

NPA 145-12 Comment Response

A total of 92 comment responses were received from 3 JAA-member National Aviation Authorities (JAA-NAAs), 3 European Industry Associations (Euro Assns), 1 National Industry Association (Nat Assn), 10 Organisations (Orgns), Central JAA (CJAA) and 1 Individual.

27 General comments were received addressing the following issues:

(1) 2 JAA-NAAs, 1 Orgn and 1 Nat Assn fully supported the NPA, while the Nat Assns made suggestions for an improved JAR 66 Appendix 1 Module 9 (Human Factors) syllabus.

Response: The proposal concerning JAR 66 is noted and will be analysed under the JAR 66 review process.

(2) 1 Euro Assn strongly recommended a phased implementation for this NPA, due to its cost impact and current industry climate.

Response: It is understood that the training element of this NPA requires a phased implementation, not only because of its cost impact, but also because it is not feasible to develop the Human Factors training programmes and train personnel at short notice. New JAR 145.3(h) includes 2 year implementation phase for the training element of this NPA.

(3) 1 Euro Assn considered the economical impact paragraph insufficient and not in compliance with the requirements of ACJ 11.065(b)

Response: ACJ 11.065(b)(1) provisions (Regulatory Impact Assessment) are not applicable until 1 January 2003. The current proposal was found compliant with current JAA Practice by the Regulation Sectorial Team.

(4) 1 Orgn, while supporting the general intent of the NPA, found it to complicated and not economical for small organisations. 1 Orgn expressed similar concerns for small organisation not working with shifts.

Response: The main cost impact concerns the implementation of a Human Factors training programme. Amendment of AMC 145.30(e)6 and Appendix 9, introducing more flexibility on human factors training (see comments (35)and (36))should attenuate the cost impact on the small organisations.

(5) 1Euro Assn fond the NPA too detailed but did not make any proposal to simplify it

Response: In the absence of detailed comment on where the text should be simplified, it is not possible to respond positively to this comment

(6) 1 Euro Assn found the NPA contains considerable repetition and, as a general comment, proposed that all Human Factors requirements reside in the regulation and guidance regarding safety policy. The same Euro Assn expressed concerns about the possible cost of implementing this NPA and urges the JAA to undertake a study of its economical impact (see also comment nr (63)).

Response: The JAA policy was that Human Factors concepts should be imbedded in the whole JAR 145, rather that gathered in a separate paragraph dealing solely with Human Factors issues. Human Factors cannot be dealt with as a separate subject in JAR 145, because they impact a number of different JAR 145 issues. As concerns the cost impact, see responses to comments nr (3), (4), (35)and (36).

(7) 1 Orgn rejected the whole NPA and proposed instead the creation of a group of Human Factors Specialists. The commentator found the project too technical, while HF is often a cultural problem.

Response: Nothing prevents a maintenance organisation to employ a group of Human Factors Specialist, but this is not seen as the solution for addressing Human Factors issue. Having among others a safety policy, a Human Factors training procedure, a safety oriented occurrence reporting system, etc, as addressed in this NPA, is believed to be far more efficient than just designating Human Factors specialists. The comment on “cultural problem” is not fully understood as this NPA addresses indeed both technical and cultural issues (training, safety policy, just culture, etc...).

(8) 1 Individual proposed to amend JAR-OPS 1 and 3 Subparts M to require Maintenance Management personnel to undergo Maintenance Human Factors training.

Response: The maintenance Human Factors working group reviewed incidents/accident records as well as the detailed functions and responsibilities of the JAR-OPS M Maintenance Management personnel and concluded that addressing Maintenance Human Factors for operators was not a priority (The purpose of this NPA was to address only the more critical issues as regards maintenance human factors).

(9) 1 Individual and 1 Euro assn suggest to amend JAR 21 to require the Type Certificate holder to take actions when JAR 145 organisations report maintenance data errors and poor design contributing to maintenance errors.

Response: The comment is accepted however JAR 21 cannot be amended through this NPA. It should however be noted that future NPA 21-34 (Handling of manuals) will be dealing with the development of manuals by Design Organisations, where comments on the interface with the users should be addressed.

(10) 1 individual suggests that the Administrative and Guidance Material be amended to require the JAA-NAA surveyors to undergo Maintenance Human Factors training in order to be in a position to adequately assess the implementation of the provisions of this NPA in the Maintenance Organisations.

Response: Administrative and Guidance Material (A&GM) Chapter 6 para 6.3.2 already requires the JAA-NAA auditing surveyor to be trained on JAR 145. Therefore training on JAR 145 will have to address Human Factors training when NPA 145-12 is published. There is no need to amend A&GM.

(11) 1 Nat assn considered the whole NPA needs further works and offered additional detailed comments to support this view.

Response: Detailed comments are individually reviewed below in relevant paragraphs.

4 comments on JAR 145.30(b) were received addressing the following issues:

(12) 1 Nat Assn agreed with the Accountable Managers responsibility for the safety and quality policy but considered clarification should be made that day-to-day tasks may be delegated.

Response: It generally understood that taking a responsibility does not mean being involved in the day to day tasks. The responsibility of other management staff is also described in similar terms in AMC 145.30(b), where clarification on the involvement in day to day task was not needed and therefore, not addressed. Text not amended.

(13) 1 JAA-NAA proposed to extend the Quality Manager responsibility to include monitoring the JAR 145.65(b) safety and quality system.

Response: JAR 145.65 does not require a “safety and quality system” but a “safety and quality policy” and a “quality system” intended to monitor compliance with the maintenance procedures therefore it is not possible to refer to such a “safety and quality system” in JAR 145.30(b). Having

said this, the comment rightly pointed out a missing link between the safety and quality policy and the monitoring system. For this reason AMC 145.65(b) is amended to state that the maintenance procedures should reflect the safety and quality policy. See also comment nr (30).

(14) 1 JAA-NAA proposed an alternate wording for this paragraph, without changing its intent.
Response: This is accepted as it clarifies the paragraph. Text amended.

(15) 1 JAA-NAA recommended that the JAR 145.30(b) safety and quality policy be reflected in the AMC 145.70(a) accountable manager's statement.
Response: this is not deemed necessary as JAR 145.70(a)(2) requires the policy to be included in the MOE and the accountable manager's statement requires compliance with the MOE. Text not amended.

3 comments on JAR 145.30 (e) were received addressing the following issues:

(16) 1 Individual proposed a more general wording of the sentence to cover all personnel within the maintenance system, but found the intent of the original text however acceptable
Response: There is no need to change the text because AMC 145.30(e) 5 clarifies anyway which category of maintenance staff precisely must receive Human Factors training. Text not amended

(17) 1 Euro Assn proposed to delete the second sentence on the grounds it should be covered by JAR 145.65(a)
Response: the incriminated sentence deals with establishing the competence of maintenance personnel as regards Maintenance Human Factors issues. Competence of personnel is clearly the subject of JAR 145.30(e) and subsequent subparagraphs, not JAR 145.65. Furthermore AMC 145.30(e)5 on Maintenance Human Factors training is hooked to this sentence. Text not amended.

(18) 1 Nat Assn proposed to replace the word "understanding" of Human Factors with "familiarisation". Subsequent comments on AMC 145.30(e) shows the commentator is concerned by the depth and amount of Human Factors training required by the AMC and Appendix 9, and inferred by the word "understanding".
Response: The word "understanding" is related to the requirement to establish the "competence" of personnel. It seems therefore more appropriate than "familiarisation". Text not amended. Comments on the depth and amount of Human factors training is addressed under comment (35).

5 comments on JAR 145.45(c) were received addressing the following issues:

(19) 1 Nat Assn proposed to delete the paragraph on the grounds this is already an industry practice to contact the Type Certificate Holder (TCH) when clarification is needed on maintenance data. Furthermore the need to build a tracking system is found unnecessary. 1 Euro Assn supported the paragraph
Response: Requiring clarifications from the author of the maintenance data is not a wide spread industry practices and numerous incidents and accidents found their origin in this problem. Furthermore requiring to keep track of the communication with the author of the maintenance data until clarification is given, should be the general practice and does not seem onerous. Text not amended.

(20) 1 Orgn proposed to clarify that the maintenance organisation cannot be held responsible for undiscovered inaccuracies in maintenance data.
Response: Agreed. Text modified

(21) 1 JAA-NAA pointed out that the author of Maintenance Data is not necessarily the Type Certificate holder and proposed to change the text accordingly. Similar comment was made on related AMC material

Response: Agreed. Text modified.

8 comments on JAR 145.47 were received addressing the following issues:

(22) 1 Euro Assn made the general comment that JAR 145.47(a) is open to widely differing interpretations but did not propose alternate text.

Response: None required

(23) 1 JAA-NAA proposed a different wording intended to avoid the use of the word “appropriate” in JAR 145.47(a), on the ground it is not precise enough. The commentator observed that in general, this word should be avoided in a requirement

Response: In reality the word “appropriate” is found frequently in JAR 145. This word is used on purpose when it is deemed that the rule should not be prescriptive. When the word “appropriate” is used in the rule, it is then generally supported by an AMC explaining its meaning in the particular context. This is the case in the present paragraph.

Finally the proposed alternate wording was found less precise than the original. Text not amended.

(24) 1 Euro Assn proposed to combine subparagraphs (a) and (b) with a view of simplification.

Responses: Subparagraph (a) deals with the planning procedure in general, while subparagraph (b) addresses human performance limitations. Each subparagraph has its own AMC expanding on the specific subjects. Therefore the current proposal is found better structured and, in fact, simpler than the proposal by the commentator. Text not amended.

(25) 1 Orgn proposed to include definitions of “production planning” and “safety related tasks” in the definition section of JAR 145, in order to avoid any chance of misinterpretation.

Response: Definitions are not included when the term are sufficiently explained by the context, which is the case here. Text not amended.

(26) 1 Orgn noted that planners do not normally organise shifts and proposed a slightly different wording for paragraph (b) reflecting this.

Response: Text is amended to reflect the above, although different wording to the one proposed has been introduced

(27) 1 Euro Assn questioned the practicality of JAR 147.47(b) but did not propose alternate text.

Response: None required

(28) 1 Euro Assn questioned the management and economic impact of JAR 145.47(c) for small organisations

Response: Text not amended as no alternative to the shift and task handover procedure has been proposed for small organisations.

(29) 1 JAA-NAA proposed to delete the word “adequately” on the ground that what is adequate is open to debate.

Response: In reality, what is “adequate” is further explained by the AMC. Text not amended.

4 comments on JAR 145.65 (a) were received addressing the following issues:

(30) 1 JAA-NAA proposed to replace “quality system” by “safety and quality system” in order to reflect the requirement for a “safety and quality” policy. The commentator proposed to make similar changes to all paragraphs dealing with the quality system

Response: This NPA amended the quality policy by introducing safety related matters like applying Human Factors principles. Hence the change to “safety and quality policy”. However the quality system requirements themselves (quality monitoring, management involvement, etc...) remain unchanged therefore there is no reason to change its name. Changing its name to “safety and quality system” would on the contrary create some confusion as one could wrongly understand that the quality system requirements were changed. Text not amended. See also comment nr (13)

1 comment on JAR 145.65(b) was received addressing the following issues:

(31) 1 JAA-NAA sought clarification about the difference and relationship between “Human Factors” and “Human Performance”.

Response: Clarification is already given by JAR 145.5, which includes both definitions. Text not amended.

1 comment on JAR 145.65(c)(1) was received addressing the following issues:

(32) 1 Euro Assn proposed that the Quality System also monitor the adequacy of the safety policy

Response: See comment nr (13)

2 comments on AMC 145.30(e)5 were received addressing the following issues:

(33) 1 Euro Assn proposed to delete the list of maintenance personnel that should receive Maintenance Human Factors training, on the grounds it is far too prescriptive.

Response: the list is found necessary as it clarifies to a large extent who is to be concerned by Maintenance Human Factors training. The JAR alone is not enough to determine who to train on Human factors. Text not amended.

(34) 1 Orgn noted that the paragraph is unclear as to whether it addresses general continuation training or Human Factors continuation training.

Response: Agreed. Text clarified

6 comments on AMC 145.30(e)6 were received addressing the following issues:

(35) 1 Euro Assn, 1 Nat Assn and 1 Orgn were concerned by the amount and depth of Human Factors training required and the possible costs incurred, particularly for the small organisations. Two commentators recommended more flexibility for adjusting the list of specific topics to be addressed by the particular organisation. One commentator insisted on reviewing the cost implications

Response: It is not possible to exempt small organisations from the need to train their personnel on Human Factors, as there is no evidence that the safety impact of Human Factors is directly related to the size of the organisation. However the text is amended to provide some flexibility in adjusting the training syllabus depending on the particular nature of the organisation. See also comment nr (63) on Appendix 9. For the cost implications see also comments (3) and (4)

(36) 1 Euro Assn finds the paragraph too prescriptive and proposed a more flexible link to Appendix 9 (HF training syllabus). The detailed guidance and examples on how to adapt the syllabus to individuals or groups of individuals depending on their function or previous employment is proposed for deletion

Response: The link to Appendix 9 is made more flexible thanks to the changes arising from comment nr (35). However the example on how to adapt the syllabus is kept because it further explains how flexible the link to Appendix 9 should be.

(37) 1 Orgn proposed that where a person recruited from another JAR 145 organisation have documented records on his previous Human Factors training, then he should not be assessed.

Response: As the content of Human factors training may vary across maintenance organisations, the fact that a person can show documented training records does not mean that the person automatically meets the new JAR 145 organisation Human Factors training standard. Text not amended

(38) 1 JAA-NAA noted that this NPA did not specify how and by whom the training should be carried out and commented that this could penalise those organisations not having their own facilities or resources to carry it out themselves.

Response: For clarify the text is amended to specify that Human Factors training may be conducted by the organisation itself, or independent trainers or any training organisation acceptable to the Authority.

2 comments on AMC 145.30(e)7 were received addressing the following issues:

(39) 1 Euro Assn suggested that the paragraphs refers to “trainers” rather than “training department”, as many small organisations do not have a training department.

Response: Agreed. Text amended.

(40) 1 JAA-NAA sought clarification on the dual purpose of Human Factors continuation training but failed to specify where the text was not clear.

Response: Text not amended

5 comments on AMC 145.47(a) were received addressing the following issues:

(41) 1 individual proposed that the production planning procedure also consider environmental conditions (access, lighting standard and cleanliness)

Response: The fact that ensuring compliance with above environmental conditions has to be planned ahead is agreed. Text amending accordingly

(42) 1 JAA-NAA proposed to replace “square meters of accommodation” by “appropriate accommodation” in order to encompass other Human Factors issues like environmental conditions.

Response: Changes arising from comment nr (41), introducing reference to environmental conditions meet the intent of this comment. Reference to “square meters of accommodation” is kept because a good planning process should ensure indeed that the required square meters of accommodation will be available for the concerned maintenance.

(43) 1 Euro Assn proposed to delete AMC 145.47(a) on the grounds it adds little value to the rule and same information is already included in the HF training syllabus

Response: The fact that the AMC would add little value to the rule is a very general statement, which was not supported by any justification from the commentator. Furthermore the comment on possible redundancy between the AMC and the Human Factors training syllabus is not understood. These are two different subjects. Text not amended

(44) 1 Nat Assn would accept the AMC with the deletion of last sentence addressing the scheduling of safety critical tasks, because all tasks may be safety critical if not performed properly.

Response: The assumption that all tasks may be safety critical in not performed properly is incorrect. Numerous incidents and accidents were caused by safety critical tasks planned during low alertness periods. Text not amended.

(45) 1 JAA-NAA commented that as regards planning, maintenance works could interfere with other works other than maintenance works and proposed to amend the text accordingly.

Response: text amended.

3 comments on IEM 145.47(b) were received addressing the following issues:

(46) 1 Euro Assn proposed to delete IEM 145.47(b) on the grounds that it adds little value to the rule and same information is already included in the HF training syllabus.

Response. This IEM is found necessary to explain the application of human performance limitation in the particular context of planning safety related tasks. Text not amended.

(47) 1Nat Assn proposed to delete the reference to circadian rhythm and explained it is not possible in practice to take them into account, especially in a large shop.

Response: On the contrary there are numerous examples of large maintenance organisations taking circadian rhythm into account when planning safety related tasks. Text not amended

(48) 1 Orgn suggested to change “planners” to “personnel”, as planners are not necessarily involved in the organisation of shifts.

Response: Agreed. Text amended.

2 comments on AMC 145.47(c) were received addressing the following issues:

(49) 1 Nat Assn proposed to remove the reference to a “place” for the changeover to take place, because of the additional cost incurred by a separate place.

Response: The text is misunderstood. It does not require an “additional” place, but only that the procedure identifies the place where the changeover is to take place.

(50) 1 Individual proposed that the rule make clear that there is a need to plan for shift handover time to permit effective handover of tasks.

Response: The need to include a planned period of shift overlap to permit effective handover of tasks is understood. Text amended

4 comments on AMC 145.65(a) were received addressing the following issues:

(51) 1 Individual proposed that the AMC make it clear that the safety and quality policy should reflect the organisations self generated safety cases, based on high level objectives.

Response: The AMC 145.65(a) text has been prepared to cater for the whole range of maintenance organisations. Defining clear safety objectives and monitoring compliance with such objectives may not be feasible for all maintenance organisations. Therefore the AMC text focuses on a list of commitments to be take in order to ensure high safety standards. The MOs will be monitored against compliance with these commitments. Text not amended.

(52) 1 Euro Assn proposed that the safety policy includes an explicit reference to “human performance limitations”.

Response: Current text already includes the application of “Human Factors principles” which, according to JAR 145.5 definition, includes proper consideration of Human Performance. Therefore the proposal is found redundant. Text not amended.

(53) 1 Nat Assn proposed to change “apply Human Factors principles” to “Maintain familiarity with Human Factors principles”, because adherence to every possible Human Factors principles is commercially impossible.

Response: “Applying Human Factors principles” is a policy statement which shows clearly the need to put Human Factors Principles into practice. “Familiarisation with Human Factors principles” is far too general as it does not show that Human Factors principles should be put into practice. Text not amended

(54) 1 Nat assn required the AMC to include a definition of “safety”, in order to for the Industry to be properly responsive to the requirement.

Response: The purpose of the paragraph is not to define what “safety” is, but to define what a “safety policy” should contain. In this respect the itemised list should allow the Industry to be responsive. It should be noted that similarly, while JAR 145 requires a Quality System, and defines it precisely, it does not include a definition of “Quality”. Text not amended

4 comments on AMC 145.65(b)4b were received addressing the following issues:

(55) 2 Euro Assns and 1 Nat Assn proposed to delete the whole text dealing with duplicate inspections, on the grounds it is too prescriptive and detailed and in essence, contrary to the principles of Quality Assurance imbedded in JAR 145.

Response: The original intent of the text dealing with duplicate inspection was to show an example of error capturing procedure, but it is true that as written, this could lead the reader to consider duplicate inspection as the preferred method. After review, the text seems clearer and more open to flexibility without the incriminated sentence. Text amended.

(56) 1 Euro Assn proposed to replace the “good human factors principles” by a reference to the “safety policy” on the ground that most NAAs use the AMC as a rule even if it is only an example.

Response: The reason for proposing the change is not understood. Furthermore a safety policy is a very general statement that does not include guidance on how to design and present technical procedures. Text not amended.

(57) CJAA noted that the reference to the JAR 145.60 “occurrence reporting system” should be changed to “reporting of unairworthy conditions”

Response: The commentator failed to note that NPA 145.12 includes NPA 145.10 on occurrence reporting, which changed the title –and content- of paragraph 145.60. Text not amended.

4 comments on AMC 145.65(b)4c were received addressing the following issues:

(58) 1 JAA-NAA, 1 Individual and 1 Orgn noted that the term “non competent personnel” is misleading and unsuitable in the context of aircraft maintenance. Furthermore, it is not related to their employment status (temporary staff, etc..). One commentator proposed the whole text for deletion, while the two others suggested to use another term than “non-competent personnel”.

Response: The text is not deleted because the absence of sigh-off was identified by the Maintenance Human Factors Working Group as a significant contribution to maintenance errors. The term “non-competent personnel” is changed to “not authorised personnel”, and the meaning of “authorised personnel” is added to the note.

(59) 1 JAA-NAA requested clarification as to who “authorised personnel” is, in order to avoid possible confusion with “certifying staff”.

Response: A new sentence is added to the note to clarify the meaning of “authorised personnel”.

2 comments on AMC 145.65(b)5-7 were received addressing the following issues:

(60) 1 Orgn. Required clarification about the difference inferred by the terms “technical procedures” and “maintenance procedures”.

Response: No difference was intended. Text amended to read “maintenance procedures”.

(61) 1 JAA-NAA proposed a simplified wording for paragraph 6

Response: Those proposed changes not affecting the intent of the paragraph are accepted. Text amended.

1 comment on Appendix 2 was received addressing the following issues:

(62) 1 Orgn suggested that the additional procedures be added at the end of the relevant section, in order to avoid unnecessary amendment work

Response: Text amended

2 comments on Appendix 9 were received addressing the following issues:

(63) 1 Euro Assn and 1 Orgn expressed concerns about the cost impact of implementing the Human factors training syllabus in small organisations and required more flexibility in its application.

Response: AMC 145.30(e)6 is amended to include a more flexible link to Appendix 9 (see also comments nr (4) and (35)).

17 miscellaneous comments were received addressing the following issues:

(64) Editorial:

- (a) 1 JAA-NAA proposed editorial corrections to AMC 145.30(d) – text amended
- (b) CJAA noted a grammatical error in AMC 145.30(e)(6) – text amended.
- (c) CJAA proposed an improved wording in AMC 145.30(e)(7), without changing the meaning. – text amended
- (d) 1 JAA-NAA proposed to replace supplementary by supplemental in AMC 145.45(d) , but first this paragraph was not affected by the NPA and second this proposal does not appear to be in line with current European use of the term.
- (e) CJAA and 1 Orgn noted a spelling error on the word “complementary” in AMC 145.47(a) – text amended
- (f) 1 Orgn noted that the reference to JAR 145.30(e) should be changed to 145.30(f) in AMC 145.65(b)2 – Text amended
- (g) CJAA observed that the word “task” is missing from the note in AMC 145.65(b)4c – text amended
- (h) to 1 JAA-NAA proposed various editorial changes to various paragraphs – Text amended except in 1 case where the proposed change modified the intent of the sentence.

(65) Other:

- (i) 1 Orgn proposed to extend the comment period until 1 May. – This was not accepted because this was the only request for this and would have resulted in a 6 months period comment instead of 3 months.
- (j) 1 Orgn proposed to extend the list of task permitted by AMC 145.30(g)(1)(3) – This was not accepted because this paragraph is not concerned by this NPA
- (k) 1 Orgn proposed to amend AMC 145.30(d)7 concerning the man-hour plan – This was not accepted because this paragraph was not amended by this NPA

- (l) 1 JAA-NAA proposed an alternate wording for JAR 145.30(c)- This was not accepted because the proposed change was not related to this NPA.
- (m) 1 JAA-NAA proposed to modify JAR 145.60(b) – This was not accepted because this paragraph was not amended by the NPA.
- (n) 1 JAA-NAA proposed to change the title of MOE paragraph 3.11- This was not accepted because the proposed change was not related to this NPA.