1.0 PURPOSE:

The purpose of the First Article Inspection Report (FAIR) is to give objective evidence that all
engineering, design and specification requirements are understood, accounted for, verified, and
recorded. The purpose of this procedure is to provide a consistent documentation for customers requiring a First Article Inspections (FAI).

2.0 SCOPE:

This procedure establishes the requirements for performing and documenting the First Article Inspection
(FAI) in accordance with AS9102.

3.0 REFERENCES DOCUMENTS:

1. International Aerospace Standard (AS) 9102 Revision B
2. Control of Monitoring and Measuring Devices P-715
3. Control of Documents P-750
4. Monitoring and Measuring of Product P-851
5. FAI Form 1105-03 (forms 1, 2 and 3)
6. Training P-720

4.0 DEFINITIONS:

**ATTRIBUTE DATA:** A result from a characteristic or property that is appraised only as to whether it
does or does not conform to a given requirement (for example, go/no-go, accept/reject, pass/fail, etc.).

**BALLOON DRAWING:** Design characteristic on latest revision of the drawing is numbered and circled
to clarify the design characteristic location. The numbering will start at the top of the drawing rotating
to the right and will include notes, as applicable.

**DELIVERABLE SOFTWARE:** Embedded or loadable airborne, space borne or ground support
software.

**DELTA :** A First Article Inspection Report completed on changes from the original FAIR (i.e.: an **EO** is
issued on an existing product.

**DESIGN CHARACTERISTICS:** Those dimensional, visual, functional, mechanical, and material features
or properties, which describe and constitute the design of the article as specified by Drawing
Requirements. These characteristics can be measured, inspected, tested, or verified to determine
conformance to the design requirements. Dimensional features include in-process locating features
such as target-machined (or forged/cast) dimensions on forgings and castings, and, weld/braze joint
preparation necessary for acceptance of finished joint. Material features or properties may include
processing variables and sequences, which are specified by the drawing (e.g., heat treat temperature,
fluorescent penetrate class, ultrasonic scans, sequence of welding and heat treat). These provide
assurance of intended characteristics that could not be otherwise defined.

**DRAWING REQUIREMENTS:** Requirements of the drawing (including Parts Lists), specification, or
purchasing document to which the article is to be made. These include any notes, specifications, and
lower-level drawings invoked.

**FIRST ARTICLE INSPECTION (FAI):** A complete, independent, and documented physical and
functional inspection process to verify that prescribed production methods have produced an acceptable
item as specified by engineering drawings, planning, purchase order, engineering specifications, and/or
other applicable design documents.

**Note:** All person performing and documenting a First Article Inspection will be trained to this procedure in accordance to P-720

**FIRST ARTICLE INSPECTION REPORT (FAIR):** The forms and package of documentation for a part
number or assembly, including FAI results, as per this procedure.

**FIRST PRODUCTION RUNS PARTS:** The first group of one or more parts that are the result of a
planned process designed to be used for future production of these same parts. Prototype parts, or parts
built using methods different from those intended for the normal production process, shall not be
considered as part of the first production run.

**MULTIPLE CHARACTERISTICS:** Identical characteristics that occur at more than one location (e.g., 4
Places.) but are established by a single set of drawing requirements (e.g., rivet hole size, dovetail slots,
corner radii, chemical milling pocket thickness).

**PRODUCT:** The result of a process, which in the context of this procedure includes finished detailed
parts and assemblies. It also includes forgings and castings.

**REFERENCE CHARACTERISTICS:** The characteristics that are used for information only or to show
relationship. These are dimensions without tolerances and refer to other dimensions on the drawing.

**STANDARD CATALOG HARDWARE:** A part or material that conforms to an established industry or
national authority published specification, having all characteristics identified by text description,
National/Military Standard Drawing, or catalog item.

**VARIABLES DATA:** Quantitative measurements taken on a continuous scale. For example, the
diameter of a cylinder or the gap between mating parts.

1. **REQUIREMENTS:**
	1. Part Requirements:

FAI will be performed on new Product representative of the First Production Run.

The First Article Inspection folder shall contain the following documents that is pertinent to the inspection
and receipt of the product, this will include but not limited to the following:

1. A copy of the last Engineering Order (change release) issued on the part number.
2. Balloon drawing.
3. The original First Article Inspection Report and all applicable Delta Reports.
4. All pertinent analysis, and test data in relation to the product, certification of supplied materials.
5. Statistical Process Control data and/or charts, when applicable.
6. First Article Inspection Reports (Forms 1105-03).

**NOTE:** For assemblies, the assembly level FAI shall be performed on those characteristics specified on
the assembly drawing.

**NOTE:** Prototype parts, or parts manufactured using methods different from those intended for the
normal production process will not be used for the FAI, but the FAI forms and process may be used to
verify conformance of a prototype part to design requirements and “Prototype" shall be noted on the FAI
forms.

* 1. Evaluation Activities:

The following activities will be completed and recorded in support of FAI.

* + 1. Review documentation for the manufacturing process (e.g., routing sheets, manufacturing/quality
		plans, manufacturing work instructions, etc.) to make sure all operations are complete as
		planned.
		2. Review referenced exhibits supporting the FAI (e.g., inspection data, test data, Acceptance Test
		Procedures, etc.) for completeness.
		3. Review nonconformance documentation (if any), for completeness.
		4. Review material certifications for compliance, as applicable.
		5. Verify that approved Special Process sources are used (as applicable), and that the
		manufacturing planning/routing document calls out the correct specification.
		6. Verify that Key Characteristic requirements have been met, as applicable.
		7. Verify part specific gages and/or tooling are approved and traceable, as applicable.
		8. Verify that every design characteristic requirement is accounted for, uniquely identified and has
		inspection results traceable to each unique identifier (Balloon Drawing).

**NOTE:** When not applicable, a “N/A” will be recorded as evidence of review.

* 1. When to Document a First Article:

A full FAI shall be performed on all products, or a partial (Delta) FAI for affected characteristics, when
any of the following events occurs:

* + 1. A change in the design affecting fit, form or function of the part.
		2. A change in manufacturing source(s), process (es), inspection method(s), location of
		manufacture, tooling or materials, that can potentially affect fit, form or function.
		3. A change in numerical control program or translation to another media that can potentially affect
		fit, form or function.
		4. A natural or man-made event, which may adversely affect the manufacturing process.
		5. A lapse in production for two years or as specified by the Customer.
	1. Partial (Delta) of First Article Inspection:
		1. The FAI requirement, once invoked, shall continue to apply even after initial compliance.
		2. The FAI requirements may be satisfied by a partial FAI that addresses differences between the
		current configuration and prior approved configurations, as noted on an Engineering Order (EO)
		3. When a partial (Delta) FAI is performed, only the affected fields shall be completed in the FAI
		forms with corresponding balloon drawing.
		4. FAI requirements may also be satisfied by previously approved FAI performed on identical
		characteristics of similar parts produced by identical means.
1. When FAI requirements (partial (Delta) or complete) are satisfied in this manner, identify the
approved configuration in the index of part numbers on Form 1.
	1. Nonconformance Handling:

Nonconforming material is managed using CMS Procedure 1020 (P-1020). The FAI is not complete until
all non-conformances affecting the part are closed. A FAI shall be re-done once affected
nonconforming characteristics have been resolved.

* 1. 1105-03 Form:

The Appendix of this Procedure contains form 1105-03 that complies with the documentation
requirements. Each field in the form is designated with a unique reference number. Each field is also
identified as:

* **(R) Required**: This is mandatory information.
* **(CR) Conditionally Required**: This field must be completed when applicable (i.e., when a customer requirement exists, then this field must be filled in).
* **(O) Optional**: This field is provided for convenience and when information is available must be
completed.
1. Forms contained in the Appendix shall be used to document the results of the FAI.
2. All forms shall be completed either electronically or in permanent ink, however the final signature
must be in permanent ink.

**NOTE:** Continuation sheets using the same form are acceptable or insert additional rows if completing
electronically.

5.7. Characteristic Accountability:

Customer will verify every Design Characteristic during FAI and record the results. Every Design
Characteristic shall have its own unique characteristic number (balloon drawing).

**NOTE:** Reference characteristics may be omitted from the FAI.

**NOTE:** Use more than one line if needed for any characteristic and/or details.

**NOTE:** Characteristics not measurable in the final product shall be verified during the manufacturing
process (as long as they are not affected by subsequent operations) or by destructive means.
Characteristics verified at the detail level may be referenced in the assembly-level FAI report.

1. Record of Results:
2. Results from inspection of design characteristics shall be expressed in quantitative terms
(Variables Data) when a Design Characteristic is expressed by numerical limits.
3. The results shall be recorded in the units specified on the drawing or specification, unless
otherwise approved by the Customer.
4. Attribute Data (e.g., go/no-go) may be used if no inspection technique resulting in Variables Data
is feasible. Attribute Data is permitted when the Design Characteristic does not specify numerical
limits (e.g., break all sharp edges). It is also permitted where qualified tooling is consistently used
as a check feature and a go/no-go feature has been established for the specific characteristic.
5. Control of Records:
6. All FAI documentation will be retained on file as defined in QCP 019.

APPENDIX A

FORMS AND GUIDELINES TO COMPLETE THE FORMS:

This Appendix provides the guidelines to complete the forms. Each input field is identified as:

* **(R) Required:** This is mandatory information.
* **(CR) Conditionally Required:** This field must be completed when applicable - record **“NA”,** when not
applicable.
* **(O) Optional:** This field is provided for convenience, however, if the information is available, it must be
recorded - record “NA” when no information is available.

 Appendix A - FORM 1

*A-l* FORM 1 (1105-03): Instructions to Complete Part Number Accountability.

This form is used to identify the part that is being first-article inspected (FAI part) and associated
subassemblies or detail parts.

**NOTE:** Fields 1-4 are repeated on all forms for convenience and traceability.

1. **(R) Part Number:** Number of the part (FAI part).
2. **(R) Part Name;** Name of the part as shown on the drawing.
3. **(CR) Serial number:** Serial number of the part.
4. **(R) FAI Report Number:** Enter the part number of the First Article being documented.
5. **(CR) Part Revision Level:** Latest part revision that affects the part being first article
inspected.

**Note:** The latest drawing revision (Field 7) does not always affect all parts contained on a
drawing.

1. **(CR) Drawing Number:** Drawing number associated with the FAI part.
2. **(CR) Drawing Revision Level:** The revision level of the engineering drawing.
3. **(CR) Additional Changes:** Provide reference number(s) of any changes that are incorporated
in the product but not reflected in referenced drawing/part revision level (e.g., change in design,
engineering changes, manufacturing changes, deviation or exclusion from certain drawing
requirement, etc.).
4. **(R) Manufacturing Process Reference:** A reference number that provides traceability to the
manufacturing record of the FAI part (e.g., router number, manufacturing plan number, etc.)
5. **(R) Organization Name:** Customer name.
6. **(O) Supplier Code:** Supplier Code is a unique number given by Customer. It is sometimes
referred to as Vendor Code, Vendor Identification Number, Supplier Number, etc., if applicable.
7. **(O) P.O. Number:** Enter Customer Purchase Order number, if applicable or required.
8. **(R) Detail part or an Assembly FAI:** Check box as appropriate.
9. **(R) Full FAI or Partial FAI:** Check box as appropriate. For a partial FAI, provide the baseline
part number (including revision level) to which this partial FAI is performed and the reason for it.

For example, changes in design, process, manufacturing location, etc.

**15,16,17** and **18:** This section is required only if the part number in Field 1 is an assembly
requiring lower-level parts to be installed into the assembly.

1. **(CR) Part Number:** Detail or next level sub-assembly part number to be included in the
assembly.
2. (CR) Part Name: as shown on the drawing.
3. **(CR) Part Serial Number:** of the part that is installed in the assembly, when applicable.
4. **(O) FAI Report Number:** for detail part.
5. **(R) Signature:** Name and signature of the person who prepared FAI Form 1. Also check
appropriate box if this FAI is complete per 5.5.

**Note:** The signature on this form certifies the following two things:

* 1. That all characteristics are accounted for; meet drawing requirements or are
	properly documented for disposition.
	2. If this FAI is complete, check as appropriate.
1. **(R) Date:** when this FAI Form 1 was prepared.
2. **(O) Name of the person:** person from Customer who approved FAI report
3. **(O) Date:** when the FAI report is approved.
4. **(O) Customer Approval:** This field is used by Customer to record approval, if required.
5. **(O) Date:** Date Customer approved this FAI form.

Insert FAI Form

Appendix A - FORM 3

*A-3* Form 3 (1105-03): Instructions to Complete Characteristic Accountability, Verification and
Compatibility Evaluation

**NOTE:** Fields 1-4 are repeated on all forms for convenience and traceability.

1. **(R) Part Number:** Number of the part (FAI part).
2. **(R) Part Name:** Name of the part as shown on the drawing.
3. **(CR) Part serial number:** Serial number of part.
4. **(O) FAI Report Number:** Reference number that identifies the FAI. This may be an internal
report number.
5. **(R) Characteristic Number:** Unique assigned number for each Design Characteristic.
6. **(CR) Reference Location:** Location of the Design Characteristic (e.g., drawing zone (page
number and section), specification, etc.)
7. **(CR) Characteristic Designator:** If applicable, record characteristic type (e.g., **key,** flight
safety, critical, major, etc.).
8. **(R) Requirement:** Specified requirement for the Design Characteristic (e.g., drawing
dimensional characteristics with nominal and tolerances included, drawing notes, specification
requirements, etc.).
9. **(R) Results:** List measurement(s) obtained for the design characteristics.
* For Multiple Characteristics list each characteristic as individual values or list once with the
minimum and maximum of measured values attained. If a characteristic is found to be non-
conforming then that characteristic must be listed separately with the measured value noted.
* If a Design Requirement requires verification testing, then the actual results will be recorded
on the form. If a laboratory report or certificate of test is included in the FAIR, then these
results need not be written on the form, record the reference number in this field. The
laboratory report or certificate of test must show specific values for requirements and actual
results.
* For metallurgical characteristics with visual verification requirement that are rated against
standard photographs, list the photo number of the closest comparison. A statement of
conformance is acceptable (record the reference number in this field).
* For processes that require verification per design characteristic, include statement of
compliance (e.g., certification of compliance, verification indicator such as. accept, etc.).
* For part marking, ensure that marking is legible, correct in content and size and properly
located, per applicable specification.
1. **(CR) Designed Tooling:** If a specially designed tooling (including NC programming) is used
as a media of inspection, record the tool identification number.
2. **(CR) Non-Conformance Number:** Record a non-conformance document reference number
if the characteristic is found to be non-conforming.
3. (R) Prepared By: Name of the person who prepared this form.
4. **(R) Date:** Date when this form was completed.
5. **(O) Comments:** Add additional columns as required.

**CMS AUDIT PLAN**

**AREA AUDITED \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ AUDIT DATE \_\_\_\_\_\_\_\_\_\_\_\_**

|  |  |
| --- | --- |
| YES | NO |
|  |  | Sample FAIR reports. Verify the reports match revision levels of current drawing and/ormanufacturing changes. |
|  |  | Are training records for quality personnel responsible for FAI. Section 4.0 |
|  |  | Are the design characteristic uniquely identified (Balloon Drawing). Section 5.2 |
|  |  | The FAI requirements satisfied by a Delta FAI that addresses differences between the currentconfiguration, as noted on an Engineering Order (EO). Section 5.4 |
|  |  | Is there evidence that a FAIR was not completed until the all non-conformances affecting the partare closed and is the FAIR re-done once affected nonconforming characteristics have beenresolved. Section 5.5 |
|  |  | Are all forms completed and approved - verify signature of Approvals, includingCustomer Signatures where applicable. See appendix A, form 1, 2, 3 and is N/A notedwhere not applicable |
|  |  |  |

Objective Evidence:

|  |  |  |  |
| --- | --- | --- | --- |
| **Document:** | **Description:** | **Attached** | **Comments:** |
|  |  |  |  |

**Revision History**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Rev** | **Date** | **Section** | **Paragraph** | **Summary of change** | **Authorized**  | **Authorized**  |
| A | 4/21/2025 | P - 630-002 |  | Initial issue | PH | TP |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |