



U.S. Department
of Transportation
**Federal Aviation
Administration**

Advisory Circular

Subject: Process to Support FAA Findings of
Undue Burden or No Undue Burden for PAHs
Requesting to Use a Manufacturing Facility
Located Outside of the United States

Date: 08/01/2016

AC No: 21-55

Initiated By: AIR-100

1 **PURPOSE.**

This advisory circular (AC) contains information and guidance to production approval holders (PAH) located in the United States requesting Federal Aviation Administration (FAA) approval to use manufacturing facilities located outside of the United States. This AC provides information for PAHs in accordance with the regulations cited in Title 14 of the Code of Federal Regulations (14 CFR) part 21, Certification Procedures for Products and Articles. For the purposes of this AC, manufacturing facilities includes production certificate (PC) extensions, associate facilities, and suppliers located outside the United States.

- 1.1 Before approving a PAH's request to use manufacturing facilities outside of the United States, the FAA must consider certain factors that may impact the FAA's ability to administer the requirements of part 21 that could potentially cause the FAA an undue burden. This AC outlines the necessary information the PAH should submit to the FAA as part of the PAH Project Initiation Plan included as appendix A to this AC (hereafter referred to as a "project plan") to demonstrate that the proposed activity will not cause an undue burden.
- 1.2 This AC is not mandatory and does not constitute a regulation. This AC describes an acceptable means, but not the only means, for a PAH to submit a project plan to the FAA demonstrating that its request to use a manufacturing facility located outside of the United States would prove no undue burden to the FAA. The use of the project plan is designed to facilitate and expedite the FAA decision-making process; other means of providing the needed information to the FAA may prolong the decision-making process.
- 1.3 For information and guidance regarding PC extensions located outside of the United States, refer to AC 21-24, *Extending a Production Certificate to a Facility Located in a Bilateral Airworthiness Agreement Country*.

2 AUDIENCE.

This AC is intended for use by active FAA production approval holders who propose to use a manufacturing facility located outside of the United States.

3 EFFECTIVE DATE.

This AC is effective October 1, 2016.

4 DEFINITION OF AN UNDUE BURDEN.

An undue burden is a determination made by the FAA that a proposed activity outside of the United States, requiring FAA support, will exceed available FAA resources. Resources may include personnel or time commitments. If the FAA determines that a proposal will cause an undue burden, the proposal is usually rejected.

In addition, the FAA must take into consideration that all overseas certification activity varies because of differences in the type of activity, bilateral agreements, scope of the project, and conditions in the country/jurisdiction where the facility is located, among other variables.

5 BACKGROUND.

Over the last several decades, the aircraft manufacturing industry has evolved significantly. In the past, the primary model was to build the aircraft almost entirely at the PAH's domestic facility. Outsourcing was used primarily for basic parts. Now, the PAH often performs the final assembly and relies on external entities such as its supply chain or risk-sharing partners to manufacture major aircraft assemblies, which may include producing high-risk products/articles or conducting high-risk manufacturing processes. As a result, an increasing number of U.S. PAHs are requesting approval to use manufacturing facilities located outside of the United States.

Note: For the purpose of this AC, the term "high-risk" refers to its impact on the inspection, conformity, or airworthiness of a product, article, or process.

6 PROJECT PLAN.

The purpose of a PAH's project plan is to describe to the FAA the PAH's proposed activity and to explain that its use of a manufacturing facility located outside of the United States would prove no undue burden to the FAA. The information in the plan should not be a generic replication of the PAH's current quality system. It should be specific to the products or articles being produced *and* the manufacturing facility for which the plan is being submitted. The PAH should also describe the proper controls in its quality system that will be in place to ensure regulatory compliance. In addition to the requirements of appendix F to AC 21-43, *Production Under 14 CFR Part 21, Subparts F, G, K, and O*, the plan should address each of the requested areas. The FAA managing office having responsibility for conducting CM activities of a PAH and its manufacturing facilities will review and validate the information provided in the project

plan to determine whether the proposed activity will cause an undue burden or no undue burden to the FAA.

7 **INITIAL NOTIFICATION.**

The PAH should notify its FAA managing office of the PAH's intention to use a manufacturing facility located outside of the United States by completing section 1 (Project Information) and section 2 (Risk Determination) of the project plan. This initial notification may facilitate a discussion between the PAH and its managing office regarding the PAH's intent and the level of detail required in the project plan. After reviewing the information contained in sections 1 and 2 of the project plan, the managing office will notify the PAH whether a full project plan will be required. Using manufacturing facilities located outside of the United States before FAA approval could result in compliance and enforcement action.

7.1 **Project Plan Section 1, Project Information.**

In its initial notification to the FAA, the PAH should complete the following information in section 1 of the project plan:

- 7.1.1 Name of the proposed manufacturing facility.
- 7.1.2 Address of the proposed manufacturing facility, including country.
- 7.1.3 Project number or production certificate (PC) number.
- 7.1.4 Names and model numbers of the products or articles to be produced.
- 7.1.5 A project description including the basic project information and the following details, if applicable:
 - 7.1.5.1 Description of where the products or articles to be produced would be assembled or installed into the next higher assembly.
 - 7.1.5.2 The proposed starting date for using the manufacturing facility and whether it would be for short- or long-term use.
- 7.1.6 Whether the country in which the manufacturing facility is located has a bilateral agreement with the United States. This information is available at the following link: http://www.faa.gov/aircraft/air_cert/international/bilateral_agreements/.
- 7.1.7 Description of any production approvals held by the manufacturing facility and issued by the civil aviation authority (CAA) of the country in which the facility is located, specifically for the product or article to be produced, if applicable.

7.2 **Project Plan Section 2, Risk Determination.**

In section 2 of the project plan, the PAH should identify and provide a description of the products or articles to be produced, and include any special manufacturing processes that would be performed at the manufacturing facility. Special manufacturing

processes include heat treating, plating, and shot peening (refer to the Aircraft Certification Service (AIR) Category Parts List (CPL) link below for other examples). The PAH should also include a description of the manufacturing facility and the following information:

- 7.2.1 Whether the products, articles, or processes are listed on the CPL. The PAH should include a description of the critical characteristics, such as critical functions, interfaces, or the use of exotic materials. The current CPL is available at the following link: http://www.faa.gov/aircraft/air_cert/production_approvals/mfg_best_practice/media/category_parts_list.pdf.
- 7.2.2 Whether the PAH identifies the products, articles, or processes as high-risk in the design data. This also applies to products, articles, or processes for which the PAH has identified critical characteristics that must be controlled to ensure the required level of integrity.
- 7.2.3 Whether the products or articles to be produced would be fully inspectable upon receipt. A product or article is inspectable upon receipt if the product or article is simple enough for a determination to be made that it is compliant to its type design without any disassembly. Any completed assembly is generally not considered inspectable upon receipt. If a product or article is not fully inspectable upon receipt, the PAH should identify those critical characteristics that cannot be inspected once received by the PAH or operator.
- 7.2.4 The facility's manufacturing capabilities and experience in manufacturing the intended products or articles. The PAH should include experience in any applicable special processes that will be performed at the manufacturing facility.

8 **FULL PROJECT PLAN.**

In most cases, the PAH will be required to complete a full project plan if the proposed manufacturing facility would provide a product or article described on the CPL, or the PAH has identified the products or articles to be produced as high-risk. This also applies to products, articles, or processes for which the PAH has identified critical characteristics that must be closely controlled to ensure the required level of integrity. If the PAH's FAA managing office determines that a full project plan is required, the PAH should complete the following information in section 3 (PAH Control of the Manufacturing Facility), section 4 (Approval of the Manufacturing Facility), and section 5 (Delegations & Inspections) of the project plan:

8.1 **Project Plan Section 3, PAH Control of the Manufacturing Facility.**

Describe how the PAH would ensure control of the manufacturing facility, including:

- 8.1.1 Reporting of nonconforming products/articles or quality escapes.
- 8.1.2 Use and control of subtier suppliers producing high-risk products/articles or conducting high-risk manufacturing processes.

- 8.1.3 Notifying the FAA of any changes that may impact the risk level of the manufacturing facility. This could include additional design and quality flowdown requirements or approval of new products or articles.
- 8.1.4 How the PAH would control changes to processes that may affect conformity and airworthiness of the products or articles to be produced. This includes changes at a subtier supplier.
- 8.1.5 How major and minor design changes would be controlled and implemented.
- 8.1.6 Quality flowdown requirements.
- 8.1.7 The specific audit process to be performed by the PAH for the manufacturing facility.
- 8.2 **Project Plan Section 4, Approval of the Manufacturing Facility.**
The PAH should describe the process it used to approve the intended manufacturing facility and include—
 - 8.2.1 The results of the PAH's manufacturing approval process.
 - 8.2.2 A detailed description of the personnel's competence, qualifications, education, training, skills, and experience required to produce conforming products and articles. The PAH should include initial, ongoing, specialized, and recurrent training requirements.
 - 8.2.3 A list of any personnel qualification needed to conduct inspections or perform special manufacturing processes.
 - 8.2.4 Whether the manufacturing facility has been fully integrated into the PAH's quality system or the PAH has approved the manufacturing facility's quality system.
 - 8.2.5 A process to ensure the PAH has approved any subtier suppliers that would manufacture any high-risk products/articles or conduct any high-risk manufacturing processes.
 - 8.2.6 Verification that all necessary documents are in the language appropriate for the production and inspection personnel.
 - 8.2.6.1 When requested by the PAH or FAA for inspection/oversight purposes, design, quality assurance, and production documents/records will be made available in the English language.
 - 8.2.6.2 Design, quality assurance, and production documents/records not in English must be validated to ensure that the product or article to be manufactured will conform to type design and is in a condition for safe operation.

- 8.2.7 A description of how the PAH will mitigate the requirement to allow FAA access to the manufacturing facility or subtier suppliers if the manufacturing facility or subtier suppliers are located in a non-bilateral country.

8.3 **Project Plan Section 5, Delegations & Inspections.**

8.3.1 Delegations.

The PAH should describe the inspections or authorities that would be delegated to the manufacturing facility and how they would be controlled to ensure that each product or article produced conforms to its approved design and is in a condition for safe operation.

8.3.2 Inspections.

If the inspections listed below would be conducted at the manufacturing facility located outside of the United States, the PAH should describe the specific procedures and minimum inspection/test requirements that would ensure that each product or article produced conforms to its approved design.

- First article inspections that show the manufacturing and inspection processes will produce consistent and uniform products and articles,
- Mandatory inspections required by type design (for example, 100-percent nondestructive inspection of critical castings),
- Use of statistical quality control methods and the type of products or articles they are used on,
- Source inspection,
- Final inspection and/or testing,
- Tooling inspection,
- Use of authorized personnel to issue authorized release documents,
- In-process inspections, or
- Self-inspection or operator inspection process for non-critical characteristics.

8.4 **Use of Designees.**

In accordance with FAA Order 8000.95, *Designee Management Policy*, Volume 5, Chapter 2, paragraph 2, and Volume 8, Chapter 2, paragraph 2.a.(5), and FAA Order 8100.8, *Designee Management Handbook*, paragraphs 410 and 411, the FAA must make a separate finding of no undue burden before appointing a designee outside of the United States. Additionally, FAA Order 8100.15, *Organization Designation Authorization Procedures*, paragraph 3-3, states the FAA must make a separate finding of no undue burden before authorizing an Organization Designation Authorization (ODA) to appoint a unit member outside of the United States. The PAH must provide a plan or procedure that defines how it will provide the designee or designated personnel with the special importing requirements as listed in AC 21-2, *Complying with the*

Requirements of Importing Countries or Jurisdictions When Exporting U.S. Products, Articles, or Parts.

To mitigate burden for designee oversight, the PAH must agree to pay for its designees to travel back to the United States for required training and FAA oversight.

9 **FAA REVIEW.**

Upon receipt of the PAH's project plan, the FAA will determine whether the plan sufficiently demonstrates that the proposed activity will cause no undue burden to the FAA. The FAA will notify the PAH in writing if it determines that the project plan is incomplete or fails to sufficiently identify all factors that could mitigate undue burden. In such instances, the PAH should revise the project plan to address the deficiencies described in the notification and resubmit the plan to its FAA managing office for further review.

10 **CAA SUPPORT.**

The FAA may request assistance from the CAA of the country in which the manufacturing facility is located to provide approval and oversight of the facility. The FAA's use of foreign authorities can be an important factor in making its finding. Therefore, a delay may be encountered while the FAA waits for the CAA's response.

Note: Most of the FAA's bilateral agreements include provisions for technical assistance between authorities. Certain CAAs may charge a fee for oversight activities performed on behalf of the FAA at a PAH's facility located in its country or jurisdiction. A PAH should be aware that any CAA oversight activity fees incurred are solely the responsibility of the PAH.

11 **FINDING.**

For most projects requiring a full project plan, the PAH will receive written notification of the FAA's finding no later than 60 days from the date the FAA managing office received the full project plan. The response time may increase for complex or precedent-setting projects. The FAA managing office will notify the PAH via email or letter if additional review time is needed.

12 **CHANGES TO STATUS.**

Situations may occur that cause an initial finding of no undue burden to change to a finding of undue burden. In these cases, the FAA will be required to reassess the original no undue burden finding by requesting additional information on how the PAH will address the concerns. These situations may include, but are not limited to, the following:

- 12.1 A change that affects the originally approved plan. This may include additions to production models that are outside of the original plan. For example, the PAH requests

the supplier to manufacture a high-risk product/article or conduct a special process in which it has minimal experience.

- 12.2 The FAA identifies issues with the PAH's ability to control the manufacturing facility or become aware of issues with the manufacturing facility's performance.
- 12.3 Conditions change within the country in which the manufacturing facility is located, such as civil unrest or other activity, which could compromise the safety of FAA personnel or hinder their access to the manufacturing facility. This may include U.S. Department of State travel restrictions.
- 12.4 The CAA of the country in which the manufacturing facility is located is no longer able to perform oversight functions due to lack of resources or technical knowledge.

13 **RELATED PUBLICATIONS.**

- 14 CFR part 21, subpart G, Production Certificates
- 14 CFR part 21, subpart K, Parts Manufacturer Approvals
- 14 CFR part 21, subpart O, Technical Standard Order Approvals
- FAA Order 8000.95, *Designee Management Policy*
- FAA Order 8100.8, *Designee Management Handbook*
- FAA Order 8100.11D, *Requirements for Finding Undue Burden and No Undue Burden Under 14 CFR Part 21*
- FAA Order 8100.15, *Organization Designation Authorization Procedures*
- FAA Order 8110.42, *Parts Manufacturer Approval Procedures*
- AC 21-18, *Bilateral Airworthiness Agreements*
- AC 21-2, *Complying with the Requirements of Importing Countries or Jurisdictions When Exporting U.S. Products, Articles, or Parts*
- AC 21-24, *Extending a Production Certificate to a Facility Located in a Bilateral Airworthiness Agreement Country*
- AC 21-43, *Production Under 14 CFR Part 21, Subparts F, G, K, and O*

14 **WHERE TO FIND THIS AC.**

14.1 You may find this AC at http://www.faa.gov/regulations_policies/advisory_circulars/.

14.2 If you have any suggestions for improvements or changes, you may use the template provided at the end of this AC.

A handwritten signature in blue ink that reads "Susan J. M. Cabler". The signature is fluid and cursive, with the first name "Susan" and last name "Cabler" being more prominent than the middle initial "J. M."

Susan J. M. Cabler
Acting Manager, Design, Manufacturing, &
Airworthiness Division
Aircraft Certification Service

Appendix A. PAH Project Initiation Plan**PAH Project Initiation Plan**

PAH Name:**Project Number/PC Number:****PAH U.S. Address:****Phone Number:****Project Contact Person:****Date:**

Initial FAA Notification.

Complete sections 1 and 2, then forward the information to the appropriate FAA managing office as initial notification of the proposed use of a manufacturing facility outside of the United States. After reviewing this information, the FAA managing office will notify the PAH whether a full project plan will be required.

In most cases, the PAH will be required to complete a full project plan if the proposed manufacturing facility would be providing a product or article described on the CPL, or the PAH has identified the products or articles to be produced as high-risk. This also applies to products, articles, or processes for which the PAH has identified critical characteristics that must be closely controlled to ensure the required level of integrity. The FAA managing office will review and validate the information provided in the project plan to determine whether the proposed activity will cause no undue burden.

Section 1—Project Information	
1. Name and location, including country, of the proposed manufacturing facility.	
2. Project number/PC number.	
3. Names and model numbers of products or articles.	

4. Project description.			
5. Is the manufacturing facility located in a bilateral country? http://www.faa.gov/aircraft/air_cert/international/bilateral_agreements/			
6. Does the manufacturing facility hold a production approval issued by its CAA for the products or articles to be produced? If so, describe.			
Section 2—Risk Determination			
	Yes	No	FAA Validation
1. Are the products, articles, or processes listed on the CPL?	☐	☐	☐
2. Has the PAH identified the products, articles, or processes as high-risk?	☐	☐	☐
3. If the products or articles are included on the CPL, or identified as high-risk by the PAH, provide a description of their critical characteristics (such as critical functions, interfaces, or use of exotic materials).			
4. Identify whether the products or articles are fully inspectable upon receipt.	☐	☐	☐
5. If the products or articles are not fully inspectable, identify those critical characteristics that cannot be inspected once received by the PAH or operator.			

6. Describe the manufacturing facility's manufacturing capabilities and experience in manufacturing the intended products or articles. Include experience in any applicable special processes that will be performed at the manufacturing facility.

Section 3—PAH Control of the Manufacturing Facility

	FAA Validation
1. Describe the process for reporting nonconforming products/articles or quality escapes.	☐
2. Describe the process for the use and control of subtier suppliers producing high-risk products/articles or conducting high-risk manufacturing processes.	☐
3. Describe the process for notifying the FAA of any changes that may impact the risk level of the manufacturing facility.	☐
4. How would changes to processes that affect conformity and airworthiness of the products or articles be controlled for both the manufacturing facility and subtier suppliers?	☐
5. Describe how major and minor design changes would be controlled and implemented.	☐

6. Describe the quality flowdown requirements.	☐
7. Describe the specific audit process performed by the PAH for the manufacturing facility.	☐
Section 4—Approval of the Manufacturing Facility	
	FAA Validation
1. Provide the results of the PAH's manufacturing facility approval process.	☐
2. Provide a detailed description of the personnel's competence, qualifications, education, training, skills, and experience required to produce conforming products and articles.	☐
3. Provide a detailed description of all types of specialized training required.	☐
4. List any personnel qualifications needed to conduct inspections or perform special processes.	☐

5. Has the proposed manufacturing facility been fully integrated into the PAH's quality system or has it been approved by the PAH?	☐
6. Describe the approval process for subtier suppliers that might manufacture any high-risk products/articles or conduct any high-risk manufacturing processes.	☐
7. Would all manufacturing documents used to determine conformity and airworthiness be made available in the English language, and has a listing of those documents been attached to this plan?	☐
8. If located in a non-bilateral country, describe how the PAH would mitigate the requirement to allow FAA access to the manufacturing facility or subtier suppliers.	☐
Section 5—Delegations & Inspections	
	FAA Validation
1. Describe what inspections or authorities would be delegated to the manufacturing facility and how they will be controlled to ensure each product conforms to its approved design and is in a condition for safe operation. Has this listing been attached to this plan?	☐
2. Describe specific procedures and minimum inspection/test requirements that would ensure product and article conformity.	☐
3. Provide justification and function codes to be used by designees. NOTE: The FAA must determine that the use of designees at the proposed facility will cause no undue burden.	☐

4. Has the PAH agreed to pay travel expenses for designees to travel back to the United States for required training and FAA oversight?	☐
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FAA Action Requests

Action Item	ASI	Date
		[mm/dd/yyyy]
		[mm/dd/yyyy]
		[mm/dd/yyyy]

Comments

[Replace this text with comments.]

Approvals

FAA Determination	Undue Burden ☐	No Undue Burden ☐
ASI Signature		[mm/dd/yyyy]
MIDO/CMO Manager Signature		[mm/dd/yyyy]
MIO Manager Signature		[mm/dd/yyyy]
Directorate Manager Signature		[mm/dd/yyyy]

Appendix B. Advisory Circular Feedback Form

If you find an error in this AC, have recommendations for improving it, or have suggestions for new items/subjects to be added, you may let us know by (1) complete the form online at <https://ksn2.faa.gov/avs/dfs/Pages/Home.aspx> or (2) emailing this form to 9-AWA-AVS-AIR-DMO@faa.gov

Subject: _____

Date: _____

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:

☐ In a future change to this AC, please cover the following subject:
(Briefly describe what you want added.)

☐ Other comments:

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

Submitted by: _____ Date: _____