

TR-808 FAI Data Package Review

Revision B
Issue Date: 08/22/2022

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Purpose

- This Training Reference (TR) serves as a reference aid when reviewing First Article Data Packages to ensure compliance to AS9102.
- This TR does not identify all requirements in AS9102, previous training to AS9102 is a prerequisite to utilizing this TR.
- The primary purpose of FAI is to validate that product realization processes are capable of producing parts and assemblies that meet all requirements of the drawing.



AEROSPACE STANDARD	AS9102	REV. B
	Technically equivalent writings published in all IAQG sectors.	
	Issued 2000-08 Revised 2014-10	
Superseding AS9102A		
(R) Aerospace First Article Inspection Requirement		

RATIONALE

This standard was revised to emphasize the value of the First Article Inspection (FAI) process to an organization, separate and enhance the planning and evaluation activities, and define Digital Product Definition (DPD) and its relationship to the FAI process. Additional changes to the standard requirements, definitions, and associated notes were incorporated in response to stakeholder needs.

FOREWORD

To assure customer satisfaction, aviation, space, and defense organizations must produce and continually improve safe, reliable products that meet or exceed customer and applicable statutory and regulatory requirements. The globalization of the industry and the resulting diversity of regional and national requirements and expectations have complicated this objective. Organizations face the challenge of purchasing products from suppliers throughout the world and at all levels of the supply chain. Industry suppliers and processors face the challenge of delivering products to multiple customers having varying quality requirements and expectations.

The aviation, space, and defense industry established the International Aerospace Quality Group (IAQG) for the purpose of achieving significant improvements in quality and safety, and reductions in cost throughout the value stream. This organization includes representation from companies in the Americas, Asia/Pacific, and Europe. This international standard has been prepared by the IAQG.

This document standardizes FAI process requirements to the greatest extent possible and can be used at all levels of the supply chain by organizations around the world to provide a consistent process and documentation requirements for verification of aviation, space, and defense product. Its use should result in improved quality, schedule, and cost performance by the reduction or elimination of organization-unique requirements and wider application of good practices. While primarily developed for the aviation, space, and defense industry, this standard can also be used in other industry sectors where a standardized FAI process is needed.

Form 1 – Required/Conditional/Optional Fields

SAE INTERNATIONAL AS9102 Rev B First Article Inspection Form 1: Part Number Accountability			Sheet ___ of ___
1. Part Number:	2. Part Name:	3. Serial Number:	4. FAIR Number:
5. Part Revision Level:	6. Drawing Number:	7. Drawing Revision Level:	8. Additional Changes:
9. Manufacturing Process Reference:	10. Organization Name:	11. Supplier Code:	12. P.O. Number:
13. Detail Part: <input type="checkbox"/>	14. Full FAI: <input type="checkbox"/> Partial FAI: <input type="checkbox"/>		
Assembly FAI: <input type="checkbox"/>	Baseline Part Number (including revision level):		
	Reason for Partial FAI:		
a) If above part number is a detail part only, go to field 19 b) If above part number is an assembly, go to the "INDEX" section below.			
INDEX of part numbers or sub-assembly numbers required to make the assembly noted above.			
15. Part Number:	16. Part Name:	17. Part Serial Number:	18. FAIR Number:
FAI complete <input type="checkbox"/> FAI not Complete <input type="checkbox"/>			
19. Signature:		20. Date	
21. Reviewed By:		22. Date	
23. Customer Approval:		24. Date	

Field is Always Required

- No exceptions. These fields can never be blank.

Field is Conditionally Required

- If the information is available, it must be included.

Field is Optional

- Field is fully optional.

Note: For best quality practice, no fields should be left blank. Recommend for all fields not applicable to be filled in with "N/A"

Form 1 – Main Areas of Focus

SAE INTERNATIONAL AS9102 Rev B First Article Inspection
Form 1: Part Number Accountability

Sheet ___ of ___

1. Part Number:	2. Part Name:	3. Serial Number:	4. FAIR Number:
5. Part Revision Level:	6. Drawing Number:	7. Drawing Revision Level:	8. Additional Changes:
9. Manufacturing Process Reference:	10. Organization Name:	11. Supplier Code:	12. P.O. Number:
13. Detail Part: <input type="checkbox"/>	14. Full FAI: <input type="checkbox"/> Partial FAI: <input type="checkbox"/>		
Assembly FAI: <input checked="" type="checkbox"/>	Baseline Part Number (including revision level):		
Reason for Partial FAI:			

a) If above part number is a detail part only, go to field 19
b) If above part number is an assembly, go to the "INDEX" section below.

INDEX of part numbers or sub-assembly numbers required to make the assembly noted above.

15. Part Number:	16. Part Name:	17. Part Serial Number:	18. FAIR Number:
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FAI complete <input type="checkbox"/>		FAI not Complete <input type="checkbox"/>	
19. Signature:		20. Date	
21. Reviewed By:		22. Date	
23. Customer Approval:		24. Date	

Box 13: Detail or Assembly FAI

- If the drawing requires a BOM or Parts List, "Assembly" must be checked, and the list of parts will be addressed in boxes 15-18.
- If no BOM or Parts List, "Detail FAI" must be checked.

Box 14: Full or Partial FAI

- "Partial FAI" is used only when the scope of the FAI captures a change since the previous production run (ref. AS9102B section 4.6).
- If Partial FAI is selected, the Baseline PN/Revision must reference the previous Full FAI completed for the Part Number. The reason for Partial FAI must also be filled out.

Box 14: Full or Partial FAI (Cont.)

Note: If the full scope of work for an MEC supplier is to complete only part of the Drawing requirements (e.g., machining less process, process only, etc.), then the supplier will still select "Full FAI" in Box 14.

Form 1 – Main Areas of Focus (Cont.)

SAE INTERNATIONAL AS9102 Rev B First Article Inspection Form 1: Part Number Accountability			Sheet ___ of ___
1. Part Number:	2. Part Name:	3. Serial Number:	4. FAIR Number:
5. Part Revision Level:	6. Drawing Number:	7. Drawing Revision Level:	8. Additional Changes:
9. Manufacturing Process Reference:	10. Organization Name:	11. Supplier Code:	12. P.O. Number:
13. Detail Part: <input type="checkbox"/>	14. Full FAI: <input type="checkbox"/> Partial FAI: <input type="checkbox"/>		
Assembly FAI: <input type="checkbox"/>	Baseline Part Number (including revision level):		
	Reason for Partial FAI:		
a) If above part number is a detail part only, go to field 19 b) If above part number is an assembly, go to the "INDEX" section below.			
INDEX of part numbers or sub-assembly numbers required to make the assembly noted above.			
15. Part Number:	16. Part Name:	17. Part Serial Number:	18. FAIR Number:
19. Signature:		FAI complete <input type="checkbox"/>	FAI not Complete <input type="checkbox"/>
		20. Date	
21. Reviewed By:		22. Date	
23. Customer Approval:		24. Date	

Boxes 15-16: Part Number/Name (Required for Assembly FAI's)

- Index of parts must match all items on the Parts List/BOM except for reference parts or materials.
- Nomenclature of Part Number/Name must match the Drawing Parts List/BOM verbatim.

Box 18: FAI Report Number

- Components/Assemblies must reference their approved FAI Number.
- COTS items must reference their CoC Number.

Box 20: Date

- Date must include day, month, and year.

Form 1 – Artifacts to be Included in FAI Data Package

SAE INTERNATIONAL AS9102 Rev B First Article Inspection
Form 1: Part Number Accountability

Sheet ___ of ___

1. Part Number:	2. Part Name:	3. Serial Number:	4. FAIR Number:
5. Part Revision Level:	6. Drawing Number:	7. Drawing Revision Level:	8. Additional Changes:
9. Manufacturing Process Reference:	10. Organization Name:	11. Supplier Code:	12. P.O. Number:
13. Detail Part: <input type="checkbox"/>	14. Full FAI: <input type="checkbox"/>	Partial FAI: <input type="checkbox"/>	
Assembly FAI: <input checked="" type="checkbox"/>	Baseline Part Number (including revision level):		
	Reason for Partial FAI:		

If Partial FAI is Selected:

- FAI of Baseline PN/Rev must be included.

a) If above part number is a detail part only, go to field 19
b) If above part number is an assembly, go to the "INDEX" section below.

INDEX of part numbers or sub-assembly numbers required to make the assembly noted above.

15. Part Number:	16. Part Name:	17. Part Serial Number:	18. FAIR Number:
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If FAI is for an Assembly:

- FAI of Components/Sub-Assemblies must be included.
- CoC of COTS items must be included.

FAI complete <input type="checkbox"/>		FAI not Complete <input type="checkbox"/>	
19. Signature:		20. Date	
21. Reviewed By:		22. Date	
23. Customer Approval:		24. Date	

Form 2 – Required/Conditional/Optional Fields

SAE INTERNATIONAL AS9102 Rev B First Article Inspection Sheet ___ of ___
 Form 2: Product Accountability – Materials, Special Processes, and Functional Testing

1. Part Number	2. Part Name		3. Serial Number		4. FAIR Number:
5. Material or Process Name:	6. Specification Number:	7. Code:	8. Supplier:	9. Customer Approval Verification:	10. Certificate of Conformance Number:

11. Functional Test Procedure Number	12. Acceptance Report Number:				
13. Comments					
14. Signature	15. Date				

Field is Always Required

- No exceptions. These fields can never be blank.

Field is Conditionally Required

- If the information is available, it must be included.

Field is Optional

- Field is fully optional.

Note: For best quality practice, no fields should be left blank. Recommend for all fields not applicable to be filled in with “N/A”

Form 2 – Main Areas of Focus

SAE INTERNATIONAL AS9102 Rev B First Article Inspection Sheet of
 Form 2: Product Accountability – Materials, Special Processes, and Functional Testing

1. Part Number	2. Part Name	3. Serial Number	4. FAIR Number:
5. Material or Process Name:	6. Specification Number:	7. Code:	8. Supplier:
			9. Customer Approval Verification:
			10. Certificate of Conformance Number:

11. Functional Test Procedure Number	12. Acceptance Report Number:
13. Comments	
14. Signature	15. Date

Boxes 5-6: Material/Process Name & Specification Number

- Material and all Special Processes called out on the Drawing must be referenced.
- Nomenclature of Material/Process Name and Specification Number must match the Drawing verbatim.

Box 10: Certificate of Conformance Number

- Traceability number to the appropriate certifying document for the material or process listed.

Box 9: Customer Approval Verification

- Notates if Customer approval is required for the supplied Material or Special Process.
- “Yes” if supplier is approved, “N/A” if Customer approval is not required for the Material or Process.

Box 8: Supplier

- Supplier Name **and Address** performing special processes or providing material must be referenced.



Form 2 – Main Areas of Focus (Cont.)

SAE INTERNATIONAL AS9102 Rev B First Article Inspection Sheet ___ of ___
Form 2: Product Accountability – Materials, Special Processes, and Functional Testing

1. Part Number	2. Part Name		3. Serial Number		4. FAIR Number:
5. Material or Process Name:	6. Specification Number:	7. Code:	8. Supplier:	9. Customer Approval Verification:	10. Certificate of Conformance Number:

Boxes 11-12: Functional Test Procedure/Acceptance Number

- If Drawing requires Functional Testing (e.g., ATP) the Test Procedure Number is listed in box 11 as defined on the drawing, and the Acceptance Report Number is listed in box 12.

11. Functional Test Procedure Number	12. Acceptance Report Number:				
13. Comments					
14. Signature	15. Date				

Box 15: Date

- Date must include day, month, and year.

Form 2 – Artifacts to be Included in FAI Data Package

SAE INTERNATIONAL AS9102 Rev B First Article Inspection Sheet ___ of ___
Form 2: Product Accountability – Materials, Special Processes, and Functional Testing

1. Part Number	2. Part Name	3. Serial Number		4. FAIR Number:	
5. Material or Process Name:	6. Specification Number:	7. Code:	8. Supplier:	9. Customer Approval Verification:	10. Certificate of Conformance Number:

For all Material/Process requirements:

- Applicable certificate of conformance for each special process or raw material requirement.

11. Functional Test Procedure Number	12. Acceptance Report Number:
13. Comments	
14. Signature	15. Date

If Test Procedures is a Drawing Requirement:

- Applicable acceptance report that meets the testing requirement.

Form 2 – Artifacts to be Included in FAI Data Package (Cont.)

NOTE: For ALL Material/Processing/Testing Certifications:

- The requirement must match verbatim in all three areas below:
 - Drawing
 - FAI Form 2
 - Certification
- Any deviation from the drawing requirement in FAI Form 2 or the Certification is a cause of rejection.

Requirement Listed on Certification:

Item	Part Id / Rev	Part Name	Material / Temper	Qty
1	10059240-SXC / Rev. F	MISSILE SUPPORT PLATFORM	6061 / T6	1

Prime Customer: N/A
 Material: 6061 BARE-T6 -
 CHECK FOR DAMAGE / VERIFY PC COUNT: OK
 MASK FOR PREPEN
 PrePenetrant Etch per ASTM E 1417M Rev. 16
 Completed Time: 12:00PM Date: 12/30/2019
 Etch Removal: 2000µm per surface
 Liquid Penetrant Inspection per ASTM E 1417M Rev. 16
 Completed Time: 12:00PM Date: 12/30/2019
 Penetrant Schedule: Type I, Method A, Sensitivity Level 2
 Acceptance Criteria per NO CRACKS OR LINEAR INDICATION
 Accepted = 1 Rejected = 0

Requirement Listed on Drawing:

5. AFTER FINAL MACHINING
 PENETRANT INSPECT IAW ASTM E 1417,
 TYPE I, METHOD AND SENSITIVITY OPTIONAL.
 NO CRACKS OR TEARS ALLOWED.

Requirement Listed on Form 2:

1. Part Number 11059240	2. Part Name PLATFORM, SUPPORT, MISSILE	3. Serial Number 11038-003	4. FAIR Number R9001673
5. Material or Process Name PENETRANT INSPECT	6. Specification Number ASTM E 1417, TYPE I, METHOD A, SENSITIVITY LEVEL 2.	7. Code N/A	8. Supplier Morrell's Electro Plating 436 E. Euclid Ave. Compton, CA 90222
		9. Customer Approval Verification YES	10. Certificate of Conformance Number 00114057-0

If the drawing note makes a reference to a type, method or any specific option to use within the process, the actual option of the process performed must be referenced in both the Form 2 and the Certification (even if the requirement is stated to be optional in the Drawing).

Form 3 – Required/Conditional/Optional Fields

SAE INTERNATIONAL AS9102 Rev B First Article Inspection							Sheet __ of __
Form 3: Characteristic Accountability, Verification and Compatibility Evaluation							
1. Part Number			2. Part Name			3. Serial Number	4. FAIR Number
Characteristic Accountability				Inspection / Test Results			
5. Char. No.	6. Reference Location	7. Characteristic Designator	8. Requirement	9. Results	10. Designed/Qualified Tooling	11. Non-Conformance Number	14. Additional Data /Comments

12. Signature:						13. Date:	
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Field is Always Required

- No exceptions. These fields can never be blank.

Field is Conditionally Required

- If the information is available, it must be included.

Field is Optional

- Field is fully optional.

Note: For best quality practice, no fields should be left blank. Recommend for all fields not applicable to be filled in with “N/A”

Form 3 – Main Areas of Focus

SAE INTERNATIONAL AS9102 Rev B First Article Inspection						Sheet __ of __	
Form 3: Characteristic Accountability, Verification and Compatibility Evaluation							
1. Part Number			2. Part Name			3. Serial Number	4. FAIR Number
Characteristic Accountability				Inspection / Test Results			
5. Char. No.	6. Reference Location	7. Characteristic Designator	8. Requirement	9. Results	10. Designed/Qualified Tooling	11. Non-Conformance Number	14. Additional Data /Comments
12. Signature:						13. Date:	

Box 13: Date
Date must include day, month, and year.

Box 5: Character Note

- 100% of all Drawing Notes/Features on the drawing must be accounted for in the Character Note Column.

Note: Ballooned Drawings must be provided when available, however they are not a requirement per AS9102.

If a Ballooned Drawing cannot be provided, Boxes 6 and 7 must be filled out to identify where the feature is located on the Drawing.

The reviewer of the FAI data package is responsible to confirm that 100% of all Drawing Notes/Features are accounted for in Form 3.

Boxes 8-9: Requirements/Tolerance/Results

- Requirements and Tolerance must match as shown in the Drawing.
- Results of dimensions must be documented as actual values and be within Drawing requirements.

Note: Basic or Reference Dimensions are not required to be listed in Form 3.

Box 10: Designed/Qualified Tooling

- For Designed tooling (Part specific check fixtures, NC Programming), tool identification number will be referenced.
- For Qualified tooling (Universal, not part specific, such as go.nogo gauges, thread gauges, radius gauges, calipers, etc.), the tool and/or tool identification number will be referenced.

Form 3 – Main Areas of Focus (cont.)

SAE INTERNATIONAL AS9102 Rev B First Article Inspection						Sheet __ of __	
Form 3: Characteristic Accountability, Verification and Compatibility Evaluation							
1. Part Number			2. Part Name			3. Serial Number	4. FAIR Number
Characteristic Accountability				Inspection / Test Results			
5. Char. No.	6. Reference Location	7. Characteristic Designator	8. Requirement	9. Results	10. Designed/Qualified Tooling	11. Non-Conformance Number	14. Additional Data /Comments
12. Signature:						13. Date:	

NOTE:

- When the **requirement** lists a 2X (or more) multiplier, the **result** must account for the multiplier. (e.g., results displaying either 2X or a range).

NOTE:

- Reviewer of FAI Data Package must verify that **ALL** features in the result column are within tolerance.

Red Line FAI Instructions (for Raytheon use only)

1. MEC to submit an SIR to Raytheon
2. Raytheon to create Change Notice (CN)
 - a) RTX to supply CN number to MEC
 - b) RTX to provide Red Line/Marked-up Drawing
3. MEC to complete FAI package
 - a) Form 1:
 - i. Box 5 and 7 shall contain the latest revision plus “=1” or “.1” (i.e., B=1 or B.1)
 - ii. Box 14 will be marked as “Partial FAI”
 - 1) Baseline Part Number shall contain:
 - a. Part Number & the current drawing revision (i.e., 13599945-1 Rev. B)
 - 2) Reason for Partial FAI should be completed with “To present a red line drawing IAW CNXXXXXXXXXX.”
 - iii. Box 19 should be marked as “FAI Not Complete”
 - b) Form 2:
 - i. No change will be made to Form 2
 - c) Form 3:
 - i. Box 1A shall contain the latest revision plus “=1” or “.1” (i.e., B=1 or B.1)
 - ii. Box 17 will be marked as “Partial Prod/FA”
 - iii. Box 18 shall contain the same information from Form 1 – Reason for Partial: “To present a red line drawing IAW CNXXXXXXXXXX.”

Revision History

Revision	Date Changed	Changed By	Description	Affected Pages	Training Required? Y/N
Revision B	08/22/2022	JB	Added specific instruction for a Red Line FAI process as requested by Raytheon.	15	Y
Revision A	10/01/2021	CAJ	<p>Revision History Page 15 Added.</p> <p>All Pages updated to use AS9102 Template Forms instead of reference MEC forms.</p> <p>Pages 3, 7, and 12 updated to recommend leaving no FAI Fields blank per best Quality practice.</p> <p>Pages 5, 9, and 13 updated to mandate all date fields include day, month, and year.</p> <p>Page 8 updated to clarify Form 2, box 10 requirement.</p> <p>Page 11 updated to clarify how processing requirements are listed in Form 2 and Cert.</p> <p>Page 12 updated to clarify Basic/Reference dimensions are not required to be listed in Form 3.</p> <p>Page 13 updated to include a copy of Ballooned Drawing with FAI Data Package if available.</p>	3, 5, 7, 8, 9, 12, 13, 15.	Y
Revision NC	06/04/2021	CAJ	Initial Release	All	Y