

AVIATION SAFETY INSPECTOR'S HANDBOOK

TYPE CERTIFICATION

CHAPTER 1. GENERAL

1-1. PURPOSE. This order is for the Civil Aeronautics Administration's (CAA) Flight Standards Division Aircraft Certification Section with the certification processes required by CAA Rules. It prescribes the responsibilities and procedures the CAA must follow to certify the design change of civil aircraft, aircraft engines, and propellers.

1-2. REFERENCE

- a. FAA Order 8110.4C Chapter 1, 2, 3, 4

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Chapter 2 TYPE CERTIFICATION PROCESS

2-1. GENERAL. This chapter describes the process for applicants to obtain a CAA STC for their product only. It is modified from FAA TC process. Some of the steps or procedures in this chapter may not apply to all certification projects, especially small ones. Some processes unique to STCs are discussed in chapter 4.

2-2. RESERVED.

2-3. CONCEPTUAL DESIGN.

FIGURE 2-3. TASKS DURING THE CONCEPTUAL DESIGN PHASE

Process Orientation.....	2-3a
Pre-Project Guidance.....	2-3b
Familiarization Briefing	2-3c
Certification Plan.....	2-3d

a. **Process Orientation.** An applicant seeking a STC approval is encouraged to contact CAA before submitting a STC application. During this initial contact, a CAA project manager should discuss the type of requested approval with the applicant and assess the applicant's knowledge of certification procedures. The project manager needs to conduct a process orientation for applicants who are unfamiliar with certification. The process orientation establishes a partnership with the applicant and provides an opportunity to develop an understanding of the certification process as it applies to the applicant's design. The orientation should explain the need for certification, the certification process, the CAA's roles, and the applicant's responsibilities. Depending on the applicant's previous certification experience, the process orientation may be conducted by phone or in person.

b. **Pre-Project Guidance (Regulatory and Policy Discussions).** The CAA requires a STC application before providing full access to the CAA resources necessary to complete a project. However, before this application, the CAA responds to the potential applicant's questions about the CAA's procedural and technical requirements that may arise after the applicant's process orientation. CAA will first direct the potential applicant to appropriate regulatory, policy, and guidance material, then, at the CAA's discretion, involve itself directly. Further involvement may be necessary to determine how unique or novel a proposed design is, or to research past policy applications. However, expect potential applicants to educate themselves as much as possible on the certification process. Finally, encourage potential applicants to give the CAA an initial familiarization briefing soon after they commit to applying for a STC.

c. **Familiarization Briefings** give potential applicants an opportunity to describe their project to the CAA before application. These briefings are intended for products the applicant is committed to bringing to market through type certification. The main purpose is to familiarize the CAA with the proposed design as it is

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currently known. Learning about projects before submittal of the application also allows the CAA to consider CAA involvement and begin planning resources. Special emphasis should be placed on technical issues and unique or novel features. Beyond being briefed on the design features, expect to hear about the intended operation, major suppliers and unusual vendor relationships, reliance on approved equipment, project schedule, and reliance on designees or delegated organizations.

d. **Certification Plan.** All STC applicants are required to submit a certification plan to the CAA and to keep it current throughout the project. A certification plan addresses the information listed below. For simple projects, expect complete certification plans as part of the application package. For complex projects, portions of the information needed in the certification plan will not be known at the time of application. Expect the applicant to provide as much information as possible with the initial submittal and supply the rest as it becomes known. At the time of application, the extent and depth of the information in the certification plan should be sufficient to determine the feasibility of the applicant's proposed schedule. When the certification plan does not give the CAA assurance to the applicant's understanding of the scope and magnitude of the certification project, the CAA should reject the application and consider the need for another familiarization briefing. When the CAA accepts the application with an incomplete certification plan, the certification plan must be completed (see paragraph 2-5d of this order) and include the following information before entering the implementation phase:

(1) General information including applicant identification, application date, model designation, and so forth.

(2) A description of the proposed design or design change including sketches and schematics.

(3) The intended regulatory operating environment. This should identify the kinds of operations for which the product will be used, and the kind of program under which the product will be maintained.

(4) The proposed certification basis including applicable regulation paragraphs and subparagraphs with amendment levels.

(5) A description of how compliance will be shown (test, analysis, similarity, or other acceptable means of compliance). The description of the means of compliance should be sufficient to determine that all necessary CAA data will be collected and all findings can be made.

(6) A list of documentation that will be submitted to show compliance with the applicable certification basis, and how the applicant will ensure that all showings have been made. This can be accomplished using a compliance checklist addressing each section of the regulations applicable to the product.

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(7) A list of test articles to be used to generate compliance data. Identify any features or attributes for which special instructions to the manufacturing inspector will be necessary to ensure the test article meets the requirements of its tests (for example, dimensions at one or the other end of a tolerance band).

(8) A description of how the continued operational safety requirements will be met after the STC is issued.

(9) A project schedule including major milestones, such as preliminary hazard analysis submittal dates, substantiating data submittal dates, conformity and testing completion dates, and expected date of final certification.

NOTE: The applicant is responsible for meeting their milestones in the schedule contained in the certification plan. Any slippage in the milestone dates may result in a delay in the final certification.

2-4. REQUIREMENTS DEFINITION.

FIGURE 2-4. TASKS DURING THE REQUIREMENTS DEFINITION PHASE

Application for STC	4-16
Establishment of STC Project.....	2-4b
Certification Project Notification (CPN).....	2-4c
Form the Certification Team (and TCB)	2-4d
Develop Certification Project Plan (CPP)	2-4e
The Preliminary TCB Meeting.....	2-4f
Issue Paper.....	2-4g
Issues Book.....	2-4h
The Project Specific Certification Plan (PSCP)	2-4i
Certification Basis	2-4j
Interim TCB Meeting for Certification Basis.....	2-4k

a. Application for TC, Amended TC, and PC. **Reserved.**

b. Establishment of Certification Project. **The CAA assigns a project number, a project manager, and specialists as required.**

(1) Project Number. **The CAA assigns a project number to each certification project. Also, use the assigned project number in all correspondence, reports, and other documents pertaining to the project.**

(2) Assignments and Duties of the Project Manager.

(a) **The project manager is the assigned focal point in the CAA who plans, reviews, evaluates, and coordinates all aspects of a certification project**

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according to the CPP. When the project is small, generally involving a single CAA engineer, the duties of project manager may be filled by that engineer. In this case, the engineer is called project engineer. For the purpose of this order, the term project manager includes project engineer. The applicant should be instructed to direct all project correspondence to the project manager. See paragraph 2-4e of this order for further details on CPP development.

(b) The project manager initiates the CPP and coordinates with the project team members, if necessary. The final CPP is not prepared until detailed roles and responsibilities are discussed with the applicant at the preliminary type certification board (preliminary TCB) meeting.

(c) Reserved.

(d) The project manager coordinates with the appropriate persons in selecting project team members. The project team normally consists of the following:

- 1 A project manager,
- 2 Engineers or technical specialists,
- 3 Flight test pilots and flight test engineers,
- 4 Manufacturing inspectors, and
- 5 Operations and airworthiness inspectors,

(e) The project manager sends an acknowledgment letter to the applicant identifying the project number, project manager's name, office mailing address, telephone number, and electronic mail address.

NOTE: Responses to applications can be sent by an electronic mail message, as well as a written response, to an applicant.

(3) Assignments and Duties of Engineers. Engineers are assigned to fill the technical needs of the particular project. The engineer evaluates the adequacy of the type design and substantiation data related to their assigned disciplines. They have discretion to review any of these data, such as critical material process specifications. Engineers maintain appropriate oversight of their designees. Engineers contribute to the preparation of Type Inspection Authorizations (TIA), request conformity inspection, and coordinate with CAA inspectors and their designees.

c. Reserved.

d. Form the Certification Team (and TCB). The CAA type certification team

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includes those CAA personnel needed to conduct the certification project and a CAA management team—the type certification board (TCB)—that oversees the project. A TCB is established only for projects of a certain magnitude. When a TCB is not necessary, the certification team manages the project and performs any functions of the TCB to the degree necessary.

(1) Certification Team members are assigned to a project by their respective managers. However, the project manager plays a critical role in the formation of the certification team by coordinating with the appropriate managers to ensure proper technical representation on the team. These duties and the project team members are discussed as part of establishing a project. See paragraph 2-4b above.

(2) Type Certification Board (TCB).

(a) A TCB is established for the following:

- 1 Projects involving major changes to the type design,
- 2 Significant projects,
- 3 Aircraft and aircraft engine projects that involves new type certification, and
- 4 Variable pitch propeller projects.

(b) The project manager coordinates with the FDS Director when establishing the TCB membership. The FDS Director provides the project manager with the names of the operations and airworthiness inspectors assigned to the TCB. The FDS Director or representative serves as chairman of the TCB. The members of a TCB include:

- 1 The FDS Director (or representative),
- 2 Chief of Operations and airworthiness section,
- 3 Project manager, and
- 4 Other members including the supervisors or senior personnel from the appropriate engineering disciplines, manufacturing inspection, maintenance and operations.

(3) Additional TCB Participants. **Reserved.**

(4) TCB Functions. The TCB's purpose is to acquaint the applicant and the CAA certification team with the certification project. They also identify and resolve significant problems, establish milestones and schedules for the overall

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accomplishment of the certification project, review the applicant's certification plan, review the proposed certification basis, and ensure all outstanding certification issues are resolved. The TCB establishes clear expectations and project assignments for the applicant and CAA certification team.

(5) TCB Meetings (TCBM) (for example, preliminary, interim, pre-flight, final) are held with the applicant throughout the project. Some meetings may be combined, and some meetings may be duplicated or divided by discipline or system as necessary. The chairman convenes the TCB as necessary and notifies the appropriate representatives with the time, date, and location of the meetings. If the number of meetings is decreased or combined, or the meetings are divided by discipline or system, the TCB chairman is responsible for determining all elements of the process are addressed, integrated, and completed. Members, with concurrence of the chairman, may designate an alternate as their representative at TCB meetings. Members of the TCB should be familiar with the project during the development phases and in advance of TCB meetings. This practice ensures knowledgeable participants in the TCB meetings. Members participate in the specific periods of the TCB activity, as required by the project under consideration. It is not mandatory for members to participate in every meeting.

(6) TCB agenda items and subsequent meeting minutes should be sent to the applicant. The meeting minutes should include the following information:

- (a) TCB meeting type: familiarization briefing, preliminary, interim, pre-flight, or final,**
- (b) Manufacturer,**
- (c) Model and project number,**
- (d) Location and date of meeting,**
- (e) Personnel present at meeting,**
- (f) Purpose of meeting,**
- (g) Discussion of agenda items, and**
- (h) Specialty items: Major problems and actions to take.**

NOTE: Each item or subject discussed should be identified and summarized under a separate heading with the appropriate regulations referenced. These items should include a discussion, expectations, and a conclusion. Expectations should include action item assignments and a schedule for completing any action items.

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e. Develop Certification Project Plan (CPP). The CPP defines the working relationship between the team members for a specific type certification project. The CPP is the principal project coordination tool that the project manager updates throughout the project. Finalize the CPP after the preliminary TCB meeting, detailing the roles and responsibilities discussed with the applicant. The applicant's certification plan may take the place of the CPP if it includes all of the information that should be in the CPP and is coordinated with the project officer.

f. The Preliminary TCB Meeting is the initial formal meeting that establishes the basis for all integrated certification planning combining the interests of engineering, manufacturing, and maintenance and operations. Use this meeting to determine if the TCB and the applicant are adequately familiar with the various aspects of the project and to determine whether the project is mature enough to begin defining the requirements. Obtain mutual commitment to the issues and acceptance of the risks before proceeding into the requirements definition phase. This meeting should:

- (1) Update and further acquaint CAA personnel with the project,
- (2) Work toward establishing the certification basis,
- (3) Open discussion of design details and possible problem areas with specialists,
- (4) Identify areas needing the formation of special compliance teams to attain the earliest possible resolution of potential problems,
- (5) Identify novel or unique design features, materials, or processes, and
- (6) Establish a schedule for the certification project.

NOTE: Developing the certification basis may require follow-up meetings between the CAA and the applicant. If the certification basis can't be established quickly and easily, consider re-assembling the certification team by scheduling an interim TCB meeting for finalizing the certification basis.

g. Issue Paper. **Reserved.**

h. Issues Book. **Reserved.**

i. The Project Specific Certification Plan (PSCP). **Reserved.**

j. Certification Basis. **Reference 4-3.**

- (1) Framework. **Reserved.**

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- (2) Special Classes of Aircraft. **Reserved**
- (3) Special Conditions (Novel or Unusual Design Features). **Reserved.**
- (4) Equivalent Level of Safety (ELOS) Finding. **Reserved.**
- (5) Exemptions. **Reserved.**

k. Interim TCB Meeting for Certification Basis is the formal meeting to finalize the amendment level of applicable airworthiness, noise, and emissions regulations for the project. Although not always necessary, consider holding this TCB meeting to expedite the resolution of certification basis issues.

(1) If the meeting does not result in an established certification basis, it should establish a clear understanding of the actions needed to resolve the issues and assignment of those actions to the responsible people. Record duty assignments and due dates in the TCBM minutes.

(2) Use this meeting to clarify the certification risks of proceeding without a complete definition of the certification requirements. The applicant has risks that include the project schedule, redesign, and retesting. The CAA risks not being able to assign resources at critical times to complete the project. Before proceeding into the next phase, obtain mutual commitment to resolving the issues and an acceptance of the risks. If the project is not ready to proceed, schedule a follow-up interim TCB meeting for certification basis.

2-5. COMPLIANCE PLANNING.

FIGURE 2-7. TASKS DURING THE COMPLIANCE PLANNING PHASE

CAA Involvement.....	2-5a
Oversight and Delegation	2-5b
Conformity for Engineering Purposes.....	2-5c
Completed [Project Specific] Certification Plan	2-5d
Interim TCB Meeting for [Project Specific] Certification Plan Agreement	2-5e

a. CAA Involvement. For planning purposes, the CAA's and the applicant's certification teams need to know in which aspects of the project the CAA intends involvement and at what level. The heavy workloads for CAA personnel limit involvement in certification activities to a small fraction of the whole. CAA certification team members must review the applicant's design descriptions and project plans, determine where their attention will derive the most benefit, and coordinate their intentions with the applicant.

b. Oversight and Delegation. **Reserved.**

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c. **Conformity for Engineering Purposes.** The CAA uses conformity inspections for both quality assurance and engineering purposes. CAA conformity is a validation of the applicant's conformity. As part of the type certification process, the CAA must identify the minimum level of conformity inspections needed for certification. During the inspection, CAA manufacturing inspectors base the depth of their assessment on factors such as quality of the applicant's conformity paperwork, comparison of inspection results, and magnitude and complexity of the inspection.

(1) The applicant is responsible for identifying the test articles that will be used to generate compliance data, and for conducting 100 percent applicant conformity of those test articles as required by CAA Rules. The CAA is responsible for identifying features, attributes, and components critical to the test results and for requesting CAA conformity on these test articles with special instructions as necessary. The manufacturing inspector is responsible for determining what conformity inspections will be necessary for processing production approvals. Because both offices need CAA conformity inspections for different purposes, the engineers and manufacturing inspectors should finalize a comprehensive conformity plan (also known as conformity verification plan) together. Base this conformity plan on the test article and schedule data in the applicant's certification plan.

(2) The applicants should develop their test article and schedule data into a conformity plan that the CAA can accept with minimal further development. Applicants should consider the conformity requirements elsewhere in this and other orders and present a plan that supports their showing of compliance for a STC and the CAA's finding of compliance for the STC. While applicant involvement in the conformity plan is strongly encouraged (only the supporting data listed in paragraph 2-3d of this order are required), the CAA must retain the discretion to make the inspections necessary to determine compliance with the applicable requirements. Therefore, the CAA is responsible for the final content of the plan.

(3) Using Parts Produced by Technical Standard Order (TSO) Authorization or PMA in Certification Testing.

(a) Either of these approvals indicates that the production system has determined that the part produced conforms to a specifically defined CAA-approved design, and that any deviations from that approved design have been dispositioned and found to have no effect on form, fit, or function of the article. In accordance with the rules, an article manufactured under a TSO authorization, parts produced under a PMA, are CAA-approved articles.

(b) Because of a part's approval by TSO or PMA, part conformity may not be necessary for its use in a certification project. CAA engineering should consider whether the testing to be accomplished requires a test article definition more specific than the "form, fit, or function" of the part provided by the TSO or PMA. For example, the engineer may be concerned about a test article having

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features biased to one or the other end of a tolerance. If CAA engineering wants to ensure the part does not have a bias that may affect the outcome of the test, the engineer may ask the inspector to review any MRB action for deviations to the test article referencing the characteristic the engineer identifies. Indicate this in the “Special Instructions” section of the Request for Conformity Inspection. For the purpose of this order, a deviation is a non-conformance that is found and accepted by means of CAA engineering evaluation or MRB action.

(c) CAA engineering may determine that an installation inspection is adequate for its needs. The installation conformity inspection, which follows the CAA review of the substantiating data, is performed to verify the installation was accomplished in accordance with the approved data, with all or any discrepancies noted, before official CAA testing. It is during the installation conformity inspection that the article’s TSO number, part number, serial number, software part number or version, and so forth, as referenced in the installation data, are verified and recorded.

d. Completed [Project Specific] Certification Plan. By this point in the project, the details of the applicant’s plan for showing compliance, including the remaining elements outlined in paragraph 2-3d above should be captured in the certification plan. From this information, the certification team should be able to determine that, if the plan was successfully executed, its results would show compliance. The amount of detail necessary to avoid ambiguity will vary from finding to finding, but, in general, it decreases when the applicant chooses common means of compliance such as those described in ACs. The certification team should find the plan agreeable before processing conformity requests, approving test plans, witnessing or observing certification tests, or performing any other certification project activities, to ensure the certification team and the applicant are working with the same fundamental understanding of the certification data.

e. Interim TCB Meeting for [Project Specific] Certification Plan Agreement. This is the formal meeting to establish consensus on all integrated certification planning. During this meeting, use the certification plan to assess the certification risks of proceeding into the actions of showing and finding compliance. Obtain mutual agreement to the adequacy of the plan and acceptance of the risks before proceeding with implementation. The certification team may hold one main Interim TCB Meeting to reach agreement on how the project will be conducted, followed by splinter meetings to address the certification activities required for the various systems, disciplines, or components of the aircraft design. When dividing the TCBM this way, the project-level agreement of the certification plan must include a realistic schedule for splinter meetings. The TCB meeting for certification plan agreement concludes with the completion of its splinter meetings. Use an Interim TCBM to establish agreement with the certification plan when the following happens:

- (1) The project requires significant coordination of resources,

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(2) A face-to-face meeting would better help all involved parties understand how compliance will be shown,

(3) The applicant requests one,

(4) Issues with the certification plan need management visibility,

(5) The project manager wishes to encourage teamwork within the CAA and with the applicant,

(6) Numerous comments and questions could be more efficiently addressed in person, and

(7) Ambiguities in the plan need to be resolved.

2-6. IMPLEMENTATION.

FIGURE 2-8. TASKS DURING THE IMPLEMENTATION PHASE

Compliance Data Generation Activities	
Conformity Inspections.....	2-6b
Applicant Test Plan and CAA Approval.....	2-6c
Before Witnessing Engineering and Flight Tests	2-6d
Engineering Certification Tests	2-6e
Engineering Compliance by Inspection	2-6f
Analysis.....	2-6g
Experimental Airworthiness Certificate	2-6h
Applicant's Flight Tests	2-6i
Compliance Substantiation Activities	
Compliance Substantiation – General.....	2-6j
Data Submitted for Approval.....	2-6k
Applicant Flight Test Data and Report	2-6l
Compliance Reports.....	2-6m
Compliance Finding Activities	
CAA Review of Compliance Data	2-6n
Review of Applicant's Flight Test Results	2-6o
Flight Test Risk Management Process.....	2-6p
Pre-Flight TCB Meeting	2-6q
Type Inspection Authorization (TIA)	2-6r
Flight Test Conformity Inspection.....	2-6s
Certification Flight Tests	2-6t
Operational and Maintenance Evaluations	2-6u
Instructions for Continued Airworthiness (ICA)	2-6v
Function and Reliability (F&R) Flight Testing	2-6w

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Aircraft Flight Manual	2-6x
Final TCB Meeting, Issuance of Type Certificate & Data Sheet	2-6y

a. Considerations for the Implementation Phase. **In this phase, the CAA and applicant conduct the certification project by implementing the certification plan. The activities and events in this phase are not always chronological. However, these events do organize neatly in other ways. In figure 2-9 of this order, you will see the implementation phase divided into: Compliance Data Generation, Compliance Substantiation, and Compliance Finding.**

(1) Engineering Test Certification Processes. **Engineering tests and inspections (see paragraph 2-6e in this order) do not need to be performed by the applicant before the CAA witnesses the demonstration.**

(2) Generating Data for Substantiating and Finding Compliance. **The activities and events in the implementation phase are categorized by whether they involve the development of certification data, showing compliance with that data, or finding compliance.**

FIGURE 2-10. IMPLEMENTATION PHASE – COMPLIANCE DATA GENERATION ACTIVITIES

Conformity Inspections.....	2-6b
Applicant Test Plan and CAA Approval.....	2-6c
Before Witnessing Engineering Tests	2-6d
Engineering Certification Tests	2-6e
Engineering Compliance by Inspection	2-6f
Analysis.....	2-6g
Experimental Airworthiness Certificate	2-6h
Applicant's Flight Tests	2-6i

b. Conformity Inspections. **Conformity inspections verify and provide objective documentation that the test articles, parts, assemblies, installations, functions, and test setups conform to the design data. The CAA Rules require the applicant to allow the CAA to conduct any conformity inspections it chooses during the certification process. It is the responsibility of CAA engineering personnel to determine the need to conduct conformity inspections and then request that the manufacturing inspector performs the required conformity inspections. The CAA manufacturing inspector verifies the product conforms to the drawings, specifications, and special processes. A CAA conformity inspection must be successfully accomplished before any certification tests are conducted. Conformity inspections are requested by CAA engineering using CAA Form 8120-10, Request for Conformity, or CAA Form 8110-1, Type Inspection Authorization.**

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(1) In accordance with CAA rules: “Each applicant must make all inspections and tests necessary to determine:

(a) Compliance with the applicable airworthiness, aircraft noise, fuel venting, and exhaust emission requirements,

(b) Materials and products conform to the specifications in the type design,

(c) Parts of the products conform to the drawings in the type design, and

(d) The manufacturing processes, construction, and assembly conform to those specified in the type design.”

(2) The applicant must submit CAA Form 8130-9, Statement of Conformity, attesting that the articles are in conformity with the proposed design. The CAA should receive these forms from the applicant before conducting any CAA conformity inspections. Only in this manner can the CAA ascertain that the test articles are true representations of the proposed test article.

c. Applicant Test Plan and CAA Approval. The applicant must prepare a test plan when testing is necessary to show compliance to the regulations. The applicant should also submit the test plan early enough to allow the CAA time to review and approve the test plan before the start of the test. The test plan is used to ensure orderly and complete testing is accomplished. At a minimum, a description of the items to be tested and a list of all equipment necessary to conduct the test should be in the test plan. It is also important to include a description of how the equipment is to be calibrated (when calibration is required) and approved before the test, required conformities of the test article and test setup, a list of the specific airworthiness standards, a description of how compliance is expected to be shown, and a test procedure written in a step-by-step format with defined pass/fail criteria. After the CAA engineer approves the test plan, they request a CAA conformity inspection of the test article and test setup to ensure conformance to the engineering drawings and test plan.

d. Before Witnessing Engineering Tests. When witnessing official tests, the CAA-authorized witness will verify that the test procedures described in the applicant’s CAA-approved test plan are followed and that any data captured by test instrumentation appears to be valid data for the test in question. If the test is lengthy, witness at least the most appropriate or critical portions of the tests and conduct a post-test examination. If the CAA engineer or pilot will not be able to witness the test, they will authorize another qualified CAA engineer, or DER; or request help from a manufacturing inspector to witness the test.

(1) The minimum participants for witnessing the test are the

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CAA-authorized witness and the applicant's knowledgeable representative who is capable of performing the test. After the test, the CAA-authorized witness must sign a record showing the results were obtained by properly following the approved test plan. This record should identify the test and include the results obtained, the decisions reached, and any recommendations made to the applicant. Add a copy of this record to the test report. This record is not a substitute for the applicant's test report showing completion of the test plan.

(2) If a manufacturing inspector or DER is to be the witness, the CAA engineer will provide them with the appropriate instructions and a reference to the applicant's test plan. The CAA-authorized witness should not witness any tests without prior coordination with the CAA engineer.

e. Engineering Certification Tests are used by applicants to demonstrate compliance with a requirement, or to collect quantifiable product or component data necessary for showing compliance. To show compliance with a type certification requirement, the conformity of the test article, test setup, and test procedures used, and the validity of the test results must be established for each certification test conducted.

f. Engineering Compliance by Inspection. An engineering compliance inspection should be done for any aspect of product design and installation where compliance with the certification requirements cannot be determined through the review of drawings or reports. Do not confuse this inspection with a conformity inspection done by manufacturing inspectors as described previously in paragraph 2-6b above.

(1) An engineering compliance inspection determines compliance to the regulations. An engineering compliance inspection provides an opportunity to review an installation and its relationship to other installations on a product. This inspection ensures systems and components are compatible with each other and meet the applicable requirements of the airworthiness and operational standards.

(2) Sample Inspections. The product must conform to the type design before conducting the engineering compliance inspection.

(a) Interior Inspections. Engineering compliance inspections for aircraft interiors are generally more complex than other compliance inspections. This is primarily due to the many varied regulations and paragraphs with which the applicant must comply such as emergency lighting, emergency exit arrangement, ordinance signs, aisle widths, cockpit controls, waste containers, placards, and occupant protection. As with all findings, in accomplishing an interior compliance inspection, the certification team makes many determinations and, therefore, should be very familiar with current regulations and policy.

(b) Control System Inspections. Control system compliance inspections are accomplished to determine ease of control operation, strength of components,

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detection of interference, or deflection of control system linkages.

(c) Fire Protection Inspections. **Flammable fluid fire protection compliance requires inspection to ensure that proper separation and isolation of flammable fluid carrying lines from ignition sources is maintained.**

(d) System Routing Inspections. **Hydraulic and electrical systems routing requires inspection to ensure that proper support and separation is maintained.**

g. Analysis. **Engineering analysis is an integral part of showing compliance. It encompasses the full range of analytical techniques such as textbook formulas, computer algorithms, computer modeling/simulation, or structured assessments (for example, the processes in SAE International's Aerospace Recommended Practice (ARP) 4761, Guidelines and Methods for Conducting the Safety Assessment Process on Civil Airborne Systems and Equipment, dated December 1, 1996. The CAA approves the data, not the analytical technique, so the CAA holds no list of acceptable analyses, approved computer codes, or standard formulas. Use of a well established analysis technique is not enough to guarantee the validity of the result. The applicant must show the data are valid. Consequently, the CAA and its representatives are responsible for finding the data accurate, and applicable, and that the analysis does not violate the assumptions of the problem.**

h. Experimental Airworthiness Certificate. **Reserved.**

i. Applicant's Flight Tests. **Reserved.**

FIGURE 2-11. IMPLEMENTATION PHASE – COMPLIANCE SUBSTANTIATION ACTIVITIES

Compliance Substantiation – General.....	2-6j
Data Submitted for Approval.....	2-6k
Applicant Flight Test Data and Report	2-6l
Compliance Reports.....	2-6m

j. Compliance Substantiation – General.

(1) Applicant Test Data and Report. **Paragraph 2-6l below discusses the certification process involving tests and inspections. The compliance substantiation data generated during these tests are reported to the CAA in the applicant's test report. All other tests are accomplished in the presence of the CAA, and applicants submit their data for approval as discussed in paragraph 2-6k, Data Submitted for Approval, and paragraph 2-6m, Compliance Reports. In either case, the applicant has the following responsibilities:**

(2) Applicant Responsibility. **Applicants are responsible for complying with**

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the regulations that apply to the specific product or operation. They must:

(a) Submit the necessary type design and substantiating data to show the product being certificated meets the applicable airworthiness, aircraft noise, and emissions requirements of the regulations prescribed by the CAA. The CAA does not give a specific format for submitting technical data (if it is an original paper copy). However, if data are submitted in any form other than an original paper copy, the form must be acceptable to the CAA. This requires a memorandum of agreement (MOA) between the applicant and the CAA.

(b) Submit a statement of conformity to the CAA for each aircraft, engine, and propeller presented for type certification, and each aircraft or part presented for testing.

(c) Allow the CAA to make any inspection and any ground test necessary to determine compliance with the applicable requirements of the regulations.

k. Data Submitted for Approval. During this period of activity, the STC applicant is submitting to the CAA the necessary design data, test reports, and computations to show that the product to be certificated meets the applicable airworthiness, noise, and emission requirements identified by the CAA. The applicant should submit the compliance data as soon as the data are complete and in a logical format for review, so the CAA's review can be accomplished during the normal course of a certification project. This activity culminates with submittal of compliance reports. The following are requirements for technical data and their use by the CAA:

(1) Disclosure of Technical Data. The CAA must not release proprietary information (descriptive, design, and substantiating data received from applicants) to any party who does not have written permission from the applicant (or the certificate holder). The certification basis information is not proprietary data, because it is a part of the STC.

(2) CAA Use of Technical Data. CAA personnel may use the applicant's or certificate holder's data for reference or evaluation of any subsequent applicant's submitted data if the information is used solely for that purpose. This CAA use of technical data does not permit designees who may be working for a subsequent applicant to request access to another applicant's data.

(3) Applicant-Provided Data. The CAA will not question the source or the method by which an applicant for a design approval obtains the data submitted by an applicant. An applicant showing compliance to the applicable requirements may obtain certification credit for previously approved data without showing further compliance if the applicant:

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(a) Provides sufficient evidence that the presented data were, in fact, approved by the CAA. The applicant does not need to submit the data if they were obtained with the consent of the original approval holder.

(b) Establishes that the previously approved data are applicable to the applicant's design to the extent that any design deviations will have no effect on the design's airworthiness or on showing compliance with the applicable regulations.

(c) Provides sufficient substantiation and descriptive data of its own modification so that CAA can make a finding of compliance.

(d) Has sufficient engineering data necessary to provide continued airworthiness information should the modification be the subject of a service difficulty report or an AD.

(e) Has sufficient descriptive data to produce detail parts and installations if multiple STC approval is requested.

(4) CAA Discretion and Subsequent Applicants.(Reserved)

l. Applicant Test Data and Report. During this period, the applicant collects test data, analyzes it, and reports it to the CAA for review. The applicant prepares a test report detailing the data with an explanation of the calculations necessary to evaluate the data. The test report should also show compliance to the appropriate regulations in the certification basis.

m. Compliance Reports. Applicants are entitled to a certificate after they show compliance, the CAA finds compliance, and the CAA finds that the type design has no unsafe features. It is the CAA who determines whether or not the applicant has shown compliance. Compliance reports are the applicant's way of proving compliance (that is, showing compliance). Adequate compliance reports present appropriate evidence to convince the CAA of the overwhelming likelihood of the claim. The claim is a declaration that the type design meets a particular airworthiness, aircraft noise, fuel venting, or exhaust requirement levied by regulations identified in the certification basis. The substantiation case presents and explains the inter-relationship of the evidence in a logical order leading from the requirement to the claim. Evidence is certification data collected from CAA publications, certification testing, analysis, engineering examinations, similarity, and software design assurance, and any other data deemed acceptable by the CAA standards staffs. The applicant shows compliance when the substantiation case is sufficient to convince the CAA technical specialist that the airworthiness requirement has been satisfied.

**FIGURE 2-12. IMPLEMENTATION PHASE –
COMPLIANCE FINDING ACTIVITIES**

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CAA Review of Compliance Data	2-6n
Review of Applicant's Flight Test Results	2-6o
Flight Test Risk Management Process.....	2-6p
Pre-Flight TCB Meeting	2-6q
Type Inspection Authorization (TIA)	2-6r
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Certification Flight Tests	2-6t
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Function and Reliability (F&R) Flight Testing	2-6w
Aircraft Flight Manual	2-6x
Final TCB Meeting, Issuance of Type Certificate & Data Sheet	2-6y

n. CAA Review of Compliance Data. **During this review, the CAA finds compliance with specific paragraphs of the applicable airworthiness standards, and aircraft noise and emissions requirements. The data are approved after all inspections, analyses, and necessary tests are accomplished with satisfactory results.**

(1) Discontinuance Letter. **The TCB will notify the applicant by letter when it becomes necessary to discontinue official CAA type certification inspections or tests, for any reason. The letter should cite the applicable regulations and advise the applicant to notify the CAA when the cause of the discontinuance has been corrected and a resumption of the type certification testing is desired.**

(2) Notification of Non-Compliance. **The TCB notifies the applicant (in writing) when a non-compliant item is found during CAA tests and it does not necessitate discontinuing the certification tests. The notification should identify the non-compliant item and cite the applicable regulations. The applicant must satisfactorily resolve all non-compliances before the CAA issues the STC.**

o. Review of Applicant's Flight Test Results. **Reserved.**

p. Flight Test Risk Management Process. **Reserved.**

q. Pre-Flight TCB Meeting. **Reserved.**

r. Type Inspection Authorization (TIA). **Reserved.**

s. Flight Test Conformity Inspections. **Reserved.**

t. Certification Flight Tests **Reserved.**

u. Operational and Maintenance Evaluations (AEG Responsibilities). **The AEGs were established to meet CAA's operations and maintenance responsibilities during**

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the certification process. The AEGs are comprised of operations and airworthiness inspectors who work directly with aircraft certification personnel to contribute an operational perspective to engineering activities. The AEGs advise manufacturers of applicable operational and maintenance requirements during the design and certification process and also make recommendations to Flight Standards about flight training, inspection programs, and flight crew qualifications. The AEGs participate in the maintenance review board (MRB), flight standardization board (FSB), and the flight operations evaluation board (FOEB). They are also the Flight Standards focal for the master minimum equipment list (MMEL), instructions for continued airworthiness (ICA), and post-certification activities such as ADs.

(1) AEGs perform the following functions related to certification:

- (a) Participate in compliance and testing to evaluate the operational suitability of the aircraft and its systems,
- (b) Review ICA. Develop the MRB report per Flight Standards policy,
- (c) Review supplemental aircraft flight manuals (AFM) and revisions,
- (d) Review and issue MMELs,
- (e) Establish type rating requirements,
- (f) Participate in crew complement determinations,
- (g) Participate in emergency evacuation demonstrations,
- (h) Determine the acceptability of flight crew sleeping quarters and flight deck observer seats,
- (i) Establish any unique or special training requirements,
- (j) Participate in function and reliability testing,
- (k) Manage the FSB, FOEB, and MRB, and
- (l) Serve as a member of the TCB, FSB, and FOEB.

(2) AEG Liaison.

(3) Flight Standardization Board (FSB). **Reserved.**

(4) Flight Operations Evaluation Board (FOEB). **Reserved.**

(5) Maintenance Review Board (MRB). **An applicant may use the procedures**

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in FAA AC 121-22, Maintenance Review Board, for those aircraft intended primarily for air carrier environment use. Those procedures will develop and produce tasks and associated time-in-service intervals for the initial maintenance time limitations in an air carrier's continuous airworthiness maintenance program. Also, the manufacturer may use the appropriate tasks and time intervals produced by the MRB process to show compliance with the inspection program requirements of the certification rules. However, the applicant is not required to use the MRB process. An MRB is comprised of Flight Standards inspectors, the project manager, and engineering personnel.

v. Instructions for Continued Airworthiness (ICA).

(1) The Airworthiness Limitations section of the ICA is required for type certification. Note, in the case of the ICA, only the airworthiness limitations section is CAA-approved.

(2) According to 14 CFR §§ xx.1529, 31.82, 33.4, and 35.4, the CAA is responsible for compliance findings for requirements of the ICA and airworthiness limitations in the applicant's maintenance manuals.

(3) The ICA may be incomplete at the time of type certification. However, the airworthiness limitations are required and must be CAA-approved at the time of type certification. They do not necessarily have to be in the final publishable form. The ICA must be in final printed form by the date of the first standard airworthiness certificate or on delivery of the first product, whichever occurs later.

(4) AEG and engineering personnel review the ICA.

(a) The responsibilities of the AEG team members include determining the acceptability of ICA for operational and maintenance requirements.

(b) The AEG assists the project manager establish the adequacy of the ICA and determine compliance with the regulations.

(5) CMRs are part of the maintenance instruction portions of the ICA. CMRs are operating limitations and part of the STC. Examples of CMRs are systems and powerplant maintenance requirements developed during the certification process; they contain the frequency and extent of inspections. For detailed information, see FAA AC 25-19 and Order 8110.54.

w. Function and Reliability (F&R) Flight Testing. Reserved.

x. Aircraft Flight Manual (AFM). An AFM is required for each aircraft. These manuals contain information on the operating limitations and procedures, performance, and loading information.

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(1) Approvals. **Reserved.**

(2) Revisions or Supplements. **Changes to AFMs submitted by the STC holder are handled by the CAA in the same manner as original manuals. Each revised page should bear a revision date or symbol so that required revisions may be properly identified. Changes to AFMs submitted by someone other than the TC holder must be accomplished by using the flight manual supplement. AFM supplement approval is handled by the CAA and in the same manner as the original manuals.**

y. Final TCB Meeting, Issuance of STC

(1) **The final TCB meeting is held when the CAA determines the applicant has demonstrated compliance with all applicable airworthiness standards in the certification basis. The final TCB meeting is held to do the following:**

(a) **Review all outstanding items, the AFM, ICA, and items where there may be some question of compliance with the established airworthiness standard,**

(b) **Determine the status of any outstanding technical data, and**

(c) **Formalize the decision to issue the STC.**

(2) **The meeting is also held to issue the STC, which are signed when the team members concur that all items are resolved. Each STC includes the type design, operating limitations. The type design consists of the drawings, specifications, and information on the dimensions, materials, and processes necessary to define the product. The STC documents the conditions and limitations necessary to meet the airworthiness requirements of the certification basis.**

2-7. POST-CERTIFICATION ACTIVITIES.

FIGURE 2-13. TASKS DURING THE POST-CERTIFICATION ACTIVITIES PHASE

Certification Summary Report	2-7a
Type Inspection Report (TIR)	2-7b
Continued Airworthiness.....	2-7c
Changes to Instructions for Continued Airworthiness (ICA).....	2-7d
Post-Certification Evaluations.....	2-7e
Data Retention.....	2-7f
Required Documents	2-7g

a. Certification Summary Report.

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(1) **The Certification Summary Report should be tailored to the complexity and significance of the project and should be an executive summary containing a high-level description of major issues and their resolution. The report should be used as a means for retaining corporate knowledge and lessons learned that could be beneficial for future type certification projects involving the same or similar type design.**

(2) **The CAA project manager prepares the certification summary report.**

(3) **The certification summary report, if required, should be in an acceptable “draft” form when the STC is issued.**

b. **Type Inspection Report (TIR). Reserved.**

c. **Continued Airworthiness. Continued airworthiness is the preservation of the product's level of safety as defined at the time of certification (or its approved altered condition) through the end of the product life cycle. It is applied to the product design/production and its operation, maintenance, modification, and repair. CAA's responsibilities within continued airworthiness include:**

(1) **Overseeing the design approval holder and production approval holder (PAH) to preserve the safety of the approved product, part, or appliance. CAA preserves safety by identifying and evaluating safety concerns, and developing and implementing corrective action.**

(2) **Interfacing with the operating environment through a proactive collaboration with AFS and others involved in the operations, maintenance, and alteration of in-service products.**

d. **Changes to Instructions for Continued Airworthiness (ICA). CAA rule requires ICA changes to be made available to any person who must comply with them. The design approval holder should provide these changes according to a plan that was accepted by the CAA. The changes should be formatted to directly supplement the original ICA and should clearly say what's being changed.**

e. **Post-Certification Evaluations.**

(1) **Special Certification Review (SCR). Reserved.**

(2) **Fact-Finding Investigations.**

(a) **Fact-finding investigations are authorized under CAA rules and conducted under the order of investigation. This is an investigation where the compulsory processes of CAA rules, are used to assist the CAA in finding material facts to support the performance of CAA functions. This procedure is not used either as a substitute for a routine investigation or as an investigation of violations**

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that constitute felonies under CAA law.

(b) Reports or allegations of certification basis noncompliance may be received after a certificate is issued. Complainants should furnish full facts to support all allegations of noncompliance. Depending on the circumstances and the extent of factual substantiation of the allegations, it may be necessary to develop evidence through a fact-finding investigation. The objective of a fact-finding investigation is to get the information necessary to decide what CAA action, if any, should be taken. The CAA may determine that this type of investigation is necessary even without an external complaint.

f. Data Retention.

(1) Project. The CAA maintains the project file for each certification project. The project file must contain records associated with the project. Records are defined as documents showing a decision or action taken by the CAA on the project.

(2) Type Design and Substantiation Data. The CAA maintains data critical to type certification, such as type design and substantiation data. "All information received, created, or compiled by the officers and employees of the Government for the use of the Government is official Government record material and is, therefore, property of the Taiwan." The applicant/certificate holder, at the project manager's discretion, may maintain portions of these data on behalf of the CAA. In either case, it must be recognized that type design records, including all substantiating data, are permanent and must not be destroyed. Data maintained by the applicant/certificate holder must be made available to the CAA for such routine activities as production inspection, surveillance, design change reviews, or any other reasons deemed necessary by the CAA. An appropriate and coordinated MOA between the CAA and the applicant/certificate holder must be established before entering into such an arrangement.

(3) Working Papers. Other information such as personal notes, correspondence, that do not document an CAA decision, action, or position, or schedules are considered working papers. Those documents may be retained after the certificate is issued. This information is considered "corporate memory" and no longer part of the project.

g. Required Documents. The holder of a STC must supply the following documents at the time of product delivery:

(1) A current approved Supplemental Airplane or Rotorcraft Flight Manual,

(2) A current weight and balance statement,

(3) ICA,

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- (4) Compliance status of ADs, and**
- (5) Other appropriate documents as necessary.**

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CHAPTER 3. TYPE CERTIFICATES

RESERVED

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CHAPTER 4. CHANGES IN TYPE DESIGN

4-1. GENERAL.

a. Introduction. CAA Engineering Branch is requested to provide technical assistance to support the inspectors approving changes to in-service aeronautical products. Major changes to type design are approved using a process described in chapter 2 of this order. Most frequently, a major change to type design is approved by STC process.

4-2. MAJOR AND MINOR DESIGN CHANGES. Reserved

4-3. CERTIFICATION BASIS FOR CHANGED AVIATION PRODUCTS. An applicant for a change to a TC must show the changed product complies with the airworthiness requirements applicable to the category of the product in effect on the date of application for approval of the change, except where the following happens:

- a. The change is not significant,
- b. Areas of the product are not affected by the change,
- c. Compliance of the affected areas with the current version of the airworthiness requirements would not contribute materially to the level of safety of the changed product, or
- d. It would be impractical (on a cost basis) to require that compliance be shown to the latest version of the applicable airworthiness requirements.
- e. If the change consists of a new or substantially complete redesign of a component or system and the existing certification basis does not provide adequate standards for the design change – that is, the change includes features that were not foreseen in the existing certification basis. The change must comply with later appropriate regulations. If no later regulation(s) exist, special conditions are required.

4-4. FIELD APPROVALS. Reserved

4-5. COMPLIANCE INSPECTION. For changes to a type design, a compliance inspection may ensure the boundaries and interfaces of the change to the original type design are correctly addressed. Because a change to a type design may consist of many individual changes, a compliance inspection will help to determine the individual pieces fit together to make a compliant whole changed product. For example, the installation of a complete interior for a transport category airplane typically requires a cabin compliance inspection. Many of the cabin safety rules contained in 14 CFR §§ 25.78 through 25.820 are addressed by a cabin compliance inspection. Because the applicant rarely has access to the original design data,

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compliance inspections are all the more important for STCs.

4-6. EXPERIMENTAL CERTIFICATE. Reserved.

4-7. REVISIONS TO PERFORMANCE DATA. Reserved.

4-8. SUPPLEMENTAL TYPE INSPECTION REPORT (STIR). Manufacturing inspectors should use CAA Form 8110-26 to record results of inspections and tests conducted on the modified product. These inspections and test results are part of the STC project. For STCs resulting in extensive structural or mechanical changes to the certificated product, use the appropriate TIR form as a guide for inspections to identify if the STC makes existing product features non-compliant. Engineering personnel and the manufacturing inspector should discuss if this will be done when planning the conformity inspection. The manufacturing inspector should complete the STIR.

4-9. WHEN WILL THE CAA ISSUE STCs?

a. The CAA will issue an STC for a major change to type design of a type-certificated product when the change is not great enough to require a new TC. Any person may apply for an STC, however TC holders may apply for an amendment to their original TC.

b. The CAA issues an STC for the installation of replacement parts only in special circumstances. Normally there is no need for special instructions for the installation of identical replacement parts. If special instructions are needed for the installation of replacement parts (that is, the original part could no longer be installed), an STC is appropriate to substantiate and approve the installation instructions. In those cases, the CAA would issue a CAA Form 8120-10 requesting the manufacturing inspector to determine the adequacy of those instructions by observing the applicant performing the task.

c. The CAA will issue an STC for the installation of an article approved by a TSO, when the addition of the TSO-approved article is a major change in type design for the product on which it is being installed. Persons other than the TSO authorization holder may get approval for design changes to the TSO article as part of the approval for a change to the TC'd product under the applicable airworthiness regulations. In any case, the STC must address installation requirements of the changed TSO article on the certificated product.

4-10. WHEN WILL THE CAA NOT ISSUE AN STC? The CAA will not issue an STC to manufacturers or applicants outside the Taiwan, except under the terms of a bilateral agreement. Also, the CAA will not issue an STC to do the following:

a. Approve minor changes in type design

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- b. Approve replacement or modification parts,
- c. Approve design changes to TSO articles,
- d. Combine two or more STCs without additional showing of compliance,
- e. Modify foreign-registered aircraft, or
- f. Approve a modification of a foreign-registered aircraft.

4-11. TECHNICAL REQUIREMENTS FOR AN STC.

a. The applicant must comply with the requirements, including the submittal of the data to show compliance with the applicable certification basis (See paragraph 2-6 of this order.).

b. The applicant must ensure the changes to the product comply with the latest amendments to the regulations when the CAA considers the change to be significant.

c. The CAA issues an STC after it:

- (1) Complete all necessary tests and compliance inspections,
- (2) Finds that the applicant's technical data meet the applicable regulations, and
- (3) Finds no feature or characteristic makes the changed product unsafe.

d. STCs for "Multiple" or "One-Only" Installations. For multiple STCs, all drawings or other data must be adequate to reproduce the parts approved under the STC, and to reproduce the installation procedures on other serial numbers of the same model TC product identified on the STC certificate. For one-only STCs, submitted drawings or other descriptive data only need to be sufficient for the one modification. The descriptive data may consist of marked photographs, sketches, and word descriptions. As with multiple STCs, the data supporting a one-only STC must show the aircraft complies with the applicable airworthiness regulations. A one-only STC cannot be amended and the holder is not eligible for a CAA production approval, such as a PMA.

4-12. COMPATIBILITY EXAMINATION.

a. A new design change should be compatible with previous design changes. This ensures that the changed product continues to comply with its certificated airworthiness requirements. The CAA should ensure the STC is specific in identifying the product configuration for which the change is approved. The CAA

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does this by ensuring the applicant determines previously approved modifications are compatible with the design change.

b. Changes Requiring Coordination with the product's original authority. Appendix 1, figure 6 of this order lists product changes requiring the approval from the product's original authority.

4-13. APPROVED MODEL LIST (AML) STCs.

a. An AML STC process is appropriate to approve the installation of a change on more than one type-certificated product when the following happens:

(1) The installation instructions for the change on each type-certificated product are specific and objective, and

(2) The evaluation of the effect of the change applies to all type-certificated products addressed by the approval.

b. The CAA permits an STC for more than one type-certificated product under the following conditions:

(1) The STC data package consists of a principal design and certification data package for the change, and either a master installation package or a separate installation package for each eligible TC'd product.

(2) In the design and installation data, the applicant identifies all design or installation differences between eligible products.

(3) Installation complexity is similar on all eligible products.

(4) The change does not require a substantial re-evaluation of the TC'd product's airworthiness.

(5) The flight or operational characteristics (or both) of the TC'd product remain unchanged.

(6) The change does not create an environmental noise or emissions change to the TC'd product.

c. Administering the AML STC.

(1) The CAA lists the eligible TC'd products and CAA-approved documents on a special page, and attaches the page to the STC. This list is known as the AML. Whenever the CAA adds a TC'd product or amends, deletes, or adds a document to the STC package, the CAA also amends and approves the AML – not the STC.

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(2) The CAA must issue an AD to remove a product from an AML. This occurs unless the STC holder can show no completed installations were accomplished or the product was mistakenly listed on the AML.

(3) STC holders can transfer an STC with an AML in its entirety to a new holder. However, they cannot split it into more than one STC.

4-14. NON-INTERFERENCE STCs. Non-interference STC is a modification to a product that may provide a convenience or function that is not required by operating rules or airworthiness standards applicable to the aircraft's intended operation. Examples include searchlights, low-light vision equipment for ground observation, or air-ground radio communications equipment for emergency medical services.

a. These non-interference STCs offer no relief from airworthiness standards or from the product's operating limitations. Evaluating a non-interference STC requires a determination the operating equipment will not result in the aircraft becoming noncompliant with its certification basis. The non-interference STC may impose limitations or operational procedures in the AFM supplement to ensure the equipment is used in a manner that keeps the aircraft compliant with its certification basis.

b. When the CAA approves non-interference STCs, the CAA requires an explicit disclaimer in the "Limitations and Conditions" section of the STC (CAA Form 8110-2). The disclaimer must indicate the modification has not been evaluated to check its proper operations for its intended function.

4-15. STC PROJECTS INVOLVING FOREIGN-REGISTERED AIRCRAFT AND IMPORT PRODUCTS. Applicants who want to develop modifications for import products (Taiwan is not the original state of design) should notify the CAA as soon as possible. This will help minimize delays in the completion of the project.

a. Import Products. The CAA may need to consult the Foreign CAA (the product's original certifying authority) on proposed STCs to import products. The CAA should determine if the STC's complexity requires consultation with the Foreign CAA. The CAA should coordinate the Foreign CAA's involvement.

b. Foreign-Registered Aircraft. **Reserved.**

c. Considerations for One-Only STCs on Foreign-Registered Aircraft. **Reserved.**

4-16. STC AND AMENDED STC APPLICATIONS.

a. Using Application Form. The applicant should submit the STC application, CAA Form 8110-12 (See appendix 1, figure 2 of this order.), to the CAA. Applicants

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should complete application CAA Form 8110-12, Blocks 1, 2, 3, 6, and 7 when the following occurs:

(1) They introduce a major change in the type design,

(2) They intend to make major changes to the type design of an STC they hold (amended STC). Applicants must check Supplemental Type Certificate in block 2. Then, in block 6b, they must specify that the application is for an amendment and give the STC number. Examples of cases when the STC should be amended are:

(a) An STC holder wants to add product models to the STC, unless the CAA has given the STC holder an AML STC as discussed in paragraph 4-13 above.

(b) The STC amendment introduces a new major change in type design as discussed in paragraph 4-2 above.

(c) The proposed change will revise the limitations and conditions section of the STC.

4-17. ESTABLISHING AN STC PROJECT. See chapter 2, paragraph 2-4

4-18. Reserved.

4-19. Reserved.

4-20. Reserved.

4-21. Reserved.

4-22. CAA VALIDATION OF A FOREIGN CAA STC UNDER BILATERAL AGREEMENTS. A foreign holder of an STC may apply for Taiwan validation of the STC when there is an established Bilateral Aviation Safety Agreement, Implementation Procedures for Airworthiness (BASA IPA) that includes STCs in its scope. The specific procedures are covered in each individual BASA IPA agreement.

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APPENDIX 1. FORMS AND GUIDANCE FOR CERTIFICATION PROJECTS

FIGURE 1. INSTRUCTIONS FOR COMPLETION OF CAA FORM 8110-12, APPLICATION FOR TC, PC, OR STC

CAA Form 8110-12 is used for application for a TC, PC, or STC. Application for a TC and a PC may be made at the same time if desired. Only the appropriate blocks, as follows, need to be filled out for each certificate.

Blocks 1, 2, 3, 4, and 7 for a TC;
Blocks 1, 2, 3, 5, and 7 for a PC;
Blocks 1, 2, 3, 6, and 7 for a STC.

Block 1. Enter the name and address of the party, corporation or organization to whom the TC, PC, or STC will be issued. The name will appear on the certificate exactly as it is entered here. NOTE: A post office box will not be accepted.

Block 2. Check appropriate block.

Block 3. Check appropriate block.

Block 4. Complete this block if application is for a TC. Leave blank if application is for a PC or STC.

Block 5. Complete parts a, b, and c of this block if application is for a PC. Give PC number if application is for an addition to a PC. Leave blank if application is for an original PC. Give TC/STC number if known at time of application, otherwise leave blank.
(NOTE: A PC is usually not required for production of parts for a STC, they are usually manufactured under a PMA authorization.)

Block 6. Complete parts a, b, c, and d if application is for an STC.

Block 7. Obtain the signature of the certifying official. The certifying official must be the holder or the person duly authorized to sign for the holder, company, or corporation.

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APPENDIX 1. FORMS AND GUIDANCE FOR CERTIFICATION PROJECTS (CONTINUED)

FIGURE 2. SAMPLE FAA FORM 8110-12

MINISTRY OF TRANSPORTATION COMMUNICATIONS, R.O.C CIVIL AERONAUTICS ADMINISTRATION		
APPLICATION FOR TYPE CERTIFICATE, PRODUCTION CERTIFICATE, OR SUPPLEMENTAL TYPE CERTIFICATE		
1. Name and address of applicant	2. Application made for <input type="checkbox"/> Type Certificate <input type="checkbox"/> Production Certificate <input type="checkbox"/> Supplemental Type Certificate	3. Product Involved <input type="checkbox"/> Aircraft <input type="checkbox"/> Engine <input type="checkbox"/> Propeller
4. TYPE CERTIFICATE (Complete item 4a below)		
a. Model designation(s) (All models listed are to be completely described in the required technical data, including drawings representing the design, material, specifications, construction, and performance of the aircraft, aircraft engine, propeller which is the subject of this application.)		
5. PRODUCTION CERTIFICATE (Complete items 5a-c below. Submit with this form, in manual form, one copy of quality control data or changes thereto covering new products, as required by applicable requirements.)		
a. Factory address (if different from above)	b. Application is for – <input type="checkbox"/> New production certificate <input type="checkbox"/> Additions to production Certificate (Give P.C. No.)	
c. Applicant is holder of or a licensee under a Type Certificate or a Supplemental Type Certificate (Attach evidence of licensing agreement and give certificate number) _____>		P.C. No. T.C./S.T.C. No.
6. SUPPLEMENTAL TYPE CERTIFICATE (Complete items 6a-d below)		
a. Make and model designation of product to be modified		
b. Description of modification		
c. Will data be available for sale or release to other persons? <input type="checkbox"/> Yes <input type="checkbox"/> No		d. Will parts be manufactured for sale? <input type="checkbox"/> Yes <input type="checkbox"/> No
7. CERTIFICATION -I certify that the above statements are true.		
Signature of certifying official	Title	Date

CAA Form 8110-12(2005/11)

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APPENDIX 1. FORMS AND GUIDANCE FOR CERTIFICATION PROJECTS (CONTINUED)

FIGURE 6. PROJECT SIGNIFICANCE NEED THE APPROVAL FROM THE PRODUCT'S ORIGINAL AUTHORITY

Examples are as follows:

General

- **Any STC/PMA or repair that affects or replaces a critical or life limited structural or engine part, such as landing gear, thrust reversers, gear boxes, rotating engine parts, pistons, connecting rods, engine block and head.**
- **Modifications to empty/zero fuel weight.**
- **Externally mounted equipment. (excluding antennas)**

Engine/Prop/Fuel System/APU

- **Change in type or power rating of engine**
- **Propeller/propeller control replacement.**
- **Propeller installations that affect gear box/changes to mass balance.**
- **APU and APU compartment modifications.**
- **Fuel system modifications.**
- **Change to electronic engine controls or instruments.**
- **Nacelle modifications.**

Electrical/Avionics/Software

- **Software modifications that affect critical systems.**
- **Electrical modifications to aircraft with FADEC engines.**
- **Single pilot IFR certification modifications.**
- **New/novel avionics packages (glass cockpit, ECAS, and so forth)**
- **Enhanced GPWS.**
- **Electrical modifications powered from systems having automatic load shedding features.**

Systems

- **Major changes to fire detection/suppression systems.**
- **Hydraulic flight controls/ASAS.**
- **Icing protection systems.**

Rotorcraft

- **Rotorcraft mods affecting loads/vibration/fatigue/damage tolerance characteristics of main and tail rotor system/transmission system/gear box/main and tail rotor blades.**

Structural

- **Installation of cargo doors, passenger to cargo conversions.**

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- **Changes to any primary or critical structure, including flight control surfaces.**
- **Assessment of flyable cracks in structure.**