

## First Article Inspection Process (IAW AS9102 C)



#### SCOPE

This document describes the process for planning, coordinating and creating a First Article Inspection (FAI) package in accordance with the requirements of AS9102. This document also describes the process for customer submission and can be used by Jedco, Inc. suppliers for guidance.

#### PURPOSE

The primary purpose of FAI is to validate the production processes are capable of producing parts and assemblies that meet engineering and quality requirements. A well-planned and executed FAI will provide objective evidence the manufacturer's processes can produce compliant product and that associated requirements are incorporated and understood.

#### APPLICATION

This applies to Jedco and its suppliers who produce drawing and related quality characteristics consisting of the following:

- Assemblies
- Sub-assemblies
- Detail parts
  - Castings
  - Forgings
  - Sheet metal fabricated parts
- Service applications creating drawing and related quality characteristics (i.e. machining, coating, heat treating, etc.)



### REQUIREMENTS

- Full First Article Inspection (FAI)
  - A full FAI is to be performed on the first fully completed part representing the end item ordered by the customer. It shall contain all product and related quality characteristics defined by all customer contractual requirements. This includes all dimensional and processing characteristics flowed down via the customer drawing, quality and purchase order documents.
- Delta First Article Inspection (DFAI)
  - A DFAI is performed on only affected characteristics when the following occurs:
    - A design change is made affecting fit, form, or functions of the part.
    - A change in manufacturing source(s), process(es), inspection method(s), location of manufacture or tooling.
    - A natural or man-made event, which may adversely affect the manufacturing process.
    - An implementation of corrective action required to complete a previous FAI.
    - 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 the last production operation to the actual restart of production.

### DOCUMENTS

The following forms comprise a First Article Inspection Report (FAIR), full instructions in 9102 appendix A:

• 9102 C Form 1: Part Number Accountability, shall be sued to identify the product that is having the First Article Inspection (FAI) conducted on (i.e., detail part, subassembly, assembly); referred to as "FAI Part".

TM-50110J



#### DOCUMENTS (cont'd)

- 9102 C Form 2: Product Accountability Materials, Special Processes, and Functional Testing, shall be used if any materials, special processes, or functional testing is defined as a design characteristic.
- 9102 C Form 3: Characteristic Accountability, Verification and Compatibility Evaluation, shall be used to record inspection results for the design characteristics and to document any applicable non-conformances.

### <u>Note</u>

Use "N/A" or "Not Applicable" to address blank spaces on 3 Forms. This indicates that a blank space has been observed and addressed, rather than leaving open the question of whether the blank simply represents a "missed requirement".



### DOCUMENTS (cont'd)

The First Article Inspection package must include legible copies of the following documents:

- 1. Initial Purchase Order/Supplier Agreement and all supplements (Ballooned requirements as applicable). PO and lines item dates must be valid and not expired.
- 2. Customer ballooned drawing or operation sheet, as applicable.
- 3. Requirements Control Card (RCC) and Quality Assurance Data sheet (QAD), for Pratt & Whitney Aircraft (PWA) end use product, or any customer specific quality related documents with ballooned requirements, as applicable.
- 4. Semi-finish F7627 forms if referenced on PO for PWA end use product.
- 5. As applicable, ballooned "Product Definition" specifications (engineering requirements for part are defined in the specification (i.e., 333, 339, 343, 372, etc.). The words "Product Definition" are in the title of the document.
- 6. Complete copy of form MCLM 416 for PWA end use product. One (1) form can be provided at PO item level FAI but must contain information for all levels of sub-tiers. If a detail has its own PO, then it must have its own MCLM 416 form.
- 7. Ballooned specifications with additional embedded requirements (i.e., design characteristics such as, rivet height, coating thickness, torque, welding dimensions, etc.).
- 8. For Airfoil suppliers, a copy of human readable (text format) UA and UT files as invoked by the customer drawing or 56D acceptance file (for PWA). Required submission when any of the following occurs:
  - a. Full FAI
  - b. Partial FAI where computer file has changed
  - c. Partial FAI for 56C inspections including new UT file



### DOCUMENTS (cont'd)

The First Article Inspection package must include legible copies of the following documents:

- 9. Copy of approved gage suitability package or KPC Management 10B form (for PWA) approving a plan to submit or have an approved gage suitability package when gage suitability (PW-QA-6090) is required per PWA 79345 and/or the QAD (for PWA).
- 10. Representative photos of the part, multiple views, as appropriate.
- 11. Copy of sub tier PO's showing requirements flow down. Pricing may be redacted. Applies to all levels. For raw material, include only the direct PO in addition to full supply chain traceability.
- 12. Material certifications. For PWA end us product, this is in accordance with PWA 300 form F3297 and 2<sup>nd</sup> tier certifications (LCS certification).
- 13. Special process certification, as applicable.
- 14. Frozen process approval documentation, as applicable.
- 15. Non-conformance documents (rework travelers, e-QNs, RMEAs, Deviations, NOPQEs), as applicable.
- 16. For PWA end use product, Form 56 layout inspection report per PW-QA-6076, as applicable.
- 17. CMM FAI inspection data.
- 18. For PWA, ASQR-07.5 validation/correlation report, as applicable.
- 19. Part marking photo/2D marking printout (include other acceptance or special markings) and approved marking Form F9236 (for PWA).
- 20. Customer packing slip or Certificate of Conformity for customer-provided hardware.
- 21. AS9102 Form 1 for previous FAI's when performing a partial (delta) FAI.



### **Process**

#### DOCUMENTS (cont'd)

<u>AS9102 C Form 1 – Part Number Accountability</u>

First Article Inspection Report Form 1: Part Number Accountability         1. Part Number:       2. Part Name:       3. Serial Number:       4. FAIR Identifier:         1. Part Number:       2. Part Name:       7. Drawing Revision Level:       8. Additional Changes:         5. Part Revision Level:       6. Drawing Number:       7. Drawing Revision Level:       8. Additional Changes:         9. Manufacturing Process Ref.:       10. Organiz tion Name:       11. Supplier Code:       12. Purchase Order Number:         13. (Check On option):       14. (Check One Option):       Full FAI       Partial FA         Reason not un Partial PAI:         a) if above part is an assembly, go to the "INDEX" section below.       Bold Italic Font – CONDITIONALLLY required. These fields must be completed when information is available				Sheet of
S. Part Revision Level:       6. Drawing Number:       7. Drawing Revision Level:       8. Additional Changes:         9. Manufacturing Process Ref.:       10. Organiz tion Name:       11. Supplier Code:       12. Purchase Order Number:         13. (Check One option):       14. (Check One Option):       Full FAI       Partial FA         Bold Font – MANDATORY information required       Reason for Unit Partial FAI:       1         a) if above part is a detail part only, go to Field 1!       b) if above part number is an assembly, go to the "INDEX" section below.       1         Bold Italic Font – CONDITIONALLLY required. These fields must be       1				
9. Manufacturing Process Ref.: 10. Organiz   10. Organiz tion Name:     11. Supplier Code:     12. Purchase Order Number:     13. (Check One option):     14. (Check one Option):     15. Full FAI     Partial FA     Partial FA <th>1. Part Number:</th> <td>2. Part Name:</td> <td>3. Serial Number:</td> <td>4. FAIR Identifier:</td>	1. Part Number:	2. Part Name:	3. Serial Number:	4. FAIR Identifier:
13. (Check One option):       14. (Check oper Option):       Full FAI       Partial FA         Bold Font – MANDATORY information required         Reason for our Partial FAI:         a) if above part is a detail part only, go to Field 19         b) if above part number is an assembly, go to the "INDEX" section below.         Bold Italic Font – CONDITIONALLY required. These fields must be	5. Part Revision Level:	6. Drawing Number:	7. Drawing Revision Level:	8. Additional Changes:
Bold Font – MANDATORY information required         Reason for unit Partial PAL:         a) if above part is a detail part only, go to Field 15         b) if above part number is an assembly, go to the "INDEX" section below.         Bold Italic Font – CONDITIONALLY required. These fields must be	9. Manufacturing Process Ref.:	10. Organiz tion Name:	11. Supplier Code:	12. Purchase Order Number:
a) if above part is a detail part only, go to Field 15 b) if above part number is an assembly, go to the "INDEX" section below. Bold Italic Font – CONDITIONALLY required. These fields must be	13. (Check One option):	14. (Check One Option): Full FAI	Partial FA	
a) if above part is a detail part only, go to Field 15 b) if above part number is an assembly, go to the "INDEX" section below. Bold Italic Font – CONDITIONALLY required. These fields must be	Bold Font – MAN	IDATORY information	n required	
		, go to Field 19		
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### **Process**

#### DOCUMENTS (cont'd)

AS9102 C Form 1 – Part Number Accountability (cont'd)

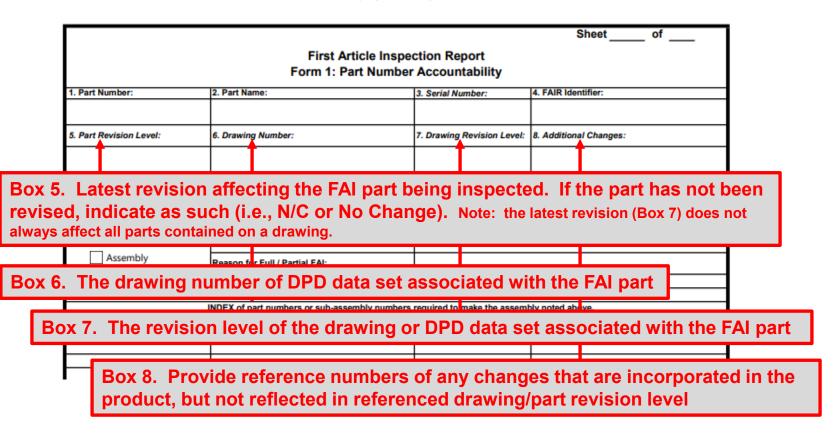
										Sheet of
						rticle Inspe Part Number				
	1. Part N	lumber:		2. Part I	Name:		3. Serial N	umber:	4. FAIR Id	entifier:
	1			4			4		4	
	5. Part	Revision Level:	:	6. Draw	ng Number:		7. Drawing	Revision Level:	8. Additic	nal Changes:
Box 1	. Pa	rt Num	iber of	f the	FAI part		11. Supplie	Code:	12. Purch	se Order Number:
						J				
	13. (Che	ck One option	):	14. (Ch	ck One Option):	Full FAI	Partial F	AI		
Во	x 2.	Name	of the	FA		revision level):				
	a) if abo	ove part is a det	tail part only, g	go to Fie	d 19					
	b) if abo	ove part numbe	r is an assem	bly, go to	the "INDEX" section below	V.				
	15. Part	Number:	Box 3	3. S	erial numbe	er of the	FAI p	art	noted a 8. FAIR	oove. dentifier:
					ox 4. Refere			that ider	ntifies	s the First Article



### Process

#### **DOCUMENTS** (cont'd)

AS9102 C Form 1 – Part Number Accountability (cont'd)





### **Process**

#### DOCUMENTS (cont'd)

AS9102 C Form 1 – Part Number Accountability (cont'd)

			Sheet of									
	First Article Inspection Report Form 1: Part Number Accountability											
1. Part Number:	2. Part Name:	3. Serial Number:	4. FAIR Identifier:									
5. Part Revision Level:	6. Drawing Number:	7. Drawing Revision Level:	8. Additional Changes:									
9. Manufacturing Process Ref.	.: 10. Organization Name:	11. Supplier Code:	12. Purchase Order Number:									
Box 9. Reference nun he FAI part	nber that provides tr	aceability to the m	nanufacturing reco	rd of								
	-	aceability to the m	anufacturing reco	rd of								
a) if above part is a detail part of	-		bly noted above.	rd of								
a) if above part is a detail part of	only, go to Field 19		bly noted above.	rd of								
a) if above part is a detail part of Box 10. Name of the	only, go to Field 19	ming the FAI	bly noted above. 18. FAIR Identi Îer:	rd of								
a) if above part is a detail part of Box 10. Name of the	e organization perfor	ming the FAI	bly noted above. 18. FAIR Identi Îer:	rd of								



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## **First Article Inspection**

### **Process**

#### DOCUMENTS (cont'd)

AS9102 C Form 1 – Part Number Accountability (cont'd)

			Sheet of
	First Article Inspe	ction Report	
	Form 1: Part Number		
1. Part Number:	2. Part Name:	3. Serial Number:	4. FAIR Identifier:
5. Part Revision Level:	6. Drawing Number:	7. Drawing Revision Level:	8. Additional Changes:
9. Manufacturing Process Ref.:	10. Organization Name:	11. Supplier Code:	12. Purchase Order Number:
13. (Check One option):	14. (Check One Option): Full FAI	Partial FAI	
Detail	Baseline Pat Number (including revision level):		
Assembly	Reason for I ull / Partial FAI:		
a) if above part s a detail part only	y, go to Field 19		
h) if shows part sumher is an and	white so to the INDEX" costion below.		
13. Check as ap	propriate -assembly numbers	required to make the assemt	-
	proprieto	17. Part Type	18. FAIR Identifier:
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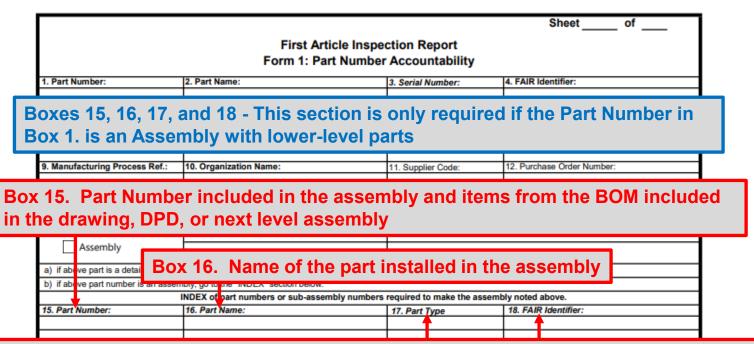
Box 14. Check as appropriate. For a partial FAI, provide the previous part number, including the revision level to which this partial FAI is performed and the reason for the current FAI. For partial FAIs based on similar parts, provide the approved configuration FAI part number, including the revision level. For full FAIs provide the reason for the full FAI



### Process

#### **DOCUMENTS** (cont'd)

AS9102 C Form 1 – Part Number Accountability (cont'd)



Box 17. Part Type of the part installed in the assembly. Enter whether the part is a "Detail Part", "Sub-Assembly", "Software", "Standard Catalogue Item", or "COTS" (or equivalent) as described on the BOM.

Box 18. Report number for the detail parts and associated sub-assemblies



### **Process**

DOCUMENTS (cont'd)

AS9102 C Form 1 – Part Number Accountability (cont'd)

Box 19. Check as appropriate

Box 20 & 21. Print name or unique identification, signature and date of person from the organization who prepared the FAIR. The same applies if Jedco sub-tier prepared the FAIR Box 22 & 23. Print name or unique identification and signature of person from the organization who reviewed and approved the FAIR. Note 1) names in Boxes 20 and 21 cannot be the same person. Note 2) if sub tier of Jedco has prepared the FAIR, this Box to be used to record approval by Jedco representative 19. Does FAIR Contain a Documented Nonconformance(s)? Yes No No 21. Date: 20. FAIR Verified By: 22. FAIR Reviewed/Approved By: 23. Date: 24. Customer Approval: 25. Date: 26. Comments Box 24 & 25. Used by customer to record approval and date, if required

Box 26. Used by customer if commentary is warranted



### **Process**

DOCUMENTS (cont'd)

AS9102 C Form 2 – Product Accountability

Form 2: Product Acco	ountability - Raw		e Inspection Report cifications and Spe		eet of nd Functional Testin
. Part Number:	2. Part Name:		3. Serial Number:		4. FAIR Identifier:
1					1
5. Materia or Process Name:	6. Specification Number:	7. Code:	8. Supplier:	9. Customer Approval Verification:	10. Cert fication of Conformance Number:
Box 1 – 4. Ar	re repeated	on all for	ms for conver	nience and tr	aceability

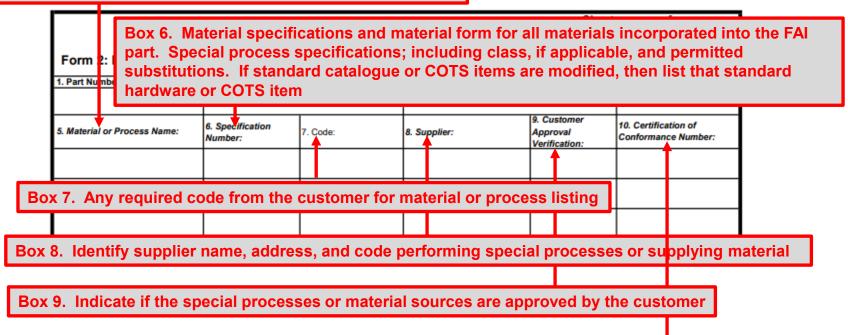


### **Process**

DOCUMENTS (cont'd)

<u>AS9102 C Form 2 – Product Accountability (cont'd)</u>

Box 5. Name of applicable materials or special processes



Box 10. The applicable certificate number



### **Process**

DOCUMENTS (cont'd)

<u>AS9102 C Form 2 – Product Accountability (cont'd)</u>

1. Fun cteristi		procedure	number ide	ntified as a	a design		
11. Function	al Test Procedure Nur	nber:		12. Acceptance Rep	port Number:		
			The function nents have b		rtification ii	ndica	ating that test
13. Commen	ts:						

**Box 13. Record supporting comments, as applicable** 



### **Process**

DOCUMENTS (cont'd)

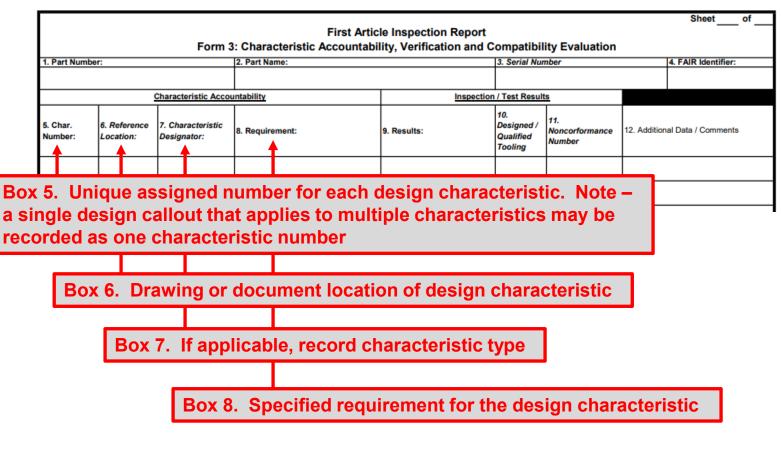
AS9102 C Form 3 – Characteristic Accountability, Verification and Compatibility Evaluation

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					First Artic	le Inspection Report							,
					racteristic Accountabil	ity, Verification and C	ompat	ibili	ty Evaluation				'
1. Part Nu	mbe	/r:	/	2. Part N	Name:		3. Serial	Num	iber		4. FAIR Id	entifier	:
4	Ł												
		1	Characteristic Accou	ntability	/	Inspection	/ Test R	sult	5				
5. Char.		6. Reference	7. Characteristic			a Decultor	10. Designe	1/	11.	12 Addition	aal Data / C		
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#### DOCUMENTS (cont'd)

AS9102 C Form 3 – Characteristic Accountability, Verification and Compatibility Evaluation (cont'd)





### **Process**

#### DOCUMENTS (cont'd)

AS9102 C Form 3 – Characteristic Accountability, Verification and Compatibility Evaluation (cont'd)

									Sheet	of
					spection Report					
		Form 3	: Characteristic Accountabi	ity, V	erification and C	ompatibil	ity Evaluation			
1. Part Numbe	r:		2. Part Name:			3. Serial Nur	nber		4. FAIR Identifier:	
	<u>(</u>	Characteristic Accou	ntability		Inspection	/ Test Result	<u>s</u>			
5. Char. Number:	6. Reference Location:	7. Characteristic Designator:	8. Requirement:	9. Res		Designed /	11. Noncorformance Number	12. Addition	nal Data / Comments	i

Box 9. 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 nonconforming, then that characteristic shall be listed separately with the measured value noted.
- When qualified tooling (i.e., radius gauges) is used as a go/no-go gauge, record the results as an attribute (i.e., pass/fail).
- When automated inspection tooling produces measurement results, those results may be referenced on 9102 Form 3, identified as pass/fail, and attached only when:
  - The characteristic numbers are clearly linked in the attached report
  - The results in the attached reports are clearly traceable to the characteristic numbers
  - The results are directly comparable to the design characteristics
- If a design requirement requires verification testing, record the actual results on the form. If a laboratory report or certificate of test is included in the FAIR, the results may be recorded as an attribute (i.e., pass/fail) and the test reference number recorded on the forms. The laboratory report or certificate of test shall show specific values for requirements and actual results.
- For characteristics with visual verification requirements that are rated against standard photographs, list the photo number of the closest comparison. A statement of conformance is acceptable; record the reference number on the forms.
- For processes that require verification per design characteristics, include a statement of conformance (i.e., certification of conformance, verification indicator accept)
- For characteristics verified by attribute inspection include statement of conformance (i.e., accept)



## **First Article Inspection Process**

#### DOCUMENTS (cont'd)

AS9102 C Form 3 – Characteristic Accountability, Verification and Compatibility Evaluation (cont'd)

				: Characteristic Accountabi	le Inspection Report lity, Verification and C			· ·	valuation		S	heet
1.	. Part Number	r:		2. Part Name:		3. Se	erial Nur	nber			4. FAIR	Identifier:
		(	Characteristic Accou	intability	Inspectio	n / Tes	st Result	s				
		6. Reference Location:	7. Characteristic Designator:	8. Requirement:	9. Results:	10. Desi Qua Tool		11. Nonc Numl	orformance ber	12. Addition	nal Data /	Comments
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ogra arac	ammir cterist	ng as a tic, rec	media of ord the to	ng or specifically f inspection, is us ool identification ce, record the ga	sed for attrib number. Wh	ute en	ace qua	cep alifi	otance ied too	of th	is	

Box 11. If the characteristic is found to be nonconforming, record a nonconformance document reference number

Box 12. This area is reserved for optional fields; add additional columns, as required, by the organization or customer



### DOCUMENTS (cont'd)

The First Article Inspection package must include legible copies of the following documents:

- 22. For PWA end use material substitution (Form 500). Ref: PWA 301 and MCL R Master, as applicable. For other customers, provide their respective material substation documents, as applicable.
- 23. For PWA end use, DCS 176 correlation data, as applicable.
- 24. For PWA end use, DCS 184 approvals (Form F8251), as applicable.
- 25. Visual representation/manufacturing sheets indicating extracted dimensions/requirements per DCS 184.