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# QAP012 Rev. S

## First Article Inspection and Reports

Revised by: Zeljko Tolo	Date: 2/6/18
Approved by: AFP Dir. of Quality of Gary Peters	Date: 2/9/18
Approved by: ACX Dir. of Quality of Gary Peters	Date: 2/9/18
Approved by: Director of Quality Gary Peters	Date: 2/9/18
Released by: Wendy Sharp	Date: 2/13/18

## Revisions

Revision	Description	Date	By
K	Last Release- Ref. QR01083	3/28/12	Gary Peters
L	Revised Para 5.6, 6.1 and 6.4 Also replaced AeroControlex with ACX/AFP. Ref. QR01264	4/8/2013	Gary Peters
M	Ref. QR01496	11/18/15	Gary Mrosko
N	Ref. QR01518- corrected Reference documents QCF-508	2/8/16	Wendy Sharp
P	Ref. QR01616. Revised Para. 5.1 added requirement to explode specification called on the drawing (AS, MS, SAE, c.)  Revised Para 5.8 Added "The Approved FAIR will be sent to the QE and will be reviewed"	12/5/2016	Gary Peters
Q	Revised to comply with AS9100D; also, clarified the use of QAP012.1 in Para 3.0, 4.0, 4.7. Ref. QR01738.	8/29/17	Wendy Sharp
R	Revised Para. 2.6 and 3.2.  Revised Process Input Revised Process Output Revised Associated Material Ref. QR01779	1/12/18	Gary Peters
S	Revised Para 3.1, added "NOTE: catalogue items issued AFP/ACX part numbers do not require first articles unless the items are modified." Ref. QR01790.	2/6/18	Zeljko Tolo

- I. **Business Process Description**

The purpose of this procedure is to provide for a system, instructions, and to assign responsibilities for preparing, documenting, and approving the First Article Inspection (FAI). The FAI is intended to give objective evidence that all engineering, design, and specification requirements are correctly understood, accounted for, verified, and recorded.
- II. **Process Owner(s)**

Director of Quality
- III. **Business Process**
  - 1.0 **PROCEDURE**

This procedure applies to both AeroControlex (ACX) and Aero Fluid Products (AFP). This procedure applies to raw material (castings), components, subassemblies, assemblies, and completed products that are purchased or manufactured. AS9102 outlines the conditions for when FAI's are to be completed.
  - 2.0 **RESPONSIBILITIES**
    - 2.1 All First Articles Inspections (FAI) shall be in accordance with AS9102 and (ACX/AFP only) QAP012.1 First Article Instruction Guide.
    - 2.2 This procedure is to be followed by all inspectors while preparing First Article Inspections on castings, components, subassemblies, assemblies, and completed products.
    - 2.3 All raw material (castings), purchased or manufactured product are subject to a First Article Inspection.
    - 2.4 AeroControlex (ACX) /Aero Fluid Products (AFP) suppliers are required to provide a First Article Inspection in accordance to AS9102. If one cannot be provided, one may be completed for them as required.
    - 2.5 ACX/AFP Quality Assurance shall be responsible for approving and maintaining First Article Inspections records.
    - 2.6 ACX/ AFP First Articles shall be created using "Visual Fair<sup>®</sup> or Net-Inspect Program. If the program is unavailable, FAIs may be created using excel AS9102 formatted spreadsheets. Supplier First Articles submitted to ACX/AFP shall be created with whatever method they chose, as long as the First Article is in accordance with AS9102. The completed FAIR shall be converted to Adobe Acrobat format and filed in the ACX/AFP PDM system.
    - 2.7 The First Article Instruction Guide (QAP012.1 ACX/AFP only) defines specific requirements that will assure a completed First Article meets all AS9102 and internal requirements. Customer requirements may have subtle variations not identified on the instruction and must be reviewed as required by the Purchase Order or contract. Deviations from the instruction must be approved by authorized Quality department personnel.

### 3.0 PROCEDURE

- 3.1 A First Article Inspection shall be conducted on all production hardware, except for standard catalogue items (defined below). The First Article Inspection shall document 100% compliance to all drawing requirements, which may include notes, specifications, special processes, raw material, dimensional data, functional test, and any laboratory requirements. Specifications are AS, MS, AN, SAE Etc. The requirements on these specifications shall be broken out and listed on AS9100 Form 3.
- NOTE: AS9102 defines standard catalog items as - A part or material that conforms to an established industry or national authority published specification, having all characteristics identified by text description or industry/national/military standard drawing.
- NOTE: Catalogue items issued AFP/ACX part numbers do not require first articles unless the items are modified.
- 3.2 ACX/AFP FAIRs shall be electronically generated utilizing Visual FAIR or Net-Inspect. Supporting data shall be scanned in and attached to the FAIR.
- 3.3 When required by Purchase Order, prototype FAI's may be completed per customer requirements. When the customer is ordering their part number, and, there is a current drawing on file for that part number, the FAI shall be performed to the drawing for the part number ordered by the customer. NOTE: If a current FAI is found on file (SmarTeam/hard storage), The FAI is not required.
- 3.4 When required by a Government Purchase Order, First Article Tests (FAT) will be completed (FAR Part 9, Subpart 9.3). The Quality Engineer will coordinate the process between the customer and Operations in the event any customer witnessing is required during the assembly, test, or inspection process.
- 3.5 First Article approvals
- 3.6 ACX/AFP First Articles shall be completed following AS9102 and QAP012.1 and submitted to the Quality department for review/approval.
- 3.7 Supplier first articles shall be reviewed by the receiving inspector for completeness, accuracy and required documents.
- Supplier FAIRs shall be legible and in AS9102 format.
  - Once reviewed, the inspector shall apply their assigned stamp to block 21 and date it in block 22.
  - The Approved FAIR will be sent to the QE and will be reviewed.
  - The FAI will then be scanned into SmarTeam FAIR Database.
  - A valid FAI will consist of, at a minimum, a bubbled drawing, Forms 1, 2, & 3 that conform to AS9102, and applicable certifications per drawing requirements.
- NOTE: Supplier FAI's shall be scanned into StarTeam independent of the normal 'Certification' packets sent with the shipment.
- 3.8 If AXC/AFP complete the FAI on behalf of the supplier, follow the internal FAI requirements per AS9102 and QAP012.



- 3.9 Top Level FAIRS that require customer approvals should be signed by the customer in form 1 box 23 and dated in form 1 box 24. However, customers may require that the use of a separate program be utilized for approval (ex. Net Inspect). Tracking of these approvals will be through the customer designated program, not on form 1, box 23.

#### 4.0 DIGITAL PRODUCT DEFINITION (DPD)

- 4.1 Examples of DPD's are outlined in AS9102. They include:
- The digital definition and fully dimensioned two-dimensional (2D) drawing sheets.
  - Three-dimensional (3D) data model and simplified or reduced content 2D drawing sheets.
  - The 3D model with design characteristics displayed as text.
  - Any other data files that define a product in its entirety.
- 4.2 The Design Engineering department is responsible for conversions of DPD's to a useable format for SmarTeam filing and Visual Fair (ex. PDF document).

#### 5.0 NONCONFORMING PRODUCT

- 5.1 When a nonconformance is detected during FAI, follow the instruction outlined in QAP012.1 First Article Instruction Guide. (See note below)

**NOTE:** QAP012.1 is for ACX/AFP internal use only. **Suppliers** shall follow the requirements of AS9102 when a non-conformance is identified.

#### 6.0 RETENTION

- 6.1 To establish the First Article Record for internal FAI's, following the review process, the individual completing the review (or their approved delegate) is responsible for compiling the data in Visual Fair and exporting as a PDF document. The report is then filed and maintained utilizing the SmarTeam Fair Database Ref. QAP003.

#### 7.0 TWO YEAR LAPSE IN PRODUCTION WAIVERS

- 7.1 Per AS9102, Para 4.6f, number 6, "A lapse in production for two years shall require an update for any characteristics that may be impacted by the inactivity. This lapse is from the completion of last production operation to the actual restart of production." If a request is made from Operations to waive a First Article based on no characteristics being affected by the inactivity, the Operation Managers and Quality Engineer (or their delegate) will complete a First Article review to determine if no changes occurred since the last production run that may have impacted any characteristic.
- 7.1.1 The Operations Manager and Quality Engineer (or their delegate) will complete the waiver using the FAI waiver review checklist QCF-505. Once completed, and the FAI is eligible to be waived based on checklist responses, an entry will be made on the right side of the manufacturing router under the final inspection operation sign-off and will state the following: "FAI waived, there have been no changes since the last production run that would impact characteristics for this

PN due to inactivity". The entry will be stamped and dated by the Quality Engineer.

**IV. Process Inputs:**

AS9102 Aerospace First Article Inspection Requirement  
Customer Drawing  
AeroControlex Drawings  
Design Specification  
Certifications  
Test Data  
Test Plans  
Special Process Certifications  
Gauge List

**V. Process Outputs:**

AS9102 Form 1, 2, 3 Completed  
Certifications  
Bubbled Drawings

**VI. Definitions:**

First Article (FAI) is a design verification and design history file and a formal method of providing a reported measurement for a given manufacturing process. Both the supplier and purchaser perform the **First Article** on the ordered product.  
Visual Fair is a software program designed to create first articles.

**VII. Related Requirements**

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**VIII. VIII. Associated Materials/Documents**

QAP012.1 - First Article Instruction Guide (ACX and AFP internal only)

QCF-505 - FAI waiver checklist

QAP003 - Quality Records

FAR Part 9, Subpart 9.3 - First Article Test