

DISPOSITION OF PUBLIC COMMENTS
Development of Transport Category Airplane Electrical Wiring Interconnection Systems
Instructions for Continued Airworthiness Using an Enhanced Zonal Analysis Procedure
AC 25-27A

No	Commenter	Page & Paragraph	Comment	Reason for Comment	Suggested Change	Comment Resolution
1	AIRBUS	P.4 § 2.b(1)(d)	<p><u>“(d) The ICA for airplane models with § 25.1729 in their type certification basis must be approved by the FAA. This would typically mean approval by the aircraft certification office (ACO).”</u></p> <p>a) It is not clear that ‘ICA’ refers only to ‘EWIS ICA’ b) It is not clear that FAA approval of EWIS ICAs is at the level of the Source Document (e.g. the ACO does not approve the MRBR even though it includes EWIS ICAs) c) The word ‘typically’ leads to questions concerning under what circumstances FAA ACO would not approve the EWIS ICAs</p>		<p><u>Airbus propose to reword the text as follows:</u></p> <p><u>“(d) The EWIS ICA source document for airplane models with § 25.1729 in their type certification basis must be approved by the FAA. This approval would be granted by the aircraft certification office (ACO) unless otherwise agreed by that office.”</u></p>	<p>Partially concur. Section 25.1729 states that the EWIS ICA must be approved by the FAA. Since this paragraph of the AC is discussing the requirements of that regulation and not the exact mechanism of how that approval is granted (i.e., via approval of the source document required by part 25, appendix H, paragraph H25.5(b)), it is not necessary to discuss the source document in this paragraph. The source document is discussed elsewhere in the AC. The final AC paragraph now reads:</p> <p>(d) The EWIS ICA for airplane models with § 25.1729 in their type certification basis must be approved by the FAA Aircraft Certification Office of Office of the Transport Airplane Directorate. Please note that this differs from the ICA requirements contained in § 25.1529, which requires that ICA be</p>

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						prepared that are acceptable to the Administrator.
2	AIRBUS	P.7 § 4a(3)	<p>“Protections and cautions. This AC provides guidance for developing actions and cautionary statements to be added to maintenance instructions for the protection of <u>wire</u> and wire configurations <u>other EWIS components.</u>”</p> <p><u>Airbus propose to change “wire” to read “wiring”.</u></p>	English improvement		<p>Partially concur. The term “wire” is retained as it reflects the terminology used in § 25.1701. The paragraph has been revised read as:</p> <p>(3) Protections and cautions. This AC provides guidance for developing actions and cautionary statements to be added to maintenance instructions for the protection of wire and <i>other EWIS components.</i> . . .</p>
3	AIRBUS	P.8 § 5 a. and Page A7, Appendix A - Step 8 a. inspection level	<p>The AC is intended to provide acceptable means of compliance and is not a binding norm. However, the AC mentions that the “EZAP process outlined in appendix A is to be used by type certificate holders.” In addition, “[...] the level of inspection is determined by using the rating tables of EZAP Worksheet [...]”</p>	Airbus considers that the AC provides proposed means of compliance. If the use of the examples of rating tables given in the AC is considered as a requirement, it must be mandated by the rule. Other Means of compliance can be acceptable provided that they are accurately documented.	Airbus propose to FAA to reword the text as follows: p. 8: “The EZAP process outlined in appendix A is one acceptable way that can be used by type certificate holders” Page A7, Step 8: “The proper inspection level and its interval are determined by using ratings tables, which rate characteristics of	<p>Non-concur. The FAA agrees that the guidance contained in the AC is not the only means for showing compliance with the applicable regulations. This is stated in paragraph 2.a.(3), which states:</p> <p>“The material in this AC is neither mandatory nor regulatory in nature and does not constitute a</p>

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					<p>the zone and how the EWIS is affected by, or can affect, those attributes. The type of inspection could be determined by using the rating tables of EZAP Worksheet 3A (or 3B for airplane models without a dedicated zonal inspection program), whereas the interval for performing the inspection could be determined using the rating tables of EZAP Worksheet 4.”</p>	<p>regulation. It describes acceptable means, but not the only means, for showing compliance with the applicable regulations. We will consider other methods of showing compliance that an applicant may elect to present. While these guidelines are not mandatory, they are derived from extensive FAA and industry experience in determining compliance with the relevant regulations. If, however, we become aware of circumstances that convince us that following this AC would not result in compliance with the applicable regulations, we will not be bound by the terms of this AC, and we may require additional substantiation or design changes as a basis for finding compliance.”</p> <p>Further, paragraph 2.a.(5) explains the use of the terms “shall” and “must” within the AC. This</p>

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						<p>philosophy is applied to other terminology used in the AC describing how to show compliance using the guidance contained in the AC (i.e., however, the AC mentions that the “EZAP process outlined in appendix A is to be used by type certificate holders...”). We use this type of language in the AC to convey to an applicant that if they follow the guidance contained in the AC without variation, they will be successful in showing compliance to the applicable requirements. Paragraph 2.a.(5) states:</p> <p>“Differing Requirements of §§ 25.1729 and 26.11. The requirements to develop EWIS ICA vary depending on whether the applicant is complying with part 25, subpart H, § 25.1729, or with part 26, subpart B, § 26.11.”</p> <p>No changes were made based on this comment.</p>

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4	AIRBUS	P.9 § 6	<u>The EWIS ICA can be, and almost always are, comprised of several different components. It is all of these components put together that define any particular EWIS ICA. The components of EWIS ICA can be, and often are, located in multiple documents produced by the applicant or DAH.</u>	The use of the word “component” in this context is confusing given that an EWIS is made up of components such as wiring, terminals, etc.	Airbus propose to replace the word “component” by “sets of data” in cases where it is intended to convey sets of data that together comprise the EWIS ICAs as opposed to groups of components that comprise EWIS.	Partially concur. The relevant discussion in the AC has been revised as shown in this example that adds the word “data” before the word “components.” This should eliminate possible confusion for the reader when the AC discusses EWIS ICA components and EWIS components. “The EWIS ICA can be, and almost always are, comprised of several different <i>data</i> components.”
5	Airbus	P.10	“ Note: The task procedure should describe how to accomplish the task description. For example, if the task description states to perform a stand-alone GVI of the EWIS in the zone, then the procedure should instruct the maintenance technician to inspect the EWIS within the zone. In the past, some task procedures have instructed the technician to merely inspect the “wires” or	Careful review has to take place for all the tasks, if really EWIS shall be addressed by a task or certain more specific elements.	Add the following at the very end of the note: “Nevertheless, on a case by case basis, it may be suitable not to use the term “EWIS” if really certain specific elements shall be addressed.”	Concur, the paragraph now reads as: “ Note: The task procedure should describe how to accomplish the task description. For example, if the task description states to perform a stand-alone GVI of the EWIS in the zone, then the procedure should instruct the maintenance technician to inspect the EWIS within the zone. In the past, some task

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			<p>“wiring” in the zone. Such a procedure would not be acceptable since wire is only one component of an EWIS.”</p> <p>It needs to be pointed out that for some tasks it may not be appropriate to quote “EWIS,” but e.g., a dedicated route.</p>			<p>procedures have instructed the technician to merely inspect the “wires” or “wiring” in the zone. Such a procedure would not be acceptable since wire is only one component of a EWIS. <i>A EWIS includes many components such as clamps, connectors, bundle ties, and stand-offs as defined by § 25.1701. However, in certain cases it may be acceptable for the inspection task to specify a particular EWIS component, such as a wire bundle or high current carrying cable, as being the focus of a specific inspection. For example, service history may show that on a particular airplane model, the power feeders in a specific zone should be the focus of an inspection. Therefore, specifying to perform a DET or stand-alone GVI of the power feeders and its connected EWIS instead of a DET or stand-alone GIV of the EWIS in the zone would be more effective in</i></p>

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						<i>aiding the maintenance technician to detect possible defects in the power feeder rather than instructing them to inspect all the EWIS within the zone. Such an approach should be considered on a case-by-case basis.</i>
6	Airbus	P.11 § 7	<p>“H25.5(b) requires that each EWIS ICA be easily recognizable as EWIS ICA. This means that the EWIS ICA will need to be uniquely identified as such. As an example, some DAHs place “(EZAP)” or “(EWIS)” after each task description to signify that the task is a part of the EWIS ICA.”</p> <p>Airbus understands that FAA can accept both “EZAP” or “EWIS.” This is not in line with FAA expectations, who explicitly asked Airbus to identify the EWIS tasks with “EWIS,” whereas the EZAP identifier was the first</p>	<p>Lack of consistency. FAA strongly expressed the need to identify the EWIS tasks with “EWIS” and not “EZAP.” With this new draft AC, both “EZAP” and “EWIS” are acceptable, which was not the case when Airbus initially proposed the “EZAP” identifier to FAA. Additional burden has been put on Airbus with no reason.</p> <p>Airbus has also concerns for operators who will receive EWIS ICA from different aircraft manufacturers, with different “EWIS” / “EZAP” identifiers. This will confuse the operators and</p>	Airbus strongly recommend FAA to be consistent throughout the aircraft TC holder with respect to the identification of the “EWIS” tasks, as different wording will confuse the operators, who may focus on “EWIS” identified tasks and ignore the one identified with “EZAP.”	<p>Non-concur. The FAA allows design approval holders to develop a EWIS ICA identification method that best fits their particular maintenance philosophy. Using either EWIS or EZAP to identify EWIS ICA developed using an enhanced zonal analysis process is acceptable as long as the document containing, or referencing, those ICA provide an explanation of the method used to identify them.</p> <p>The FAA has encouraged DAHs to identify the EWIS ICA with “(EWIS),” as we believe it provides an unambiguous means to identify the ICA as an</p>

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			Airbus proposal, as it was already in place and would have limited the burden.	add to their workload when they establish their EWIS maintenance program.		EWIS-related maintenance task. However, we have allowed use of other identification methods when the method is adequately explained in the EWIS source document and is used consistently by the DAH. No changes were made due to this comment.
7	Airbus	P.11 § 8.a	<u>“a. Controlling reference numbers for the individual EWIS ICA tasks as listed in the MRB report, MPD, MID, or other SD. These reference numbers can be referred to as MRB reference number, Maintenance Manual (MM)/Maintenance Planning Document (MPD) reference number, Maintenance Significant Items (MSI) reference number, task number, etc. The nomenclature and the documents called out by the reference numbers can vary among DAHs. Also, tasks may have been given more</u>	This paragraph implies that the MPD must be declared as containing EWIS ICAs if the MPD ref number is different from the MRB report ref number. This is not justified if the ICA Source Doc identifies the MRB report ref and the AMM ref. The MPD is not required by regulation and is offered by TCHs as a commercial tool. Operators are required to base their Maintenance Programs on approved documents. They are not required to use the MPD. Those who use it are aware that it is not the source of approved data. It	Delete paragraph (a).	Non-concur. The FAA would consider an MPRD reference number to be part of a EWIS ICA if that MPD reference number is included in the EWIS ICA source document (SD) required by part 25, appendix H, paragraph H25.5(b). If a DAH/applicant does not include the MPD reference number in the SD, then this number would not be considered to be part of the EWIS ICA. If on the other hand, the DAH/applicant includes this number in the SD because it is a data component that is necessary

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			<u>than one number by the manufacturer to identify them as parts of different documents. So one task, for example, may have an MPD reference number as well as an MRB report reference number. If more than one number identifies any single EWIS task, then each of those numbers must be considered part of the EWIS ICA. All numbers considered necessary to fully identify and track the EWIS ICA should be considered part of the ICA.”</u>	is normal practice to state within the MPD task that the requirement covers MRBR task xxxx. Furthermore the MPD task will be identified as ‘EWIS’. There thus seems to be no justification to require the MPD task to be identified as an EWIS ICA in the EWIS ICA Source Document.		to fully identify the EWIS ICA and ensure traceability, then the MPRD reference number would be considered part of the EWIS ICA as stated in paragraph 8.a. No changes were made due to this comment.
8	Airbus	P.12 § 8.i	<u>“i. Instructions for protections and caution information that will minimize contamination and accidental damage to EWIS. (This can appear in different places, such as in the AMM or in the SWPM/electrical standard practices manual (ESPM).) If contained in the SWPM or ESPM (or other similar document), this information will be contained in chapter</u>	The primary reason to identify Instructions for Protections and Cautions is to protect EWIS from activities performed by persons not necessarily familiar with the criticality of EWIS. These instructions will not therefore appear only in EWIS related text of AMMs, SWPMs and ESPMs. While procedures directly addressing EWIS include such instructions,	Airbus propose that while it is important to introduce P & C statements it should not be a requirement to identify each one as an EWIS ICA. Such statements may be added regularly as new maintenance practices are introduced and it is not feasible to update the Source Doc each time.	Non-concur. The FAA agrees that a DAH may wish to update/create new EWIS protection and caution information in the future. If the protection and caution information produced in compliance with part 25, appendix H, paragraph H25.5(a)(1) is updated/expanded with new information, etc., then the DAH would need to revise the source document that

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			<u>20. Sometimes this information is repeated in the standard practices chapter (chapter 20) of the AMM. In any case, it is general caution and protection information, and we do not expect that unique procedures will be developed for individual EWIS ICA for a particular airplane model or even models produced by the same manufacturer. Any protection and caution information specific to EWIS ICA must be referenced in the SD.”</u>	are referenced in TCH’s source docs and are identified as EWIS ICAs, the more important Instructions for P and C will be located throughout the TCHs documentation. Since it is impractical to label every instruction that contains a P or C to minimize metallic debris / fluid / mechanical degradation as an EWIS ICA, Airbus question the value of identifying P & C as EWIS ICA in a section where the user is already knowledgeable about the importance.		references this information. No changes were made due to this comment.
9	Airbus	P.14 §10 c	<u>“The FAA Oversight Office will approve the SD required by section H25.5(b). Approval of the SD signifies approval of the actual EWIS ICA contained either in the SD itself, or in other documents referenced in the SD. If the SD references data contained in other documents, the FAA Oversight Office must</u>	The content of the paragraph is not questioned. However, the implication of the paragraph is a concern. With this statement, FAA ACO must approve not only the specific EWIS tasks generated by EZAP application and included in ATA 20 but also the Zonal tasks where credit is taken for the adequacy of a zonal	Airbus proposes not to require specific EWIS identifiers against zonal tasks even if they are contributing to Part 26.11 / 25.1729 compliance. The FAA shall exclude this specific requirement and allow TCHs to remove EWIS identifiers already inserted for zonal tasks according to their own planning. They will	Non-concur. Airbus states that “Irrespective of whether 50% or 99% of zonal tasks are declared as EWIS ICAs, the impact is that the approval of the Zonal Section of the MRB can no longer be granted by FAA AEG alone.” This is an incorrect

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			<p><u>review that data to ensure compliance with section H25.5(a)(1) and (b). Please note that this includes all task procedures related to the tasks descriptions. This means that approval of the SD also signifies approval of any referenced data. It does not, however, necessarily signify approval of the entire referenced document. For example, EWIS ICA task procedures contained in the AMM will be considered FAA Oversight Office approved, but the entire AMM is not considered FAA approved. This is because the AMM contains maintenance data other than EWIS maintenance data.”</u></p>	<p>GVI to assure the continued airworthiness of the EWIS not subjected to dedicated tasks.</p> <p>Irrespective of whether 50% or 99% of zonal tasks are declared as EWIS ICAs, the impact is that the approval of the Zonal Section of the MRB can no longer be granted by FAA AEG alone. FAA ACO attendance in WG activities will represent a significant resource requirement that continues for the life of the aircraft.</p> <p>Furthermore, after approval, the majority of Zonal tasks will be subjected to specific ACO controls that are considered unjustified in view of the general nature of the tasks.</p>	<p>however remain EWIS ICAs until they are removed from the EWIS ICA Source Doc. This change in position is justified using the following arguments:</p> <ol style="list-style-type: none"> 1) The identifier places attention on EWIS with consequent risk that inspector pays less attention to other components / structure 2) The identifier will lead other specialist groups within the ACO to require equivalent identifiers for other subjects where some credit is taken for zonal tasks, e.g. CPCP, SFAR88, L/HIRF. 3) The objective of a Zonal GVI to be non specific will be lost, thus destroying the concept that has been proven effective within the industry for 30 years. 4) The need for ACO control over Zonal inspections is not justified since their scope will always remain the same and there is little risk that they 	<p>statement, as the roles and responsibilities of Aircraft Evaluation Group personnel remains the same as they were prior to the adoption of the EAPAS/FTS final rule. The AEG MRB chairperson still must approve the MRB report and this approval will in most cases occur prior to the ACO approving the source document. The AEG will coordinate the MRB report with the ACO in order to minimize any potential conflicts between the data contained in the MRBR and the EWIS ICA source document. The specific roles and responsibilities of AEG and ACO personnel in the review and approval of EWIS ICA will be defined in an upcoming revision to FAA Order 8110.54.</p> <p>The FAA does not concur with the statement that “FAA ACO attendance in WG activities will represent a significant resource requirement that continues</p>

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					<p>would be deleted. It is noted that the ACO does not require control over the intervals.</p>	<p>for the life of the aircraft.” The FAA has allocated sufficient resources to ensure adequate resources are allocated to support compliance findings for the EWIS ICA requirements contained in § 25.1729 and § 26.11.</p> <p>The FAA does not concur with removing the EWIS ICA identifier from zonal GVI tasks identified as an applicable and effective EWIS inspection tasks through the application of an enhanced zonal analysis process (EZAP). Part 25, appendix H, paragraph H25.5(b) requires that EWIS ICA be easily identifiable as such. Therefore, if a zonal GVI is identified through the EZAP as a necessary EWIS inspection task, it must be identified as such.</p> <p>The FAA does not agree that identifying a zonal GVI as a EWIS ICA will cause less attention to be given to other systems or structure</p>

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						<p>that are also inspected through the zonal inspection. The maintenance technician will utilize the task procedure to perform the inspection, and a zonal procedure does not specify to pay particular attention to one system over another. Adding a EWIS ICA identifier to the task, the placement of which is up to the applicant, does not alter the actual task procedure. Therefore, the objective of a Zonal GVI to be non-specific is maintained, and this effective concept used by the industry will continued to be an effective inspection technique for EWIS, other systems, and structure within a particular zone. No changes have been made due to this comment.</p>
10	Airbus	P.14 § 10 c	<p><u>“... a letter will be issued signifying approval of the EWIS ICA.”</u></p> <p><u>An indication on possible use of this letter could be</u></p>	It may facilitate the cooperation between the DAH and the operator to guarantee that the DAH’s EWIS ICA are integrated into the operator’s	<p>Add the following:</p> <p>“The DAH may communicate the approved version of the EWIS ICA (i.e. attach the FAA</p>	Concur, paragraph revised as requested.

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			<u>added.</u>	maintenance program.	approval letter to the EWIS ICA) to the operators to show that the EWIS ICA are approved (see also § 11 & 12).”	
11	Airbus	P.15 § 10 d	<u>“d. A DAH located outside of the United States should submit the required regulatory material to the FAA through that DAH’s civil aviation authority (CAA). This applies to the draft and final EWIS ICA, as well as to any necessary supporting documentation such as the EZAP for the airplane model or design change for which approval is sought. The FAA Oversight Office will coordinate with the CAA regarding review and approval of the data.”</u>	Furthermore Airbus expects that some part of the work will be covered by bi-lateral agreements between FAA and NAA in the future. Thus the FAA will validate the work done by the NAA.	<u>Add “... unless this is covered via bi-lateral agreements between FAA and DAH’s CAA” to read as follows:</u> <u>“The FAA Oversight Office will coordinate with the CAA regarding review and approval of the data, unless this is covered via bi-lateral agreements between FAA and DAH’s CAA.”</u>	Non-concur with the specific request to revise the paragraph. However, the FAA does concur that they and the CAA will utilize existing Bilateral Aviation Safety Agreements (BASA), as appropriate, when coordinating the review and approval of a non-US based DAHs EWIS ICA. The last sentence of the paragraph in question states the FAA oversight office will coordinate with the CAA regarding review and approval of the data.” This means utilizing any existing BASA when appropriate. No changes were made based on this comment.
12	Airbus	P.15 § 10 e.(1) (b)	“The DAH presents the results of the EZAP	Airbus considers that if FAA ACO insist to	Airbus strongly recommends that FAA	Non-concur. Sections 25.1529, 25.1729, and

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			<p>analysis to the Industry Steering Committee (ISC) working group (WG) assigned to review the analysis. Typically this will be the Zonal WG. FAA personnel from ACO and AEG offices will participate in the WG.”</p> <p>This is not in line with existing process, and Airbus believe that FAA ACO should concentrate on the certification activities and continue to rely on the WG that are established.</p>	<p>participate to the WG, this is only as observer, to better understand the process. However, the FAA ACO should not interfere in the Zonal activities that are well established and running through a dedicated process. The FAA ACO should concentrate on the certification part of the activities, which consist in the approval of the EWIS ICA. FAA ACO must not interfere in the Zonal WG process. If FAA ACO request to create maintenance tasks that have not been identified necessary by the process in-place, this will create additional burden to the operators with no safety benefit.</p>	<p>ACO limit their activities to the certification activities (approval of the EWIS ICA) and continue to rely on the existing Zonal Working Group.</p> <p>If FAA ACO determines that their participation is necessary, the sentence may be better worded to give them an option to withdraw at a later date.</p> <p>E.g., FAA ACO personnel may participate in the WG in addition to FAA AEG personnel.</p>	<p>26.11 are certification regulations. Thus, it is appropriate that Aviation Safety Engineers (ASE) be actively involved in all aspects of compliance determinations for these regulations.</p> <p>No changes have been made based on this comment.</p>
13	Airbus	P.15 § 10e(1)(h)	<p>“(h) The AEG MRB chairperson reviews and approves the MRB report and other relevant EWIS ICA documentation such as <u>task procedures contained in</u> the airplane maintenance</p>		<p>Airbus propose to reword as follows:</p> <p>“(h) The AEG MRB chairperson reviews and approves the MRB report and reviews the</p>	<p>Concur, revised as requested</p>

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			<p>manual (AMM), and then transmits the approved report to the DAH. This could be an iterative process if the MRB chairperson identifies any additional changes he or she believes are necessary.”</p> <p>1) The AEG MRB chairperson transmits an approval letter to the DAH, not the approved report.</p> <p>2) It is not clear how the chairperson will review and approve other EWIS ICAs such as AMM task procedures. It was previously understood that these would be approved within the EWIS ICA Source Document only by a process involving both the ACO and AEG.</p>		<p>acceptability of other relevant EWIS ICA documentation such as task procedures contained in the airplane maintenance manual (AMM), and then transmits the MRB report approval letter to the DAH. This could be an iterative process if the MRB chairperson identifies any additional changes he or she believes are necessary.”</p>	
14	Airbus	P.17 § 12 P. G-2	<p>“Guidance for air carriers and air operators on how to make changes to FAA-approved EWIS ICA is contained in EAPAS AC 120-XX, Incorporation of Electrical Wiring Interconnection System (EWIS) Instructions for</p>		<p>Change the place holder XX into EAPAS.</p>	<p>Partially concur. The AC number was assigned after we published the proposed changes to AC 25-27A. Accordingly, we have revised the reference to AC 120-99 throughout the document.</p>

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			<p><u><i>Continued Airworthiness into the Operators' Maintenance Programs.</i></u></p> <p><u>Quoting the EAPAS AC 120-XX could be misleading since it could be interpreted as the AC 120-XX "Program to Enhance Aircraft Electrical Wiring Interconnection System Maintenance", which was developed in ATSRAC and was the basis for this AC25-27. The new reference of the draft AC is 120-EAPAS.</u></p> <p>Sidenote: if the title of that AC remains the same and calls for EWIS ICA, the operator may have difficulties, if the DAH EWIS ICA have an "EZAP" identifier instead of "EWIS" identifier.</p>			
15	Airbus	P.17 § 12	<p><u>"However, if the operator wishes to change the type of task (e.g., change a DET to a stand-alone GVI), revise the inspection criteria (e.g., the currently approved</u></p>	Operators should only be required to coordinate with the FAA oversight office if they wish to reduce the work required by the EWIS ICA. If their experience	Airbus proposes to delete this paragraph from the AC. Its content should be addressed only in the new AC120 to prevent divergences in guidelines in	Non-concur. Changes other than interval escalations are required to receive FAA ACO approval. All requests will be reviewed and a decision will made

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			<p><u>task says to perform a DET inspection of the power feeders, flight control wires, and connected EWIS in the zone, and the operator wants to revise the criteria to delete the reference to flight control wires and its connected EWIS), or delete a task all together, then the operator must obtain approval from the FAA Oversight Office.”</u></p>	<p>shows that an enhanced inspection is justified (either stand-alone rather than zonal GVI or DET rather than GVI) then they must be allowed to introduce the changes immediately without ACO concurrence. Similarly with the extent / scope of the inspections.</p>	<p>AC25-27A and AC 120-EAPAS. For AC120-EAPAS, Airbus propose to reword as follows: <u>“However, if the operator wishes to reduce the work required by the EWIS ICA through either changing the type of task (e.g., change a DET to a stand-alone GVI), revising the inspection criteria (e.g., the currently approved task says to perform a DET inspection of the power feeders, flight control wires, and connected EWIS in the zone, and the operator wants to revise the criteria to delete the reference to flight control wires and its connected EWIS), or deleting a task all together, then the operator must obtain approval from the FAA Oversight Office.”</u></p>	<p>and communicated to the requestor in a timely manner. No changes were made based on this comment.</p>

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16	Airbus	P.18 § 13c(1)	<p>“Take care to protect wire bundles, and connectors, <u>and all EWIS components</u> during <u>maintenance, repairs, or</u> modification work.”</p> <p>This sentence suggests that wire bundles and connectors are not EWIS</p>		<p>Airbus propose to reword as follows:</p> <p>“Take care to protect wire bundles, and connectors, <u>and all other EWIS components</u> during <u>maintenance, repairs, or</u> modification work.”</p>	Concur, revised as requested.
17	Airbus	P.19 § 13e(1)	<p>a. (1) Solid contaminants. Solid contaminants such as the following can accumulate on wiring and <u>other EWIS components</u> and could degrade or penetrate wiring or electrical <u>other EWIS</u> components.</p> <ul style="list-style-type: none"> • Metal shavings • Swarf” <p>...”</p>	<p>Swarf is the English term for what the US refers to as metal shavings. To list them on separate lines suggests they are two different things.</p>	<p>Airbus propose to reword as follows:</p> <p>“</p> <ul style="list-style-type: none"> • Metal shavings / Swarf <p>...”</p>	Concur, revised as requested.
18	Airbus	A-2	<p>“Step 8 Select wiring inspection level and interval” Step 8 of the logic diagram has not been modified to reflect FAA concern on the word “wiring.”</p>		<p>Airbus propose to reword as follows:</p> <p>“Select inspection level and interval”</p>	Concur; Step 8 has been revised by replacing “wire” with “EWIS.”

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19	Airbus	A-2	<p>Last of 4 bullets on left side of Step 9 in logic diagram states: “Non-ZIP Airplane Tasks” The change from “Other Tasks” to “Non-ZIP Airplane Tasks” is not appropriate. 1) “Other Tasks” provides an opportunity to identify tasks such as OPC, FNC or Discard if these are assessed as applicable and effective to support EWIS condition. 2) If an airplane has no Zonal Inspections then the GVI cannot be consolidated. They thus become Standalone GVIs. There is thus no need to write Non-ZIP Airplane Tasks.</p>		Airbus proposes to keep the original text.	<p>Concur. The bullet has been revised to read as:</p> <ul style="list-style-type: none"> Any other tasks identified as applicable and effective to maintain EWIS safety
20	Airbus	A-2	Missing guidance / note	Airbus have recently received clarification from FAA that a Zonal GVI only needs to be declared as an EWIS ICA if it consolidates a GVI coming from Step 9. This means that where the Zonal GVI is considered acceptable to address EWIS	<p>Airbus would prefer that FAA remove the requirement to identify any Zonal GVIs as an EWIS ICA. (see comment against P.14 § 10 c)</p> <p>If FAA do not support this position, it is suggested that</p>	<p>Concur, the box at the “NO” exits for Boxes 3 and 7 has been revised to read as follows:</p> <p>“No further analysis is required for the zone. An inspection or restoration task</p>

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				further to a “No” answer to Step 7 it is not necessary to declare the Zonal GVI as an EWIS ICA even though there may be extensive EWIS installed.	FAA add a ”note” after the “No further action is required” box at the exit of Step 3 and 7. This could be worded as follows: ‘Where the integrity of EWIS that is neither subject to combustible material nor is in close proximity to primary and back-up flight controls is assured through a Zonal Inspection, that Zonal Inspection is not identified as an EWIS ICA.’	applicable to EWIS is not necessary for the zone.”
21	Airbus	P.8 § 5 a. Page A7, Appendix A - Step 8 a. inspection level	<p>“<u>The type of inspection is determined by using the rating tables of EZAP Worksheet 3A (or 3B for airplane models without a dedicated zonal inspection program), whereas the interval for performing the inspection is determined using the rating tables of EZAP Worksheet 4.</u>”</p> <p>In addition to the comment provided against P.8 § 5a,</p>		<p>Airbus recommends that FAA adopt the text changes proposed against P.8 § 5 a. earlier in this comments document.</p> <p>Introducing these changes avoids FAA ACO being seen to take control of (part of) a logic process that, today, provides the only methodology to develop an MRB Report that is agreed by AEGs worldwide.</p>	<p>Non-concur. Although the FAA oversight office, ACO, or office of the Transport Airplane Directorate issues the approval for the EWIS ICA, that approval is not issued until the data has been fully coordinated with the relevant AEG office.</p> <p>No changes have been made based on this comment.</p>

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			<p>it is highlighted that the original ATSRAC tasking required development of a means to enhance the maintenance programs of in-service aircraft as priority and then to determine a methodology for new aircraft. The former led to the AC120-XX proposal. The latter led to an update of MSG-3. It was never intended that the AC would provide the logic for new types. If this had been known then there would have been no point in updating MSG-3 since with the proposed new wording FAA mandates the use of logic and rating tables contained in the AC appendix.</p>		<p>It is noted that MSG-3 is not in conflict with the AC. It therefore does not need to be updated. However, if FAA proceeds with the AC 25-27A proposal, it will be necessary to cross reference the AC to highlight that, unlike the logic to determine tasks & intervals for other tasks, the FAA ACO controls the logic for EWIS task development.</p>	
22	Airbus	P. A-17	<p>EZAP Worksheets refer to “wiring”. EZAP Worksheets continue to refer to “wiring” which is not in line with the changes made in Appendix A.</p>		<p>Rather than changing all the sheets it is suggested that FAA include a statement to clarify that the use of the word “wiring” in their examples should be understood to mean “EWIS.”</p>	<p>The appendix A worksheets were updated to replace the word “wiring” with “EWIS.” However, the revised worksheets were inadvertently left out of the proposed AC revision. They have been included in the final AC.</p>

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23	Airbus	P. B-5 and P. B-7	Box 22 Box 32A The example provided is not always appropriate since a leakage of hydraulic liquid is unlikely to have been identified by the TCH as combustible. It is only a hydraulic mist that is required to be considered as combustible. If dust and lint are also present the occurrence of a fluid leak will increase adherence. The example is thus only valid if dust & lint are likely in the zone. With the current guidance, non TCH developed EWIS ICAs could be more intensive than those developed by the TCH for the same airplane.		Propose an alternative example.	Non-concur. The EZAP process has always considered that hydraulic fluid in a mist form as a combustible material. To ensure that this is well understood, the explanation to step 4 of flowchart 1 in appendix A was updated with the following statement in the draft AC: “You should consider hydraulic fluid to be combustible in a mist form even if the product specification states that it is not combustible in its liquid state.” No changes were made due to this comment.
24	Airbus	P. B-5	Box 26 It is understood that the applicant may be unaware of the Zonal Inspection Program and thus can only identify a standalone GVI. However, his statement to		Add new sentence: “Determine whether consolidation with any existing Zonal GVI would be acceptable.”	Non-concur. With the adoption of the revised AC, consolidation of stand-alone GVIs with existing zonal GVIs is not allowed. Refer to the disposition for Comment Number 39 for further discussion regarding

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			the customer and FAA should indicate whether or not the task could be consolidated with the airplane ZIP if one exists. Without this statement there is a likelihood of unnecessary standalone GVIs being generated. It is understood that FAA require the interval to be the same as the ZIP but non consolidation will still require dedicated tracking and signoff even if operator is permitted to include both tasks on the same workcard.			this topic. No changes were made due to this comment.
25	Airbus	P. B-7	Box 36 This box asks a question but there is only one line out – and this line is not identified with a “Yes” or a “No.”	Logic is incomplete and cannot be used	Correct the logic	Concur. The figure has been revised with the YES arrow going to Box 35B and the NO arrow going to Box 35A.
26	Airbus	MRB Report	It is noted that FAA understand that the official term for this document uses a capital “R” for “Report” to distinguish the approved document from any other report, memo, minutes of	Throughout the AC the text refers to “MRB report” despite the term being written (correctly) as MRB <u>R</u> eport in the Appendix C.	At the opportunity of the revision, it is recommended to remove the inconsistency and write the correct term in the text of the AC.	Partially concur. Occurrences of “MRB report” have been replaced with the acronym “MRBR.”

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			meeting that the MRB might issue.			
27	The Boeing Company, Commercial Airplanes (Boeing)	Throughout the AC	The effort to use “EWIS” rather than the general term “wiring” is only partially reflected in the draft AC.	Boeing developed an enhanced program for the maintenance of EWIS rather than just the wiring portion of the system.	Replace “wiring” with “EWIS.”	Concur, the AC text, all figures, and all worksheets have been updated to use “EWIS” instead of “wire” or “wiring” as appropriate.
28	Boeing	Page 3, para 2.a.(2)(f): <i>“(f) Good EWIS maintenance practices that can be helpful when identifying and developing EWIS maintenance tasks using an EZAP.”</i>	The term “good” is a value judgment that is unnecessary in this context.	Any viable maintenance program has undergone the scrutiny of the operator, the design approval holder (DAH), and the regulator. We can assume that any viable maintenance program is considered to be “good.”	Remove the word “good” from this section.	Concur, revised as requested.
29	Boeing	Page 4, para 2.b.(1)(d): <i>“(d) The ICA for airplane models with §25.1729 in their type certification basis must be approved by the FAA. This would typically mean approval by the aircraft certification office</i>	A finding of compliance with, or approval to, §25.1729 can only be made by the ACO	Approval by the ACO is <u>always</u> required, as compliance with §25.1729 has not been delegated.	Remove the word “typically.”	Concur, the paragraph has been revised to read as: (d) The EWIS ICA for airplane models with § 25.1729 in their type certification basis must be approved by the FAA Aircraft Certification Office

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		(ACO).”				of Office of the Transport Airplane Directorate. Please note that this differs from the ICA requirements contained in § 25.1529, which requires that ICA be prepared that are acceptable to the Administrator.
30	Boeing	Page 5, paragraph 2.d. “d. EWIS ICA Identification Requirements. Part 25, appendix H, section H25.5(b) requires that EZAP-derived EWIS ICA be uniquely identified so there is traceability during future changes to maintenance programs that contain these EWIS ICA. ...”	The term “uniquely” is undefined in this context.	Boeing agrees that instructions for continued airworthiness developed in compliance with 14 CFR §26.11 must be identified as such. However, we do not understand whether each instruction needs its own special, unique, identifier, or whether one identifier can be used for a group of compliant tasks.	Remove the term “uniquely” as it confuses rather than clarifies.	Partially concur. The FAA notes that it is not § 26.11 that requires each EWIS ICA be identified as such, but rather the requirements contained in part 25, appendix H, paragraph H25.5(b) require this identification. The paragraph has been revised as follows to be consistent with the regulatory language of H25.5(b): “d. EWIS ICA Identification Requirements. Part 25, appendix H, section H25.5(b) requires that EZAP-derived EWIS ICA <i>be easily recognizable as such</i> , so there is

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						traceability . . .”
31	Boeing	Page 6, para 4.a.(1): <i>“(1) Enhanced zonal analysis procedure (EZAP). ... For an airplane without a structured zonal inspection program, an EZAP will identify new wiring inspection tasks. Appendix A of this AC provides step by step details of the EZAP process.”</i>	The term ‘structured’ is undefined in this context.	Development of a zonal maintenance program can follow a structured or organized method, such as the ATA’s MSG-3 process, or some other process. Regardless of whether the zonal maintenance program was developed using a structured or unstructured process, its acceptability should be based on its merits.	Delete the term “structured” as it complicates rather than simplifies adherence to the intent of the AC.	Concur, revised as requested.
32	Boeing	Page 9, paragraph 5.e.: <i>“e. ... The EZAP analysis should not be ‘tweaked’ in order to make the tasks and intervals fit the existing maintenance program just for the sake of aligning tasks. ...”</i>	The term “tweaked’ is an informal term, as evidenced by the quotes that encase it in the AC.	Use of well-understood terminology such as “adjusted’ or “modified” would provide better understanding of this item.	Replaced the term “tweaked’ with “adjusted” or ‘modified.”	Concur, the word “tweaked” has been replaced with the word “adjusted.”

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33	Boeing	Page 9, paragraph 6.: <i>“6. EWIS ICA DEVELOPED USING AN EZAP. ... The EWIS ICA can be, and almost always are, comprised of several different components. It is all of these components put together that define any particular EWIS ICA. The components of EWIS ICA can be, and often are, located in multiple documents produced by the applicant or DAH. ...”</i>	Traditionally, instructions for continued airworthiness (ICA) were contained within several volumes or paper documents within a larger manual. However, changes in the industry have allowed us to offer integrated databases that differ from the traditional view of ICA.	Compliance with the rule, when couched in traditional terms, has been difficult in a number of instances. To ease compliance we suggest replacement of the traditional view of ICA with an updated view. In addition, the term “components” may be confused with “EWIS components.”	Replace the term “components” throughout paragraph 6 with the term “databases” or “data sources.”	Concur. Please refer to the comment resolution column for Comment #4.
34	Boeing	Page 10, paragraph 6: <i>“Note: The task procedure should describe how to accomplish the task description. ...”</i>	This section should be clarified by using consistent terminology.	The task description describes the maintenance task and the procedure to be used. The task procedure describes the method to be used when accomplishing the maintenance task.	Replace the term “task description” with “maintenance task.”	Concur, revised as requested.
35	Boeing	Page 13, paragraph 9.: <i>“• Task procedure(s). These are the actual instruction(s) on how to perform the GVI, DET, and restoration/cleaning tasks that support the task</i>	The information in this bullet point should be clarified.	The term “actual” is redundant and could be confusing.	Delete the term “actual” from this bullet point.	Concur, revised as requested.

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		<p><i>description listed in the SD. These will sometimes appear in a referenced document, rather than in the SD itself.</i></p>				
36	Boeing	<p>Page 15, paragraph 10.e.(1)(h):</p> <p><i>“(h) The AEG MRB chairperson reviews and approves the MRB report and other relevant EWIS ICA documentation such as task procedures contained in the airplane maintenance manual (AMM), and then transmits the approved report to the DAH. This could be an iterative process if the MRB chairperson identifies any additional changes he or she believes are necessary.”</i></p>	<p>Inclusion of the last sentence of the paragraph does not seem appropriate and could cause confusion.</p>	<p>Representatives of the AEG are involved in all aspects of the MSG-3 process, and should be representing the interests of the MRB chairperson. While the involvement of the AEG does not necessarily preclude the chairperson from altering the MRB report, the last sentence in paragraph (h) seems to encourage rather than discourage changes to the document after the Industry Steering Committee (ISC) review.</p>	<p>Revise the paragraph to encourage resolution of any potential conflicts or changes to the draft MRB document during or prior to submittal to the AEG chairperson.</p>	<p>Non-concur; the final sentence is meant to convey that prior to issuing his/her approval of the MRB Report, it may be necessary to work with the DAH in order to get the Report to a point where approval can be given. This statement reflects the reality of how the MRB Report approval process works.</p> <p>Please refer to the comment resolution for Comment #13 to see how this sentence was revised based on that comment.</p>

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37	Boeing	Page 17, paragraph 12.: <i>“12. OPERATOR CHANGES TO EWIS ICA. ... However, to summarize the guidance contained in EAPAS AC 120-XX, the operator’s principal inspector (PI) will review and approve changes to the operator’s maintenance program by applying the same criteria as he or she would in accepting other maintenance program changes with regard to escalation of task intervals. ...”</i>	This paragraph includes references to AC 120-XX, which should be updated.	Advisory Circular 120-XX refers to a draft version and no longer exists. We assume that this reference will be updated to a new AC that will be available at the time that this AC 25-27A is finalized.	Update all references to and guidance provided by AC 120-XX, as appropriate, if that AC is finalized and available.	Refer to the comment disposition for Comment #14.
38	Boeing	Page A-2, Figure 1, Enhanced Zonal Analysis Procedure	A positive answer in Step 4 leads you to Step 5. A negative reply leads to Step 7. The “or- “logic does not require you to address Step 7 if providing a positive reply in Step 4. Boeing’s experience has been that both Step 5 <u>and</u> Step 7 needed to be addressed.	Boeing experience has shown that both Step 5 and Step 7 have needed to be addressed after Step 4. An “and- “logic rather than an “or- “logic was applied that differed from the guidance provided in the AC.	Update the figure to reflect the “and- “logic requirement.	Non-concur. A DAH may choose to answer the question in Step 7 even if the answer to the Step 4 question is negative. However, if a negative answer to Step 4 is given, the analyst moves onto Step 5, and at that point a EWIS inspection task will be generated via Step 8. The theory is that the question in Step 7 does not need to be answered since an

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						<p>inspection task will be identified for the zone and, if EWIS is in close proximity to both primary and back-up flight control systems, the analyst will take this into account when selecting the applicable and effective inspection level (i.e., zonal, stand-alone, or DET inspection).</p> <p>No changes were made due to this comment.</p>
39	Boeing	Page A-2, Figure 1, Enhanced Zonal Analysis Procedure	Step 9 recommends consolidation with existing inspection tasks.	Boeing experience has shown that, except for fuel tank systems, consolidation was neither encouraged nor allowed. In fact, the text guidance provided for Step 9 is being deleted in this revision.	Provide clarification as to when consolidation of maintenance tasks is permitted and when it is limited.	<p>Concur. The following note has been added to the explanatory text for step 9 in appendix A:</p> <p>“In the past there has been some confusion about utilizing existing Zonal GVIs in lieu of EZAP-identified stand-alone GVIs. However, a zonal GVI does not satisfy the intent of a stand-alone GVI. Although on the surface it may appear that the zonal GVI would accomplish the same inspection of the EWIS within a zone that a</p>

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						stand-alone GVI would, it does not. This is because the stand-alone GVI forces the maintenance technician to pay particular attention to the EWIS that is identified as being necessary to inspect. It is this particular attention that will help ensure that EWIS degradation issues are identified and corrected before a potential safety arises. While a Zonal-GVI is a recognized effective inspection technique, it does not focus particular attention on EWIS or any other system or structural component within the zone and therefore cannot be used in lieu of a stand-alone GVI when the EZAP identifies a stand-alone GVI as necessary.”
40	Boeing	Page A-3, Figure 2, Step 8 – EWIS Inspection Level and Interval Selection	Contained within this figure is a decision block that asks whether a zonal GVI could be considered to be effective for all wiring in the zone.	Boeing experience has been that a negative answer was always required whenever a DET or standalone GVI was specified in the zone. Coupled with the limitations on	Provide clarification as to when a zonal GVI is effective for all wiring.	Non-concur. Figure 2 of appendix A provides a visual depiction of the process used to complete step 8 of figure 1. Worksheets 1 through 5 are what are used to actually

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				consolidations, this limitation resulted in duplicate maintenance tasks.		<p>identify the necessary EWIS inspection levels, restoration tasks, and their intervals. A Zonal GVI is generally considered effective for all EWIS within the zone if a Zonal GVI is identified as the only inspection necessary after completion of Worksheet 3A or 3B. The FAA does not consider it necessary to further clarify the logic contained on Worksheet 3A/3B or figure 2.</p> <p>No changes were made due to this comment.</p>
41	Boeing	Page A-3, Figure 2, Step 8 – EWIS Inspection Level and Interval Selection	Contained within this figure is a block which states that a zonal GVI must be augmented with a standalone and/or DET inspection.	The use of the term “must,” as defined by the FAA, suggests a requirement. There is no stated regulation that requires compliance with this portion of the Figure.	Replace the term “must” with “should,” or specify that the requirement that requires a zonal GVI be supplemented with either a DET or a standalone GVI, or both.	Non-concur. `As stated in paragraph 2.a.(5) of the AC, except in the explanations of what the regulations require, terms such as “shall” or “must” are used in this AC only in the sense of ensuring applicability of this particular method of compliance when the acceptable method of compliance described here is used.

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						No changes were made due to this comment.
42	Boeing	<p>Page A-4, Step 2 <i>“STEP 2. List Details of Zone. Within the zone, identify system installations, significant components, lightning and high intensity radiated field (L/HIRF) protection features, typical power levels in any installed wiring bundles, combustible materials (present or with the potential for accumulation) and any other features that may affect wiring EWIS integrity or accumulation of combustibles. ...”</i></p>	<p>The first paragraph contains terms such as “significant” and “typical.” These terms are undefined in this context.</p>	<p>These are value statements that are subject to differing interpretations.</p>	<p>Either define or delete the terms “significant” and “typical;” or allow the DAH alone to define the terms.</p>	<p>Non-concur. The words significant and typical were recommended for use in this context by ATSRAC and, thus, have been retained in the revised AC, the same as they were included in the original release of the AC. The meaning of typical is well understood in this context as it means that the FAA does not expect the DAH/applicant to list each and every wire and what its power level is within the zone, but rather the power levels that represent the majority of the various power levels. In fact, even if an applicant chooses to list each power level within the zone, it would not be burdensome since typically there are but a few different voltages levels used throughout the airplane.</p> <p>The same rationale is relevant for the word</p>

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						<p>significant. The DAH/applicant can easily list the major airplane system components and structure within the zone that are relevant to the factors used when determining effective and applicable EWIS inspection and restoration tasks. It is not necessary to provide an exhaustive listing of all structures and components within the zone.</p> <p>No changes were made based on this comment.</p>
43	Boeing	<p>Page A-5, Step 4</p> <p><i>“STEP 4: Are there, or are there likely to be, combustible materials in zone? ... You should consider hydraulic fluid to be combustible in a mist form even if the product specification states that it is not combustible in its liquid state. ...”</i></p>	<p>This sentence (highlighted at left) appears to require that any airplane zone through which a hydraulic tube passes is considered to be a combustible zone.</p>	<p>While Boeing agrees that hydraulic fluid in mist form may be combustible, we consider that requiring the entire zone to be deemed combustible is overly restrictive. Multiple conditions of pierced hydraulic tube, pressurized hydraulic fluid expelled in a stoichiometric mist, and an ignition source make this condition extremely improbable.</p>	<p>Include a statement that the mere presence of hydraulic tubing does not necessitate a positive response to Step 4.</p>	<p>Non-concur. The DAH identifies the various zones on any particular airplane model and the standard zonal analysis and the enhanced zonal analysis procedure has been developed to analyze each zone. Therefore, the content of each zone must be analyzed in relation to what is contained within any particular zone. If a zone contains hydraulic tubing, the effects of that</p>

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						<p>tubing failure on other components within that zone must be considered. However, this doesn't prevent the DAH/applicant from identifying certain design or environmental conditions within a zone that would minimize the potential hazardous effects due to a hydraulic tubing failure. This however, would need to be done on a case-by-case basis.</p> <p>No changes were made due to this comment.</p>
44	Boeing	<p>Page A-7, Step 8.a.:</p> <p><i>“a. <u>Inspection Level</u> ... The proper inspection level and its interval are determined by using ratings tables, which rate characteristics of the zone and how the EWIS is affected by, or can affect, those attributes. ...”</i></p>	The term “proper” in this context is not defined.	Use of more specific terminology would provide better understanding of the requirements.	<p>Revise the sentence to state:</p> <p><i>“a. <u>Inspection Level</u>. ... The <u>EZAP MSG-3 selected interval</u> is determined by using ...”</i></p>	<p>Partially concur. Step 8.a. has been revised to read as:</p> <p>“The inspection level and its interval are determined by using ratings tables, . . .”</p>

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45	Bombardier	EWIS Source Document Sections 6 and 7	The information being requested is usually controlled by manufacturers in documents that may or may not be subject to regulatory approval. Creation of a separate EWIS Source Document (SD) or elaboration of an existing manual is of some effort and little value for a TCH. Additionally the creation of another document cross-referencing procedures and requirements may lead to revision cycles becoming disconnected. Also for existing fleets end users typically have some familiarity with the existing document structure and creating a separate source document may actually render the EWIS SD less visible and of less utility than if it was contained in the existing document structure.			Non-concur. The guidance contained in the AC reflects the regulatory requirements of part 25, appendix H, paragraph H25.5(b) that the EWIS ICA be contained in a single document. It should be noted that the AC guidance provides the DAH/applicant with the flexibility to use existing maintenance documentation in order to comply with the regulatory requirements. No changes were made due to this comment.
46	Bombardier	Section 10 FAA AND FAA OVERSIGHT OFFICE APPROVAL OF EWIS	The proposed procedures are totally unacceptable. Existing approval processes			Non-concur. The guidance contained in the AC reflects the regulatory requirements

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		ICA	<p>for MRB documents are slow and prior to the current economic difficulties air carriers were complaining to the ATA over the length of time taken to approve revisions. A process where the TCH has the AEG act as the 'broker' with the other parts of the FAA should be developed similar to that currently used for AFS-300 to review introductory material. With the suggested process the EWIS section of an MRBR would have to be released as a separate revision to the systems structural and zonal sections due to the increased time to approve the EWIS ICA otherwise the manufacturer would be publishing unapproved documentation! It is easy to see a situation where the publication of an EWIS SD and MRB section revision could occur two years since the initiation of the changes which should be</p>			<p>of sections 25.1729 and 26.11 that the FAA oversight office, aircraft certification office, or office of the Transport Airplane Directorate approves the EWIS ICA as applicable.</p> <p>No changes were made due to this comment.</p>

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			unacceptable to the TCH, Air Carriers, FAA and travelling public.			
47	Bombardier	Representative Airplane	The definition of representative airplane is too broad. Requiring all variations of aircraft to be reviewed is too onerous, the EZAP working group and ISC should have the discretion to omit small changes from the review for existing type designs. The writer does not believe that sufficient experts or time are available to review these details for all aircraft types. In some cases each tail number produced in a fleet of several hundred aircraft of a type may have a slightly different wiring modification status and in the vast majority of cases no ICA changes would result. A reasonable and workable approach would be to analyze the significant variations in configuration that would be evident to a maintainer and are suggested as significant			Non-concur. The guidance in the AC reflects the regulatory requirements that for EWIS ICA developed in accordance with the requirements of section 26.11(b), that they be developed for the “representative airplane.” The representative airplane is defined within section 26.11(b). No changes were made based on this comment.

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			based on service experience and engineering judgment.			
48	Embraer		In general, Embraer believes that the draft revision of the advisory circular is a big improvement and we appreciate the FAA's efforts in providing this update.			The FAA appreciates the support for the revision to AC 25-27.
49	Embraer		<p>As discussed previously with FAA, we believe that the text will be clearer if FAA includes the following excerpts:</p> <ul style="list-style-type: none"> • Proposals to change or delete an EWIS task type or task description inside the AMM/SWPM procedures must receive approval from the Authority, only in these cases: • Definition of EWIS task type: GVI, DET, Cleaning (RST). S Definition of EWIS task description inside the procedure: the specific text related to the EWIS ICA that gives the 			Partially concur. Paragraph 7a. has been added to the AC to discuss, and clarify, revisions to the source document.

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			<p>instructions to perform the required maintenance action (inspection/cleaning) - ex: Clean the areas in the FWD avionics compartment. Use a vacuum cleaner to remove the particles and solid contamination from the areas where EWIS components are installed. If contamination is found, clean the EWIS components. Refer to SWPM 20-61-10.</p> <ul style="list-style-type: none"> • Authority approval is not necessary for other types of changes to the ICA procedures contained in the AMM and SWPM associated with the EWIS ICA identified in the Source Document."(e.g., access, tools, consumable material, new customer's manual, etc). • Due to the customization of different technical publications, just one configuration of the EWIS ICA related procedure would be submitted for approval through the 			

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			<p>Source Document and the others configurations will be approved by similarity. The approval per similarity occurs because different customers have same task numbers, with the same scope of items to be inspected but with small variations in the task due to differences in their configurations (windcreens, galleys, number of pax seats, lavatories locations, etc.).</p>			
50	Embraer	Paragraph (h), Page 15	<p>This paragraph states that “the AEG MRB chairperson reviews and approves the MRB report and other relevant EWIS ICA documentation such as task procedures contained in the airplane maintenance manual (AMM).” This paragraph is incoherent with paragraph (3) (c), pg 14, which states that “FAA Aircraft Evaluation Group (AEG) approval of MRB reports that contain EWIS ICA tasks does not signify FAA approval of the</p>			<p>Concur that paragraph 10.e.(1)(h) should be clarified regarding the AEG MRB chairperson’s approval of the MRB Report. Refer to the disposition of comment #13.</p>

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			<p>EWIS ICA as required by § 25.1729 or § 26.11. The FAA Oversight Office (ACO or office of the Transport Airplane Directorate) will issue this approval.”</p> <p>In fact, the AEG MRB chairperson reviews and approves the MRB report but does not approve the task procedures contained in the airplane maintenance manuals.</p>			
51	American Airlines (AAL)	<p>Page 9, para. 6</p> <p><i>An EWIS ICA task is either an inspection task or a restoration task. The inspection can be a zonal general visual inspection (GVI), stand-alone GVI, DET, or a combination of these</i></p>	<p>AAL believes that the “GVI” abbreviation should also instruct as to whether it is a stand-alone or regular GVI.</p>			<p>Concur. However, the AC clearly states that a EWIS ICA could be either a zonal GVI or a stand-alone GVI. Therefore, there is no need to revise the AC text.</p> <p>No changes were made based on this comment.</p>
52	AAL	<p>Page 10, para. 7</p> <p><i>(b). ... As described above, section H25.5(b) requires that each EWIS ICA be easily recognizable as EWIS ICA. This means that</i></p>	<p>AAL believes that this should be a requirement to ensure that all DAH’s EWIS look the same and will in differentiating the difference between EZAP,</p>			<p>Non-concur. There is a requirement (part 25, appendix H, paragraph H25.5(b)) stating that EWIS ICA must be identified as such. However, the</p>

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		<i>the EWIS ICA will need to be uniquely identified as such. As an example, some DAHs place “(EZAP)” or “(EWIS)” after each task description to signify that the task is a part of the EWIS ICA.</i>	EWIS, SFAR 88 and regular maintenance tasks.			proposed method of identification is left to the DAH/applicant. Refer to the comment disposition for Comment #6 for more discussion regarding this topic. No changes were made due to this comment.
53	AAL	Page 11, para. 8 <i>a. Controlling reference numbers for the individual EWIS ICA tasks as listed in the MRB report, MPD, MID, or other SD. These reference numbers can be referred to as MRB reference number, Maintenance Manual (MM)/Maintenance Planning Document (MPD) reference number, Maintenance Significant Items (MSI) reference number, task number, etc. The nomenclature and the documents called out by the reference numbers can vary among DAHs. Also, tasks may have been given more</i>	AAL believes that if the Source document contains the number identifying the task, why would another number in another document for the same task be considered the ICA? For example the MPD and MRBR have the same exact same zonal task identified as EZAP, but have different numbers and the MRBR is the source document. Why then would the MPD number be consider the ICA when the task has been fully identified by the MRBR number. Additionally, all tasks (especially Boeing) will have a corresponding task card with another number.			Refer to the comment disposition discussion for comment #7. No changes were made due to this comment.

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		<p><i>than one number by the manufacturer to identify them as parts of different documents. So one task, for example, may have an MPD reference number as well as an MRB report reference number. If more than one number identifies any single EWIS task, then each of those numbers must be considered part of the EWIS ICA. All numbers considered necessary to fully identify and track the EWIS ICA should be considered part of the ICA.</i></p>	<p>It is not uncommon for operators to utilize their own task cards and not the OEMs. As stated in the subject paragraph, the OEM task card number is now an ICA. Are all these numbers considered to be controlling reference numbers? As written, it can be interpreted as such. This creates undo confusion and burden upon the operator and maintenance oversight office to what is the actual controlling number. 767 MRBR lists task 20-012 as an EZAP task. This task is 20-60-03-02B in the MPD and the task card is 20-012-02. As written all three numbers are necessary for tracking by the operator. Yet, utilizing only the Source Document the 767MRBR number of 20-012 should be sufficient for maintaining control of the task.</p>			

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54	AAL	<p>Page 21, para. 14</p> <p><i>b. Levels of Inspection Applicable to EWIS. (2) Detailed inspection (DET). An intensive examination of a specific item, installation, or assembly to detect damage, failure, or irregularity. Available lighting is normally supplemented with a direct source of good lighting at an intensity deemed appropriate. Inspection aids such as mirrors, magnifying lenses, or other means may be necessary. Surface cleaning and elaborate access procedures may be required. A DET can be more than just a visual inspection, since it may include tactile assessment in which a component or assembly is checked for tightness/security. It may require the removal of items such as access panels and drip shields, or the moving of components.</i></p>	<p>AAL believes further clarification is needed so that disassembly of a wire bundle is not required for a “tactile assessment” as this may cause more damage to the wire. The section referenced above provides clarification that a “tactile assessment” may be included. This definition when applied to wiring can lead to confusion that the bundle must be disassembled to inspect. Especially with task descriptions such as “Inspect ALL EWIS in the Zone” and “elaborate access may be required” as part of the definition. All implies every wire and elaborate access can be assumed to mean disassembly</p>			<p>Concur. The following note has been added following paragraph 14.b.(2):</p> <p>“Note: Tactile assessment as used in the context of a EWIS DET does not require the disassembly of wire bundles to inspect individual wires within the bundle.”</p>

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55	AAL	Page 21, para. 14 14. GENERAL EWIS MAINTENANCE GUIDANCE. b. Levels of Inspection Applicable to EWIS.	AAL believes that this section should provide a definition of a “stand alone” GVI.			Concur. Paragraph 14.b.(3)(e) has been added to the AC to read as: (e) A EWIS stand-alone GVI applies the above inspection techniques to wires, cables, and other EWIS components identified in the inspection procedure.
56	AAL	Page A-5 STEP 4: Are there, or are there likely to be, combustible materials in zone? With respect to commonly used liquids (e.g., oils, hydraulic fluids, corrosion prevention compounds) refer to the product specification to assess potential for combustibility. The product may be readily combustible only in vapor mist form. If so, an assessment is required to determine if conditions might exist in the zone for the product to be in this	AAL believes that this statement precludes advancement of technology that sometime in the future hydraulic fluid may not be combustible in a mist form. Rather than an absolute, clarification on the combustibility of hydraulic fluid should be provided.			The FAA concurs that there could be technological advances in the composition of hydraulic fluid such that it would not be necessary to consider hydraulic mist as a combustible. However, as with all advisory material, including that contained in this AC, the FAA will consider methods of compliance other than those contained in this AC. This fact is clearly stated in paragraph 2.a.(3), which reads as follows: “The material in this AC is neither mandatory nor regulatory in nature and

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		state. <u>You should consider hydraulic fluid to be combustible in a mist form even if the product specification states that it is not combustible in its liquid state.</u>				<p>does not constitute a regulation. It describes acceptable means, but not the only means, for showing compliance with the applicable regulations. We will consider other methods of showing compliance that an applicant may elect to present. While these guidelines are not mandatory, they are derived from extensive FAA and industry experience in determining compliance with the relevant regulations. If, however, we become aware of circumstances that convince us that following this AC would not result in compliance with the applicable regulations, we will not be bound by the terms of this AC, and we may require additional substantiation or design changes as a basis for finding compliance.”</p> <p>Therefore, should advances in hydraulic fluid technology occur such that,</p>

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						<p>in its mist form, it is no longer considered to be combustible, the FAA will be receptive to a DAHs request to consider the mist as a non-combustible material within the zone being analyzed.</p> <p>No changes were made due to this comment.</p>
57	AAL	Page A-9 and worksheets 3A/3B, Step 8	AAL believes clarification should be provided on answering Box 1. As presented, it can be assumed that Box 1 can be answered yes, independent of the output of the table. It should be noted that the table provides the answer for Box 1. This was the direction provided by the FAA to multiple Zonal Working Groups.			<p>Non-concur. The FAA believes that the logic depicted on Worksheets 3A/3B is clear and concise and does not need revision. If the relevant cell in the Potential Effects of Fire matrix indicates that a Zonal GVI is an effective inspection level for the EWIS within a zone, the answer to Box 1 should be answered YES, otherwise it must be answered as NO. As indicated on the worksheets, if Box 1 is answered YES, then only Box 2 must be completed prior to proceeding to Worksheet 4. If Box 1 is answered NO, then Boxes</p>

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						<p>2, 3, and 4 must be answered prior to proceeding to Worksheet 4.</p> <p>No changes were made due to this comment.</p>
58	AAL	<p>Page A-11</p> <p><u>STEP 9: Consider consolidation with existing inspection tasks in systems and powerplant and/or zonal programs.</u></p>	<p>AAL believes guidance should be provided that the original EZAP generated interval should be noted when consolidating tasks. This is especially important when implementing EZAP on existing maintenance programs. If an operator has escalated the consolidated task beyond the MRBR, they would be forced to deescalate their program due to the implementation of EZAP. For example, an operator has escalated his program to a 24-month C-check, but the MRBR defines a C-check as 18 months. The EZAP analysis resulted in a Zonal GVI at 3C, but was consolidated with an existing ZIP task at 2C. Without knowledge of the true EZAP interval the operator would be forced to</p>			<p>Concur. The NOTE on Worksheet 5 has been revised to include the following:</p> <p>“You may also want to include the Zonal GVI task interval as was specified from the Interval Determination Table on Worksheet 4. This may be beneficial to Operators who have escalated their existing zonal programs above the intervals listed in the MRB Report. Doing so will provide visibility to Operator’s and FAA personnel who must ensure that the task interval for the existing Zonal GVI is no greater than the Zonal GVI task interval identified by EZAP.”</p>

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			reduce his program back to the MRBR limit of 36 months. When in reality the 54 months from the analysis would still fit in with their interval of 48 months. Without this information implementation of the EZAP will provide additional undue economic burden upon the operator.			
59	AAL	Appendix B, page B-5. Bubble 23	AAL believes that a DET should not be the only option for a yes answer. There should be a provision that allows for the continued utilization of an existing ZIP task, so long as it is effective.			Non-concur. Refer to the disposition of Comment #64. No changes were made due to this comment.
60	AAL	Appendix B. page B-5	Note 3 on LH side of page refers to paragraph 9 on page XX. Page number needs to be identified.			Concur. The correct page number reference has been added to the final AC.
61	AAL	Appendix B. page B-5, Bubble 28	Bubble 28 States “Refer to section XX.” Section needs to be identified.			Concur. The correct page number reference has been added to the final AC.
62	AAL	Appendix B. p. B-5, Bubble 26.	AAL believes that if the zone is small or the new			Non-concur. Refer to the disposition of Comment 64.

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			EWIS in the zone is easily accessible/visible, the Applicant should be able to make a determination whether or not an existing Zonal inspection is sufficient. A stand alone GVI may not be necessary nor provide any additional benefit.			No changes were made due to this comment.
63	AAL	Appendix B. p B-6, Bubbles 30A and 30B	Bubbles 30A and 30B state "Refer to section XX." Section needs to be identified.			Concur. The correct references have been added to the final AC.
64	AAL	Appendix B. p. B-6, Bubble 30B.	AAL believes that if the zone is small or the new EWIS in the zone is easily accessible/visible, Applicant should be able to make a determination whether or not an existing Zonal inspection sufficient. A stand alone GVI may not be necessary nor provide any additional benefit			Non-concur. If the applicant for the design change does not have all the necessary information to complete the traditional EZAP analysis described in Appendix A, they are not in possession of the information necessary to make the determination that the existing zonal process is adequate. Therefore, the logic process described in Appendix B is purposefully conservative in nature. The applicant does have the choice to perform the

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						Appendix A EZAP if they can answer yes to the questions contained in Box (Bubble) 3. No changes were made due to this comment.
65	AAL	Appendix B. p. B-7 Bubble 35C.	Bubble 35C refers to a “Step XX” and states, “Refer to section XX.” XX items need to be identified.			Concur. The correct references have been added to the final AC.
66	AAL	Appendix B. p. B-7 Bubble 36.	Bubble 36 is a decision block, yet there is only one path from the block. It seems that if the answer to this decision block is no, a new task would be required.			Concur. Refer to the disposition for Comment number 73.
67	AAL	Appendix B. p. B-7 Bubble 35.	The “No” decision arrow needs to be labeled.			Concur. The arrow has been labeled as NO.
68	AAL	Appendix C. p. C-4, Definition of “Stand-Alone GVI.”	AAL suggests adding to the definition, “...part of a zonal inspection directed at a specific component or components” since there is no MSG-3 definition corresponding to “stand alone GVI.” This provides some distinction between a			Partially concur. Clarification of the relationship between a stand-alone GVI and a zonal GVI has been added to paragraph 14.b.(3)(e). Refer to the disposition for Comment #55.

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			zonal GVI and stand alone GVI. Additionally, it suggested that an acronym be used for a stand alone GVI that can be added to the source document. If a stand alone GVI is listed as a GVI there can be confusion as to whether or not it is a true stand alone that can or cannot be precluded with a zonal.			The FAA believes this revision provides sufficient clarification to better define the meaning of a stand-alone GVI, and it is not necessary to create a separate definition for inclusion in appendix A. The FAA is not aware of a standardized industry acronym for a stand-alone GVI and does not want to create one without agreement on what it should be from industry and other Airworthiness Authorities. No changes were made based on this comment.
69	AAL	Appendix G. p. G-3.	AAL suggest updating MSG-3 reference to current revision.			Concur, the latest version of MSG-3 is reflected in the final AC.
70	JAMCO AMERICA	Appendix B Page B3-B7 and B8-B13	Explanation of Steps in Flowchart 1 does not match with revised Flowchart 1.	Flowchart 1 including Step numbers, and contents were revised (by revision A) but the explanation section was not changed, and numbering and contents are not synchronized.	Revise the explanation section to reflect changes in Flowchart 1.	Partially concur. The explanation of the steps that were developed for the original appendix B flowchart has been eliminated from the final AC. This is because the logic steps in the new appendix B, flowchart 1 are

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						self-explanatory and the applicant can use the guidance contained in the main body and appendix A to help guide them through the flowchart 1 logic process.
71	JAMCO AMERICA	Appendix B Page B3 Decision box 1	The second criterion [...within 1 in / 50 mm of flight controls...] is sub-criterion of first criterion [Does the design change install new, or modify existing, EWIS in the zone(s)?] and seems to be redundant.	Since the Boolean relationship (and, or) amongst the listed criteria is not specified, the result from Box 1 could become ambiguous. Are these connected with [or] or [and] or specific combination? Original AC has [or] connection but with a little bit different nuance in each criteria. If the connection is [or], then the second criterion seems to be redundant since the first criterion covers (inclusive) the second already.	Clarify the Boolean relationship in Box 1, and remove either one of 1 st or 2 nd criteria so that determination criteria become obvious to everyone.	Concur. The term “-OR-“ was added after each of the criteria in Box 1 of flowchart 1 in appendix B to clarify that answering YES to any of the questions leads to Box 3.
72	JAMCO AMERICA	Appendix B Page B5 Decision box 23, second paragraph	Is the 2 nd statement [Add power feeder EWIS or other high current carrying EWIS (>16 AWG) or critical airplane system EWIS to the zone	The statement is not concise enough to interpret clearly. Depending on the interpretation of the statement, there will be significant difference in the	Revise the statement so that the meaning of the statement becomes obvious and clear.	Concur. The middle criteria in Box 23 of appendix B, flowchart 1 has been revised to read as follows:

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			<p>where prior to the modification there were none.] equals to [{Add power feeder EWIS} to {the zone} where {prior to the modification there were none}, or {other high current carrying EWIS (>16 AWG)} to {the zone} where {prior to the modification there were none}, or {critical airplane system EWIS} to {the zone} where {prior to the modification there were none}]]?</p> <p>Or</p> <p>[[Add power feeder EWIS} to {the zone} where {prior to the modification there were none}, or {other high current carrying EWIS (>16 AWG)} to {the zone} where {prior to the modification there were none}]] or {critical airplane system EWIS} to {the zone} where {prior to the modification there were none}]]?</p>	<p>effort for the analysis.</p>		<p>“Add power feeder EWIS, other high current carrying EWIS (i.e., wire >16 AWG), or critical airplane system EWIS to the zone where prior to the modification there were none?”</p>

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73	Mr. Bruno Wilson	Appendix B, Flowchart 1	<p>A quick question about flowchart 1 in appendix B, specifically on page 5. Step 36 has a yes or no question, but only one path out. Is the 'Yes' path out the one shown going to box 35B, and should the 'No' path out go over to box 35A?</p> <p>The new flowchart looks like it will be very useful for the STC world, thank you for putting it together.</p>			Concur. The figure has been revised with the YES arrow going to Box 35B and the NO arrow going to Box 35A.
74	Mr. Richard W. Anderson	Upon review of the proposed revision (“A”) to Advisory Circular (AC) 25-27, the undersigned has but one comment of substance:	In Appendix G. page G-3, under the section “Other Documents,” the reference to Air Transport Association (ATA) of America’s MSG-3 document (Revision 2001) is four (4) revisions out-of-date, and should be corrected, or the some version of the words, “or most current revision” added.			Concur. Refer to the disposition for Comment #63.

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75	Edward B. Block	None identified	The ATSRAC Committee proved visual inspections are inadequate. Why would it matter how often an inadequate function is performed.	None provided	None provided	The commenter did not request any changes to the proposed AC. The FAA adopted the enhanced zonal analysis procedure as recommended by ATSRAC. This included the resulting methods of EWIS inspections: zonal general visual inspection, stand-alone general visual inspections, detailed inspections, wire protection and caution information, and EWIS cleaning procedures. All of these components are effective in identifying existing EWIS wire degradation issues and preventing future EWIS related safety issues. No changes were made based on this comment.
76	Edward B. Block	None identified	I have been trying to find out if the FAA has wire performance tests? I was told by Mr. John Hickey that indeed they just passed them 11/07. A review Part 25 shows otherwise. Does the FAA have wire performance tests? For	None provided	None provided	The comment is not applicable to the objective and content of the proposed AC 25-27A. The objective of the AC is the development of maintenance and inspection instructions for EWIS installed on transport

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			Flammability, smoke, arc track resistance, etc?			category airplanes. No changes were made based on this comment.
77	Edward B. Block	None identified	The FAA showed in a 2009 report that splatter from an arc-tracking event goes 12 inches with the copper BBs. Why would 2 inches be considered adequate separation?	None provided	None provided	The comment is not applicable to the objective and content of the proposed AC 25-27A. The objective of the AC is the development of maintenance and inspection instructions for EWIS installed on transport category airplanes. No changes were made based on this comment.
78	Edward B. Block	None identified	AC 25-16 was quite specific as to certain wire types i.e. Kapton are more dangerous than other wire insulation types. Specifically regarding arc-tracking. In that Kapton is the only material shown to dry arc track, why isn't there any warning about the 10,000 degrees C molten copper ejected in an arc track event?	None provided	None provided	The comment is not applicable to the objective and content of the proposed AC 25-27A. The objective of the AC is the development of maintenance and inspection instructions for EWIS installed on transport category airplanes. No changes were made based on this comment.

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79	Edward B. Block	None identified	Does mixing wire types as warned by Dupont constitute a concern? Was Dupont wrong in their findings?	None provided	None provided	The comment is not applicable to the objective and content of the proposed AC 25-27A. The objective of the AC is the development of maintenance and inspection instructions for EWIS installed on transport category airplanes. No changes were made based on this comment.
80	Edward B. Block	None identified	Would changing the word wiring to EWIS suddenly make it safer? George Orwell would be proud.	None provided	None provided	The comment is not applicable to the objective and content of the proposed AC 25-27A. The objective of the AC is the development of maintenance and inspection instructions for EWIS installed on transport category airplanes. No changes were made based on this comment.