JCAB data to allow credit to be taken. Failure to do so would ignore the huge potential burden on air carriers the PAD would impose, requiring the removal of seats from in-service aircraft for testing, and national airworthiness authorities providing oversight. More importantly, it cannot be ignored that the evaluation and use of this crucial data could even negate the justification for issuing an AD.

4. Civil Aviation Authorities:

EASA and FAA are widely recognised by National Airworthiness Authorities as leading regulatory authorities especially in the areas of type certification and design. It is also well understood that the jurisdiction of EASA and FAA covers only those carriers operating aircraft on the register of the USA and countries within the European Union. Consequently, the provisions in the PAD are only applicable to those carriers. Nevertheless, in Asia it is common practice for the regions regulators to adopt either or both of an EASA and FAA Airworthiness Directive. However, on implementing an AD some regulators may only apply an FAA AD to the Boeing fleet and the

corresponding EASA AD to the Airbus fleet. The consequence of these scenarios is that you could have mixed fleets within the region and the airline as a result of the lack of harmonisation on a common problem between an FAA and EASA AD. JCAB as the competent certificating and design authority for Koito seats has not issued an Airworthiness Directive (AD) and China Airlines understands that none are intended for the time being. As mentioned above, the JCAB has identified a plan of action to determine the design compliance status for in-service seats. If accepted by EASA and FAA it is highly likely that it would significantly alleviate the burden on operators, requiring them to preferably carry out conformity checks of their in-service seats compared to approved production drawings. At the October FAA-EASA AD Briefing held in Singapore Regional Airworthiness Authority representatives clearly indicated that for them to provide effective oversight of their airlines impacted by the PAD they would expect comprehensive accomplishment instructions to be provided rather than the high level requirements currently proposed by the PAD.

5. Safety criteria:

China Airlines questions the safety criteria used by EASA to establish the compliance dates of 2, 6 and 10 years. With reference to the EASA Question and Answer summary we note that EASA has estimated the accident rate at $1.5 \cdot 10^{-7}$ / FH where seats play a Significant role in reducing fatalities. In EASA's opinion, this value is considered as optimistic whereas China Airlines argues that the accident rate of $1.5 \cdot 10^{-7}$ / FH is not supported by available historical data and is therefore not realistic. China Airlines considers that the following points support this argument:

- a) Based on the Boeing statistical Summary of Commercial jet Airplane Accident (Worldwide Operations 1959 - 2009), July 2010, using the EASA accident rate assumes that all hull losses without fatalities will become hull losses with fatalities.
- b) Historical data does not support the EASA proposed accident rate as there are no reported seat failures which have resulted in increasing the number of fatalities in a major accident.
- c) During the Singapore briefing it was mentioned that the safety case takes into account the potential of seat failures resulting from high level turbulence events. No historical data supports this assumption.
- d) On considering the reported findings of the JCAB, and 16G test results stored on Koito computers, it can be concluded that even non-compliant seats still offer a high level of protection.
- e) Based on the pessimistic scenario in which the affected seats would have a reduction in performance of 10% compared to the certification requirement, there is no justification to assume this potential non-compliance will cause all hull loss accidents to result in an increase of fatalities. China Airlines fully supports the AEA opinion submitted in their comments to EASA on PAD 10-101 that an estimated catastrophe rate of $0.15 \cdot 10^{-7}$ is more realistic and if used would increase the PAD compliance times to 5, 15 and 25 years. Furthermore, China Airlines is of the same opinion as AEA that once the JCAB has finalised its investigations on Koito seats and presented the results they will demonstrate a further reduction in risk and allow further extension of the compliance times. Recognising that EASA is unable to automatically accept data generated under the oversight of JCAB due to the absence of a bilateral agreement this should not be considered or used as an obstacle. As leading regulators we would hope that EASA and JCAB would make every effort to meet to discuss and review JCAB findings especially as this would assure passenger confidence and safety.

6. Spare parts

Since the announcement by the JCAB of the problems associated with Koito seats, all spare parts have been deemed not approved until Koito has finalised a recertification process. Furthermore, Koito Industries is not permitted to make spares available even if it has them in stock. In addition, EASA has removed the Design Organisation Approval (DOA) for Koito Industries. As a consequence air carriers are under pressure as they are unable to adequately support in-service seats. Sourcing of PMA parts is a possibility but unacceptable to EASA. In order to support the requirements of the PAD spare parts are essential. China Airlines would urge the JCAB on discussing the way forward to agree with FAA and EASA flexibility for air carriers to source spare parts.

C. Specific Comments

Prior to the design and certification the basis of certification for the original design is established between the regulator and manufacturer. The PAD proposes that in-service seats be tested to the latest or later requirements. China Airlines considers this unacceptable and requests that air carriers be only obliged to demonstrate compliance with the original type certification basis of the aircraft unless clear differences can be identified. EASA is requested to permit air carriers to reconfigure

aircraft that contain Koito seats in order to be able to provide test specimens. EASA is requested to modify the PAD to clearly indicate that a collective approach by airlines is an acceptable justification of responding to the requirements of the PAD. Such an approach would allow air carriers in coordination with airframe manufacturers to carry out a sampling of family! models. The resulting data would then be considered acceptable justification to demonstrate compliance with the PAD. Any report would also include confirmation of seat family models.

Finally, be advised that China Airlines fully supports and endorses the comments submitted on behalf of European carriers by the Association of European Airlines. In the event that EASA may have some questions of clarification or requests for additional information do not hesitate to contact China Airlines.

EASA response:

- 1 See response to Comment 6 and 16.
- 2 See response to Comment 5 and 15.
- 3 See response to Comment 6.
- 4 *The AD is not the tool to provide detailed guidance to National Airworthiness Authorities on implementation of oversight of this AD if adopted. EASA is ready to provide additional advice/ guidance to any NAA as required. It must also be noted that EASA expects the TC holders to be in a position to help the Airlines to comply with the AD.*
- 5 See response to Comment 15.
- 6 See response to Comment 15.
- C See response to Comment 9.

Commenter 22: Japan Airlines International, Co., Ltd. – Satoshi Okuyama for Ryuji Ogura – 17/11/2010

Comment #22

Differences between the EASA PAD and the FAA NPRM

There are differences between the proposed rules for the same issue: the EASA PAD No. 10-101 and the FAA NPRM Docket No. FAA-2010-0857, even though they are to cope with the same issues. Japan Airlines International (JAL hereafter) requests both the EASA and the FAA to conduct the further safety/risk/cost assessment and to make their efforts for harmonization and alignment of means of compliance for the ADs with taking impacts on the airlines/operators into consideration;

(1) 10-year Seat Replacement Limit

The 10-year seat replacement limit has been proposed in the EASA PAD whereas the FAA NPRM, by contrast, does not specify the replacement limit as long as the seat is successfully shown to be compliant with their AD. “Unequal playing field” is being created and it will result in not only huge unexpected cost impacts on the airlines/operators but also worldwide difficulties in future airplane transfers and resale.

(2) Applicability

The EASA PAD is to be applied to the airplanes equipped with passenger seats manufactured by Koito Industries, Ltd. (Koito hereafter) whereas the FAA NPRM is, by contrast, to be applied to the passenger seats manufactured by Koito. To avoid aforementioned unexpected burdens on the airlines/operators, JAL requests both the EASA and the FAA to establish a unified applicability. Furthermore, JAL would like to request the EASA to explain rationale(s) behind the determination of affected airplane models since some models (e.g. Airbus A380 series, Boeing 727 series, Douglas DC-10 series) have not been addressed in the “Applicability” section of the PAD.

JCAB Phase 1 and 2 Test Data

In the presentation made by the Japan Civil Aviation Bureau (JCAB) in the Singapore meeting, they asserted validity of the data derived from a series of tests (Phase 1 and 2) under the 100% oversight of the JCAB by using new seats produced by Koito per the production drawings, and they concluded that all tests data could be used for showing compliance with the ADs. Furthermore it was also addressed that the data could alleviate burdens on airlines/operators. We believe, first of all, EASA, FAA, JCAB, Airbus and Boeing should meet together and evaluate all the data derived from the JCAB Phase 1 and 2 testing as well as the compliance schedule prior to the final rulemaking.

Responsibilities

(1) It is seen that the EASA PAD requires airlines/operators to be responsible for undertaking compliance determination for the regulatory authorities. Since the EASA PAD does not specify any clear guidance information or work instructions (e.g. Service Bulletins) for showing compliance, airlines/operators are compelled to seek means of compliance and to justify them without any technical/certification data of Koito seats.

We believe that compliance determination should be roles of the regulatory authorities. Furthermore, airlines/operators do not normally conduct any tests for the seats by themselves as they do not have expertise, facilities, capabilities, resources, or authorization. Therefore, the AD should include clear guidance information on means of compliance, work instructions and requirements for facilities to conduct the tests.

(2) It is also seen that the EASA expects airplane manufacturers (Airbus and Boeing) would take the leadership roles in showing compliance with the AD by working with the airlines/operators. However, there is little guidance on their roles included in the PAD.

Since the airlines/operators cannot accomplish their tasks without technical supports from the airplane manufacturers especially in case a seat family extends between operators and between the manufacturers, JAL requests the EASA to clearly define the airplane manufacturers' roles. Furthermore, if the EASA expects Koito to take any roles, we believe that they should also be specified in the AD.

Compliance Time

JAL strongly requests the EASA to reconsider the proposed compliance time. Currently the EASA PAD requires determination of compliance or removal of the noncompliant seats be accomplished within 2 years after the effective date of the ADs. However, JAL considers that 2-year compliance time is unrealistic and unachievable for the following reasons;

(1) In recent special seat procurement boom due to Koito issues in aviation industry, it may be difficult to outsource expertise, facilities and resources for determination of compliance.

(2) In case the seats need to be replaced, it is almost impossible to acquire the replacement seats after noncompliance is found since 18 – 24 months lead time is generally required for developing the new seats.

(3) In addition to (2) above, a period for replacing the seats should also be considered. Accordingly JAL requests the EASA to extend the compliance time. In addition, JAL would also like to request the EASA to consider revising the commencement date of compliance time of required action(s) in case of noncompliance from “the effective date of the AD” to “the date when the noncompliance is determined.”

Selection of Test Articles

(1) Method for Selection of Test Articles

The EASA PAD does not specify the requirements and method for selecting test article(s) to be used for each compliance determination. JAL requests the EASA to clearly specify the method and its rationale(s) in the AD.

(2) Use of Newly Produced Seats

It is required by the EASA PAD to use the seats in service for testing and use of newly produced seats are not allowed since the seats in service might not conform to their production drawings. However, JAL believes that use of newly produced seats for the testing should be accepted since the JCAB confirmed in their presentation in the Singapore meeting that results of the tear-down inspection had indicated no significant differences which may impact the testing by using the seats that conformed to the production drawings. Furthermore conformity determination of each seat for testing cannot be accomplished since condition of each seat in service should be different one by one.

Accordingly JAL requests the EASA to accept the dynamic/static testing on the seats that were produced in accordance with the production drawings.

In case it is not allowed to use the newly produced seats for testing, it is expected that airlines/operators need to remove the seats from their airplanes since quantities and varieties of the seats in their inventories are extremely limited. However, to maintain operation by the airplanes, seats to fill-in gaps left by seats removed for testing are necessary since removal of the seats results in change in the interior configuration that requires new approval, or “airplanes on ground.” Accordingly JAL requests

the EASA to accept use of the newly produced seats to fill-in gaps left by seats removed for testing in case it is not allowed to use the newly produced seats for testing.

Compliance Determination – General

Here again JAL requests the EASA to include clear guidance information on means of compliance and/or work instructions. Furthermore JAL requests the EASA to reconsider and define dispositions when the seats fail to show compliance with the regulatory requirements in the “first” test but it could be considered little impact on “the safety of passenger seats” since conditions of the seats may vary. Accordingly JAL requests the EASA to consider giving the “second chance”, such as accepting retesting, minor modification to the seats by Service Bulletins (SBs), etc., when the seats failed to show compliance in the “first” testing

Compliance Determination of Seat Cushions

JAL believes that the used cushions (cushions returned from service) should not be used for the testing campaign and newly fabricated seat cushions conformed to their original TSO design instead should be used for the following reasons;

(1) Contamination and Deterioration

Used cushions do not represent the new ones due to contamination and/or deterioration and/or compression while in service, and vary in condition. Even though if those cushions were compliant with the flammability criteria when they were manufactured, “aged” cushions may not be compliant with the criteria.

(2) Fabrication of Test Samples

Due to its complexities of constructions and natures of used materials, it may be impossible to fabricate required quantity of consistent test samples by using actual cushion (by “cut and bond” method) that can be used for testing to show compliance with the criteria specified in JAR/CS 25.853(c).

(3) Conformity of Seat Cushions

Since condition of each used cushion should be different one by one and no clear criterion for representative samples has been specified, conformity determination of each cushion for testing cannot be accomplished as mentioned above.

Compliance Determination of Sharp or Injurious Surfaces

(1) Compliance Time

Currently the EASA PAD requires determination of compliance or removal of the non-compliant seats against the sharp or injurious surfaces criteria be accomplished within 2 years after the effective date of the AD. However, since the compliance time for the dynamic testing requirements (JAR/CS 25.562) would be 6 years once the seats have passed the static testing (JAR/CS 25.561), compliance time for the sharp or injurious surfaces requirements in dynamic testing should be 6 years for consistency with the dynamic testing.

(2) Requirements and Means of Compliance

The EASA PAD does not specify the requirements and method of compliance for the sharp or injurious surfaces. Accordingly JAL requests the EASA to clarify them by specifying the applicable section(s) of the regulation(s) and/or providing clear guidance information.

Parts Installation & Replacement Components

(1) Mechanical Reclining Control Actuators

Currently it is proposed that only wear-out components and non-structural members may be manufactured and installed on the seats affected by the ADs. JAL requests the EASA to consider accepting the mechanical reclining control actuators as exemption even though they may be part of structural members for the following reasons;

(a) Mechanical reclining control actuator a kind of wear-out component replaced often in maintenance.

(b) Mechanical reclining control actuators used on Koito seats have been designed and manufactured by widely known outside suppliers and it is highly unlikely that the quality and performance of the actuators were adversely affected by falsification.

(c) Replacement of the actuators should only improve but not degrade performance of the existing seats.

EASA response:

Differences

1 See response to Comment 9.

2 See response to Comment 9. The A380 will be covered by a separate (more stringent) AD

JCAB Data

See response to Comment 6.

Responsibilities

The EASA AD cannot specify which organisation is required to complete any of the actions required, only those action necessary to return the fleet to an airworthy state. See also response to Comment 5.

Compliance Time

See response to Comment 4.

Selection

See response to Comment 6, 9, 20.

Compliance – General

See response to Comment 20.

Compliance – Seats

See response to Comment 9.

Compliance - Sharp

EASA has revised the AD to delete the requirement to remove within 2 years after the effective date of the AD, the Koito Industries seats that exhibit sharp or injurious surfaces in testing conducted to satisfy the original certification programme. However, the generation of sharp edges or injurious surfaces during the structural testing performed to comply with the AD will be considered failure criteria. Therefore test results must include full recording of any post-test sharp edges and injurious surfaces.

Parts

The intent of the PAD was to allow installation of all Koito spares as per the CMM. The text of the AD has been clarified. Also see response to Comment 15.

Commenter 23: ANA name – H. OGAWA for Katsuhiko Ogami – 17/11/2010

Comment #23

All Nippon Airways Co., Ltd. (ANA hereafter ANA) appreciates this opportunity to submit initial comments on the EASA Proposed Airworthiness Directive (PAD) 10-101, concerning Koito seats and seating systems.

General;

This AD will be issued to airline. We (airline) do not have any capability of seat design “know how”, drawing issue and the useful test facility. We have to contract the required test to the seat vendor or public test facility organization to show the compliance for the specified test in this AD. And also, we consider that the seat replacement to the other vendor’s seat from Koito seat is much difficult due to the capability of seat vendor side. This means that we will not be able to replace the seat in a few years. We can understand fully the importance of safety confirmation to Koito seat, however, we would like to ask strongly that it is described the feasible compliance period and method in the AD.

1. Term for the confirmation;

(1) ANA would like to ask the longer compliance term due to the required tests will not be able to accomplish within two years.

(2) In the case of structural failure, the required action term shall be counted from the test confirmation date.

(3) In case of the test failure, it is described the limitation of seat use, which is the two (2) years in the worst case, three (3) years for cushion, and six (6) years for structure, ANA would like to ask the feasible compliance period to do completely for the seat replacement and/or the modification by improved parts.

2. The AD requires confirmation test for all seat model individually. To confirm effectively, ANA would like to ask the use the data which was confirmed inside of seat

model family.

3. After Koito issue which is falsification of test, uncontrolled change to production data and so on, the test to confirm the safety compliance for seats was conducted under JCAB control. So, ANA would like to ask to use that they can be as an effective "safety = useful".

4. For the special exemption, in case ANA shows our seat replacement plan, for example, which ANA will replace all affected seat within ten (10) years, and/or ANA shows our airplane selling plan within 4-5 years, ANA would like to ask the exemption for this AD accomplishment

5. For the order of confirmation to the seats in service on an airplane in PAD;

(1) For airline, it is not feasible that the airplane is on the ground by removing the seats in service. And ANA does not have any spare seat based on many seat part number.

(2) ANA would like to ask that the test can be allowed to use the new produced seat which is fabricated again per Koito drawing. Or, instead of removed seat, it shall be allowed the installation on the airplane.

6. For the test of cushion;

(1) The FBL test can not be accomplished by the use of cushion which is removed from in-service seat, it is not feasible due to it can not make for the required size in the airworthiness requirement, and also no test criteria for the use of actual used cushion.

(2) It is not feasible that it can not obtain the correct result due to the material aging. So, newly product cushion per Koito drawing shall be used for test.

7. For the Conformity, to obtain the approval, how do we have to show to "what"? ANA would like to ask the detail clarification.

8. For the material change of cushion, it is described that it shall follow the FAA AC 25.562-1B. This is for the JAR/CS25.562 seat only. It is not applied for the JAR/CS 25.561 seat. ANA would like to ask the revision.

9. For the case of the airplane itself does not have 16g requirement, and 16g seat are installed per airline orientation, ANA would like to ask that the 9g confirmation test is enough.

(FAA NPRM shows that it is exempted in case of received AMOC.)

10. Regarding the parts replacement, we feel that it is a little bit differences between PAD and FAA NPRM. We would like to ask to keep the description per PAD description.

11. Modification level to meet AD;

In case of failure by the 16g Dynamic & Static and FBL test per PAD, these require the seat replacement or the complete modification for the seat assembly within two years for 16g Dynamic & Static, and three years for FBL.

Although ANA knows the complete modification is required for the no limitation use, ANA would like to request the modification could be useful to meet PAD requirement only, it is not the full complied modification. (For example, PAD/NPRM does not require the 14G, HIC, lumbar and so on.)

12. Parts replacement for Structural Member;

After AD effective, AD requires the replacement parts shall comply with AD description. For the structural member, basically the new part is obviously much more healthy than the existing using (installed on seat) one. So, it is not necessary such a description in AD for the spare (replacement) parts, including an actuator, a hydrolock and so on which are the standardized manufacturing parts.

13. Sharp edge issue or limitation for use (JAR/CS 25.562)

In case it is performed the Static test without sharp edge as the first confirmation test, it will be able to use 6 years. Then, in case it performs the 16g test, when the sharp edge was found after 16g test, it is not used due to sharp edge found. It shall be removed within 2 years. Based on the above, ANA considers the current AD description has an inconsistency. So, In case of the Static test passed, it can use 6 years, and then, allows the confirmation test of 16g within 6 years, in case of failure for 16g test and/or sharp edge found

EASA response:

1 See response to Comment 4, 15.

2 Seat Clustering will be allowed, see response to Comment 5.

3 See response to Comment 6.

- 4 Compliance will be required as per the AD.**
- 5 See response to Comment 5.**
- 6 See response to Comment 9.**
- 7 For conformity of test article see response to Comment 9.**
- 8 Agreed, see response to Comment 15.**
- 9 See response to Comment 9.**
- 10 This addressed to the FAA NPRM only.**
- 11 EASA disagrees, see response to Comment 20.**
- 12 See response to Comment 22.**
- 13 See response to Comment 22.**

Commenter 24: KOITO INDUSTRIES, LTD. – NORIYUKI ONO – 17/11/2010

Comment #24

1. Request for extension of the PAD consultation period

Koito Ind. respectfully submits that the development of an effective and targeted AD process should allow interested parties, including regulators, airlines, and aircraft manufacturers, adequate time to consider and comment on all aspects of the breadth, diversity, and volume of all in-service aircraft seats potentially affected, and to take fully into account the methodology and results of all testing data.

Koito Ind. is confident that its comprehensive safety testing (Phase 1 and 2), conducted under strict JCAB supervision and in cooperation with Airbus, Boeing, and JCAB-regulated airlines, will assist EASA (and the U.S. Federal Aviation Administration (“FAA”) in preparing a more targeted and effective AD, without compromising in any way the level of safety which the PAD seeks to ensure.

Once EASA and FAA have thoroughly evaluated Koito Ind.’s testing methodology, procedures, and results, are satisfied that Koito Ind.’s testing can be a reliable basis for determining the safety of in-service seats, the testing results could be widely shared among all the parties affected by the PAD. This would allow the affected parties to provide EASA with more precise and targeted comments before the AD is actually adopted. EASA itself could gain important insights from reviewing Koito Ind.’s testing methodology and testing results before issuing a final AD.

Koito Ind. therefore joins other interested parties in their request for an extension of the consultation period for at least three (3) months.

2. Use of the results of Koito Ind.’s testing under JCAB supervision

As part of the complete reorganisation of its safety processes, Koito Ind.

has undertaken considerable efforts to verify and test possibly affected seats under strict JCAB supervision, as follows:

(A) Koito Ind. Seat Testing and Validation Methodology.

The Koito Ind. testing methodology and programme was developed in close consultation with safety experts, JCAB, Airbus, Boeing, and JCAB-regulated airlines. The phasing and methodology of the testing was developed in coordination with and under the supervision and witnessing of JCAB in testing facilities significantly improved in terms of competency and accuracy.

(B) Drawing Verification

The testing included comprehensive analysis and verification of all production drawings developed by Koito Ind. Based on this review of production drawings, Koito Ind. has been able to reproduce, to the satisfaction of JCAB, duplicates of seat models originally delivered to customers. These reproduced duplicates have been used to conduct the Phase

1 and Phase 2 tests. JCAB has confirmed that Koito Ind.'s reproduction of seats provides adequate duplicates in terms of quality and safety for Phase 1 and 2 testing.

(C) Reliability and use of testing results Koito Ind. is confident that the results of its Phase 1 and 2 testing activities constitute an effective means of compliance with the requirements of the PAD.

Koito Ind. therefore respectfully requests that its testing efforts and results be effectively reflected in the final AD. This would facilitate and expedite compliance by airline operators with the AD requirements, without compromising safety.

3. Technical Clarifications

In addition to the general comments above, Koito Ind. submits the following textual or technical suggestions for clarification.

(A) Use of Newly-Produced Seats for Testing The PAD states in the Reason section that "Seats returned from service were requested for this testing campaign because new-build seats would not reproduce the production non-conformities." As noted in Cologne and Singapore by several commentators, testing used in-service seats for compliance with certification requirements is highly disruptive and burdensome and is likely to produce results impacted by the normal wear and tear associated with commercial use of the seats. From the moment they are in service, all seats suffer progressive performance, functionality, and appearance degradation. While maintenance programmes are meant to address this progressive degradation, such programmes can never guarantee identical performance to that of certified seats leaving the factory.

Therefore, Koito Ind. suggests that removing in-service seats that are currently used by airlines should not be the only way to demonstrate their airworthiness and safety. Koito Ind. proposes that the testing of reproduced duplicates of used in-service seats should also be permissible to demonstrate compliance with the AD. This inclusion would be in line with the statement of EASA representatives made during the EASA-FAA joint briefing session in Singapore on 21 October 2010. They made it clear that the PAD as currently drafted does not exclude the use of newly produced seats to test for compliance with the safety requirements listed in the PAD. JCAB stated its agreement that testing of reproduced in-service seats is appropriate.

Koito Ind. proposes that the final AD should confirm that airline removal of in-service seats is not the only way to demonstrate airworthiness and compliance, but that it is also permissible to use reproduced duplicates of in-service seats.

(B) Clarification of Amendment Level applicable to the Static Tests As to item (5) of the Required Action(s) and Compliance Time(s), the applicable amendment level for seats that are not subject to the requirements under JAR/CS 25.562 is not clear.

Koito Ind. proposes clarifying that the applicable amendment level should be the amendment level with respect to the Certification Basis of TC of the aircraft concerned. In addition, Koito Ind. proposes clarifying that, in the case where an amendment level that is newer than the TC Certification is applied on a voluntary basis, both the amendment level of the TC Certification and the amendment level applied on a voluntary basis are acceptable.

(C) Clarification of the Time Limits within which Static Testing and Dynamic Testing Must Be Conducted Koito Ind. suggests to add explicit wording to Point (4) of the PAD to allow airlines, if they so choose, to perform static testing according to JAR/CS 25.562 (b)(3)(ii) and (iii) during the first two years after the adoption of the AD, which would ensure that the seat can be used for a total of six years and then use the next four years of this six-year period to conduct dynamic testing according to JAR/CS 25.562(b)(2) and (c)(7); which would allow the seat to remain in place for a further four years. Koito Ind. understands that EASA considers this layered testing structure as an acceptable testing plan, but also understands that this clarification will confirm the flexibility available to Koito Ind.'s customers.

Koito Ind. proposes to clarify point (4) of the PAD accordingly. This could be effected by an inclusion within the text of the AD of EASA's response to FAQ # 22

(D) Seat Removal

The PAD proposes the removal of the seats as the only acceptable corrective measure for seats that would fail to meet the safety requirements. Koito Ind. submits that in many instances the replacement of a potentially defective seat part or component should be sufficient to comply with the PAD requirements.

Koito Ind. submits that this possibility should be provided for in any final AD.

(E) 10-Year Proposal

Every effort should be made to harmonise EASA's final AD with the FAA final AD. (Notice of Proposed Rulemaking: Airworthiness Directive: Koito Ind. Industries, Ltd., Seats and Seating Systems Approved Under Technical Standard Order (TSO) TSO-C39b, TSO-C39c, or TSO-C127a, 75 Fed. Reg.

58340-46 (Sept. 24, 2010).) EASA's proposed requirement for removal within 10 years of in-service seats that have passed dynamic or static strength requirements is not consistent with FAA's approach. Irrespective of the differences in the applicable regulatory frameworks, this separate rulemaking by EASA may have the indirect and inadvertent effect of placing a disproportionate burden on Airbus and European operators, without any demonstrable safety benefit, and without establishment of the necessary predicate of potential unsafe condition.

Koito Ind. proposes to consider this point in the review of the requirement to remove all in-service seats within 10 years.

4. Conclusion

Koito Ind. greatly appreciates the opportunity to provide these comments and looks forward to working closely with EASA and other affected parties as EASA deems it helpful and appropriate to develop the final AD. Thank you for your consideration.

EASA response:

1 See response to Comment 6.

2 See response to Comment 6.

3 See response to Comment 5, (B) Comment 9, (C) this is allowed for with in the current text of the AD. (D) The AD allows for the complete recertification of the Seat, see response to Comment 20. (E) See response to Comment 5.

Commenter 25: JCAB(Japan Civil Aviation Bureau) – Takayuki Sakai for Koji Tsuji – 17/11/2010

Comment #25**Comments of the JCAB on EASA PAD No.10-101****1. Basic position of the JCAB – General –**

(1) The JCAB sincerely appreciates the efforts made by EASA, in cooperation with the FAA, to propose ADs on this very difficult issue. The JCAB also highly appreciates the briefing sessions in Cologne and Singapore hosted by the EASA and the FAA, in both of which the JCAB was pleased to participate. The JCAB is of the opinion that requirements imposed by the proposed ADs are reasonable and moderate, and it supports them in general. However, at the same time, the JCAB strongly believes that it is necessary to bear in mind that, because it is the operators which have primary responsibilities for showing compliance with ADs, the burdens on the affected operators, which are not expected to have in depth technical knowledge about certification of seats or seating systems, should be minimized.

(2) In addition, the JCAB would like to point out that there are some differences between the proposed ADs by FAA and EASA, while both ADs cover almost the same fleet. While the JCAB understands that full harmonization would be very difficult under the different legislative systems, further harmonization efforts may be made, so as to avoid possible confusions among authorities and operators of the countries and regions outside of Europe and the US.

(3) For the affected operators, it is also extremely important to have technical support from the aircraft manufacturer, because the process involves technical analysis which requires in-depth knowledge and experiences in certification of seats or seating systems.

(4) The JCAB, as a state of design and production of most of Koito seats, has been energetically engaged in various activities since it became aware of the issues. The JCAB is in the best position to understand the details of the issues and situations within Koito Industries, and has been committed to make every effort to resolve the issues in the smoothest manner. One of such efforts is to advise and supervise Koito Industries to conduct re-testing of in-service seat models, ensuring that the realities of in-service seats can be accurately reflected. As a result, the JCAB is convinced that, technically speaking, the result of the re-testing may be fully utilized to show compliance with the requirements of the proposed ADs.

(5) Regarding a question that if the JCAB intends to issue its own AD(s) as the state of design and production, it has been the intention of the JCAB that EASA and the FAA are in a better position to make fleet-wide risk analysis and to come up with possible fleet-wide actions. Therefore, currently, the JCAB does not have any plan to issue its own AD(s) based on the assumption that more harmonization can be made between proposed ADs by EASA and the FAA, and that burdens on the affected operators to show compliance with the requirements of ADs can be minimized. The JCAB intends to watch the rulemaking process relevant to the proposed ADs and take appropriate actions as necessary.

2. Means of Showing Compliance with the proposed ADs

(1) As expressed in the briefing sessions in Cologne and Singapore and as mentioned above, the JCAB firmly believes that the result of the re-testing of in-service seat models by Koito Industries is acceptable and should be fully utilized by the affected operators in showing compliance with the requirements of the proposed ADs. (See attached presentation material used by the JCAB at the briefing session in Singapore)

Therefore, the sentence “This is the only case where Koito Industries documentation may be considered acceptable.” in “Note2” of “Required Action(s) and Compliance Time(s)” of EASA PAD shall be deleted.

(2) Without the data derived from the re-testing by Koito Industries, the affected operators would face following difficulties.

a) Operators may have technical difficulties since many of them do not have any knowledge or experiences in the certification of aircraft seats.

b) Because there are very limited number of facilities which can deal with re-testing of in-service seat models, it will be very difficult to complete all necessary re-testing by all operators within two (2) years.

c) It is not a common practice for airlines to have spare seats for all models of seat they use. In other words, it may be necessary for the affected operators to remove in-service seats from their aircraft, if Koito re-testing data is not acceptable. This causes serious problems, which include following.

i) One is that the affected operator may need to ground the aircraft from which seats are removed for re-testing. If the affected operator wishes to continue flying, it has to follow, at least, following process:

☐ Decide how to re-configure seating arrangements after removing certain portion of seats for testing. This would include re-arrangements of IFEs and PSUs.

☐ Obtain design approvals for the new seating configuration after the removal of seats.

☐ Make necessary adjustments to operator's reservation system, so that it can accommodate the aircraft with the special seating arrangements.

ii) The other is that use of in-service sets for re-testing is not technically fair, since Part 25 requirements cited in the proposed ADs are for newly produced test articles. The performance of used seats is degraded and cannot be at the same level as newly produced test articles. For examples, covers of seat cushions may have been worn and movable parts in reclining mechanism of seats also may have been worn or degraded while the seats in question have been used. This could mean that, even if the result of re-testing using in-service seats is not good, it may not be necessarily attributed to the flaws in seats design or manufacturing.

iii) Even if the test results are good, there may be no seats to re-install on the aircraft, from which the tested seats were removed, because, after the testing, the seats may not be as they were.

(3) There is another possibility of utilizing data retained by Koito Industries. It was revealed that raw data of the certification tests conducted in the past, mainly dynamic test, are stored in computers of Koito Industries. Because those data are believed to be not falsified, those data, with technical analysis, may also be utilized to show compliance with the requirements of the ADs, if certain conditions are met.

3. Applicability Provisions

(1) Definition of aircraft that the ADs are applicable is different in proposals by FAA and EASA. While the coverage is almost the same, further harmonization in this respect is necessary based on the status of Koito seats, so as to avoid confusions among authorities and operators of countries and regions outside of Europe and the US. The status of seat models delivered by Koito industries are as follows (See attached table for individual models) ;

(2) Koito Industries has delivered 185 models of aircraft seats in total, among which 22 models are approved under TSO-C39a, 45 models are approved under TSO-C39b, 15 models are approved under TSO-C39c, 15 models are approved under TSO-C127, 51 models are approved under TSO-C127a and 37 models do not have TSO approvals.

Note1: Among those models TSO with approvals, some models were initially approved under aircraft Type Certification only and delivered without TSO approval. Later, applications for TSO approvals for those seats were submitted and TSO approvals were provided. This suggests the possibility that there may be seats with TSO and without TSO within the same model of seats in the same fleet.

Note 2: Non-TSO seat models includes, those approved under aircraft Type Certification (Airbus aircraft) and those approved by the JCAB for the Japanese operators.

a) In addition to Boeing and Airbus airplanes, aircraft seats were delivered by Koito Industries for the installation on Mitsubishi YS-11 and Fokker F27 airplanes.

b) 11 models of Koito Seat have seat cushions provided by other TSO holder (TSO-C72c).

(3) According to the conclusions of the investigation conducted by Koito Manufacturing, a parent company of Koito Industries, the fraudulent activities by Koito Industries started in mid-80s. This matches the result of the investigation of the JCAB, and therefore, it is believed that those seats designed and manufactured before mid-80s were properly certified and need not be the subject of ADs.

(4) Seat model ARS-846 is for the installation on A380 airplane operated by an airline of the third country. It should be noted that proposed FAA AD is applicable to this model, while EASA PAD is not applicable to A380. Therefore, further harmonization is necessary in this respect. ARS-846 for A380 had been delivered initially under aircraft TC and without TSO, and thereafter TSO approval was provided. (See Note 1 of 3 (1) a) above.) In addition, it was reported that ARS-846 does not meet HIC requirements in 25.562(c)(5) and some of its parts do not meet flammability requirements in 25.853, which means, according to the proposed EASA AD, the seats shall be removed from services within 10 years after the effective date of the AD.

(5) There is no reason to re-test seat cushions with TSO-C72c approval provided by the other TSO holder and installed on some of Koito seat models. (See 3 (1) c) above.) This should be clearly stated in the text of ADs.

4. Required Actions

(1) As to static and dynamic tests, if ADs are applicable to seats with TSO- C39a or C127 approvals (See 3 (4) above.), is it correct to understand that re-tests can be conducted in accordance with the certification basis of airplanes/ seats?

Major differences are;

For older airplanes/ seats, side load requirement in static tests is 1.5g, while newer requirement is 3g/ 4g.

For TSO-C127, there is no requirement for -2g pulse shape, which was introduced in TSO-127a.

(2) As to FBL, if ADs are applicable to seats with TSO- C39a approvals, is it correct to understand that FBL test is not necessary for them, because FBL requirements were first introduced in TSO-C39b?

(3) If the answer to the question in 4 (1) and (2) above is yes, it is advisable to mention them in the text of ADs to avoid misunderstanding.

(4) Because it is necessary to conduct number of tests to show compliance with single requirement of TSO, such as static forward load, static side load and dynamic

forward load, more clarifications are sought on how requirements of ADs can be met, so as to make the process more efficient and effective. It is necessary to have a kind of guidance on how the number of testing may be minimized.

(5) While there is no clear provisions in the proposed ADs, according to the presentation provided by the FAA/EASA in briefing sessions, it was expressed that, if the operators chose to correct non-compliance found in the AD processes, the seats in question have to be modified so that they fully meet all applicable requirements, for the reason that the proposed ADs are written to require removal of non-compliant seats. While the JCAB sympathize this position of EASA and the FAA because they certainly aims at the improvement of seats safety, this sounds a bit too far. There would be Koito seats complying with the requirements of ADs while not meeting the full requirements under Part 25 and will not be required to take further actions under ADs, and there would also be seats, which failed to comply with the AD requirements and require modifications to achieve compliance with AD requirements. After the modifications, the latter seats are at the same level of safety as the former seats, and therefore, should be allowed to continue operations, without further actions. It may be argued that requiring the full compliance for the latter seats is not fair or operators of the latter seats are just too much penalized for the fault that they are not responsible for, in light of the differences between cost and time to be consumed for achieving compliance with AD requirements and full requirements. Since it is believed that ADs are to be issued to maintain acceptable level of safety on a fleet-wide basis, it may be more reasonable if operators are allowed to continue to use their seats which are modified to comply with AD requirements only, depending on their choices.

EASA response:

- 1(1) EASA is of the opinion that TC holders are able to support the Airlines to show compliance with this AD.**
- 1(2) See response to Comment 5.**
- 1(3) See response to Comment 5.**
- 1(4) See response to Comment 6.**
- 1(5) The intent of JCAB is noted.**
- 2(1) See response to Comment 6.**
- 2(2) See responses to Comment 5, 6, 9.**
- 3(1) See response to Comment 9.**
- 3(2) Noted, a/c type applicability has been amended to include all Fokker 27 series. No Mitsubishi YS-11 is registered in European country.**
- 3(3) No evidence has been provided to support this claim.**
- 3(4) See response to Comment 22.**
- 3(5) Agreed, See response to Comment 9.**
- 4(1) See response to Comment 9.**
- 4(2) This is not applicable to the EASA AD, it is dependent on the a/c type certification basis.**
- 4(4) The AD is clear on the number of tests required.**
- 4(5) EASA disagrees. See response to Comment 20.**

Commenter 26: Japan Transocean Air Co., Ltd – Kazunori Kato and Masateru Jahana – 17/11/2010

Comment #26**A. General:**

On 22nd September 2010, the European Aviation Safety Agency (EASA) has issued a notice of a proposal to issue an Airworthiness Directive (PAD) No 10-101, affecting Koito Seats installed on Airbus, Boeing and McDonnell Douglas Corporation aircraft. EASA is seeking public comments before 17/11/2010.

Based on the comments below the Japan Transocean Air Co., Ltd. (JTA hereafter) is of the opinion that the PAD in the current format; will require operators to take actions beyond their normal level of responsibility and competence; provides compliance requirements that ignores operational constraints and historical safety data; makes pessimistic assumptions on the safety justification. In addition, the PAD ignores the economic and operational burden that will be faced by air carriers of which the majority impacted operate in Asia.

Notwithstanding, be assured airlines are supportive of Airworthiness Directives providing compliance requirements are justifiable, practical, cost-effective, and take into account realistic operational timeframes. We draw to the attention of EASA that as a consequence of the problems with Koito seats aircraft have been and are grounded. More importantly to resolve this situation, air carriers have no suitable alternative pragmatic solution available, plus the situation has been compounded due to the lack of certified spares and the long lead-time of sourcing replacement seats from other seat manufacturers.

JTA acknowledges the unique problem that regulators and operators are confronted with as a result of Japanese Civil Aviation Bureau (JCAB) informing EASA and Federal Aviation Administration (FAA) of possible non-compliance issues with the Koito Seats.

At the Industry dialogue session, organised by the Boeing Company, 21st October 2010, Regent Hotel, Singapore, the FAA and EASA provided briefings on their proposed Airworthiness Directives to address Koito Seats. In addition, the JCAB presented new evidence on their compliance testing of Koito seats.

As reported by the JCAB approximately 1000 aircraft are in operation using Koito seats with about 150,000 seats affected. During the Singapore meeting, industry and regulators from the region expressed many concerns regarding the PAD justification timescales for compliance, the need for FAA, EASA and JCAB to meet, the capability and competence of operators to comply with various aspects of the EASA PAD, the lack of available spare parts and the potential for mixed standard fleets. The JTA observations on EASA PAD 10-110 are provided below as general and detailed comments.

B. General Comments:**1. Regulatory:**

As noted in our earlier comments (Dated November 9, 2010, our ref. JTA-MEZ-100036) the JTA requests that EASA extends the period of comments by a minimum of 90 days to enable EASA, FAA, JCAB and TC holders to meet and review new JCAB evidence with the objective to either halting the issuance of the AD or to discuss alternate methods of meeting EASA's safety objectives. The outcome of this discussion should modify the compliance requirements operators must demonstrate to their National Aviation Authority (NAA). Due to the unique nature of the problem a further extension may be necessary to enable parties concerned to fully understand and confirm the efforts of the JCAB.

Going forward JTA would urge EASA to provide a formal Regulatory Impact Assessment (RIA) on this rule making taking into account the global impact the PAD will have.

2. Compliance:

Within 2 years after the effective date of the PAD, specific actions are required to be taken by the air carrier. We consider that the proposed compliance time of two years to carry out testing and rectification action is inadequate as it ignores a number of constraints on the carrier to demonstrate compliance to the PAD. Furthermore, JTA considers that it is the responsibility of the JCAB and Koito Industries to first demonstrate compliance to the design and certification requirements. JTA would argue:

- a) It is the responsibility of the primary design and certificating authority the JCAB, as the competent authority, with the support of Koito Industries, in collaboration with EASA and FAA to develop a plan of action to ensure compliance of in-service Koito seats.
- b) The design and certification of passenger seats is not within the normal competence of air carriers.
- c) Agencies capable of performing the testing of in-service seating are limited and may not have sufficient resources to support the affected air carriers. Consequently delays can be expected.
- d) Testing of in-service seats requires their removal which will leave empty spaces on the aircraft. The reason for this is that in the majority of cases air carriers do not

hold in stock complete spare seats and Koito Industries is not allowed to provide replacement seats or spares.

e) Passenger seats are customised to air carrier requirements taking into account the level and type of customer service provided including in-flight entertainment systems. Seats are not interchangeable between air carriers.

f) The metallic passenger seat frame in principle remains unchanged in spite of air carrier seat customisation.

g) There is limited number of passenger seat providers. They are currently supporting new aircraft production and ongoing airline cabin upgrades. These providers do not necessarily have the resources or spare capacity to support requests from air carriers required to change their seats. Long lead-times can only be expected if air carriers look to change their seat providers

h) The PAD requires the air carrier to replace seats within the two year compliance period if they have failed the testing. In this event, based upon in-service experience, replacing passenger seats could take more than two years to be delivered. The lead-time for seats could be greater depending on the type of seats to be replaced.

i) On removing in service seats for testing purposes some regulators are of the opinion it is simple to reconfigure aircraft cabins and absorb the available space. For some authorities it would require air carriers to seek approval for a reconfiguration

j) Risk analysis has been carried out

On considering the abovementioned observations and comments it is evident that the testing and replacement of in-service seats is impractical and would impose a significant burden on carriers and unjustified additional costs. We would therefore recommend EASA increase the proposed compliance time from 2 years to 5 years. Furthermore, EASA has taken the decision to put a maximum 10 year limit for the continued service of in-service seats, even if they have successfully passed all test requirements as required by the PAD. At the meeting in Singapore, 21 October 2010, EASA and FAA informed Industry:

a) FAA does not require a maximum limit for the continued service for in-service seats once compliance has been demonstrated.

b) EASA and FAA have agreed a harmonised approach and require air carriers to carry out a certification programme on in-service seats to demonstrate that the seats and its installation comply with the appropriate certification basis (JAR/CS 25.562 or FAR 25.562). This will include static and dynamic testing.

c) Under the EASA regulatory framework it states that an “unsafe condition exists if (c) design features intended to minimise the effects of survivable accidents are not performing their intended function (ref AMC 21A.3B(b)) JTA would argue that the EASA 10 year maximum limit on continued service of in-service seats even after they have successfully passed all test requirements required under the AD is not driven by safety. FAA and EASA are harmonised on the appropriate certification basis except on this point that an “unsafe condition will remain”. JCAB has confirmed that the production of metallic parts has not

been compromised therefore structurally able to meet the certification basis. This must be reconfirmed with JCAB. No historical data supports the EASA concerns that the considered “unsafe condition” has resulted in additional fatalities due to seat failures following a major accident. The safety criterion, which is discussed later in this paper, is based upon a pessimistic formula. JTA urges for greater transparency in the EASA process and requests that the supporting risk analysis be made available to air carriers. In addition, JTA would recommend on finalising any AD proposal it be supported with a Regulatory Impact Assessment which is the norm for rule making.

The FAA and EASA must take note that this difference in approach can only result in mixed fleets depending upon which AD the NAA's follow and how they apply it. The overall consequence is an unnecessary cost burden on those air carriers required to follow the EASA AD based upon on a questionable safety basis.

3. Japan Civil Aviation Bureau (JCAB)

JCAB are the primary certification and design authority for Koito seats. At the October FAA-EASA AD Briefing held in Singapore the JCAB reported on the status of their ongoing investigation into Koito seat design and certification discrepancies Under the oversight of the JCAB, Koito has carried out extensive retesting of the impacted seat models to demonstrate that they are in compliance with certification design criteria.

As a result of these efforts the JCAB have been able to confirm:

a) All production drawings were retained by Koito and checked for conformity.

b) All design changes made to each in-service seat model have been identified, checked and analysed

c) No problems have been identified relating to the metallic parts provided by suppliers and used in the construction of Koito seats

d) All materials that were used on Koito seats have been identified

e) Tear down inspections have demonstrated that there were no significant differences.

Since the JCAB has confirmed that the production of metallic parts has not been compromised, therefore the dynamic / static tests performed on seats that were

produced in accordance with the production drawings should also be accepted.

Going forward, the JCAB has identified a plan of action to determine the compliance status of In-service seats which could satisfy certain requirements of the EASA PAD. The JTA strongly urges EASA to work with the JCAB/ TC holders / air carriers to evaluate and consider the new JCAB data to allow credit to be taken. Failure to do so would ignore the huge potential burden on air carriers the PAD would impose, requiring the removal of seats from in-service aircraft for testing, and national airworthiness authorities providing oversight. More importantly, it cannot be ignored that the evaluation and use of this crucial data could even negate the justification for issuing an AD.

4. Civil Aviation Authorities:

EASA and FAA are widely recognised by National Airworthiness Authorities as leading regulatory authorities especially in the areas of type certification and design. It is also well understood that the jurisdiction of EASA and FAA covers only those carriers operating aircraft on the register of the USA and countries within the European Union. Consequently, the provisions in the PAD are only applicable to those carriers. Nevertheless, in Asia it is common practice for the regions regulators to adopt either or both of an EASA and FAA Airworthiness Directive. However, on implementing an AD some regulators may only apply an FAA AD to the Boeing fleet and the corresponding EASA AD to the Airbus fleet. The consequence of these scenarios is that you could have mixed fleets within the region and the airline as a result of the lack of harmonisation on a common problem between an FAA and EASA AD.

JCAB as the competent certificating and design authority for Koito seats has not issued an Airworthiness Directive (AD) and the JTA understands that none are intended for the time being. As mentioned above, the JCAB has identified a plan of action to determine the design compliance status for in-service seats. If accepted by EASA and FAA it is highly likely that it would significantly alleviate the burden on operators, requiring them to preferably carry out conformity checks of their in-service seats compared to approved production drawings.

At the October FAA-EASA AD Briefing held in Singapore Regional Airworthiness Authority representatives clearing indicated that for them to provide effective oversight of their airlines impacted by the PAD they would expect comprehensive accomplishment instructions to be provided rather than the high level requirements currently proposed by the PAD.

5. Safety criteria:

JTA questions the safety criteria used by EASA to establish the compliance dates of 2, 6 and 10 years. With reference to the EASA Question and Answer summary we note that EASA has estimated the accident rate at $1.5 \cdot 10^{-7}$ / FH where seats play a significant role in reducing fatalities. In EASA's opinion, this value is considered as optimistic whereas JTA argues that the accident rate of $1.5 \cdot 10^{-7}$ / FH is not supported by available historical data and is therefore not realistic. JTA considers that the following points support this argument:

- a) Based on the Boeing statistical Summary of Commercial jet Airplane Accident (Worldwide Operations 1959 – 2009), July 2010, using the EASA accident rate assumes that all hull losses without fatalities will become hull losses with fatalities.
- b) Historical data does not support the EASA proposed accident rate as there are no reported seat failures which has resulted in increasing the number of fatalities in a major accident.
- c) During the Singapore briefing it was mentioned that the safety case takes into account the potential of seat failures resulting from high level turbulence events. No historical data supports this assumption.
- d) On considering the reported findings of the JCAB, and 16G test results stored on Koito computers, it can be concluded that even non-compliant seats still offer a high level of protection.
- e) Based on the pessimistic scenario in which the affected seats would have a reduction in performance of 10% compared to the certification requirement, there is no justification to assume this potential non-compliance will cause all hull loss accidents to result in an increase of fatalities.

JTA fully supports the AEA opinion submitted in their comments to EASA on PAD 10-101 that an estimated catastrophe rate of $0.15 \cdot 10^{-7}$ is more realistic and if used would increase the PAD compliance times to 5, 15 and 25 years. Furthermore, JTA is of the same opinion as AEA that once the JCAB has finalised its investigations on Koito seats and presented the results they will demonstrate a further reduction in risk and allow further extension of the compliance times.

Recognising that EASA is unable to automatically accept data generated under the oversight of JCAB due to the absence of a bilateral agreement this should not be considered or used as an obstacle. As leading regulators we would hope that EASA and JCAB would make every effort to meet to discuss and review JCAB findings especially as this would assure passenger confidence and safety.

6. Spare parts

Since the announcement by the JCAB of the problems associated with Koito seats, all spare parts have been deemed not approved until Koito has finalised a recertification process. Furthermore, Koito Industries is not permitted to make spares available even if it has them in stock. In addition, EASA has removed the Design Organisation Approval (DOA) for Koito Industries. As a consequence air carriers under pressure as they are unable to adequately support in-service seats. Sourcing of PMA parts is a possibility but unacceptable to EASA. In order to support the requirements of the PAD spare parts are essential. JTA would urge the JCAB on discussing the way forward to agree with FAA and EASA flexibility for air carriers to source spare parts.

C. Specific Comments

Prior to the design and certification the basis of certification for the original design is established between the regulator and manufacturer. The PAD proposes that in-service seats be tested to the latest or later requirements. JTA considers this unacceptable and requests that air carriers be only obliged to demonstrate compliance with the original type certification basis of the aircraft unless clear differences can be identified.

EASA is requested to permit air carriers to reconfigure aircraft that contain Koito seats in order to be able to be able to provide test specimens.

EASA is requested to modify the PAD to clearly indicate that a collective approach by airlines is an acceptable to responding to the requirements of the PAD. Such an approach would allow air carriers in coordination with airframe manufacturers to carry out a sampling of family/ models. The resulting data would then be considered acceptable justification for to demonstrate compliance to the PAD.

Any report would also include confirmation of seat family/ models.

Finally, be advised that the JTA fully supports and endorses the comments submitted on behalf of European carriers by the Association of European Airlines. In the event that EASA may have some questions of clarification or requests for additional information do not hesitate to contact the JTA Yours faithfully,

EASA response:

- 1 See responses to Comment 6 and 16.***
- 2 See responses to Comment 5 and 15.***
- 3 See response to Comment 6.***
- 4 See response to Comment 21.***
- 5 See response to Comment 15.***
- 6 See response to Comment 15.***
- C See response to Comment 9.***

Commenter 27: AAPA – Martin Eran Tasker – 17/11/2010 (AAPA Submission to EASA on PAD 10-101) and this revised version sent 18/11/2010 (Revised AAPA Comment on PAD 10-101).

Comment #27

The Association of Asia Pacific Airlines (AAPA) appreciates this opportunity to submit further comments on the EASA Proposed Airworthiness Directive (PAD) 10-101, concerning Koito seats and seating systems.

The AAPA is the principal trade and service organization for the leading scheduled international air carriers in the Asia Pacific region¹. Carriers in the Asia Pacific today, already carry a quarter of global passenger traffic, and 40% of global freight traffic. AAPA members' traffic represents more than 17% of the global passenger traffic and more than 30% of the global freight traffic.

First, and foremost, AAPA would like indicate it appreciates this opportunity to comment on the proposed AD and we trust our comments will be given due

consideration.

1 Royal Brunei Airlines, EVA Airways, China Airlines, Cathay Pacific Airways, Garuda Indonesia, Japan Airlines, Dragonair, Korean Air, Malaysia Airlines, All Nippon Airways, Asiana Airlines, Philippine Airlines, Singapore Airlines, Thai Airways International, Vietnam Airlines.

With 6 million passengers globally travelling safely on a daily basis it should not come as a surprise that the industry's number one priority of safety remains unchanged. Flying is undoubtedly the safest mode of travel. This is not by chance, but the result of the continuous efforts of a mature responsible aviation industry responding to lessons learnt from in-service difficulty reporting by operators or from the results of aircraft accident and incident investigations.

A. General:

On 22nd September 2010, the European Aviation Safety Agency (EASA) has issued a notice of a proposal to issue an Airworthiness Directive (PAD) No 10-101, affecting Koito Seats installed on Airbus, Boeing and McDonnell Douglas Corporation aircraft. EASA is seeking public comments before 17/11/2010.

Based on the comments below the AAPA is of the opinion that the PAD in the current format; will require operators to take actions beyond their normal level of responsibility and competence; provides compliance requirements that ignores operational constraints and historical safety data; makes pessimistic assumptions on the safety justification. In addition, the PAD ignores the economic and operational burden that will be faced by air carriers of which the majority impacted operate in Asia. Notwithstanding, be assured air carriers recognise the importance of Airworthiness Directives and are supportive providing compliance requirements are justifiable, practical, cost-effective, and take into account realistic operational timeframes.

We draw to the attention of EASA that as a consequence of the problems with Koito seats, aircraft have been and are grounded. More importantly it must be acknowledged that to resolve this situation, air carriers have no suitable alternative pragmatic solution available, the situation has been compounded due to the lack of certified spares and the long lead-time of sourcing replacement seats from other seat manufacturers is not possible to meet the compliance times the PAD proposes. AAPA acknowledges the unique problem that regulators and operators are confronted with as a result of JCAB informing EASA and FAA of possible non-compliance issues with the Koito Seats.

At the Industry dialogue session, organised by the Boeing Company, 21st October 2010, Regent Hotel, Singapore, the FAA and EASA provided briefings on their proposed Airworthiness Directives to address Koito Seats. In addition, the JCAB presented new evidence on their compliance testing of Koito seats.

As reported by the Japanese Civil Aviation Bureau (JCAB) approximately 1000 aircraft are in operation using Koito seats with about 150,000 seats affected.

During the Singapore meeting, industry and regulators from the Asia Pacific region expressed many concerns regarding the PAD justification and timescales for compliance, the need for FAA, EASA and JCAB to meet, the capability and competence of operators to comply with various aspects of the EASA PAD, the lack of available spare parts and the potential for mixed standard fleets.

The AAPA observations on EASA PAD 10-101 are provided below as general and detailed comments.

B. General Comments:

1. Regulatory:

As noted in our earlier comments (Dated 29 October, our ref. TD/E/2332/MET) the AAPA requests that EASA extends the period of comments by a minimum of 90 days to enable EASA, FAA, JCAB and TC holders to meet and review new JCAB evidence with the objective to either halting the issuance of the AD or to discuss alternate methods of meeting EASA's safety objectives. The outcome of this discussion should modify the compliance requirements operators must demonstrate to their National Aviation Authority (NAA). Due to the unique nature of the problem a further extension may be necessary to enable parties concerned to fully understand and confirm the efforts of the JCAB.

Going forward AAPA would urge EASA to provide a formal Regulatory Impact Assessment (RIA) on this rulemaking taking into account the global impact the PAD will have.

2. Compliance:

Within 2 years after the effective date of the PAD, specific actions are required to be taken by the air carriers. We consider that the proposed compliance time of two years to carry out testing and rectification action is inadequate, as it ignores a number of constraints on the carrier to demonstrate compliance to the PAD. Furthermore, AAPA considers that it is the responsibility of the JCAB and Koito Industries to first demonstrate compliance to the design and certification requirements. AAPA would argue:

a) It is the responsibility of the primary design and certificating authority the JCAB, as the competent authority, with the support of Koito Industries, in collaboration with EASA and FAA to develop a plan of action to ensure compliance of in-service Koito seats.

- b) The design and certification of passenger seats is not within the normal competence of air carriers.
- c) Agencies capable of performing the testing of in-service seating are limited and may not have sufficient resources to support the affected air carriers. Consequently delays can be expected.
- d) Testing of in-service seats requires their removal which will leave empty spaces on the aircraft. The reason for this is that in the majority of cases air carriers do not hold in stock complete spare seats and Koito Industries is not allowed to provide replacement seats or spares.
- e) Passenger seats are customised to air carrier requirements taking into account the level and type of customer service provided including in-flight entertainment systems. Seats are not interchangeable between air carriers.
- f) The metallic passenger seat frame in principle remains unchanged in spite of air carrier seat customisation.
- g) There is limited number of passenger seat providers. They are currently supporting new aircraft production and ongoing airline cabin upgrades. These providers do not necessarily have the resources or spare capacity to support requests from air carriers required to change their seats. Long lead-times can only be expected if air carriers look to change their seat providers
- h) The PAD requires the air carrier to replace seats within the two year compliance period if they have failed the testing. In this event, based upon in-service experience, replacing passenger seats could take more than two years to be delivered. The lead-time for seats could be greater depending on the type of seats to be replaced.
- i) On removing in service seats for testing purposes some regulators are of the opinion it is simple to reconfigure aircraft cabins and absorb the available space. For some authorities it would require air carriers to seek approval for a reconfiguration which may not be permitted.
- j) Risk analysis has been carried out

On considering the abovementioned observations and comments it is evident that the testing and replacement of in-service seats is impractical, it would impose a significant burden on carriers and unjustified additional costs. We would therefore recommend EASA increase the proposed compliance time from 2 years to 5 years. Furthermore, EASA has taken the decision to put a maximum 10 year limit for the continued service of in-service seats, even if they have successfully passed all test requirements as required by the PAD. At the meeting in Singapore, 21 October 2010, EASA and FAA informed Industry:

- a) FAA does not require a maximum limit for the continued service for in-service seats once compliance has been demonstrated.
- b) EASA and FAA have agreed a harmonised approach and require air carriers to carry out a certification programme on in-service seats to demonstrate that the seats and its installation comply with the appropriate certification basis (JAR/CS 25.562 or FAR 25.562). This will include static and dynamic testing.
- c) Under the EASA regulatory framework it states that an “unsafe condition exists if (c) design features intended to minimise the effects of survivable accidents are not performing their intended function (ref AMC 21A.3B(b))

AAPA would argue that the EASA 10 year maximum limit on continued service of in-service seats even after they have successfully passed all test requirements required under the AD is not driven by safety. FAA and EASA are harmonised on the appropriate basis of certification except on this point that an “unsafe condition will remain”. JCAB has confirmed that the production of metallic parts has not been compromised therefore structurally able to meet the basis of certification. This must be reconfirmed with JCAB. No historical data supports the EASA concerns that the considered “unsafe condition” has resulted in additional fatalities due to seat failures following a major accident. The safety criterion, which is discussed later in this paper, is based upon a pessimistic formula. AAPA urges for greater transparency in the EASA process, and requests that the supporting risk analysis be made available to air carriers. In addition, AAPA would recommend on finalising any AD proposal it be supported with a Regulatory Impact Assessment which is the norm for rulemaking.

The FAA and EASA must take note that this difference in approach can only result in mixed fleets depending upon which AD the NAA’s follow and how they apply it. The overall consequence is an unjustified cost burden on those air carriers required to follow the EASA AD based upon a questionable safety basis.

3. Japan Civil Aviation Bureau (JCAB)

JCAB are the primary certification and design authority for Koito seats. At the October FAA-EASA AD Briefing held in Singapore the JCAB reported on the status of their ongoing investigation into Koito seat design and certification discrepancies

Under the oversight of the JCAB, Koito has carried out extensive retesting of the impacted seat models to demonstrate that they are in compliance with certification design criteria.

As a result of these efforts the JCAB have been able to confirm:

- a) All production drawings were retained by Koito and checked for conformity.

- b) All design changes made to each in-service seat model have been identified, checked and analysed
- c) No problems have been identified relating to the metallic parts provided by suppliers and used in the construction of Koito seats
- d) All materials that were used on Koito seats have been identified
- e) Tear down inspections have demonstrated that there were no significant differences.

Since the JCAB has confirmed that the production of metallic parts has not been compromised, therefore the dynamic / static tests performed on production seats were in accordance with the production drawings should also be accepted.

Going forward, the JCAB has identified a plan of action to determine the compliance status of in-service seats which could satisfy certain requirements of the EASA PAD.

The AAPA strongly urges EASA to work with the JCAB/ TC holders / air carriers to evaluate and consider the new JCAB data to allow credit to be taken. Failure to do so would ignore the huge potential burden the PAD would impose on air carriers and national airworthiness authorities providing oversight. More importantly, it cannot be ignored that the evaluation and use of this crucial JCAB data could even negate the justification for issuing an AD.

4. Civil Aviation Authorities:

EASA and FAA are widely recognised by National Airworthiness Authorities as leading regulatory authorities especially in the areas of safety, type certification and design. It is also well understood that the jurisdiction of EASA and FAA covers only those air carriers operating aircraft on the register of the USA and countries within the European Union. Consequently, the provisions in the PAD are only applicable to EU registered air carriers. Nevertheless, in Asia it is common practice for the regions regulators to adopt either EASA or FAA Airworthiness Directive or on occasion both. However, on implementing an AD, some regulators may only apply an FAA AD to the Boeing fleet and the corresponding EASA AD to the Airbus fleet. Consequently, where there is a lack of harmonisation between the FAA and EASA the end result is a mixed standard fleet.

JCAB as the competent certifying and design authority for Koito seats has not issued an Airworthiness Directive (AD) and the AAPA understands that none are intended for the time being. As mentioned above, the JCAB has identified a plan of action to determine the design compliance status for in-service seats. If accepted by EASA and FAA it is highly likely that it would significantly alleviate the burden on operators, requiring them to preferably carry out conformity checks of their in-service seats compared to approved production drawings.

At the October FAA-EASA AD Briefing held in Singapore Regional Airworthiness Authority representatives clearing indicated that for them to provide effective oversight of their airlines impacted by the PAD they would expect comprehensive accomplishment instructions to be provided rather than the high level requirements currently proposed by the PAD.

5. Safety criteria:

AAPA questions the safety criteria used by EASA to establish the compliance dates of 2, 6 and 10 years.

With reference to the EASA Question and Answer summary we note that EASA has estimated the accident rate at $1.5 \cdot 10^{-7}$ / FH where seats play a significant role in reducing fatalities. In EASA's opinion, this value is considered as optimistic whereas AAPA argues that the accident rate of $1.5 \cdot 10^{-7}$ / FH is not supported by available historical data and is therefore not realistic. AAPA considers that the following points support this argument:

- a) Based on the Boeing statistical Summary of Commercial jet Airplane Accident (Worldwide Operations 1959 – 2009), July 2010, using the EASA accident rate assumes that all hull losses without fatalities will become hull losses with fatalities.
- b) Historical data does not support the EASA proposed accident rate as there are no reported seat failures which has resulted in increasing the number of fatalities in a major accident.
- c) During the Singapore briefing it was mentioned that the safety case takes into account the potential of seat failures resulting from high level turbulence events. No historical data supports this assumption.
- d) On considering the reported findings of the JCAB, and 16G test results stored on Koito computers, it can be concluded that even non-compliant seats still offer a high level of protection.
- e) Based on the pessimistic scenario in which the affected seats would have a reduction in performance of 10% compared to the certification requirement, there is no justification to assume this potential non-compliance will cause all hull loss accidents to result in an increase of fatalities.

AAPA fully supports the AEA opinion submitted in their comments to EASA on PAD 10-101 that an estimated catastrophe rate of $0.15 \cdot 10^{-7}$ is more realistic and if used would increase the PAD compliance times to 5, 15 and 25 years. Furthermore, AAPA is of the same opinion as AEA that once the JCAB has finalised its investigations

on Koito seats and presented the results they will demonstrate a further reduction in risk and allow further extension of the compliance times. Recognising that EASA is unable to automatically accept data generated under the oversight of JCAB due to the absence of a bilateral agreement this should not be considered or used as an obstacle. As leading regulators we would hope that EASA and JCAB would make every effort to meet to discuss and review JCAB findings especially as this would assure passenger confidence and safety.

6. Spare parts

Since the announcement by the JCAB of the problems associated with Koito seats, all spare parts have been deemed not approved until Koito has finalised a recertification process. Furthermore, Koito Industries is not permitted to make spares available even if it has them in stock. In addition, EASA has removed the Design Organisation Approval (DOA) for Koito Industries. As a consequence air carriers are under pressure as they are unable to adequately support in-service seats. Sourcing of PMA parts is a possibility but unacceptable to EASA. In order to support the requirements of the PAD, spare parts are essential. AAPA would urge the JCAB on discussing the way forward with the FAA and EASA to agree on flexibility for air carriers to source spare parts.

C. Specific Comments

Prior to the design and certification, the basis of certification for the original design is established between the regulator and manufacturer. The PAD proposes that in-service seats be tested to the latest or later requirements. AAPA considers this unacceptable and requests that air carriers be only obliged to demonstrate compliance with the original type certification basis of the aircraft unless clear differences can be identified.

EASA is requested to permit air carriers to reconfigure aircraft that contain Koito seats in order to be able to provide test specimens.

EASA is requested to modify the PAD to clearly indicate that a collective approach by airlines is an acceptable approach to responding to the requirements of the PAD. Such an approach would allow air carriers in coordination with airframe manufacturers to carry out a sampling of seat family/ models. The resulting data would then be considered as acceptable justification to demonstrate compliance to the PAD. Any report would also include confirmation of seat family/ models.

Finally, be advised that the AAPA fully supports and endorses the comments submitted on behalf of European carriers by the Association of European Airlines. In the event that EASA may have some questions of clarification or requests for additional information do not hesitate to contact the AAPA

EASA response:

While these comments were received after the comment closure date, EASA has provided comments:

- 1 See response to Comment 6 and 16.**
- 2 See response to Comment 5 and 15.**
- 3 See response to Comment 6.**
- 4 See response to Comment 21.**
- 5 See response to Comment 15.**
- 6 See response to Comment 15.**
- C See response to Comment 9.**

Commenter 28: – Kuwait Airways Corporation - Abdulwahab Al-Kandari – 28/11/2010

Comment # 28

Kuwait Airways Corporation appreciates this opportunity to submit initial comments on the EASA Proposed Airworthiness Directive (PAD) 10-101 concerning Koito seats and seating systems.

First, and foremost, Kuwait Airways would like to indicate its appreciation for this opportunity to comment on the proposed AD, but more importantly, for the unique opportunity to engage with the FM and EASA at the recent dialogue session on the AD in Singapore.

As noted by the FM and EASA representatives in attendance at the recent FMEASA AD briefing on Koito seats in Singapore on 21st October 2010, the Japanese Civil Airworthiness Bureau (JCAB) provided a briefing outlining JCAB efforts and progress with its investigation into problems relating to aircraft seats manufactured by Koito seats.

From the presentation, it was evident to all that new information and evidence on the Koito seat problem was now available, which could impact the EASA and FAA proposed ADs. From the discussion it is clear that there is a need, in the near term, for the authorities concerned with the support of Boeing and Airbus to meet and review the new evidence and determine the implications to the proposed AD.

Consequently, taking the aforementioned situation into account, Kuwait Airways Corporation would like to request for an extension of the period by 90 days in order to allow time to better understand the new JCAB data and provide comments.

On a point of clarification and with reference to the recent FAA- EASA AD briefing on Koito seats in Cologne on 14th October, we understand that it has been agreed to carry out a follow-up briefing session due to the comments raised. We would, therefore, like to know if a similar follow-up briefing session will be offered to the carriers concerned.

To conclude, the Kuwait Airways Corporation would like to reiterate its appreciation to the FAA and EASA for holding the briefing session in Singapore. We trust you will give due consideration to our request for an extension to provide comments. In the event that you require any clarification or further comments, we are willing and prepared to respond.

EASA response:

While these comments were received after the comment closure date, EASA has provided comments:

See response to Comment 6,

EASA and the FAA will arrange final briefing sessions after AD issuance to help Airlines to comply with the AD requirements. The sessions can also be beneficial for those National Aviation Authorities choosing to adopt the AD.

Commenter 29: – Thai Airways International Public Company Limited - Piyasvasti Amranand – 28/11/2010

Comment # 29

On September 2010, the FAA issued a Notice of Proposed Rulemaking (NPRM) and EASA issued a Proposed Airworthiness Directive (PAD) No. 10-101, affecting Koito Seats installed on aircraft manufactured by Airbus, Boeing and McDonnell Douglas Corporation. FAA and EASA are therefore seeking public comments. The following are THAI's opinion and comments on EASA PAD 10-101 and NPRM FAA-2010-D857.

1. Compliance

1.1 Phase I: Within two years after the effective date of the AD., removal of aircraft seats not shown to be in compliance with static testing. In view of operator, two years may not be enough for testing and replacing seats that have failed the test for the following reasons:

I. There are a large number of Koito seats currently in service.

II. FAA and EASA approved test facilities do not currently exist and may not have sufficient resources to support the affected aircraft. Consequently delays can be expected.

III. There are a limited number of passenger seat providers. They are currently supporting new aircraft production and ongoing airline cabin upgrades. These providers

do not necessarily have the resources or spare capacity to support requests from operators required to change their seats. Long lead times can be expected if air operators look to change their seat providers.

IV. In case there are seats that fail the static testing, THAI will encounter difficulties in replacing them because spare seats are not available. In this circumstance, based upon in-service experience, replacement passenger seats could take more than two years to be delivered. The lead time for seats could be longer depending on the type of seats to be replaced.

V. Passenger seats are customized to requirements from operator including in-flight entertainment systems. Seats are not interchangeable between operators.

VI. When removing in service seats for testing, there will be deviations from aircraft configuration type certificate. There is no instruction from Authorities or seat manufacturers to clarify the corrective action on this issue.

Therefore, in order to minimize various problems that could occur and allow ample time to action according to the Airworthiness Directive requirements, THAI would like to extend Phase I from two to five years.

1.2 Phase 4: EASA PAD only: Seat must be shown to comply with the applicable certification basis or must be removed after ten years.

There is a difference of time limitation between EASA PAD and FAA NPRM

FAA - No service life limitations for seat 9G that are compliant with static test and seat 16G that are compliant with dynamic test.

EASA - Within 10 years, remove seats 9G that are compliant with static test and remove seats 16G that are compliant with dynamic test.

Problems may occur if aircraft are to be sold or subjected to change of registration between FAA and EASA because there are different practices to follow this AD. Therefore, there should be commonality in these directives.

2. Insufficient information on EASA PAD and FAA NPRM.

2.1 The number of sampling seats in each applicable Part Number to be selected for testing has not been defined in EASA PAD and FAA NPRM.

THAI is currently in the process of following the instruction from Aircraft manufacturers (Boeing and Airbus) which has not yet reached any conclusion and will take some time to settle. The instruction will be as follows:

Boeing: In the process of compiling data to provide guidance on which seats need to be tested and test details, there will be coordination efforts made to minimize testing where possible by pooling seat families among operators. Expect to provide this data by early 2011.

Airbus: To propose confidence test plan, which has been accepted by EASA. Operator has to provide the list of KOITO seat part number currently installed on in-service aircraft or held as spares. This will allow determination of which seat PN is the best candidate for testing.

2.2 The remedial action for both EASA PAD and FAA NPRM does not exist, when seats failed the test, the recommendation is only replacement.

3. Aviation Authorities harmonization.

Before the issuance of AD, FAA, EASA and JCAB should settle to update all data of seat testing results together in order to initiate clear and concise work instructions that minimize the possibility of incorrect directive. Further investigation report from JCAB should be utilized to support operator to decrease number of applicable seats Part Number testing to ensure seat integrity of in service seats.

At the October FAA-EASA AD Briefing held in Singapore, the JCAB reported on the status of their ongoing investigation into Koito seat design and certification discrepancies. Under the oversight of the JCAB, Koito has carried out extensive retesting of the impacted seat models to demonstrate that they are in compliance with certification design criteria. As a result of these efforts the JCAB have been able to confirm:

- a) All production drawings were retained by Koito and checked for conformity.
- b) All design changes made to each in-service seat model have been identified, checked and analyzed
- c) No problems have been identified relating to the metallic parts provided by suppliers and used in the construction of Koito seats
- d) All materials that were used on Koito seats have been identified
- e) Tear down inspections have demonstrated that there were no significant differences.

Since the JCAB has confirmed that the production of metallic parts has not been compromised, therefore the dynamic / static tests performed on seats that were produced in accordance with the production drawings should also be accepted.

Going forward, the JCAB has identified a plan of action to determine the compliance status of In-service seats which could satisfy certain requirements of the EASA

PAD and FAA NPRM.

4. Spare parts problem

JCAB does not authorize Koito to deliver the export certificate for seats including all seats accessories due to the falsification of records and drawing control issues, thus every airline faced problems of spare parts inadequacy for maintenance. Reference is made to the FAA; since FAA TSO for those seats have not been revoked thus Koito could manufacture seats and seat accessories accordingly and deliver to the operators to be spare parts. THAI would appreciate if FAA could coordinate with JCAB to clarify and reconsider authorizing export of those seats accessories as spare parts. In addition, EASA has removed the Design Organization Approval (DOA) and Production Organization Approval (POA) for Koito Industries. Sourcing of PMA parts is a possibility but unacceptable to EASA. In order to support the requirements of the PAD spare parts are essential. THAI would appreciate if EASA discuss the way forward to agree with JCAB on flexibility for operators to source spare parts.

EASA response:

While these comments were received after the comment closure date, EASA has provided comments:

1.1 See response to Comment 4, 15.

1.2 See response to Comment 5.

2.1 Only one seat of each part number is required to be tested. To further reduce the required testing, the most critical seat in a “cluster” of seat models can be tested to demonstrate compliance for the whole seat cluster. EASA has worked with TC holders to identify clusters of Koito Industries seat models, and the most critical seat p/n in each cluster. This information will be made available by separate means after the issue of the AD.

2.2 EASA disagrees, the AD requires, for seats that fail testing, either removal from service or full re-certification of the seat and modification of in-service seats.

4 The issue of the Koito POA is outside the scope of this AD.

Commenter 30: – Jordan Aircraft Maintenance Limited - Samir Majdalawieh – 07/01/2011

Comment # 30

Kindly note that one of our A320 VIP customers is willing to purchase a B/C KOITO ship set, were he already pay 50% of the amount in advance, this was during June 2010, unfortunately shortly after that, an OIT was issued stating that an EASA AD will be issued to restrict KOITO seats holders to replace the seats within 2 years after issuing an EASA AD.

Good news came were an EASA PAD no. 10-101 was issued stating that Airlines with KOITO seats can recertify their seats using proper channels, which will allow the Airlines to grasp the seats normally. The PAD stated that the final EASA AD will be issued by NOV 2010, however till this moment there are no new news and the final AD is still not issued.

Our customer is anxiously willing to get a final status of the related final EASA AD as this is a top urgent matter and **when does the EASA expect to release this AD.**

EASA response:

While these comments were received after the comment closure date, EASA has provided comments:

The AD has now been issued.

Commenter 31: – Mitsubishi Corporation International (Europe) Plc- Bruce Ansell – 01/02/2011

Comment # 31

Are you able to advise if, and when, the PAD (10-101) will be approved and issued?
Or, if there will be further discussions with the airlines regarding this.

EASA response:

While these comments were received after the comment closure date, EASA has provided comments:

The AD has now been issued. Further briefing sessions will be arranged.