				Approved			
				Guidelines			
Title:	FAI Standard Practice						
Document #:	G-QA-0017	Department:	Quality Assurance	Created Date:	10/24/25	Current Revision: A	
Procedure Owner:	Quality Assurance Manager (Aerospace)				Page:	1 of 28	
Final Approved By:	Saad Iqbal;Approval;Feb 9, 2026 2:30 PM EST Michael DiGianno;Approval;Feb 17, 2026 7:55 AM EST						

Table of Contents

1. Purpose 1

2. Scope 1

3. EXPECTATION FOR PROPER AS9102 FORM 1 COMPLETION 3

4. EXPECTATION FOR PROPER AS9102 FORM 2 COMPLETION 9

5. EXPECTATION FOR PROPER AS9102 FORM 3 COMPLETION 12

6. BALLOONING CLARIFICATIONS 15

7. COMMON ERRORS WHICH CAUSE FAI REJECTION 20

8. APPENDIX: DEFINITIONS & ACRONYMS 22

1. Purpose

This document will provide guidance on how to populate and review FAI and additional information to ensure AS9102 and customer compliance.

The primary purpose of FAI is to verify and validate product realization processes are capable of producing characteristics that meet engineering and design requirements. A well-planned and executed FAI by a multi-disciplinary team provides objective evidence the manufacturer’s processes can produce compliant product; having effectively understood and incorporated the associated requirements

2. Scope

This document covers the requirements laid out by AS9102 for forms 1, 2, and 3 along with clarifications, best practices, and common sources of noncompliance



3. EXPECTATION FOR PROPER AS9102 FORM 1 COMPLETION

1. **(R) Part Number:** Number of the FAI part [e.g., customer part number contained on the purchasing documents; part number from the associated Bill of Materials (BOM); manufacturer part number from internal parts, when customer part number is not available].

ValcorNote: Part number should always be the "V" part number (i.e., V100010-413) not the computer number (i.e., 1120-1961).

2. **(R) Part Name:** Name of the FAI part.
3. **(CR) Serial Number:** Serial number of the FAI part; unique identifier assigned to a detail part, sub-assembly, or assembly by the organization or customer.

ValcorNote: Enter serial #, lot #, or date code. If none, type 'N/A'. Do not leave blank.

4. **(R) FAIR Number:** Identifier for the First Article Inspection Report (FAIR).

ValcorNote: FAI number is the part/drawing number "dash" Rev# "dash" YYYYMM (YYYY is year, MM is month FAI is created).

5. **(CR) Part Revision Level:** The revision level of the FAI part being inspected. When the part is controlled by a part revision and the part has not been revised, indicate as such (e.g., N/C, No Change).

NOTE 1: The latest drawing or DPD revision (see field 7) does not always affect all parts contained on a drawing or DPD.

NOTE 2: This is the revision level that is identified on the part. Not all organizations use a part revision level for tracking configuration.

6. **(CR) Drawing Number:** Drawing and/or DPD number associated with the FAI part; drawing may be from customer, internal system, or design definition.

NOTE: This field identifies all the drawings (including parts list), that contain design characteristics needed for product realization.



- (CR) Drawing Revision Level:** The revision level of the drawing or DPD associated with the FAI part. If the drawing has not been revised, indicate as such (e.g., N/C, No Change).

NOTE: This field identifies the revision levels of the drawings or DPD sets listed in field 6. When there is more than one entry in field 6, the entries in this field need to correspond to the entries presented in field 6.

- (CR) Additional Changes:** Provide reference numbers 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 or DPD requirements).

ValcorNote: List any Engineering Order, customer deviation (Valcor NC/MRR Number or DMR for suppliers) used on the part. If none, enter 'N/A'.

- (R) Manufacturing Process Reference:** Reference number that provides traceability to the manufacturing record of the FAI part (e.g., router number, manufacturing plan number). Additional information such as lot number, batch number, date code, or line number may be included, as needed, to provide traceability to the specific manufacturing lot.

ValcorNote: For VEC created FAI: Enter Job Traveler number. For Supplier created FAI: Enter Job Traveler/Router #.

- (R) Organization Name:** Name of the organization responsible for producing the design characteristics of the product and performing the FAI.
- (O) Supplier Code:** A unique number given by customer to the organization; sometimes referred to as Vendor Code, Vendor Identification Number, or Supplier Number.

ValcorNote: Supplier Code can be the Valcor Supplier # as identified on the PO, or Cage Code (when available). If the FAI is to be submitted to the customer, use the supplier code as notated on customer purchase order.

- (O) Purchase Order Number:** Customer Purchase Order number, as applicable.

ValcorNote: Suppliers: Enter Valcor PO#.

For Valcor FAI submission to Customer: Enter Customer PO Revision and Line Item as well.



13. **(R) Detail Assembly:** Type of FAI; check, as appropriate.
14. **(R) Full FAI/Partial FAI:** Check, as appropriate box (Full FAI or Partial FAI). For a partial FAI, provide the previous part number, including revision level. For partial FAIs based on similar parts (reference AS9102, 4.6), provide the approved configuration FAI part number, including revision level.

Baseline Part Number (including revision level): For a partial FAI, provide the previous FAI part number or approved configuration (including revision level).

Reason for Full/Partial FAI: Describe the reason (e.g., new part number; lapse in production; changes in design, process, or manufacturing location reference AS9102, 4.6) for the full or partial FAI.

Data Fields 15, 16, 17, and 18: This section is only required if the part number identified in field 1 is an assembly. All BOM parts (e.g., detail parts, sub-assemblies, COTS) that are part of the assembly, identified in field 1, must be listed in this section.

15. **(CR) Part Number:** Part number included in the assembly and items from the engineering and/or manufacturing BOM included in the drawing, DPD, or next level assembly. Typically, these are the part numbers, standard catalog items numbers, deliverable or embedded software identification, or sub-assembly numbers required to complete the product noted in field 1.

NOTE 1: Include revision level of software listed on the BOM.

NOTE 2: Materials and processes listed on Form 2 do not need to be restated on Form 1.

16. **(CR) Part Name:** Name or description of the part number entered in field 15 that is installed in the assembly.
17. **(CR) Part Type:** Enter whether the part is a detail part, sub-assembly, software, standard catalog item, or COTS (or equivalent).
18. **(CR) FAIR Identifier:** FAIR identifier (e.g., software generated FAIR identification or number, part number, individual organizational FAIR identification naming conventions) for the detail parts and associated assemblies. If no FAIR identifier is available, input the organization's identifier for the FAI or approval configuration.



ValcorNote: For COTS items, enter the unique certificate identifier no. example: Certificate #, Packing Slip #, PO #, Heat #, etc.

19. **(R) Does FAIR Contain a Documented Nonconformance(s)?:** When a nonconformance(s) has been documented in the FAIR. check “Yes” (reference AS9102, 4.5). 20. **(R) FAIR Verified By:** Legible identification of the person verifying the evaluation activities in AS9102, 4.4 were completed.

NOTE: Electronic identification is acceptable.

ValcorNote: An FAI with a Non-conformance is an Incomplete FAI. A partial FAI needs to be completed when the non-conformance is corrected.

20. **(R) FAIR Verified By:** Legible identification of the person verifying the evaluation activities in AS9102, 4.4 were completed. **NOTE:** Electronic identification is acceptable.
21. **(R) Date:** Date when field 20 was populated.
22. **(R) FAIR Reviewed/Approved By:** Legible identification of the person from the organization who reviewed and approved the FAIR. Should not be the same individual identified in field 20.

NOTE: Electronic identification is acceptable.

23. **(R) Date:** Date when field 22 was populated.
24. **(CR) Customer Approval:** Used by customer to record approval. **NOTE:** Electronic identification is acceptable.
25. **(CR) Date:** Date when field 24 was populated.
26. **(O) Comments:** Provide any supporting comments (e.g., associated nonconformance information, identification of associated documentation).

ValcorNote: Attachments that must be included with the FAIR:

- a) Ballooned drawing.
- b) All of the FAIRS and documents identified in Column 18 FAIR IDENTIFIER.
- C) CMM report covering all characteristics measured by the CMM



ValcorNote: For features defined by an industry standard (i.e., AS and similar ports), the standard's drawings need to be ballooned and attached to the FAI. They shall have their inspection results documented on a separate Form 3 report. The drawing for the detailed part needs to be reviewed for deviations from the standard AS port dimensions. Any Valcor modifications take precedence over the standard AS port dimensions. The exceptions should be stated in the Comments field for the Char. No.

ValcorNote: When Valcor standard "S" or other document is identified on the FAI drawings, the appropriate section of the document needs to be ballooned, and results documented in Form 3. The ballooned "S" or the document is to be attached to the FAIR package.

ValcorNote: When Torque values are stated on drawings, a QE or QC person needs to witness the torquing operation. The accuracy, range, physical condition, calibration status of the torque wrench needs to be assessed during the visit. The Valcor Manufacturing Engineer is to be informed of adding a line item in the Job Traveler for FAI witness operation for Valcor-performed FAIs.



4. EXPECTATION FOR PROPER AS9102 FORM 2 COMPLETION

1. **(R) Part Number:** Number of the FAI part [e.g., customer part number contained on the purchasing documents; part number from the associated Bill of Materials (BOM); manufacturer part number for internal parts, when customer part number is not available.
2. **(R) Part Name:** Name of the FAI part.
3. **(CR) Serial Number:** Serial number of the FAI part; unique identifier assigned to a detail part, sub-assembly, or assembly by the organization or customer.
4. **(R) FAIR Number:** Identifier or identification number for the First Article Inspection Report (FAIR).
5. **(CR) Material or Process Name:** Name of materials (e.g., raw materials, paint, primer adhesives, weld filler) or special processes.

NOTE: List material certifications and any special process referenced on the engineering drawing.

ValcorNote: Enter generic name of material as provided in the drawing, specification, etc. (Example: 316L Stainless Steel)

6. **(CR) Specification Number:** Provide the following information:
 - A. Material specifications and material form (e.g., sheet, bar) for all materials incorporated into the FAI part (e.g., weld, braze filler).
 - B. Special process specifications: including class, if applicable, and permitted substitutions.
 - C. If Commercial-Off-the-Shelf (COTS)/standard catalog item(s) are modified, then list the non-modified standard hardware or COTS item part number.

Note: Non-modified standard catalogue items (s), when part of an assembly, are listed on Form 1, "Part Number Accountability"

ValcorNote: Enter acceptance criteria for special processes, NDE tests. Review Customer PO/Valcor PO to Suppliers for special requirements, such as NADCAP. When required, verify that a NADCAP certificate with an accurate scope of accreditation is included in the FAIR package

7. **(O) Code:** Any code specified for material or process.



8. **(CR) Supplier:** Identify organization (internal or external) performing special process(es) or supplying material.
- Name
 - Address
 - Code (when available)

ValcorNote: Depending on customers, may need to add the customer's special processor code assigned to the special processor. Example: Boeing D1-4426 Code, Honeywell requires DUNS#, etc.

9. **(CR) Customer Approval Verification:** Indicate if the special process(es) or material sources are approved by Nadcap or the Customer. Enter “Yes” if approved; “No” if approval is required, but process source is not approved; or "NA" if Customer approval is not required.

NOTE: A “No” would be handled in accordance with AS9102, 4.5.

ValcorNote: Never indicate "No" unless you have a deviation approved by customer. Indicate either "Yes" if customer approval is required or "NA" if not required. "No" implies customer approval is required and not provided/sought. (Requires deviation approval)

10. **(CR) Certificate of Conformance Number:** The applicable certificate number (e.g., special process completion certification, raw material test report number, modified standard catalog item compliance report number, traceability number, P.O. number, lot number, job number etc.).

ValcorNote: Type actual certificate #, heat #, or batch #. Do not write “see attached.”

11. **(CR) Functional Test Procedure Number:** Functional Test Procedure number identified as a design characteristic.

ValcorNote: When applicable, notate Test Procedure (TP) #

12. **(CR) Acceptance Report Number:** The functional test certification indicating that test requirements have been met. **NOTE:** When software is uploaded as part of a test procedure, record the software and revision level and acceptance report number.



ValcorNote: When applicable, Test Report (TR) is to be attached to the FAIR and Test Report # notated here. If a test report number is not available, notate the TR form and the FAI SN. Example: TR5000-169 SN: 123456

13. (O) Comments: Provide supporting comments, as applicable.

ValcorNote: Attachments: All of the documents identified in Column 10, Certificate of Conformance, TRs when applicable.

Examples of Special Processes that need to go on Form 2:

Special Processes Incorporated in Manufacturing		
Welding	Chemical Processing	Electronics
Rotational Friction / Inertia Welding, Torch / Induction Brazing, Flash Welding & Laser Welding, Electron Beam Welding, Resistance Welding, Fusion Welding & Evaluation of Welds	Electroplating, Electroforming, Electroless Plating, Anodising, Chemical Conversion Coatings, Passivation, Painting & Dry-Film, Surface Enhancement, Etching & Chemical Cleaning, Surface Treatment Engineering	Printed Circuit Board (PCB) Manufacture, PCB Assembly (Incl. Soldering), Cable and Harness Assemblies, Conformal Coating, Battery Cell Manufacture & Array Assemblies
Composites	Elastomer Seals	Heat Treatment
Prepreg, Adhesive Bonding, Resin Film Infusion, Metal Bonding, Core Processing, Liquid Resin & Compression Moulding	Plate Seals, Fabric / Textile Reinforced Seals, O-Rings & Moulded Shapes	Brazing (including dip brazing), Metal Heat Treating, Carburizing, Nitriding, Hot Isostatic Pressing, Induction Hardening & Sintering
Materials Testing & Inspection	Nonconventional Machining	Non-destructive Testing
Chemical Analysis, Mechanical Testing, Metallography, Micro Indentation Hardness Testing, Corrosion Testing, Fastener Testing, Physical Testing & Thermal Testing	Electrochemical Machining, Electrochemical Grinding, Electrical Discharge Machining, Laser Beam Machining, Laser Part Marking & Spark Erosion Grinding	Penetrant Flaw Detect, Anodise Flaw Detect, Magnetic Particle Inspection, Ultrasonic Testing, Radiographic Inspection Testing & Eddy Current Inspection Testing
Additive Manufacturing		
Directed Energy Deposition (DED)	Powder Bed Fusion (PBF)	Sheet Lamination (SHL)
Laser Engineered Net Shaping (LENS), Electron Beam Additive Manufacturing (EBAM), Wire Arc Additive Manufacturing (WAAM)	Selective laser sintering (SLS), Selective laser melting (SLM), Direct metal laser sintering (DMLS), Electron beam melting (EBM), Selective heat sintering (SHS) & High-speed sintering (HSS)	Laminated object manufacturing (LOM), Selective lamination composite object manufacturing (SLCOM), Plastic sheet lamination (PSL), Selective deposition lamination (SDL)
Material Extrusion (MEX)	Material Jetting (MJT) & Binder Jetting (BJT)	Vat Photopolymerization (VPP)
Fused deposition modelling (FDM) & Fused filament fabrication (FFF)	PolyJet, Nanoparticle jetting (NPJ), Drop on demand (DOD)	Stereolithography (SLA), Digital light processing (DLP) & Continuous digital light processing (CLIP)



First Article Inspection Report Form 3: Characteristic Accountability, Verification and Compatibility Evaluation							Sheet ___ of ___
1. Part Number:		2. Part Name:		Dwg Rev:	3. Serial Number		4. FAIR Identifier:
Characteristic Accountability				Inspection / Test Results			
5. Char. Number:	6. Reference Location:	7. Characteristic Designator:	8. Requirement:	9. Results:	10. Designed/ Qualified Tooling	11. Nonconformance Number	12. Additional Data / Comments

5. EXPECTATION FOR PROPER AS9102 FORM 3 COMPLETION

1. **(R) Part Number:** Number of the FAI part [e.g., customer part number contained on the purchasing documents; part number from the associated Bill of Materials (BOM); manufacturer part number for internal parts, when customer part number is not available].
2. **(R) Part Name:** Name of the FAI part.
3. **(CR) Serial Number:** Serial number of the FAI part; unique identifier assigned to a detail part, sub-assembly, or assembly by the organization or customer.
4. **(R) FAIR Identifier:** Identifier or identification number for the First Article Inspection Report (FAIR).
5. **(R) Char. No.:** Unique assigned number for each design characteristic.
 - The ballooned design characteristics shall clearly be traceable to the characteristic number listed in field 5.
 - Automated inspection methods/tooling measurement report/results, shall all be clearly linked to the characteristic number in field 5, ballooned drawing, and associated measurement report/results.

NOTE: A single design callout that applies to multiple characteristics (see 3.16) may be recorded as one characteristic.

ValcorNote: Include a hard copy of the CMM report as an attachment to the FAI whenever CMM is used for feature verification. CMM and other automated reports shall clearly identify the Drawing Char/Ballooned no. to each characteristic result on the CMM reports.

6. **(CR) Reference Location:** Location of the design characteristic [e.g., drawing zone (page number and section), Digital Product Definition (DPD) model location callout].

7. **(CR) Characteristic Designator:** As applicable, a unique identification for special requirements [e.g., Key Characteristic (KC), Critical Item (CI), items requiring additional design or process control] defined by customer (reference 9100 and 9103) or drawing.
8. **(R) Requirement:** Specified requirement for the design characteristic (e.g., drawing or DPD dimensional characteristic with associated nominal dimension and tolerances, drawing notes, requirements).
 - The organization shall record the requirements in the units (e.g., metric, imperial systems) specified on the drawing or DPD, unless otherwise approved by the customer
 - The organization shall record the software revision for embedded or deliverable software.
9. **(R) Results:** List measurement(s) obtained for the design characteristics.

The organization shall record the results in the units (e.g., metric, imperial systems) specified on the drawing, DPD, unless otherwise approved by the customer (see 4.7.3.a).

 - 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 (e.g., radius gauges) is used as a go/no-go gauge (see 4.7.3.b), record the results as an attribute (e.g., pass/fail).
 - When automated inspection equipment produces measurement results, those results may be referenced on Form 3 identified as pass/fail and attached only when:
 - The characteristic numbers are clearly linked in the attached report [e.g., characteristic identification on Coordinate Measurement System (CMS) report is the same as on this form].
 - The results in the attached reports are clearly traceable to the characteristic numbers.
 - The results are directly comparable to the design characteristic.
 - A CMS report only depicting deviation from nominal in multiple axes is not acceptable; the report shall reflect an actual geometric value.
 - 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 (e.g., pass/fail) and the test reference number

recorded on the form. 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/master samples/standards; list the unique identifier 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 (e.g., certification of conformance, verification indicator - accept).
 - For characteristics verified by attribute inspection, include statement of conformance (e.g., accept).
10. **(CR) Designed/Qualified Tooling:** When design tooling or specially designed tooling, including Numerically Controlled (NC) programming as a media of inspection, is used for attribute acceptance of the characteristic; record equipment with name & s/n. When qualified tooling is used for attribute acceptance, record the gauge value or range (e.g., minimum/maximum value), as applicable.
11. **(CR) Nonconformance Number:** If the characteristic is found to be nonconforming, record a nonconformance document reference number.

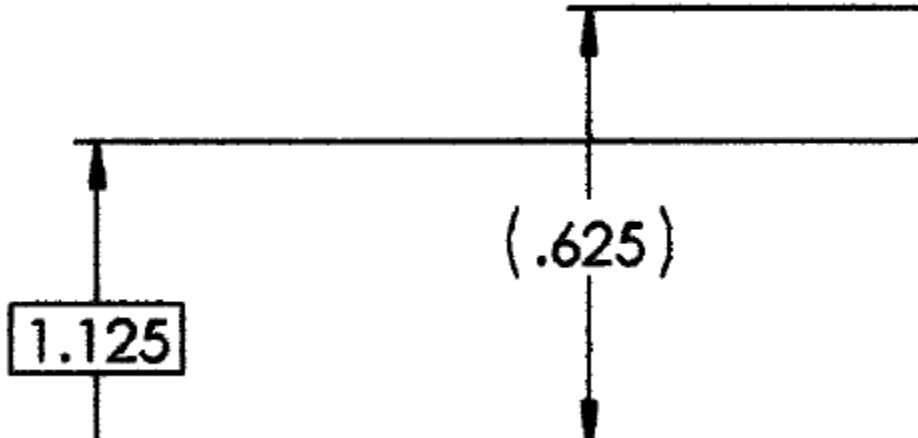
ValcorNote: Any nonconformances must be dispositioned and closed out per internal requirements (i.e., MRB, RC/CA, etc.). Supporting documents should be added to FAI package.

12. **(O) Additional Data/Comments:** This area is reserved for optional fields; add additional columns, as required by the organization or customer.

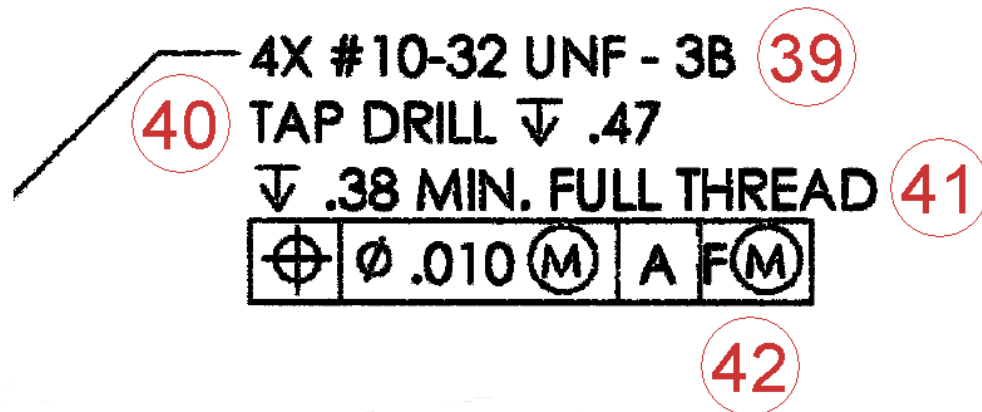
ValcorNote: "99" drawings (usually) have a section "Design Performance Data". The conformances are tested either by Acceptance Test Reports (TR), Qualification Reports (QR), Cleaning Procedures (CP). Identify the section numbers from the TRs, QRs, CPs, etc. where conformance is stated.

6. BALLOONING CLARIFICATIONS

- Reference dimensions (basic dimensions included) May be bubbled and/or reported



- All Characteristics in a block will be accounted for individually so that the inspector may record individual values.



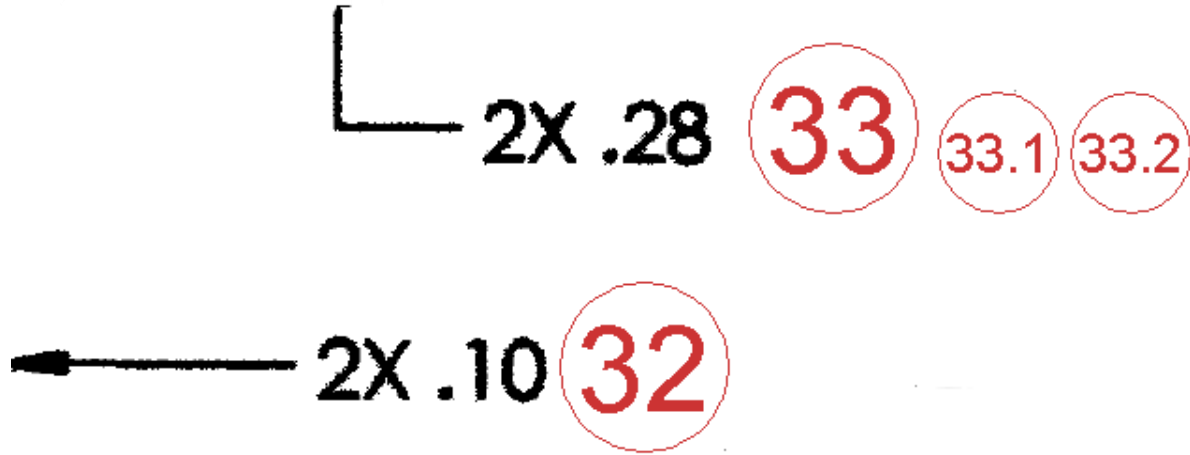
- Designators for major, critical, and key characteristic (KC) must be accounted for on field 7 of form 3
- Per Valcor Drawing Standards, classification of Major and Critical Characteristics:

CLASSIFICATION OF DIMENSIONS:



Example of a Critical Characteristic Classification

- When ballooning multiple characteristics, they may be recorded as either multiple bubbles or a single bubble provided adequate space is provided on form 3



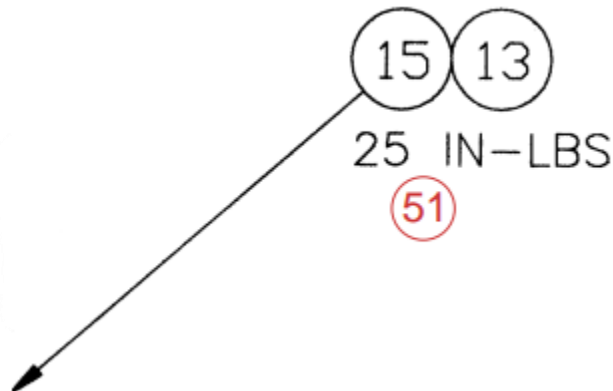
33.1	S1 C-3	Minor	Linear Dimension: .28 +/- .01 in 2 places	
33.2	S1 C-3	Minor	Linear Dimension: .28 +/- .01 in 2 places	

32	S1 C-3	Minor	Linear Dimension: .10 +/- .01 in 2 places	
----	--------	-------	--	--

- The default tolerance box has requirements that must be verified, therefore requiring a bubble. Material and finish boxes count as design characteristics and therefore also require a bubble to be acknowledged.

<p>UNLESS OTHERWISE SPECIFIED</p> <p>DO NOT SCALE DRAWING</p> <p>INTERPRET PER S500 (15)</p> <p>DIMENSIONS ARE INCHES</p> <p>TOLERANCES: .XX ±.01 .XXX ±.005 ANGLES ±1°</p> <p>ALL EDGES: .003-.010 RADIUS OR CHAMFER</p> <p>ALL FILLETS: .010 MAX. RADIUS</p> <p>CONCENTRICITY: .005 TIR</p> <p>SQUARENESS / PARALLELISM / FLATNESS: .003 TOTAL</p> <p>ALL DIMENSIONS ARE AFTER FINISH</p> <p>CLASSIFICATION OF DIMENSIONS:</p> <p><input checked="" type="checkbox"/> CRITICAL <input type="checkbox"/> MAJOR</p> <p>MACHINED SURFACES: ✓ PER ANSI B46.1</p> <p>DRAWING PER DOD-STD-100</p> <p>DIMENSIONS AND TOLERANCING PER ANSI Y14.5M-1982</p>	<p>THIRD ANGLE PROJECTION</p>
	<p>MATERIAL</p> <p>CRES 15-8 PH PER SAE-AMS 5659, CONDITION H1025 (16)</p>
	<p>FINISH</p> <p>PASSIVATE PER VALCOR S703 METHOD B SEE NOTE 7 (17)</p>

- Design characteristics that require values recorded during assembly and test must be accounted for. (Example: 25 IN-LBS should record actual torque value and tool ID)



- Some designs will utilize a set of variables and a table to combine multiple variations of a part into a single drawing. In this case, the variable dimension is to be bubbled and the relevant tolerance from the table shall be inserted into form 3

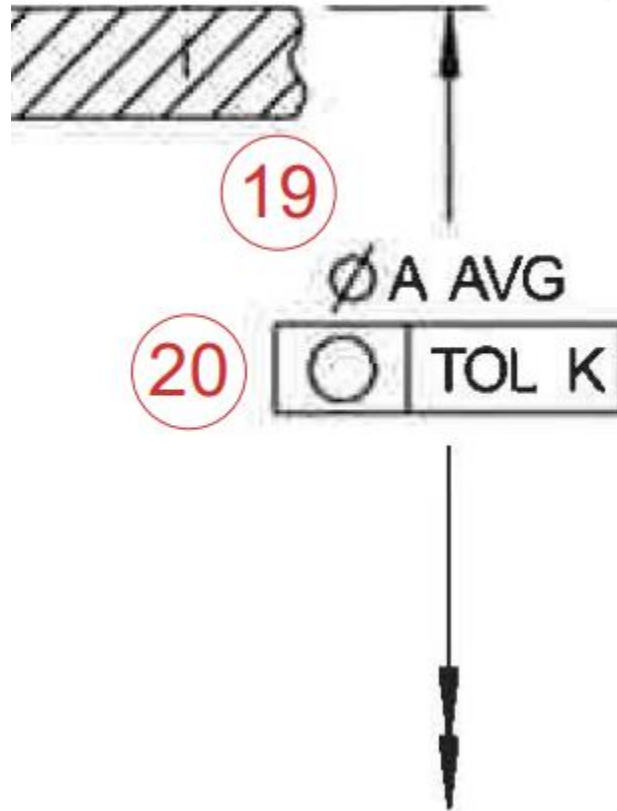


TABLE 1 - DIMENSIONS

DESIGN STANDARD NUMBER /11/	(NOMINAL TUBE SIZE)	A +.000 -.005	C +.005 -.000 /4/	D ±.005	E +.005 -.000	K	L	M
AS1895/15-100	1.00	1.069	.900	1.510	1.386	.001	.003	1.360
AS1895/15-125	1.25	1.319	1.150	1.760	1.636	.001	.003	1.610
AS1895/15-150	1.50	1.569	1.400	2.010	1.886	.002	.003	1.860



7. COMMON ERRORS WHICH CAUSE FAI REJECTION

The topics listed below are common mistakes found in submitted FAI packages.

- All Dimensions and/or notes not accounted for.
 - Any notes that contain a nominal dimension shall record an actual value, “accept” or “OK” is not permitted in such cases.
- Incorrect tolerances assigned to dimension resulting in part non-conformance.
 - Standard dimension tolerances such as .100 (three place decimal meaning +/- .005) are found in the tolerance block located in the lower right part of the drawing as shown below.
- Incorrect Raw material/adhesives information provided.
 - Shelf life cannot be expired; appropriate adhesive(s) are to be used on labels, etc.
 - Raw Material required to be indicated on AS9102 Form 2.
- Parts for an assembly identified on the wrong form.
 - Parts for an assembly are required to be indicated on AS9102 Form 1.
- Incorrect revision level.
 - Ensure PO revision matches released engineering specified for item(s) on FAI report. If part revision is not identified on the PO, contact Buyer's procurement representative prior to initiating FAI submittal.
 - Special Process certifications should be to the latest revision. This is a standard PO Note for all PO's (MFC-PR-001).
- Incorrect inspection equipment used or not noted on FAI report.
 - When inspection equipment is listed, ensure that inspection equipment has sufficient measurement accuracy for requirements being measured and ensure it is recorded on AS9102 Form 3. Use of Gage Repeatability and Reproducibility (R&R) to validate measurement repeatability should be a part of the process development effort.
- Wrong part number identified on FAI form(s).
 - The part number listed on the FAI is to be the Lockheed Martin part number listed on the purchase order, not a COTS or manufacturer's part number.
 - There are to be no typo's, missing dash numbers, and/or missing designators such as Q1, D1, TPSS, etc. Example: If the purchase order requires P/N 7979797-003 Q1 the FAI form is to read the full P/N: 7979797-003 Q1.



- Missing Certificates of Conformance, test reports, and FAI forms as part of the FAI package.
 - Ensure there is no Missing/Incomplete sub-tier supplier data such as:
 - Improper material alloy listed.
 - Incorrect special process used.
 - Incorrect specification revision levels listed.
 - Missing traceability to the mill.
 - Ensure supplier equivalent forms meet the AS9102 form requirements.
- FAI form(s) not signed/approved by appropriate representatives and/or dated.
 - AS9102 Form 1 should be signed by the preparer of the FAI and reviewed/approved by a second individual.
- Incomplete recording of “multiple actuals.”
 - A feature that is required multiple times requires recording multiple actuals. Example: FIN #6 must be installed in 12 places (need to indicate 12 places or measurements as defined by engineering). This can include a range with max/min indicated.
- Incorrect special processes type or class.
 - Ensure that the special process type and/or class is the same as called out on the drawing.

8. APPENDIX: DEFINITIONS & ACRONYMS

For the purpose of this document, the following definitions apply.

- Approved FAI: Documented approval from LMMFC Supplier Quality representative. Approval is required to ship material unless otherwise directed by LMMFC.
- Assembly: A product that is produced by joining two or more detail parts, COTS, standard catalogue item, or sub-assemblies into one item.
- 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 (e.g., go/no-go, accept/reject, pass/fail).
- Ballooned Design Characteristic: Clear and uniquely identified design characteristic indicated on a ballooned document. The unique identifier may be circled or highlighted for easy visual identification.
- Ballooning: This technique establishes an organized method to capture objective evidence that each drawing requirement is met. Ballooning is recommended to ensure accuracy and completeness. It is preferred if a ballooned drawing of the accepted FAI is submitted as part of the officially documented FAI package. Term may be referred to as bubbling.
- Ballooned Document: An aid used in FAI to identify all the design characteristics, including all documents—e.g., drawings, purchase order, Digital Product Definition (DPD)—typically sequentially numbering the design characteristics and putting a circle around or highlighting the numbered design characteristics.
- Baseline Part Number: This refers to a part number from the previous FAI or approved configuration, including revision level, to which a partial FAI is performed. An example of an approved configuration is a part produced and verified as conforming product prior to the requirements of this standard.
- Certificates of Conformance (C of C): The Seller should submit with each shipment, a Certificate of Conformance which is to be dated and bear the signature, electronic equivalent, or electronically generated title of an authorized contractor's Representative, stating that the materials furnished to Lockheed Martin are in conformance with applicable requirements of the Contract, drawings, and specifications, and that supporting

documentation is on file and will be made available to Lockheed Martin or Government Representatives upon request. Certification should include at a minimum: name of contractor of materials being supplied, quantity shipped, and Buyer Purchase Order Number, per the applicable PO Text Note MFC-DC-003, when levied on the purchase order contract.

- An example of an acceptable statement of Certification of Conformance is as follows: “This is to certify that all items noted are in conformance with the Contract, drawings, specification and other applicable documentation, that all process certifications, chemical and physical test reports, are on file at this facility and are available for review by Lockheed Martin.”
- Change Control: Formal process used to ensure that changes to a product or system are introduced in a controlled and coordinated manner throughout the life cycle. This includes flowing the change through the appropriate channels within Lockheed Martin before incorporation.
- Commercial of the Shelf (COTS) Item: Commercially available item intended by design to be procured and utilized without modification (e.g., common electronic components). Any item or assembly meeting all of the following requirements:
 - a. Defined by industry, manufacturer, military, or recognized specifications or standards.
 - b. Without design modification, specifically for a customer.
 - c. Customarily used by the public or industries.
 - d. Offered for sale to the public, through catalogues, price list, brochures, stores, or websites
- Corrective Action: Action(s) to eliminate the cause(s) of a detected nonconformity or other undesirable situation in order to prevent recurrence. The FAI is not complete until the organization closes all non-conformances affecting the part and implements corrective actions. The organization should implement corrective action(s) and perform a partial FAI for all affected characteristics on the next production run, after implementation of the associated corrective action(s). If the partial FAI does not clear all identified nonconformances, the FAI is still “not complete” and the requirement to complete the FAI is still in effect per AS9102.
- Deliverable Software: Embedded or loadable airborne, spaceborne, or ground support software or firmware components which are part of an aircraft type design, weapon system, missile, or spacecraft.

- Design Characteristic: Dimensional, visual, functional, mechanical, and material features or properties, which describe and constitute the design of the product. These characteristics can be measured, inspected, tested, or verified to determine conformance to the design requirements as specified on the parts list, purchasing document, drawing, or DPD, to which the product is to be produced.
 - Dimensional design characteristics include in-process locating features (e.g., additive manufacturing, target-machined or forged/cast dimensions on forgings and castings, weld/braze joint preparation necessary for acceptance of finished joint).
 - Material design characteristics include processing output variable (e.g., plating or coating thickness/runout, material hardness/conductivity). These provide assurance of intended characteristics that could not be otherwise defined.
- Designed Tooling: Product specific tooling [e.g., check fixtures, Coordinate Measurement Machine (CMM) program] specifically made to validate the design characteristics of a product.
- Detail Part: Article/part produced to engineering definition that does not include assembly processes (i.e., processes that join two or more parts together). Detail parts may include processing, finishes, and/or special process(es).
- Digital Product Definition (DPD): Digital data file(s) that disclose, directly or by reference, the physical or functional requirements, including data files that disclose the design or acceptance criteria of a product. Examples of DPD include the following:
 - Digital data file(s) and fully dimensioned two-dimensional (2D) drawing sheets.
 - Three-dimensional (3D) data model, and simplified or reduced content 2D drawing sheets.
 - 3D data model with design characteristics displayed as text.
 - Any other data files containing design characteristics that define a product in its entirety.
- Equivalent Form: Interchangeable AS9102 or company specific AS9102 equivalent forms.
- First Article Inspection: A procedure that provides objective evidence that all engineering, design and specification requirements are correctly understood, accounted for, verified, recorded, and that the combination of material, tooling, processes,



documentation and personnel is capable of producing compliant hardware. FAI includes the manufacturing/inspection planning, manufacturing processes, tooling and software, (Numerical Control (N/C) tapes and Coordinate Measuring machine programs), test, inspection methods and equipment used in the fabrication of products. MFC SUPPLIER
FAI GUIDEBOOK – REVISION F – CLEARED FOR PUBLIC RELEASE - PAGE

- First Article Inspection Report (FAIR): Comprised of the forms identified in Appendix B, all ballooned design characteristics, and the supporting documentation determined by FAI planning for a part number (e.g., detail part, sub-assembly, or assembly).
- FAI Plan: A documented plan for the company's FAI procedure. Preparation requires gathering all source documents including Contract requirements (Purchase Order), Ballooned engineering drawings, specifications referenced in drawings, embedded or layered specifications, raw material certifications, Capability Maturity Model data, planning/shop routers, documentation validating integrity, production processes (i.e., soldering, plating, heat treating, etc.)
- FAI Rejection: First Article Inspection Reports where nonconformance/s are identified will have Form 1 marked as "Not Complete." Nonconforming product cannot be delivered to the Buyer without being reworked, Material Review Board approval (Buyer approved Waiver or other document) or covered by drawing change. The FAI will remain in a not complete status until the corrective actions associated with nonconformance have been completed, a subsequent build has been accomplished and an acceptable FAI has been completed. Any non-conformances must be dispositioned and closed out per internal requirements (i.e., MRB, RC/CA, etc.). Supporting documents should be added to the FAI package.
- First Production Run: The initial group of one or more parts that are the result of a planned process designed to be used for production of these same parts.
- Manufacturing Suffix Part Number: A part number with a qualifier at the end (such as Q1, D1, TPSS). Part numbers with a manufacturing suffix have additional documentation indicating the part will deviate from engineering in some way. Ensure the technical data or engineering package received includes the required documentation. Contact the Buyer's procurement representative if the documentation is missing.
- Modified Commercial of the Shelf (COTS) Item/Standard Catalogue Item: A COTS or Standard Catalogue item that has a change made to it from its original designed

configuration. NOTE: Once modified, these items are categorized as detail parts for the purpose of assembly.

- **Multiple Characteristics:** Identical characteristics that occur at more than one location (e.g., four places), but are identified by a single set of drawing or DPD requirements (e.g., rivet hole size, dovetail slots, corner radii, chemical milling pocket thickness).
- **Partial FAI (See MFC-IN-003/MFC-IN-004/MFC-IN-021/MFC-IN-022):** See above section on partial/delta or complete re-accomplishment of a FAI.
- **Product:** Any intended output resulting from the product realization process, which in the context of this standard includes finished detail parts, sub-assemblies, assemblies, forgings, and castings
- **Qualified Tooling:** Universal (not part specific) calibrated monitoring and measuring equipment (e.g., go/no go gauges, thread gauges, radius gauges) used to validate product design characteristics using attribute data.
- **Reference Characteristic:** Characteristic (including reference and basic dimensions) that are used for “information only” or to show relationship; these are dimensions without tolerances and refer to other dimensions on the drawing or in the DPD.
- **Source Inspection:** LMC supplier quality reserves the right to perform in- process inspection, in-process surveillance and/or audits at any time during the life of the purchase order. Parts, assemblies, processes and tests are subject to detailed inspection by the LMC quality representative prior to assembly, test and/or delivery when required. Such inspections, tests and mandatory inspection points (MIPs) should be identified during the purchase order review process, and failure to comply with agreed upon MIPs with LMC supplier quality can be cause for rejection of completed end items per the applicable PO Text Note MFC-SS-005, when levied on the purchase order contract.
- **Special Process:** A documented method used to manufacture products where a product undergoes a physical, chemical or metallurgical transformation where conformance to the specification cannot be readily verified by normal inspection methods, and the quality of the product depends on use of specific equipment operated in a specific manner, under controlled conditions, by trained personnel with instructions, procedures and standards. All special processes must be performed in accordance with LMMFC PO Text Note MFC-DC-020, MFC-DC-021 and/or MFC-DC-023.



- Standard Catalogue Item: A part or material that conforms to an established industry or national authority published specification, having all characteristics identified by written description or an industry/national/military standard drawing
- Sub-tier: Any and all suppliers that the contracted supplier uses for products and/or services.
- Variables Data: Quantitative measurements taken on a continuous scale.
 - For example, the diameter of a cylinder or the gap between mating parts.

(R) REQUIRED: This is mandatory information. (These fields are depicted in bold font.)

(CR) CONDITIONALLY REQUIRED: This field must be completed when applicable to the product. When not applicable, may be left blank. (These fields are depicted in bold italic font.)

(O) OPTIONAL: This field is provided for convenience; the field may be left blank. (These fields are depicted in standard font.)

2D: Two-Dimensional

3D: Three-Dimensional

ABNT: Brazilian Association for Technical Norms

AP: Assembly Procedure

ASD-STAN: Aero Space and Defense Industries Association of Europe - Standardization

AR: Assembly Report

BOM: Bill of Materials

CEN: European Committee for Standardization

CMM: Coordinate Measurement Machine CMS Coordinate Measurement System

CoC: Certificate of Conformance (also known as Certificate of Conformity)

COTS: Commercial-off-the-Shelf

CP: Clean Procedure

CR: Clean Report



DPD: Digital Product Definition

FAI: First Article Inspection

FAIR: First Article Inspection Report

IAQG: International Aerospace Quality Group

JSA: Japanese Standards Association

QR: Qualification Report

SJAC: Society of Japanese Aerospace Companies

TP: Test Procedure

TR: Test Report

Rev	Change Description	Date	Approval
A	Initial Release.	2/17/25	S.Iqbal M.DiGianno