

# **SUPPLIER FIRST ARTICLE REPORT REVIEW, VALIDATION AND APPROVAL PLAN**

## **Table of Content**

INTRODUCTION .....	2
PURPOSE .....	2
SCOPE.....	2
REFERENCE DOCUMENTS .....	4
RESPONSIBILITY.....	4
GENERAL DESCRIPTION OF THE PROCESS.....	5
PLAN OBJECTIVES AND GOALS.....	8
FIRST ARTICLE PACKAGE ACCEPTANCE AND APPROVAL .....	8
DELIVERY AND CONTROL OF RECORDS.....	9
PROCESS FLOWCHART .....	10

## INTRODUCTION

The FAIR Review and Validation plan has been created due to On-Board Systems Hoist and Winch assessment of requirements related to critical programs and because of lessons learned from Supplier FAIRs reviews.

The IAQG has indicated an effective means of complying with the regulatory requirement will be a successful First Article Inspection (FAI) program. Manufactures have incorporated a FAI process into their quality management system (QMS) program and have made it an integral part of their manufacturing process. This FAI Review and Validation Plan has been developed using requirements in standard AS9102, current regulatory and Internal to On-Board Systems Hoist and Winch requirements as a guide.

## PURPOSE

The primary purpose of the First Article Inspection is to verify and validate product realization process can produce characteristics that meet engineering and design requirements. A well planned and executed process for the review of FAI reports will provide confidence through objective evidence that all engineering, design, specification, purchase orders and customer requirements are understood, accounted for, verified and recorded and that the process can produce conforming products.

This plan is intended to assist Supplier with generating and reviewing First Article Inspection requirements.

## SCOPE

This Plan applies to all products that are manufactured in On-Board Systems Hoist and Winch for which a First Article Inspection is required on Purchase Orders or by AS9102 standard.

Full FAI shall be performed by the organization when there is:

- New part introduction
- New supplier or new location of manufacture
- Lapse in production for more than 2 years for any characteristics that may be impacted. The organization may determine a Full FAI, rather than a Partial during the organization evaluation.
- New process/method of manufacturing

- When required by the Customer

In case of the design or manufacturing process are partially modified, verification can be limited to a subset of the test and inspection activities referred to the modification itself, declaring similarity with the Full FAI.

Partial or Full FAI is required to be submitted for each drawing revision change (without regard to form, fit, or function). If the revision is only an administrative correction, the FAI shall state that.

The supplier shall perform the FAI, against the drawing for the top-level part number identified on the On-Board Systems Hoist and Winch Purchase Order.

FAIs should be performed in a progressive manner from low level Detail Items to top-level make items. Supplier shall enter the detail or subassembly FAIs Numbers on Form 1 of the Next Level Assembly and keep Detail FAIRs on record once the FAI review is considered complete.

Submitted FAIRs require supplier CofC, and material certification traceable to the original manufacturer, including all vendors who may have also handled the product. This applies to partial FAIs when material is affected.

This review does not include standard hardware as described in Federal Aviation Administration (FAA) Advisory Circular (AC) 43.13, which is the FAA definition of standard hardware or as defined per AS9102. However, all standard hardware should still be treated with the same importance as manufactured products, because the final product that includes standard hardware will have the airworthiness affected if the manufactures' identified hardware was not used in the manufacturing process. Standard hardware review is limited to the review of the certificate of conformance to requirements provided with the hardware.

Commercially Available Off-the-Shelf (COTS) are also excluded from the requirement to have an FAI per AS9102.

Modified COTS (MCOTS) products (e.g., C-drawings), an FAI is only required for the specific characteristics controlled or modified by the Collins Aerospace drawing (e.g., painting an Off-The-Shelf screw would require an FAI on the paint only). Supplier shall retain the most recent full FAI for all active part numbers, regardless of record retention timelines, even after a subsequent delta FAI has been submitted.

Any characteristics identified in the design documentation as "safety" or "critical" characteristics shall be designated as such on AS9102 Form 3, block 7. No change or deviation shall be accepted, unless prior written authorization is granted from On-Board Systems Hoist and Winch such as when the method for acceptance is defined in the design.

A FAI is not a product acceptance document. While interrelated, FAI and product acceptance are separate activities. The focus of FAI is verification of production processes via assessment of product. FAI and supporting documentation do not provide assurance regarding conformance for product acceptance purposes; neither does the lack of a FAI necessarily imply product is nonconforming to engineering and design requirements.

## REFERENCE DOCUMENTS

- Supplier First Article Inspection Validation Report
- List of PPAP Pegasus Parts
- WI 8.2.4.4-On-Board Systems Hoist and Winch First Article Inspection
- DP 7.5.2- On-Board Systems Validation of Processes for Production and Service Provision
- S-370- Critical Parts for On-Board Systems Hoist and Winch External Hoists
- SQ8.2.2.1- Pegasus Supplier Inspection Requirements
- AS9102- Aerospace First Article Inspection Requirements
- ER070 06-11-Airbus Requirements for The Acceptance Of The First Production Article Of A Procured Item
- QAE- 06-11- Airbus Requirements for Acceptance of The First Production Article of a Bought-Out Item
- QRS 101- Leonardo Requirement for First Article Inspection / Validation and Re-validation of the production method
- FAI Industry Checklists
- FAA PART 21- Certification of Aircraft and Related Products, Parts and Appliances, and of Design and Production Organizations

## RESPONSIBILITY

Suppliers are responsible for the quality of products and the quality of the FAI reports they produced, including the sub-tiers FAI. Suppliers are expected to achieve and maintain a rating of “Performing” Suppliers. Performing suppliers are suppliers that have

an acceptable on time quality level and that are experienced in the manufacturing process of the commodities for which they have been selected by On-Board Systems

H&W Sourcing Board. Findings in the FAI process and reports can lead to a rating impact.

The Supplier's Quality Department is responsible for the review and validation of the First Article Package.

The Quality Inspector is responsible to complete the FAI package with all pertinent information and to provide this package to a Supplier Quality Designated reviewer for review and validation.

The completed FAI shall be presented as a First Article Inspection Report (FAIR). This report may contain a combination of the following items depending on the type of FAI (Partial or Full) required.

- Ballooned drawing with all dimensions and notes numbered
- Supporting documentation such as
  - manufacturing order (MO)
  - acceptance test results (ATR)
  - material and special process certifications
  - Manufacturing process verifications,
  - Non-conformance resolution.
  - Supplier FAI
  - Other as needed

## GENERAL DESCRIPTION OF THE PROCESS

The acceptance process for the first article inspection report is based on the application of AS9102 requirements. This plan defines additional requirements for Suppliers performing the review of First Article Inspection Report.

The First Article Review Plan is broken into the following steps:

1. PDCA Improvement Plan:

The plan follows a PDCA continuous improvement cycle.



## PLAN

- Establish the objectives and processes necessary to deliver accurate First Article Inspection results in accordance with Customer and AS9100 requirements. Reference On-Board First Article Validation Form.
- Establish a training Plan
- Use Root Cause and Corrective Action such as 8D or equivalent approach to address FAI discrepancies on products and to ensure closure

## DO

Implement the plan:

- Identify reviewers within the Supplier Quality Department.
- Train and certify reviewers in evaluation activities listed in the “CHECK” section and in the use of the On-Board First Article Validation Form.
- List all FAIs to be reviewed.
- Collect all documentation to perform FAIR review,
- Establish Gap Analysis between internal procedure and On-Board Systems Hoist and Winch requirements.
- Create New Process, New Documents and Execute the process,
- Collect data for analysis.

## CHECK

- The organization shall conduct the following activities during product realization, when applicable, in support of FAI to ensure conformance with design characteristics:
  - a. Review documentation for the manufacturing process (e.g., routing sheets, manufacturing or quality plans, manufacturing work instructions) to ensure all operations are complete as planned and call out the correct specification, material types, conditions, and approvals.
  - b. Review supporting documentation in the FAI (e.g., inspection data, test data, Acceptance Test Procedures, special process approvals and certifications) for completeness.
  - c. Verify that the raw material and special process certifications call out the correct specification, material types, conditions, and approvals.
  - d. Verify that required customer approved sources are utilized.
  - e. Review nonconformance documentation included in the FAIR for completeness.
  - f. Verify that required designed tooling (e.g., part specific gauges) are used and appropriately documented on Form 3.
  - g. Verify that every design characteristic requirement is accounted for, uniquely identified, and has inspection results traceable to each unique identifier.
  - h. Verify the design characteristics that are the output of the manufacturing process are measured, inspected, tested, or verified to determine conformance
  - i. Verify part marking is legible, correct in content and size, and properly located per applicable specifications.
- Use On-Board First Article Validation Form to record review of FAI activities and FAIR accuracy.
- Study the actual results of the FAI validation process
- Compare against expected results to assess any differences.
  - Include external customer feedback and approvals

- Log and chart validation results to identify trends

## ACT

- Provide On-Board Systems Hoist and Winch with a complete On-Board First Article Validation Form as certification of the Supplier review of FAI activities and FAIR accuracy.
- Supplier implementation of corrective actions on significant differences between actual and planned results. Analyze the differences to determine their root causes.
- Determine where to apply changes that will include improvement of the process.

## PLAN OBJECTIVES AND GOALS

- Zero Defect on Supplier FAI items and FAIR delivered to On-Board Systems Hoist and Winch
- Error Proofed First Article Inspection Process
- Successful Product Qualification and Product Certification and Acceptance

The goal of the FAI Review and Validation plan is to prevent discrepancies, escapes and turn-backs by designing a robust validation process.

Simplify On-Board Systems FAIR Approval.

Appropriate corrective actions must be taken due to findings during the validation phase of the FAI process.

## FIRST ARTICLE PACKAGE ACCEPTANCE AND APPROVAL

The acceptance and approval of the First Article Package includes the following:

- The FAI Report with all required documentation and certifications
- The Supplier Review and Validation Report, signed and dated by the Supplier Quality Reviewer.
  - Note: Reviewer must be different from Preparer and Review is considered a certification of the FAI process.



On-Board Systems Hoist and Winch Quality signs on the summary section of the Supplier First Article Inspection Validation Form after the review is completed and deemed acceptable.

On-Board Systems Hoist and Winch reserves the right to perform independent dimensional inspections on the lot or a sample size of a lot of parts to provide assurance of lot conformance. Final lot acceptance can also be assessed through next level assembly performance test.

Parts on PPAP list will require activities exceeding the FAI documentation review to ensure risk reduction, process capability and safety of flight

## DELIVERY AND CONTROL OF RECORDS

- The First Article shall be delivered to On-Board Systems Hoist and Winch per Purchase Order
- The article identified as FAI on COC if serialized and on the part with a tag
- Suppliers uploads a copy of the FAI Report along with the Supplier Review Form and all applicable documents and data pack to Onboard Systems Hoist and Winch SharePoint site in the link provided by Onboard Systems Hoist and Winch Procurement Agent.
- The original Full FAI Package with all documents and certifications shall be kept on file at Supplier and shall be made available to On-Board Systems Hoist and Winch upon request throughout the life of the program
- The most recent FAI shall be kept on file at supplier as well.

## PROCESS FLOWCHART

