U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
National Policy

ORDER 8110.112A

10/03/2014

SUBJ: Standardized Procedures for Usage of Issue Papers and Development of Equivalent Levels of Safety Memorandums

This order establishes the procedures for the standardized usage of issue papers to document the negotiation and resolution of certification issues. It also explains the procedures for the development of equivalent level of safety (ELOS) memorandums. In this order, you will find a sample of an issue paper, the issue paper format, an issue paper template, and an ELOS memorandum template.

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Chapter 1. General Information

1-1. Purpose of This Order.

a. This order establishes procedures for the standardized usage of issue papers (IP) for type certification programs, type validation programs, some parts manufacturer approval (PMA) projects, technical standard order authorization (TSOA) projects, aircraft evaluation groups (AEG) evaluations in support of certification projects, and other issues involving approval of data (for example, the engineering aspects of repair specifications when submitted to an Aircraft Certification Office (ACO) for engineering evaluation and approval). It also sets procedures for the development of equivalent level of safety (ELOS) memorandums.

b. This order cancels FAA Order 8110.112, *Standardized Procedures for Usage of Issue Papers and Development of Equivalent Level of Safety Memorandums*, dated 6/15/2010.

c. This order also introduces terminology for two types of collective IPs: Cover Issue Papers (CIP) and Administrative Collector Issue Papers (ACIP).

1-2. Audience. We have written this order for FAA employees in the—

a. Aircraft Certification Service (AIR), including—

(1) ACOs,

(2) Aircraft certification directorates, and

(3) Manufacturing Inspection District Offices (MIDO).

b. Flight Standards Service (AFS), including AEGs.

c. FAA Academy Regulatory Support Division.

Note: References to ACOs in this directive include the Military Certification Office (MCO) and organization management team (OMT) leadership offices that oversee organization designation authorization (ODA) holders, including the Delegation Systems Certification Office (DSCO).

1-3. Where Can I Find This Order. You can find this order at the MyFAA Employee website, https://employees.faa.gov/tools_resources/orders_notices, and on the Regulatory and Guidance Library (RGL) website, http://rgl.faa.gov.

1-4. Explanation of Policy Changes. The new chapter 2 combines chapters 2 and 3 from the original FAA Order 8110.112. The new chapter 3 was chapter 4, the new chapter 4 was chapter 5, and the new chapter 5 was chapter 6. This revision also introduces two new types of collective IPs: ACIPs and CIPs (refer to appendix E).

1-5. Background. The original IP process was established to keep track of outstanding certification issues that had previously been handled verbally and through letters. The lack of a formal coordination process between the FAA and the applicant resulted in many unresolved certification issues that were not recognized until late in the program. With the development of IPs, management and the project team have a vehicle to document the negotiation and resolution of certification issues with the applicant while maintaining a standardized position within the FAA.

1-6. Implementation. FAA project teams (including ACOs and directorate staff) must use the IP procedures in this order to track the resolution of significant technical, regulatory, and

administrative issues that occur during the type certification process, during a type validation process, or for any other types of FAA approvals where guidance from a project-specific directorate (that is, the accountable directorate) or policy office is required.

Chapter 2. Issue Papers

2-1. Purpose of an IP.

a. IPs provide a structured means to address certain issues in the type certification and type validation processes. Type certification includes projects for type certificates (TC), amended TCs, supplemental TCs (STC), amended STCs, and type design changes. IPs are also used for other types of approvals where directorate or policy office guidance is required, such as PMA and TSOA projects.

b. IPs provide a structured means for describing and tracking the resolution of significant technical, regulatory, and administrative issues that occur during a project. The IP process establishes a formal communication vehicle for addressing significant issues between the applicant, the FAA, and if applicable, the validating authority (VA) or certificating authority (CA) for type validation programs. They are also very useful in addressing novel or controversial technical issues.

c. IPs form a valuable reference for future type certification programs and development of regulatory changes. By describing significant or precedent-setting technical decisions and the rationales employed, they are ideal source documents. For example, a certification summary report (if required by the accountable directorate) may be generated by extracting the final issue resolution from the IPs (omitting any proprietary information).

d. For type validation programs, if the FAA is the VA, we use IPs to identify and resolve issues of particular interest to us, including aspects of the design or proposed MoC that warrant further involvement (beyond familiarization) by us. IPs may be identified by the FAA that meet any of the categories identified in paragraph 2-3 of this order. In certain cases, even when FAA and CA airworthiness standards and interpretations are identical, we still need to write our own IP. For example, the FAA writes IPs for ELOS (ESF) per 14 CFR 21.21(b)(1). Also, the FAA must write IPs on the certification basis (G-1), determination of compliance or compliance checklist (G-2), environmental considerations (G-3), and other unique import requirements (see FAA Order 8110.52, Type Validation and Post Type Validation Procedures, and the applicable bilateral agreements for more information). The FAA may also develop procedures with our bilateral partners to allow us to accept the CA's IP or equivalent in place of an FAA IP.

2-2. Determination of Significant Issues.

a. FAA technical personnel work closely with the applicant to achieve the earliest feasible identification of significant issues that may require special emphasis for resolution. This step usually requires more detailed, technical discussions, correspondence, and review of design data and hardware. We encourage the applicant to raise questions or issues that may require time or special study for resolution to identify all significant issues as soon as possible.

b. Simple documentation of a particular method of compliance (MoC) that is consistent with existing directives, advisory circulars (AC), or other written FAA policy, or that does not fall into one of the categories listed in paragraph 2-3 of this order, does not require an IP. Nevertheless, the program or project manager (PM) documents the MoC in the compliance checklist as part of the certification plan and retains it in the project file. When we invoke an identical IP for numerous projects, this indicates mature policy suitable for written guidance such as methods, procedures, and practices acceptable to the FAA (for example, an AC). It is important to emphasize that although the accountable directorate standards staff ultimately

determines the IPs required for a project, a project team member (technical specialist), the PM, the project officer (PO), or an OMT for ODA (this includes the DSCO) can determine what projects will require the use of IPs such as the G series described in paragraph 2-3 below.

c. Advise the applicant that routine items, relative to showing compliance and work relationships, do not constitute significant issues and should not be raised as such, unless some special problems are anticipated or develop during the course of the project. The project team can handle routine items with the applicant. The FAA documents decisions and actions in correspondence, data submittals, and file records of meetings, conversations, and events. In this regard, the FAA recognizes that what may be routine with an experienced applicant may be treated as a significant issue with an applicant who has limited or no current FAA type certification experience.

2-3. Items Considered Significant Issues and Addressed by IPs.

a. Certification Basis (G-1). The G-1 IP designates the applicable airworthiness and environmental regulations (that is, noise, fuel venting and exhaust emissions), including equivalent level of safety (ELOS) findings and special conditions, that must be met for certification as stated in Title 14 of the Code of Federal Regulations (14 CFR) part 21, Certification Procedures for Products and Parts, § 21.17, § 21.21, § 21.25, § 21.27, § 21.29, or § 21.101, as applicable. It also designates the applicable Special Federal Aviation Regulations (SFAR) and records any exemptions granted (refer to part 11, General Rulemaking Procedures, §§ 11.15 and 11.81). This IP must provide the definitive justification for selecting the certification basis, including specific amendment levels.

b. Determination of Compliance (G-2). The G-2 IP provides a statement of the FAA procedural requirements, including those that define the applicant's responsibilities for showing compliance. This IP captures the "compliance checklist," which shows the regulatory requirement and the MoC proposed by the applicant for each regulation identified in the certification basis (refer to § 21.20, Compliance with applicable requirements). For foreign-manufactured products to be eligible for an import TC, the applicant shows, and the FAA finds, that the type design complies with the U.S. type certification basis established in the G-1 IP. Under certain bilateral agreements, the CA may approve data used for showing compliance to the requirements in the VA's G-1 IP. Therefore, the G-2 IP will also outline the responsibilities of the CA and the VA.

c. Environmental Consideration (G-3). The G-3 IP designates the applicable environmental regulations (that is, the regulations establishing standards for aircraft noise and, for turbine-engine-powered airplanes, fuel venting and exhaust emissions). The FAA must obtain certain information for compliance with U.S. statutory environmental requirements in addition to the 14 CFR requirements listed in the certification basis. For certification projects applications—

(1) The aircraft is required to comply with the appropriate provisions of parts 34 and 36 as part of the certification basis. If there are no exemptions granted, the FAA does not impose the additional requirements of an environmental assessment, a finding of no significant impact (FONSI), or an environmental impact statement (EIS), under FAA Order 1050.1, *Environmental Impacts: Policies and Procedures*. If an exemption is granted to either part 34 or part 36, an environmental assessment is required under the provisions of FAA Order 1050.1.

(2) The FAA must also issue a finding of regulatory adequacy per the Noise Control Act of 1972 (Public Law 92-574), section 611. This finding is in addition to required compliance with the applicable part 36 noise limit levels.

> **Note:** It is acceptable to combine the contents of IPs G-1 thru G-3 into a single master G-1 IP.

d. Export (Import) Country Requirements (G-4). For products exported from the United States, the G-4 IP cites the extent of FAA findings of compliance with the importing country's airworthiness requirements on the importing civil airworthiness authority's (CAA) behalf. For products imported to the United States, the G-4 IP serves to establish the exporting CAA's function for airworthiness certification, operating matters, and additional compliance findings relative to those defined in the G-1 IP.

e. Method of Compliance (MoC). The most common type of IP defines a particular MoC that requires directorate or policy office coordination as a result of peculiarities in the type design or the need to define specific conditions and/or establish the environment under which substantiation must be shown.

f. Equivalent Level of Safety (ELOS). An IP is the vehicle for documenting the evolution and conclusion of the request for an ELOS finding. ELOS findings are made when literal compliance with an airworthiness standard cannot be shown and compensating factors exist that can be shown to provide an ELOS (refer to § 21.21(b)(1), Issue of type certificate: normal, utility, acrobatic, commuter, and transport category aircraft; manned free balloons; special classes of aircraft; aircraft engines; propellers).

(1) The project ACO (PACO) documents the finalized ELOS finding by preparing an ELOS memorandum containing information needed by the accountable directorate for review and approval. The development and processing of the ELOS memorandum must occur concurrently with the conclusion development stage of the IP process. The ACO sends the ELOS memorandum to the accountable directorate for approval and, because the IPs must be finalized (closed) before the issuance of a certificate, the ELOS memorandum must also be approved by the accountable directorate before the issuance of the certificate. Note that the ELOS memorandum process does not take the place of the IP process.

(2) Although an IP may be the vehicle for initially generating an FAA ELOS finding, the ELOS memorandum communicates to the public the technical details that are the rationale for the FAA's determination of equivalency to the level of safety intended by the regulations.

(3) The ELOS memorandum also serves the important purpose of documenting those critical aspects of the finding that must be maintained for continued airworthiness. Refer to appendix C to this order for an ELOS memorandum template.

> **Note:** An ELOS finding and an equivalent safety finding (ESF) have the same meaning.

g. Proposed Special Conditions. For a new TC, the basis for issuing and amending special conditions is found in § 21.16; for changes to a TC, it is found in § 21.101(d). Under the provisions of either § 21.16 or § 21.101(d), a special condition is issued only if the existing applicable airworthiness standards do not contain adequate or appropriate safety standards for an aircraft, aircraft engine, or propeller because of novel or unusual design features of the product to be type certificated.

(1) The phrase "novel or unusual" applies to design features of the product to be certificated when compared to the applicable airworthiness standards. The FAA uses IPs to address novel design features for which there are no regulations or the regulations are inadequate. The FAA uses IPs to document the basis, need, and wording of special conditions.

(2) A special condition contains only such airworthiness standards as are necessary to establish a level of safety equivalent to that established by the intent of the applicable regulations. Special conditions are unique to the specific certification program for which they are issued. The FAA has delegated authority for issuing special conditions to the directorates, or to the Design, Manufacturing, and Airworthiness Division (AIR-100) for areas of responsibility not assigned to a directorate.

> **Note:** Special conditions are not used to upgrade the applicable airworthiness standards when novel or unusual design features with respect to the state of technology foreseen when the applicable regulations were codified are *not* involved.

(3) The PACO drafts proposed special conditions in conjunction with an application for a TC, amended TC, or STC in an IP. The PACO formulates the proposed special conditions in the IPs with full participation by the accountable directorate and with an invitation to participate to any other interested FAA offices deemed appropriate. The PACO forwards the IPs, with full details and justification for each special condition, to the accountable directorate.

(4) In cases where the FAA determines a special condition is appropriate, and applicants indicate they have complied or will voluntarily comply, continue with the special condition proposal. This is included in the certification basis and forms an exact record of the airworthiness regulations applicable to the product or modification.

(5) Once the IP is closed, the accountable directorate will then prepare a notice of proposed rulemaking (NPRM) of the proposed special condition. Note that the wording in the IP for a proposed special condition will become the foundation for the wording of the NPRM published in the Federal Register. Refer to FAA Order 8110.4 for more details on these procedures.

h. New Information. It is conceivable that a better understanding of environmental or other hazards not understood in the past, or that did not exist previously, would require a new method of compliance. Such items could include potential circumstances where the existing applicable regulations were developed unaware of the threats.

i. Type Validation. When the FAA is the VA, the FAA uses IPs to identify and resolve issues of particular interest to the FAA, including aspects of the design or proposed MoC that warrant further involvement (beyond familiarization) by the FAA. IPs may be identified by the FAA that meet any of the categories identified in this paragraph. In certain cases, even when FAA and CA airworthiness standards and interpretations are identical, the FAA still needs to write our own IP. For example, the FAA writes IPs for ELOS (ESF) per 14 CFR 21.21(b)(1). Also, the FAA must write IPs on the certification basis (G-1), determination of compliance or compliance checklist (G-2), environmental considerations (G-3), and other unique import requirements (see FAA Order 8110.52, *Type Validation and Post Type Validation Procedures*, and the applicable bilateral agreements for more information). The FAA may also develop procedures with our bilateral partners to allow us to accept the CA's IP or equivalent in place of

an FAA IP. The FAA may choose to document an issue by means of a cover IP (CIP) if the bilateral partner authority has produced an equivalent document that is acceptable to the FAA to track resolution of an issue.

j. Cover Issue Paper (CIP). For an FAA validation program, a CIP can be used instead of an FAA IP for the *same certification program, provided that the current applicant is the same as the applicant of the previously approved IP or FIP*. (Refer to appendix E to this order for detailed procedures related to the use of a CIP.)

k. Administrative Collector Issue Paper (ACIP). An ACIP is an IP that approves previously-approved foreign IPs (FIP) or domestic IPs for *a new certification program, provided that the current applicant is the same as the applicant of the previously approved IP or FIP*. (Refer to appendix E to this order for detailed procedures related to the use of an ACIP.)

l. Unsafe Features or Characteristics. Corrective action of potentially unsafe features or characteristics that could preclude certification in accordance with § 21.21(b)(2). This type of issue paper is used to document the necessary corrective action.

m. Areas of New Technology. Areas of new technology or novel design are those that do not require a special condition, but might require the development of an acceptable MoC with existing regulations that would set a national precedent.

n. Changes in Interpretation. Include new interpretation or policy of existing regulations using precedent-setting new technology in an IP at the early stages of the certification project.

o. Other Types of FAA Approvals (Optional). Applicants may use other types of FAA approvals (for example, PMA, TSOA, and § 21.8(d) projects) to document and resolve compliance issues where directorate or policy office guidance is required. The content and format of the IP offers a well-used tool to document the specific issues, options and resolutions of technical conflicts in these types of projects. Examples of this include setting the methods and means of showing compliance to specific regulations. For PMA projects, IPs can be used to document the agreed upon understanding and approach to a part's design approval.

p. Administrative IPs. Administrative IPs may be used to define policy, interpret policy, or document the resolution of issues when adherence to policy becomes controversial or might otherwise require Type Certification Board (TCB) action to resolve (refer to paragraph 3-1n below for the duties of a TCB). An example of this is a nonstandard method or means of compliance proposed by an applicant.

q. Aircraft Evaluation Group (AEG) IPs. The AEG may initiate, at its discretion, IPs to address maintenance or operations issues that fall into one of the categories described in paragraphs 2-3e through 2-3p above. The standard practices for involving AEGs in the type certification process are not grounds for the creation of an IP.

Chapter 3. Roles, Responsibilities, and the Issue Paper Process

3-1. Roles and Responsibilities.

a. Accountable Directorate. For any stage of the IP process released to the applicant, directorate team coordination and standard staff's manager signoff is required. In the case of an ELOS finding, the accountable directorate approves the ELOS memorandum before the issuance of the design approval. The accountable directorate must inform the PACO of its evaluation and concurrence of the ELOS using the ELOS memorandum. In general, the primary purpose of the directorate review is to—

(1) Ensure and lead standardization of the IP by comparing it with similar IPs from other projects.

(2) Provide current policy related to the significant issue.

Note: With some validation projects, the accountable directorate may fulfill the role of the PACO in addition to the duties listed here.

b. ACO Manager. For type certification projects, the ACO manager is a member of the TCB. In the event of an impasse, the ACO manager may assist in the resolution after considering the views of all affected parties. Also, in the case of an ELOS finding, the ACO manager will sign the memorandum containing the ACO recommendation to the accountable directorate for approving an ELOS.

c. AEG. When a significant issue involves operations and/or maintenance aspects, coordinate the IP with the AEG when formulating the "FAA POSITION" and the "CONCLUSION."

d. Certificate Management ACO (CMACO). Because this is the ACO managing a product's TC and the continued airworthiness, the PACO must coordinate the IP with the CMACO for follow-on projects such as STCs or PMAs.

e. Chief Scientific and Technical Advisors (CSTA). The PM must include the appropriate CSTAs in the IP coordination process when significant technical issues arise regarding certification of state-of-the-art technology.

f. AIR-100. When a significant issue pertains to technical policy or procedural policy overseen by any of the AIR-100 branches, coordinate the IP with AIR-100 when formulating the "FAA POSITION" and "CONCLUSION."

g. CAs and VAs. When the FAA is the VA, the FAA uses IPs to identify and resolve issues of particular interest to the FAA, including aspects of the design or proposed MoC that warrant further involvement (beyond familiarization) by the FAA. In certain cases, even when FAA and CA airworthiness standards and interpretations are identical, the FAA still needs to write our own IP. For example, the FAA writes IPs for ELOS (ESF) per 14 CFR 21.21(b)(1). Also, the FAA must write IPs on the certification basis (G-1), determination of compliance or compliance checklist (G-2), environmental considerations (G-3), and other unique import requirements (see FAA Order 8110.52, *Type Validation and Post Type Validation Procedures*, and the applicable bilateral agreements for more information). The FAA may choose to document an issue by means of a cover IP (CIP) if the bilateral partner authority has produced an equivalent document that is acceptable to the FAA to track resolution of an issue (see appendix E).

h. MIDO. When a significant issue pertains to manufacturing processes, production certification, or airworthiness certification, the PM must include the MIDO in the IP coordination.

i. PACO. The PACO is the ACO working the project. The PACO must coordinate the IP, as appropriate, with the accountable directorate, AIR-100, other AFS offices, and the CMACO (if a follow-on project such as an STC or PMA is applicable).

j. PM (Originator). The PM initiates or originates the IP and—

(1) Obtains concurrence from the ACO (that is, concurrence from all the branches involved and from the ACO manager).

(2) Transmits the IP to the accountable directorate through the PO.

(3) Obtains applicant position (and when necessary, discusses and clarifies the FAA position with the applicant).

(4) Obtains concurrence from the AEG, the MIDO, AIR-100, and CSTAs as needed.

(5) Obtains accountable directorate concurrence and approval of the IP.

(6) Develops the "CONCLUSION" and transmits it to the applicant.

(7) Places results in the official project file.

Note: Although the PM or project team member (technical specialist) originates or initiates IPs, the accountable directorate standard staff, the PM, the PO, or the OMT for ODA (this includes the DSCO) can determine what projects will require the use of IPs.

k. PO. The PO provides regulatory or policy input to the project team or TCB through the PM. The PO routes the IP through the accountable directorate's specialists and manager to keep them apprised of the issue and to obtain their concurrence. The PO can also determine what certification projects will require the use of IPs and can propose them to the TCB. Quite often the PO acts as the PM for validation projects.

l. Technical Specialist. For type certification projects, the ACO's technical specialists can, through the PM, propose new IPs to the TCB for technical issues in their areas at any time during the process before final type certification. When an IP is first presented to the TCB, the PM will identify each branch or technical specialist that might be involved in the resolution of the issue (by means of the FAA mail routing codes). TCB grid coordination need only include the involved branches specified in the "BRANCH ACTION" section, the accountable directorate, and the chairman.

m. Accountable Directorate's Standard Staff. When a standard staff technical specialist identifies the potential need for an IP after the Certification Project Notification (CPN) Part B response has been sent to the ACO, it must be discussed with the branch manager. If the standard staff branch manager agrees with the need for an IP, the standard staff branch manager must contact the PM and corresponding manager at the PACO about the need.

n. TCB or Project Team. The TCB is the FAA management team responsible for acquainting the applicant with the certification process, resolving significant problems, processing and coordinating IPs, and establishing a schedule for the overall accomplishment of the type certification project. A TCB is established only for significant projects. When a TCB is not necessary, the certification team manages the project and performs any TCB functions to the degree necessary.

3-2. Development of an IP.

a. For type certification projects, new IPs can be proposed to the TCB by the standards staff specialists, the PO, the PM, or by technical specialists for technical issues in their areas, through the PM. This can occur at any time during the process but before final type certification. For ODA projects, the OMT can propose new IPs (this also applies to the DSCO). (Refer to appendix A to this order for IP format and instructions in detail.) The PM must coordinate the "BACKGROUND" and "STATEMENT OF ISSUE" with the accountable directorate specialists through the PO. When a significant issue pertains to technical policy overseen by the Systems and Equipment Standards Branch (AIR-130), or a significant issue pertains to operational or maintenance suitability requirements overseen by the AEG offices, the PM must coordinate with those offices when formulating the "FAA POSITION" and "CONCLUSION." For significant issues pertaining to policy overseen by the Certification Procedures Branch (AIR-110), the Operational Oversight Policy Branch (AIR-140), or the System Performance and Development Branch (AIR-150), the PM must coordinate with those offices when formulating the "FAA POSITION" and "CONCLUSION."

(1) Draft IPs are developed by the project team members for each significant issue as early in the program as feasible. Ideally, IPs are proposed at the preliminary TCB meeting (TCBM) and the "STATEMENT OF ISSUE" section of the IP is developed. However, the major emphasis at stage 1 is to raise the issue to the FAA and applicant's attention as early as feasible, providing concise "STATEMENT OF ISSUE" language that is clearly understood by all parties concerned with resolution. (Before releasing an IP at stage 1, document the "BACKGROUND" information.)

(2) Overall, the first priority is identifying, rather than resolving, significant issues. We do not expect all significant issues will be identified or resolved before the preliminary TCBM. Often, identification of IPs does not occur until the significant features of the type design are discovered later in the certification process. These IPs are generally issued at stage 2, which includes the "FAA POSITION" statement. IPs must be developed, revised, and concluded as a concerted effort between the FAA, a CA or VA (if applicable), and the applicant.

> **Note:** There are certain cases where a stage 2 IP will include an "APPLICANT POSITION" statement before the "FAA POSITION" statement. These cases would include an applicant's request for an ELOS where the FAA does not have a position until the applicant has made a request. This may also occur when an applicant proposes a new MoC that is outside of written FAA policy.

(3) If the applicant is aware of the need for an IP, we recommend including the "FAA POSITION" statement (initially released at stage 2) in the IP first introduced to the applicant. However, if controversial aspects and/or the nature of the issue require immediate and formal notification of the issue, release the IP at stage 1.

(4) Project team members and other technical participants accomplish most of the type certification work through ongoing technical assessment activities outside the framework of formal TCBMs. Document progress on all items with normal entries in the official type certification project file. Indicate progress on significant issues by updating existing IPs or, if new significant issues are raised, by developing new IPs.

> **Note:** IPs are considered "draft" until they are coordinated through the appropriate TCB members and the accountable directorate, their initials appear on the board coordination grid, and the accountable directorate has signed the IP.

(5) PMs must keep the accountable directorate, AIR-100, the MIDO, the AEG, and CSTAs fully apprised of the technical issues encountered throughout the evaluation process. POs must keep the specialists and managers at the accountable directorate apprised of the technical issues. The PM typically obtains accountable directorate assistance in formulating the "FAA POSITION" and "CONCLUSION" before the IP is submitted to the project team members for coordination. Directorate team coordination and standards staff manager sign-off on the IP is required at any stage of the IP that will be released to the applicant. The primary purpose of accountable directorate review is to—

(a) Ensure and lead standardization of the IP by comparing it with similar IPs from other projects.

(b) Provide current policy related to the significant issue.

(6) All new or revised IPs are coordinated with the applicant, the project team members, and the accountable directorate. If coordination with both the applicant and project team members happens without impasse, the IPs can be closed without holding a formal TCBM. In the event of an impasse, refer to the procedures in paragraph 5-2 of this order.

(7) Before completing the "CONCLUSION" of the IP, try to reach an agreement with the applicant on the IP's final requirements. If further discussions require applicants to revise their position, revise the IP and the conclusion accordingly.

(8) The accountable directorate manager or their designee approves the "CONCLUSION" statement, and this approval constitutes the definition of the FAA requirement/position. The IP will be sent to the applicant directly or through the CA, if applicable. Further discussions, correspondence, or appeals must focus on new information or proposals. Responses to such efforts must refer to the current stage and date of the IP as well as indicate whether—

(a) The new effort provides new information warranting a reconsideration of, and revision to, the IP, or

(b) The IP "CONCLUSION" stands as written.

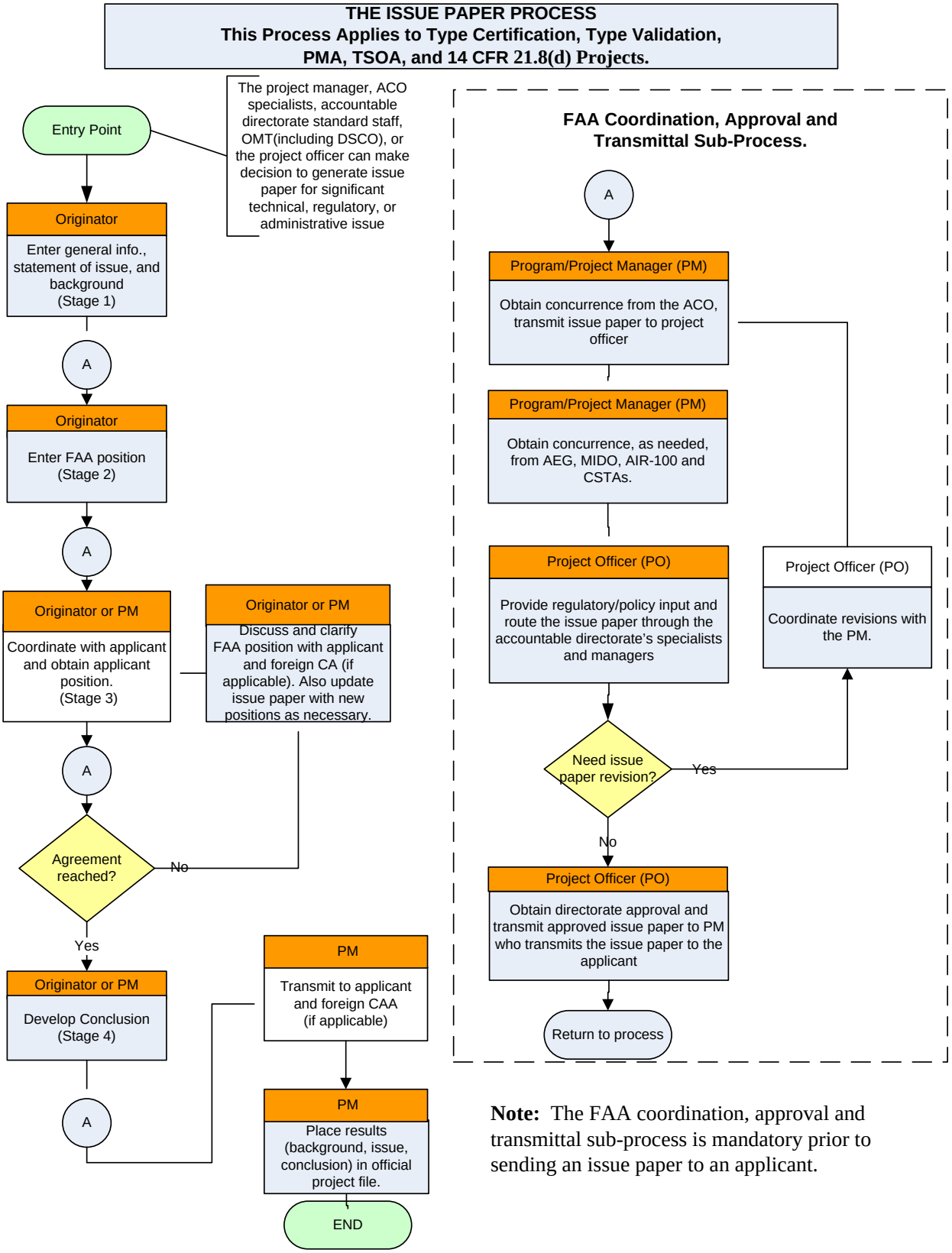
(9) Do not send draft copies of IPs to the applicant or to the VA or CA (if applicable) unless help is needed. For example, applicants are asked to confirm the technical correctness of the "BACKGROUND," or asked to review their position as written in the IP to determine if it was conveyed properly. If sending a draft IP is unavoidable, ensure the accountable directorate has reviewed the contents of the draft, mark it as a draft, and ensure the applicant is aware that the IP is subject to change until final signature by the accountable directorate is obtained. Do not

provide a draft copy of the “FAA POSITION” statement to the applicant without the consent of the accountable directorate PO.

b. IPs that are signed and closed by the accountable directorate are subject to review for sensitive or proprietary information by the PACO and may be released to the public because they document a final position, action, or decision taken by the FAA. In response to a request under the Freedom of Information Act (FOIA) concerning an FAA certification program, these IPs must be reviewed for sensitive or proprietary information by the PACO according to standardized procedures (refer to FAA Order 1270.1, *Freedom of Information Act Program*). The PACO must consult with the applicant to ensure the sensitive proprietary information has been redacted to the applicant’s satisfaction. Conversely, the author of an IP may refer to official project file documents in the body of the IP to reduce the number of details.

c. IPs that are not closed by the accountable directorate will be considered documents prepared by government employees for use in effecting project management containing opinions, advice, deliberative material, and recommendations made in the course of developing official action by the government. Such IPs are not considered part of the official action; they are considered material exempt from public disclosure to the fullest extent possible under FOIA, section 552(b)(5), as implemented by Department of Transportation regulations, 49 CFR 7.13. Open IPs may be retained by the PACO as working papers for corporate memory.

Figure 1. Issue Paper Process Flowchart



Note: The FAA coordination, approval and transmittal sub-process is mandatory prior to sending an issue paper to an applicant.

Figure 1. Issue Paper Process Flowchart (Continued)

Note 1: This process can apply to other types of FAA approvals by omitting the usage of TCB because PMA or TSOA projects do not require the creation of a TCB.

Note 2: For part 21 issues, consider AIR-100 as the accountable directorate.

Note 3: The PACO PM conducts MIDO or AEG coordination as well as CSTA coordination, as appropriate.

Note 4: In certain cases, a stage 2 IP will include an "APPLICANT POSITION" statement before the "FAA POSITION" statement. These cases would include an applicant's request for an ELOS where the FAA does not have a position until the applicant has made a request. This may also apply when an applicant proposes a new MoC that is outside of written FAA policy.

Chapter 4. Equivalent Level of Safety Memorandum Process

4-1. Process.

a. An IP is the vehicle for documenting the evolution and conclusion of the request for an ELOS finding. Applicants are responsible for making the request and submitting to the PACO the proposed ELOS with all necessary data required for the FAA to develop the IP and make the finding of equivalent safety.

b. The PACO then submits the IP to the accountable directorate. The IP includes the proposed ELOS in the "APPLICANT POSITION" and the proposed wording in the "FAA POSITION" in response to the applicant's proposal.

c. The development and processing of the ELOS memorandum must occur concurrently with development of the "CONCLUSION." The PACO sends the ELOS memorandum to the accountable directorate for approval and, because the IPs must be finalized (closed) before the issuance of a design approval, the ELOS memorandum must also be approved by the accountable directorate before the issuance of the design approval. The accountable directorate must inform the PACO of its evaluation and concurrence of the ELOS separately from the IP using the ELOS memorandum. The contents of the memorandum are kept as part of the permanent records of the project files and published on the FAA RGL.

> **Note:** The ELOS memorandum process does not take the place of the IP process.

d. Address the ELOS memorandum from the accountable directorate to the certification office.

e. Either the originator of the IP or the PM constructs the ELOS memorandum on behalf of the accountable directorate, ensuring the memorandum contains the information called for in paragraphs 4-6a through f below.

> **Note:** Refer to appendix C to this order for the standard ELOS memorandum template. Also, refer to the RGL ELOS section for actual ELOS memorandums.

f. The ELOS memorandum must contain—

(1) An introduction of the background information, including an explanation of the need for the ELOS;

(2) A listing of the applicable regulation(s);

(3) A description of the features of the design or other project elements that require the ELOS finding;

(4) A description of the compensating features (that is, any imposed design changes, limitations, or required equipment) that provide the ELOS;

(5) An explanation of how the actions taken provide an ELOS to that intended by the regulation; and

(6) The ACO recommendation to the accountable directorate for approving the ELOS.

> **Note:** Because the content of this memorandum is kept as part of the permanent records of the project files, ensure the memorandum does not contain any sensitive or proprietary information.

g. After its review and concurrence of the ELOS memorandum, the accountable directorate must then sign the memorandum that was prepared by the PACO.

> **Note:** The accountable directorate staff will assign a reference number to the ELOS memorandum to allow its access from the FAA's RGL electronic database. This ELOS memorandum number is listed in the TCDS under the certification basis section (TCs and amended TCs) or in the limitations and conditions section of the STC.

Chapter 5. Project Coordination

5-1. TCBM Technical Assessment Activities and Follow-on.

a. After the initial TCBM, coordinate new or updated draft IPs with the applicant and the TCB members.

b. Participant (TCB member or applicant) coordination on a new or updated IP means only that—

(1) The participant understands all statements and agrees that the "BRANCH ACTION" (refer to paragraph 1b(9) of appendix A to this order) involvement is correct, and

(2) The paper accurately reflects the resolution status.

c. Obtain the accountable directorate's assistance (as well as assistance from AIR-100, the MIDO, the AEG, and CSTAs, when appropriate) when formulating the "FAA POSITION" and "CONCLUSION" before the IP is submitted to the TCB members for coordination.

d. At any stage, the accountable directorate's concurrence with an IP is indicated by the initials and dates of the specialists and their managers, the PO's initials and date, and by the signature of the accountable directorate designated representative on the last page. When appropriate, AIR-100 and other FAA organizations' concurrence is indicated by a branch manager's initials and date on the coordination grid, or by the PM or PO after telephonic, electronic, or written authorization.

5-2. Impasse.

a. If an impasse is reached between TCB members, the ACO manager and/or accountable directorate management must resolve it after considering the views of all affected parties. The resulting decision becomes the basis for the FAA position in the IP, which is signed by the designated representative of the accountable directorate.

b. Most issues may be resolved by coordinating IPs among the TCB members without a meeting.

c. A formal interim TCBM may be called by the TCB chairman to hear conflicting views and resolve the issue. Either a TCB member or the applicant may request a formal interim TCBM. If the chairman agrees that a formal interim TCBM is necessary, an agenda will be developed (with discussions limited to the agenda items) to ensure all participants are fully prepared and adequately represented. Unless resolution of a major issue is essential, schedule interim TCBMs and group agenda items together to avoid unacceptable delays in the project.

d. Approval by the accountable directorate of the "CONCLUSION" stated in an IP, following concurrence from TCB chairman, AIR-100, and other FAA organizations when appropriate, establishes the FAA requirement. Further discussions, correspondence, or appeals must focus on new information or proposals. Responses to such efforts must refer to the current stage and date of the IP, and indicate whether the new effort provides new information warranting a reconsideration and revision to the IP, or whether the "CONCLUSION" stands as written.

e. If the applicant does not comply with the criteria of the IP, the project will remain open and the approval will not be issued.

f. An IP may be reopened if a new issue is identified, or at the applicant's request with the concurrence of the PACO and the accountable directorate.

Appendix A. Issue Paper Format and Template

1. Purpose. The coordination grid is included in figure A-1 of this appendix. The format used in drafting issue papers (IP) is shown in figure A-2 of this appendix. Instructions for completing the IP format are below, using the same item numbers as indicated in figure A-2.

a. The complete coordination grid can be inserted as the first sheet or at the end of the electronic file of the IP. The project manager (PM) will sign off on the coordination grid. Route the IP electronically or by hard copy, as appropriate. Do not forward the completed coordination grid sheet to the applicant as part of the IP.

> **Note:** Use the coordination grid to obtain management's initials. The contact list will only contain the initials of the Federal Aviation Administration (FAA) PM, project officer (PO), and originator. In some cases, the contact list will also contain the initials of the technical specialist.

b. Use the format and coordination grid presented in this appendix for all IPs. Contact the applicable PO if the IP template or coordination grid is not available to you.

(1) **PROJECT:** Project, model designation, and project number or identifier.

Example: Acme Aircraft Company
Model AC-850
Project No. TCXXXXSE-T

(2) **REG. REF.:**

(a) List relevant regulations, including any special conditions issued on the model.

Examples: 14 CFR Examples: 14 CFR 25.1309; or 25.1309, 25.1453; or
Special Condition P-3 (25-78-NW-55/Aircraft Model)

(b) The following related information must also be shown, as appropriate:

1 If a special condition has been, or will be, proposed.

Example: 14 CFR 29.1318
Special Condition Proposed

2 If an exemption petition has been filed by the applicant.

Example: 14 CFR 27.954
Exemption Petition Pending (Granted or Denied)

3 If an equivalent safety finding is an issue.

Example: 14 CFR 25.789
Equivalent Safety Finding Requested (Granted or Denied)

(3) **NATIONAL POLICY REF.** List national policy documents relevant to the issue, such as advisory circulars, national directives, and precedent-setting special conditions issued for a similar situation, or policy letters. If there are no known established national policy statements on the issue, state "None."

Examples: Advisory Circular 20-XX
Order 8110.XX

Notice N8110.XX
Special Condition 23-ACE-XX/Aircraft Model

(4) **SUBJECT:** Identify the issue with a short, concise, descriptive subject title.

Example: Predictive Windshear System, or
Unwanted Automatic Thrust Lever Movement

(5) **ITEM:** Use an alphanumeric issue identifier (for example, G-1, A-2, P-5, and so forth).

(a) The first digit is an alphabetic identification of the technical area of prime concern as follows:

G – General
A – Airframe
S – Systems and Equipment
P – Propulsion
E – External Environmental Threats
N – Noise
F – Flight Test
C – Crashworthiness/Interiors
Q – Quality assurance or article conformity
O – Operational
M – Maintenance

(b) The numeric character indicates the sequential number of the IP. When performing an amended TC project, we suggest that the sequence of IPs for the derivative model start with the next available number from the baseline project. The General G series IPs do not follow this numbering convention. For example, the certification basis is always identified as "G-1."

(c) For large certification programs, it is useful to utilize additional technical subject identifiers (for example, "SA" for systems avionics, "SE" for systems electrical, "SW" for systems software, "ES" for environmental systems, and "EE" for ETOPS). The use of these additional identifiers can make the tracking and the identification of the IP easier.

(6) **STAGE:** The stage, plus the date, indicates the level of development and content of the issue paper:

Stage 1: Indicates that the "STATEMENT OF ISSUE" has been defined and that corollary discussion and "BACKGROUND" information has been included.

Stage 2: Indicates that the "FAA POSITION" has been defined. In certain cases, an "APPLICANT POSITION" may precede the "FAA POSITION" at stage 2. These cases would include an applicant's request for an equivalent level of safety (ELOS) where the FAA does not have a position until the applicant has made their request. This may also apply when an applicant proposes a new MoC that is outside of written FAA policy.

Stage 3: Incorporates the "APPLICANT'S POSITION" and/or "THE VALIDATING or CERTIFICATING AUTHORITY POSITION," if applicable. It may also include a revised applicant's position in response to the FAA position.

Stage 4: Includes the "CONCLUSION" of the issue.

(a) IPs need not always start with stage 1. Most IPs will start as stage 2 with the "FAA POSITION" defined. If the applicant's position is available and included in the initial release of an IP, identify the IP as stage 3. In this case, include a note at the end of the applicant's position. The note identifies that the applicant has not formally seen the FAA's position and that a response is required before closing the IP.

(b) Each stage of the IP may have more than one revision, which is tracked by the stage and date. If the FAA's position needs to be modified for clarity based on the information contained in the "APPLICANT'S POSITION," an additional FAA statement must be made during development of stage 3. The modified FAA position will be titled as "FAA POSITION" (dated month, day, and year) while keeping the original "FAA POSITION" statement intact. The corresponding revised applicant's position, if required, is incorporated in the same fashion, including the date of the subsequent "APPLICANT POSITION" statement. Document in the "CONCLUSION" statement any minor variances in the FAA requirements for which the applicant would have no response. When revising an IP without changing the stage, it is important to document why the issue has been revised.

(c) If one party to a controversy significantly changes its position, retain only the most current position statement to avoid confusion. Do not retain the record of earlier abandoned arguments or positions, which have no remaining relevance to the resolution. Add a statement to the new position that the previous position was superseded and where the previous position can be found.

(7) **DATE:** The date, along with the stage, indicates the revision status of the IP. Following incorporation of proposed changes, the originator will insert the date reflecting the latest revision. The stage and date of an IP define its revision level.

(8) **ISSUE STATUS:** The Issue Status block indicates the current resolution status of the issue, that is, "OPEN," "CLOSED," or "REOPEN." The issue status must indicate "CLOSED" after the FAA and the applicant have reached an agreement on the resolution of the issue. If an agreement is not reached, the IP can be closed when the FAA reaches a final conclusion. If the IP has been closed and circumstances warrant reopening, the Issue Status block must indicate "REOPEN." When a special condition has been proposed, the IP status will remain "OPEN" until an NPRM has been published in the Federal Register or until the pending action has been withdrawn. The IP may be closed by referencing the date of the Federal Register and page numbers of the publications.

Note: The "ISSUE STATUS" does not indicate compliance status. The TCB team must verify that compliance is shown by the applicant in accordance with the IP conclusion.

(9) **BRANCH ACTION:** When an IP is first presented to the TCB, each branch that believes it may be involved in the resolution of the issue will be identified under this item by means of their FAA mail routing code. For example, the FAA mail routing code "AIR-130"

would indicate a need to coordinate with the Aircraft Certification Service Systems and Equipment Standards Branch (AIR-130) for technical policy overseen by them. TCB grid coordination need only include the involved branches specified in the "BRANCH ACTION," the accountable directorate, and the chairman.

(10) **COMPLIANCE TARGET:** The compliance target (for example, pre-TC, pre-TIA, pre-STC, and so forth) indicates the milestone when the applicant must have completed the required tasks and have the data submitted and approved to demonstrate compliance to the applicable requirements.

(11) **TYPE OF ISSUE PAPER:** The "subheader" indicates the type of IP. Insert one of the following titles in this area:

(a) "Method of Compliance,"

(b) "Equivalent Safety Finding,"

(c) "Proposed Special Condition,"

(d) "Certification Basis,"

(e) "Determination of Compliance,"

(f) "Environmental Conditions,"

(g) " Unsafe Features or Characteristics that could preclude certification as defined in 14 CFR 21.21(b)(2)," or

(h) "Export Requirements or Validation Items."

Note: If none of the previous titles adequately describe the type of IP, the title in the sub-header may state "Issue Paper" only.

(12) **STATEMENT OF ISSUE:** The "STATEMENT OF ISSUE" must be a clear and concise statement that is easily understood by all concerned parties. *It must identify and summarize the significant or contentious issue and state why the IP is needed.* The language in the "STATEMENT OF ISSUE" must be factual and not carry inflammatory references.

Example: "The airplane design has exits located relatively close to the engine inlets. Safe slide operation and passenger evacuation may be adversely affected during emergency deployment of escape slides/rafts with engines operating. The current regulations do not address this situation."

(13) **BACKGROUND:** In the "BACKGROUND" section, describe the issue in detail and develop both sides of the issue. However, make every effort to keep the section as concise as possible without compromising understanding for resolution. Reference to letters or other documents is encouraged to cover details. At each subsequent revision or stage, this section may be sufficiently complete so that reference to previous stages/revisions is not necessary to understand the status of resolution.

(14) **FAA POSITION:** In the "FAA POSITION," indicate the FAA's concerns, opinions, and actions the applicant is required to accomplish to resolve the issue. Give the applicant direction that will enable compliance to the requirements without dictating design.

(15) **VALIDATING/CERTIFICATING AUTHORITY POSITION:** If applicable, incorporate the VA or CA's position verbatim, if possible.

(16) **APPLICANT POSITION:** The FAA must incorporate the applicant's statements, usually verbatim, when submitted in writing. If the applicant's position is submitted in writing, reference the letter number and date at the beginning of the section. If the applicant does not elect to provide a statement for inclusion in the IP, include a statement to that effect.

(17) **PAGE:** Identify the page numbers of the IP, excluding the first page and coordination grid.

(18) **CONCLUSION:** The "CONCLUSION" statement must document the resolution of the issue. If an agreement cannot be reached, the FAA may write its final conclusion. Develop the "CONCLUSION" statement only after the applicant and the CA, as applicable, has had opportunity to comment on the entire FAA position or any revisions to the FAA position.

(a) The "CONCLUSION" statement must contain the final requirements required of the applicant. For bilateral certification projects, the conclusion must also state the requirements for the CA and whether the CA is required to find compliance to the requirements of the IP.

(b) It is not necessary to restate the FAA position if the requirements in the "FAA POSITION" section have not changed. In this case, a reference to the requirements contained in the "FAA POSITION" will suffice.

(c) The wording of a "proposed special condition" will be provided as the tentative conclusion until the Notice of Special Condition is issued in the Federal Register. If the special condition has been issued on another project, repeat the exact words here. Reference the NPRM docket number in this paragraph when it is available.

(d) When an IP has been released and is no longer needed, conclude the IP at stage 4 with a statement that the IP is withdrawn.

(19) **SIGNATURE:** The signature line must be the office title only (NO name), including the date of signature.

(20) **CONTACTS:** Contacts must be the originator (technical specialist), the PM, and the PO, as applicable.

(21) **FILE NAME:** Indicate the current file name of the document.

Figure A-1. Issue Paper Coordination Grid

DO NOT REMOVE FROM ISSUE PAPERS (ATTACHED)

ISSUE PAPER

COORDINATION GRID

APPLICANT NAME_____
MODEL_____ **PROJECT NO.**_____
ISSUE PAPER NUMBER:_____ **STAGE**_____ **DATE**_____
SUBJECT:_____
PROJECT/PROGRAM MANAGER:_____

SPECIALISTS

	ACO	ACO	ACO	ACO	DIR	DIR
Branch/Org Name						
Initials Date						

SPECIALISTS

	DIR	PM	PO	AEG	CSTA	MIDO
Branch/Org Name						
Initials Date						

ACO BRANCH MANAGEMENT

Branch/Org Name						
Initials Date						

ACCOUNTABLE DIRECTORATE STANDARDS STAFF MANAGEMENT

	111	**112**	**113**	**114**	**110**	
Branch/Org Name						
Initials Date						

For technical and procedural policy overseen by the Design, Manufacturing, and Airworthiness Division branches (AIR-110, AIR-130, AIR-140 or AIR-150), add them to the grid below, as appropriate.

DESIGN, MANUFACTURING, and AIRWORTHINESS DIVISION STANDARDS STAFF MANAGEMENT

	110	**130**	**140**	**150**	**AIR-100**
Branch/Org Name					
Initials Date					

Figure A-2. Issue Paper Format

ISSUE PAPER

PROJECT: (1)

ITEM: (5)

STAGE: (6)

REG. REF.: §§ (2)

DATE: (7)

NATIONAL POLICY REF.: (3)

ISSUE STATUS: (8)

SUBJECT: (4)

BRANCH ACTION: (9)

COMPLIANCE TARGET: (10)

TYPE OF ISSUE PAPER (11)

STATEMENT OF ISSUE: (12)

BACKGROUND: (13)

FAA POSITION: (14)

VALIDATING/CERTIFICATING AUTHORITY POSITION: (15)

APPLICANT POSITION: (16)

(*Header information)*

- -

PROJECT: (1) **ITEM:** (5)

STAGE: (6)

DATE: (7)

PAGE: (17)

- -

CONCLUSION: (18)

(19)

Accountable Directorate Date

Aircraft Certification Service

CONTACTS:

(20)

TITLE	**NAME**	**PHONE**
Originator		
Project Manager		
Project Officer		

FILE NAME: (21)

Appendix B. Sample Issue Paper

ISSUE PAPER

PROJECT: GENERIC AIRCRAFT COMPANY
Model XYZ

ITEM: (5)

STAGE: (6)

REG. REF.: 14 CFR 25.865

DATE: (7)

NATIONAL POLICY REF.: AC 20-135, Aviation Safety Release No. 415

ISSUE STATUS: Open

SUBJECT: Fire Protection of Structure and Systems in Fire Zones

BRANCH ACTION: Airframe

COMPLIANCE TARGET: Pre-TIA

1. STATEMENT OF ISSUE:
Engine mounts, flight controls, and other flight structure in, or adjacent to, designated fire zones must be fireproof or shielded so that they are capable of withstanding the effects of fire. Fireproof is defined in
14 CFR part 1 as "equivalent to steel." The engine mount structures on the Generic model airplanes are made of titanium, which may not be equivalent to steel in terms of load-carrying capability at elevated temperatures. Also, some structural components are composed of elastomerics.

2. BACKGROUND:
Title 14 CFR 25.865 was added to part 25 by amendment 23 in 1970, although the same requirement had already existed for rotorcraft for many years. Aviation Safety Release No. 415 dated November 9, 1961 states that the component must sustain the loads and perform the function for which it was designed when subjected to a test flame of 2,000 degrees for 15 minutes. This document formed the basis of the current advisory material for transport and utility helicopters (AC 29-2A, *Certification of Transport Category Rotorcraft,* and AC 27-1, *Certification of Normal Category Rotorcraft*) and has been used for transport category airplane certification.

Although AC 20-135, *Powerplant Installation and Propulsion System Component Fire Protection Test Methods, Standards and Criteria,* contains fire protection criteria for powerplants, it does not contain any means of compliance with 14 CFR 25.865. Past programs have generally relied on the criteria in Aviation Safety Release No. 415 although the criteria stated in it are general and subject to varied interpretations. The certification program for the generic model XYZ was delayed because of controversy concerning the means of compliance with 14 CFR 25.865. The following FAA position is developed from the criteria provided in AC 29-2A for transport category rotorcraft, with some modifications appropriate to transport airplanes.

3. FAA POSITION:
The titanium and elastomeric structures must be able to sustain the appropriate loads with a positive margin of safety for any foreseeable powerplant fire condition. A test must be performed in which the structures are subjected to a test flame of 2,000 ± 50 degrees for a period of 15 minutes. The heat flux must be as described in AC 20-135, and loads appropriate to the fire condition must be imposed during the test.

In the absence of a more rational determination of the expected flight loads, the structure must be able to support limit flight loads without failure for at least 5 minutes. After 5 minutes and until the end of 15 minutes, the engine may be assumed to be shut down, and the structure must be able to support the discrete source damage loads described in AC 25.571-1A. Freedom from flutter and whirlmode must also be established.

The fail-safe features of the design may be taken into account if it can be shown that foreseeable fire conditions could not affect the integrity of the alternate load paths.

Validated analyses may be used to represent the transient temperature conditions and strength under the applied loads.

VALIDATING/CERTIFICATING AUTHORITY POSITION:

APPLICANT POSITION:

CONCLUSION:

_____ _____

Transport Airplane Directorate Date

Aircraft Certification Service

CONTACTS:

TITLE	NAME	INITIALS DATE	PHONE
Originator			
Project Manager:			
Project Officer:			

Filename:

Appendix C. ELOS Memorandum Template

Federal Aviation
Administration

Memorandum

Date: [Type date here]

To: Manager, _____ACO, [Routing Symbol]

From: Manager, Accountable Directorate, AXX-100

Prepared by: [Originating ACO Engineer, Routing Symbol]

Subject: INFORMATION: Equivalent Level of Safety (ELOS) Finding for Company X's project on a Model Y, FAA Project # LLXXXXCC-X

ELOS Memo#: LLXXXXCC-X-Z-Z

Regulatory Ref: 14 CFR XX.XXX

This memorandum informs the certificate management aircraft certification office of an evaluation made by the Accountable Directorate on the establishment of an equivalent level of safety finding for the *[enter airplane designations]*.

Background

Top level description of project, and the need for an equivalent safety finding.

Applicable regulation(s)

14 CFR XX.YYY, XX.ZZZ.

Regulation(s) requiring an ELOS finding

14 CFR XX.YYY

Description of compensating design features or alternative Methods of Compliance (MoC) which allow the granting of the ELOS (including design changes, limitations or equipment needed for equivalency)

As noted, describe the design features which related to granting of the ELOS removing any proprietary information. Note that the Method of Compliance (MoC) may be subject of an ELOS finding.

Explanation of how design features or alternative Methods of Compliance (MoC) provide an equivalent level of safety to the level of safety intended by the regulation

This section discusses how said compensating features previously discussed meet the level of safety intended by the regulation. Note that the Method of Compliance (MoC) may be subject of an ELOS finding.

FAA approval and documentation of the ELOS finding:

The FAA has approved the aforementioned equivalent level of safety finding in project issue paper Z-Z. This memorandum provides standardized documentation of the ELOS finding that is non-proprietary and can be made available to the public. The Accountable Directorate has assigned a unique ELOS Memorandum number (see front page) to facilitate archiving and retrieval of this ELOS. This ELOS Memorandum number must be listed in the Type Certificate Data Sheet under the Certification Basis section (TCs & ATCs) or in the Limitations and Conditions section of the STC. An example of an appropriate statement is provided below.

Equivalent Level of Safety Findings have been made for the following regulation(s):

14 CFR XX.YYY section Title (documented in ELOS Memo LLXXXXCC-X-Z-Z)]

Manager, Accountable Directorate,
Aircraft Certification Service

Date

ELOS Originated by ACO:	ACO Manager	Routine Symbol

Appendix D. Definitions

a. Accountable Directorate. The aircraft certification directorate with final authority, accountability, and responsibility for type certification programs, development of airworthiness standards, and development and standardization of technical policy for an assigned product and a specific part of Title 14 of the Code of Federal Regulations (14 CFR).

b. Aircraft Certification Office (ACO). The aircraft certification directorate's engineering operational element. This office administers and secures compliance with agency regulations, programs, standards, and procedures governing the type design of aircraft, aircraft engines, or propellers. The term "ACO" also refers to the Engine Certification Office (ECO), the Rotorcraft Certification Office (RCO), the Special Certification Office (SCO), and the Military Certification Office (MCO).

c. Aircraft Evaluation Group (AEG). Assigned to each Aircraft Certification Directorate, addresses Flight Standards considerations during type certification, evaluates operational and maintenance aspects of certification, and evaluates continuing airworthiness requirements of newly certificated or modified products and parts.

d. Amended TC. An approval for a change to a TC, made by the TC holder. Only the holder of the TC may apply for an amended TC.

e. Certificating Authority (CA). The aviation authority responsible for the original type certificate or supplemental type certificate. Certificating Authority means the FAA for applicants/certificate holders located in the United States, the European Aviation Safety (EASA) for applicants/certificate holders located in the European Community, and the Joint Aviation Authorities (JAA) member states for products under JAA procedures.

f. Certificate Management ACO (CMACO). The ACO managing the product's TC. The CMACO also manages the continued airworthiness for all products it approves for as long as the products are in service.

g. Certification Plan. The applicant's intended means for showing that a product complies with the applicable regulations.

h. Chief Scientific and Technical Advisors (CSTA). Technical consultants in specific, specialized topics use their technical expertise to help AIR apply regulatory policies and practices to certify state-of-the-art technology, influence the research agendas of U.S. and foreign aviation industries, military, academia, and other research institutions, and interact with and assist other U.S. Government agencies and foreign CAs in technology-related issues.

i. Design, Manufacturing, and Airworthiness Division (AIR-100). Responsible for the development and standardization of regulations, national directives, policy, procedures, and advisory material for continued operational safety, type certification, design approval, production certification, airworthiness certification, and for authorization and oversight of representatives of the Administrator for civil aeronautical products.

j. Methods of Compliance (MoC). The analyses, tests, or inspections used by the applicant to demonstrate compliance with the certification and validation airworthiness standards. MoC include descriptions of methodologies employed, assumptions used in applying the methodologies, and discussions of the procedures used to verify the methodologies.

k. Manufacturing Inspection Office (MIO). Oversees the manufacturing inspection district offices (MIDO) and manufacturing inspection satellite offices (MISO) in its geographic area and provides organizational leadership and technical guidance to these offices. The MIO manages all geographically located production facilities and designees. They administer the airworthiness certification policies, office staffing, and internal budget allocation.

l. MIDO. A subordinate office to the MIO (refer to MIO above) in its geographical area. This office oversees production certification, airworthiness certification, approval holders (manufacturing facilities), and designees in its geographical area. MIDOs support ACOs during type certification programs; they investigate and submit enforcement reports on noncompliance with 14 CFR parts. MIDOs investigate and ensure corrective measures for service difficulties are implemented as identified in the quality system.

m. MISO. A subordinate, geographically remote office that reports to a MIDO and is responsible for the same activities as the MIDO.

n. Parts Manufacturer Approval (PMA). An FAA design and production approval to manufacture replacement and modification parts that comply with the regulations. Refer to FAA Order 8110.42, *Parts Manufacturer Approval Procedures*.

o. Product. For type certification, a product is defined as an aircraft, an aircraft engine, or a propeller. The word product has other meanings in different contexts, such as for export airworthiness approvals (refer to 14 CFR part 21, Certification Procedures for Products and Parts, § 21.1(b)).

p. Project ACO (PACO). The ACO working a certification project. The PACO may need to coordinate with the CMACO, if the project is a follow-up certification activity, such as an STC or PMA.

q. Project Team. The project team normally consists of the following:

(1) A program/project manager (PM),

(2) Engineers or technical specialists,

(3) Flight test pilots and flight test engineers,

(4) Manufacturing inspectors,

(5) AEG operations and airworthiness inspectors, and

(6) A project officer (PO) and other persons at the discretion of the accountable directorate.

Note: The certification project team is comprised of the individuals needed to conduct a certification project. A TCB is an FAA management team.

r. Significant Change. As defined in FAA Order 8110.48, *How to Establish the Certification Basis for Changed Aeronautical Products*, a change to the TC is significant to the extent it changes one or more of the following: general configuration, principles of construction, or the assumptions used for certification. The change is not extensive enough to be considered a substantial change. Refer to FAA Order 8110.48 for more information.

s. Supplemental Type Certificate (STC). A type certificate that the FAA issues to an applicant who alters a product by introducing a major change in type design (as defined by

§ 21.93(a), Classification of changes in type design). The STC process is essentially the same as the TC process.

t. Technical Specialist. For this document, "technical specialist" means any specialist involved in certification activities. This term is not restricted to an engineer with that job title.

u. Type Certificate (TC). A design approval issued by the FAA when the applicant demonstrates that a product complies with the applicable regulations. As defined by § 21.41, Type certificate, the TC includes the type design, the operating limitations, the type certificate data sheet (TCDS), the applicable regulations, and other conditions or limitations prescribed by the Administrator. The TC is the foundation for other FAA approvals, including STCs, PMAs, and production and airworthiness approvals.

v. Type Certification Board (TCB). An FAA management team responsible for acquainting the applicant with the certification process, resolving significant problems, and establishing a schedule for the overall accomplishment of the type certification project. A TCB is established only for projects of a certain magnitude. When a TCB is not necessary, the certification team or project team manages the project and performs any functions of the TCB to the degree necessary.

(1) Members. The members of a TCB include:

(a) The ACO manager (or representative);

(b) Directorate PO (for projects requiring directorate's involvement);

(c) PM; and

(d) Other members including the managers, supervisors, or senior personnel from the appropriate engineering disciplines; and flight test, manufacturing inspection, and assigned AEG personnel.

(2) Additional TCB Participants. The TCB may request other participants, such as those listed below, to join the certification team or participate on an advisory basis in the TCB meetings.

(a) ACO engineers, flight-test pilots, and manufacturing inspectors;

(b) Washington Headquarters specialists;

(c) CSTAs;

(d) Additional AEG and FSDO personnel;

(e) The PO from the accountable directorate (if not serving as a board member);

(f) Representatives of the CMACO, other ACOs, and directorates; and

(g) The applicant and its representatives.

w. Type Certification Board Meeting (TCBM). Any formal meeting between the TCB and the applicant to coordinate the move to the next project phase or resolve issues preventing progress to the next phase. Examples include preliminary, interim, pre-flight, and final TCBMs.

x. Type Design. The engineering definition of a particular product. The type design consists of the following (refer to § 21.31, Type design):

(1) Drawings and specifications;

(2) Dimensions, materials, and processes;

(3) Airworthiness limitations;

(4) A special inspection and preventive maintenance program designed to be accomplished by an appropriately rated and trained pilot- owner (for primary category aircraft, if desired); and

(5) Any other data necessary to allow, by comparison, the determination of the airworthiness, noise characteristics, fuel venting, and exhaust emissions (where applicable) of later products of the same type.

y. Type Validation. Type certification of an imported product to the importing country's applicable requirements or airworthiness standards. Process leads to issuance of new and amended type certificates when FAA is the VA. When EASA is VA, type validation leads to issuance of an EASA type certificate valid in all EASA member states. When a National Aviation Authority (NAA) of a non-EU JAA member state is VA, type validation leads to a letter of recommendation for type certificate from the JAA to the NAAs. Term also describes the general principles adopted by FAA and EASA/JAA for determining appropriate VA involvement in validations, whether they are new or amended type certifications, or major level 1 design changes.

z. Validating Authority (VA). The aviation authority responsible for validating the CA type certificate or supplemental type certificate. Validating authority means EASA for applicants/approval holders located in the United States, and FAA for applicants/approval holders in the European Community and JAA member states. Validating authority may also be called the importing authority.

aa. Validating Authority Certification Basis. It comprises the applicable airworthiness standards identified by the VA plus any exemptions, special conditions, and equivalent level of safety findings declared by VA to establish design acceptance of an imported product or to certify the design change.

Appendix E. Administrative Collector and Cover Issue Papers

1. Overview.

a. This appendix covers the development of Administrative Collector Issue Papers (ACIP) and Cover Issue Papers (CIP) for foreign certificating authority (CA) issue papers (FIP) associated with certification projects.

b. These procedures apply to Directorates Standards Staff, organization management team (OMT) leadership offices that oversee organization designation authorization (ODA) holders (including the Delegation Systems Certification Office (DSCO)), and Aircraft Certification Office (ACO) employees involved with ACIPs and CIPs.

c. This appendix describes how to reuse previously approved IPs on new certification programs. You can use this procedure to develop, approve, and release ACIPs and CIPs in support of certification projects. In general, you do this by—

(1) Reviewing previously approved IPs and FIPs to see if they meet the criteria in paragraph 4 of this appendix,

(2) Writing an ACIP or CIP, and

(3) Routing the ACIP or CIP for approval.

d. The CA IPs or CIPs can be used instead of Federal Aviation Administration (FAA) IPs for the same certification program, provided the current applicant is the same as the applicant of the previously approved IP or FIP. The CIP process combined with AEG acceptance of the CA findings will eliminate the need to produce many IPs.

e. In certain cases, even when offices of primary responsibility (policy owners) determine that FAA and CA airworthiness standards and interpretations are identical, we still need to write our own IP. We must always write IPs for equivalent safety findings per Title 14 of the Code of Federal Regulations (14 CFR) part 21, Certification Procedures for Products and Parts, § 21.21(b)(1). Also, we must write IPs on the certification basis (G-1), determination of compliance or compliance checklist (G-2), environmental considerations (G-3), and other unique import requirements (refer to FAA Order 8110.52, *Type Validation and Post-Type Validation Procedures*, for more information).

2. Definitions.

a. Administrative Collector Issue Paper (ACIP). An ACIP is an IP that approves previously approved FIPs or domestic IPs for a new certification program, provided that the current applicant is the same as the applicant of the previously approved IP or FIP.

b. Cover Issue Paper (CIP). A CIP is used to approve an IP from a foreign CA for the same program.

c. Foreign CA Issue Paper (FIP). Various foreign CAs may have their own documents similar to FAA IPs. These include Certification Review Items (CRI), Ficha De Controle De Assuntos Releventes (FCAR), and Certification Memos (CM). For the purposes of this appendix, these are referred to as FIPs.

3. Responsibilities.

a. The Aircraft Certification Service Certification Procedures Branch (AIR-110) manager is responsible for implementing, maintaining, and continually improving this process.

b. Directorates Standards Staff, OMT leadership offices that oversee ODA holders (including the DSCO), and ACO employees involved with ACIPs and CIPs are responsible for understanding and following with the requirements of this procedure.

4. Criteria for Issue Papers. The issue paper originator must verify each candidate IP meets the following criteria before referencing them in a CIP or ACIP.

a. The current applicant must be the same as the applicant of the previously approved IP or FIP.

b. For an ACIP, the amendment level(s) of the FAA rule(s) relating to the issue must be the same for both the previous and current programs except if the difference is—

(1) Limited to the organization and/or section number designation of the regulation(s) (the requirements must be the same as discussed in the preambles of the regulations), and/or

(2) Related to a paragraph that is not a subject of the IP. For example, an IP that refers to § 25.301(a) and (c) at Amendment 25-0 could be used in a collector IP where the certification basis is at Amendment 25-23 because these specific paragraphs remain unchanged. This could not be done for § 25.301(b) because there is a change that occurs at Amendment 25-23.

c. The candidate IP or FIP must not be a “general” IP (such as a G-1 or G-2). However, if the general IP does not include project-unique requirements (for example, G-4 Import Requirements), a general IP can be used.

d. For a FIP, the foreign CA must agree that the FIP from the previous program is applicable to the current program.

e. The subject of the candidate IP or FIP must still be in effect, that is, it must not have been obviated by new rulemaking, guidance material, etc.

f. The wording in each section of the candidate IP or FIP must be generic enough to be considered valid for the current program. The wording may reference the aircraft model, certification report numbers, and/or specific design data that is applicable to the previously certificated aircraft if other equivalent reports, etc., will be provided for the new aircraft program.

g. There must not be any objections from the FAA, applicant, or foreign CA to including the candidate IP or FIP in the ACIP.

h. The wording of the candidate IP or FIP must be clear. It must not contain ambiguous text, references to outdated documents, or other aspects that could lead to misunderstanding.

i. If the foreign CA reissues a FIP for a new program and it incorporates any substantive revisions to the previous program FIP, the reissued FIP may not be included in an ACIP. However, a CIP may be an appropriate means to approve the reissued FIP.

5. Development of Cover Issue Papers.

a. Issue Paper Originator Must Enter IP Header and Title Page Information. Enter the appropriate type of IP in the sub header, then add a second line that states "Cover IP for *(FIP reference number).*" Example:

Proposed Special Conditions
Cover Issue Paper for Certification Review Item (CRI) 1234

b. Issue Paper Originator Must Write a Statement of Issue. The Statement of Issue for a CIP need only reference the appropriate section of the FIP, for example, "See Statement of Issue in *(FIP reference number, date and stage).*"

c. Issue Paper Originator Must Write a Background. The background section for a CIP need only reference the section of the FIP that provides the background.

d. Issue Paper Originator Must Write an FAA Position. The FAA position must provide a statement similar to the following:

> *The FAA has determined that the subject of the [enter FIP title and date] is applicable to the FAA certification of the [aircraft model], and the FAA has determined that the [enter foreign CA] position, as provided in the [enter FIP title and date] is equivalent to the position the FAA would establish if it were to release its own IP.*

e. Issue Paper Originator Must Enter "N/A" for the Foreign CA and Applicant Positions, If Applicable. Send the CIP to the applicant and foreign CA to ensure it is still applicable and the corresponding FIP has not changed. If the applicant and foreign CA do not provide a position for CIPs, the issue paper originator must enter "N/A" where their positions are entered for typical IPs.

f. Issue Paper Originator Must Write a Conclusion at Stage 4. Write in the conclusion a statement indicating the FAA has reviewed the applicant and foreign CA positions given in the associated FIP and found them to be acceptable and applicable to the FAA certification of the new program.

6. Development of an Administrative Collector Issue Paper.

a. Issue Paper Originator Must Enter IP Header and Title Page Information. The issue paper originator must—

(1) Enter "Issue Paper" for IP type in the subheader, then add a second line that states "Administrative Collector". Example:

Issue Paper
Administrative Collector

(2) Write a statement of issue. For an ACIP, this section must provide a statement similar to the following:

A significant amount of time and effort is involved in the development and approval of issue papers. This certification program is very similar to the certification program for the (aircraft model). The FAA considers that certain issue papers and foreign issue papers approved for that program are appropriate for this program without change. This issue paper will be used to establish the criteria for applying these previously approved issue papers to this current program and will provide a summary listing of those documents that meet that established criteria. In lieu of drafting new issue papers for each of these issues, approval of this issue paper will indicate FAA approval of those documents for this program.

(3) Write a background section. For an ACIP, the background section must list a criteria for using previous candidate IPs and FIPs. The background section must also state that concurrence/approval of this ACIP by the applicant, FAA and, if applicable, foreign CA indicates that these parties have examined the list of IPs and/or FIPs and have found that each IP/FIP meets the criteria listed. Example criteria:

1. The current applicant must be the same as the applicant of the previously approved IPs.

2. The amendment level(s) of the FAA rule(s) relating to the issue must be the same for both the previous and current programs.

3. The candidate IPs must not be a "general" IP.

4. The subject of the candidate IPs must still be in effect, i.e., it must not have been obviated by new rulemaking, guidance material, etc.

5. The subject of the candidate IPs must be applicable to the design being installed on the Model ABC aircraft.

6. The wording of the candidate IPs must be clear. It must not contain ambiguous text, references to outdated documents or other aspects that could lead to misunderstanding.

7. The wording in each section of the candidate IPs must be generic enough to be considered valid for the current program. The wording may reference the aircraft model, certification report numbers and/or specific design data that is applicable to the previously certificated aircraft if other equivalent reports, etc. will be provided for the new aircraft program.

8. There must not be any objections from the FAA or applicant to including the candidate IPs in this administrative collector IPs.

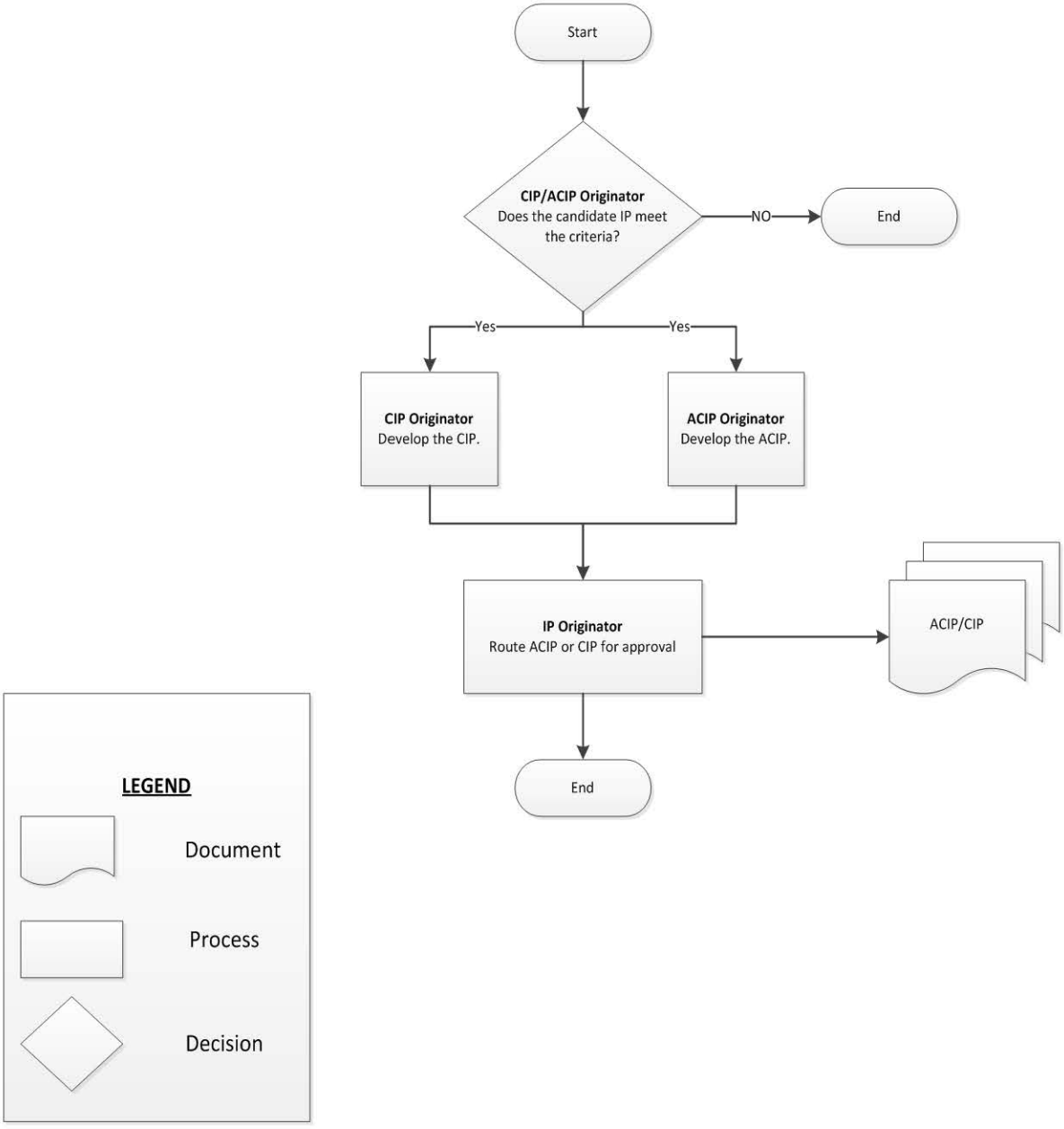
b. Issue Paper Originator Must Write an FAA Position. For an ACIP, the FAA position must—

(1) List the IPs and/or FIPs by title and reference number.

(2) State that the FAA reviewed the listed IPs and/or FIPs, found that they meet the criteria in the background and determined that they provide acceptable FAA positions for the current program.

7. Approval of ACIP or CIP. The project officer and other Aircraft Certification Offices must refer to the procedures of this order for the routing instructions for approving IPs.

Figure E-1. CIP/ACIP Process Flowchart



Appendix F. Administrative Information

1. Distribution. Distribute this order to Washington headquarters branch levels of the Federal Aviation Administration (FAA) Aircraft Certification Service (AIR), Flight Standards Service, and to branch level of the regional aircraft certification directorates and regional flight standards divisions; to all aircraft certification field offices (ACOs), all manufacturing field offices (Manufacturing Inspection Offices, Manufacturing Inspection District Offices, and Manufacturing Inspection Satellite Offices), the International Policy Office (AIR-40), and to the FAA Academy Regulatory Support Division.

2. Authority to Change This Order. The issuance, revision, or cancellation of the material in this order is the responsibility of the Design, Manufacturing, and Airworthiness Division (AIR-100). The Certification Procedures Branch (AIR–110) makes changes, as required, to carry out the FAA's responsibility to provide guidance on the standardized usage of issue papers.

3. Suggestions for Improvement. If you find deficiencies, need clarification or want to suggest improvements to this order, send FAA Form 1320-19, *Directive Feedback Information*, (written or electronically) to the Aircraft Certification Service, Administrative Services Branch, AIR-510, Attention: Directives Management Officer. You can also send a copy to the Design, Manufacturing, and Airworthiness Division, AIR-100, Attention: Comments to Order 8110.112A. If you urgently need an interpretation, you can contact the Certification Procedures Branch (AIR-110) at 202-267-1619. Always use FAA Form 1320-19, in appendix G, to follow up each verbal conversation.

4. Records Management. Refer to FAA Orders 0000.1, *FAA Standard Subject Classification System*; 1350.14, *Records Management*; and 1350.15, *Records, Organization, Transfer, and Destruction Standards*; or your office Records Management Officer or Directives Management Officer for guidance regarding retention or disposition of records.

Appendix G. FAA Form 1320-19, Directive Feedback Information

U.S. Department of Transportation
Federal Aviation Administration

Directive Feedback Information

Please submit any written comments or recommendations for improving this directive, or suggest new items or subjects to be added to it. Also, if you find an error, please tell us about it.

Subject: FAA Order 8110.112A

To: Directives Management Officer at 9-AWA-AVS-AIR-DMO@faa.gov

(Please check all appropriate line items)

☐ An error (procedural or typographical) has been noted in paragraph _____ on page _____.

☐ Recommend paragraph _____ on page _____ be changed as follows:
(attach separate sheet if necessary)

☐ In a future change to this directive, please include coverage on the following subject *(briefly describe what you want added):*

☐ Other comments:

☐ I would like to discuss the above. Please contact me.

Submitted by: _____ Date: _____

FTS Telephone Number: _____ Routing Symbol: _____

FAA Form 1320-19 (10-98)