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COLLINS AEROSPACE POWER & CONTROLS
FIRST ARTICLE INSPECTION REQUIREMENTS

APPROVALS:

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DOCUMENT REVISION HISTORY			
REV	PAGE(S) AFFECTED	DESCRIPTION OF REVISION	APPROVAL DATE
-	All	Initial Release	11/07/2013
A	All	Update prior to flow down to suppliers.	04/04/2014
B	Sections 1.1, 2.1, 2.2, 2.3, 2.4, 2.6, 2.7, 2.8, 4.0, 5.0, 6.0, 7.0, 8.0-8.4, 9.0, 11.0	Provided clarification of requirements and changes to HSCOTS FAIs (Section 8.0-8.4)	07/21/2015
C	See change bar (|) located in the left margin to identify areas of change.	– Removed sections 2.4 (FAI Preparation Activities), 10.0 (Inseparable Assembly Drawings), 13.0 (Electronic Obsolescence). – Combined with HSER33531 (now Appendix A). – Updated requirements and wording to provide closer alignment with AS9102. – Updated per new SAP system. – Added section 11 (Parent/Child FAIs)	06/29/2016
D	All	- Updated reference to UTAS/HS to Collins Aerospace - Removed section 2.10 PPAP. - Removed form 34 reference. - Added clarification of requirements to forms 1, 2 and 3.	11/09/2020
E	Section 1.2, 1.5 Section 1.2, 2.2 All Section 2.3 Section 14.0 Section 16.0	- Updated reference ASQR-01 to COL-ASQR-PRO-0003. - Updated Net-Inspect Information. - Updated AS9102 Rev C Form 1, 2 & 3. - Updated Material Traceability per HSM19 requirements. - Updated Casting and Forging Requirements. - Added Brokered part Section.	05/31/2024

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1.0 POLICY AND DEFINITIONS

1.1 SCOPE

Collins Aerospace is a Raytheon Technologies Corp (RTX) Company. This document is applicable to the following Collins Aerospace business units: Power & Controls and Global Operations. This specification does not apply to the Windsor Locks Space Systems business entities.

Note: Collins Aerospace Power & Controls and Global Operations, formerly UTAS ES, Electric, Environmental & Engine Systems (heritage Hamilton), will be referred to as Collins in this document.

The intent of this procedure is to define the minimum requirements for completing a First Article Inspection Report for Collins controlled drawings. This includes clarification of AS9102 FAI requirements and definition of additional Collins Aerospace requirements.

1.2 POLICIES

FAIRs shall be performed in accordance with HSM236, COL-ASQR-PRO-0003, and AS9102.

Use of a third-party source shall be considered an extension of Collins Aerospace in regard to review and approval of FAIRs.

First Article Inspection Reports prior to the release of this document need not conform to additional requirements defined in this document (i.e. QC-502).

This procedure is applicable whenever FAI is required for any Collins Aerospace controlled assembly, sub-assembly, detail, or Collins Aerospace installation part number. This procedure applies to all levels of assembly or detail parts that are specified and/or defined on a Collins Aerospace controlled drawing.

Standard, off-the-shelf and catalog items do not require FAI (i.e., AN, NAS, etc.).

Raytheon Technologies invested in Net Inspect FAI software and is actively deploying this across Collins Aerospace business units. Net Inspect shall be used to submit FAIs to Collins. Refer to section 2.2 for submission requirements.

1.3 DEFINITIONS

Reference AS9102

1.4 ABBREVIATIONS AND ACRONYMS

AS	Aerospace Standard
ASL	Approved Supplier List
CoC	Certificate of Conformance
COTS	Commercial off the Shelf
DPD	Digital Product Definition
FAI	First Article Inspection
FAIR	First Article Inspection Report
HS	Hamilton Sundstrand
HSM	Hamilton Supplier Manual
LMC	Least Material Condition
Mil	Military
MMC	Max Material Condition
MPN	Manufacturer Part Number
NCM	Non-Conforming Material
NI	Net-Inspect
OCM	Original Component Manufacturer
OEM	Original Equipment Manufacturer
P/N	Part Number
PPAP	Production Part Approval Process
PO	Purchase Order
QN	Quality Notification
QML	Qualified Manufacturers List
QPL	Qualified Products List
QUAL	Qualify
SA	Scheduling Agreement
SAP	Systems, Applications, Products
SRC	Supplier Response Center
SPEC	Specification
SQA	Supplier Quality Authority
SQAR	Supplier Quality Assurance Representative
SRI	Supplier Request for Information
UOS	Unless Otherwise Specified
UTAS	UTC Aerospace Systems (heritage)
UTC	United Technologies Corporation

1.5 ORDER OF PRECEDENCE

The order of precedence, in circumstances of conflicting requirements, shall be:
a) Contract (i.e. Purchase Order, Long Term Agreement, Scheduling Agreement)
b) Drawing
c) Collins Aerospace Specifications on Drawing
d) This procedure (HSM236)
e) AS9102

Note: This procedure is a supplement to COL-ASQR-PRO-0003 and AS9102 requirements.

2.0 FAI REQUIREMENTS

A FAIR is a planned, complete, independent, and documented inspection and verification process to ensure that prescribed production processes have produced an item conforming to engineering drawings, DPD, planning, purchase order, engineering specifications, and/or other applicable design documents.

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

FAI shall be performed on new product representative of the first production run. The supplier shall not use prototype parts, or parts manufactured using methods different from those intended for the normal production process.

2.1 CONDITIONS REQUIRING FAI

A FAI is required when any of the following conditions apply and shall continue to apply even after initial compliance.

2.1.1 FULL FAI

A full FAI is required when any of the following occur:
a) New part number unless waived by Collins Aerospace Supplier Quality.
b) New supplier.
c) New facility.
d) Two-year lapse in production (this lapse is from the completion of last production operation to the actual restart of production).
e) When contractually directed.

2.1.2 PARTIAL OR DELTA FAI

A Partial or Delta FAI addresses differences between the current configuration and prior configurations. A partial or delta FAI can be performed unless otherwise requested by Collins Aerospace to complete a full FAI. If the previous FAI is no longer available, a full FAI must be performed.

A partial/delta FAI is required when any of the following occur:

a) Change in the design affecting fit, form or function.
b) Change in part revision (Drawing Change affecting the FAI part number)
c) Change in manufacturing source(s), process(es), inspection method(s), location of manufacture (if only part of the manufacturing is affected, a partial FAI can be completed, otherwise a full FAI is required), tooling or materials, that can potentially affect fit, form, or function.
d) Change in numerical control program or translation to another media that can potentially affect fit, form, or function.
e) Natural or man-made event, adversely affecting the manufacturing process.
f) When Corrective Action is implemented that affects a previously incomplete FAIR (i.e., QN or Deviation on previous FAIR).
g) When Collins Aerospace drawing refers to "make from similar part" if FAI requirements are met on the similar part.
h) When contractually directed.

Note: For tabulated or table drawings (drawings that define multiple parts with the same base part number), when the drawing is updated, only the part numbers affected by the change need to have a partial FAI completed.

2.2 SUBMISSION OF FAIS

a) Effective **November 1st, 2024**, All Full or Partial FAIs created **after** the effectivity date, shall be submitted to Collins via Net Inspect and approved by Collins prior to shipment.
b) For Full or Partial FAIs created **prior** to the effectivity date, the supplier shall submit a copy of the FAI to Collins for records prior to the next shipment (this can be submitted as a PDF attachment in Net-Inspect). Collins approval of the FAI is only required if historically flowed as a requirement through the PO/LTA.
c) HSM236 is a global purchase order note flowing on all production PO's, submittal and approval requirements herein take precedence over individual part quality notes.
   – When partial FAIRs are completed post effectivity date, the previous unsigned or unapproved full or partial FAIRs (Previously created FAIR PDFs are acceptable) must be attached to the partial FAIR submission via Net Inspect.

- When an assembly FAIR is submitted, all sub-component FAIRs, with all related documentation will be required to be submitted for approval via Net Inspect. Refer to paragraph 5.0 for the specific documentation requirements.

d) FAIR submission/approval for Collins Aerospace shall be completed prior to shipment of product.
e) The FAIR must be completed to the PO requirements (i.e., Collins drawing, Ops Sheet).
f) The FAIR shall be submitted through the application of Net-Inspect. The preferred method for submittal is to use Net-Inspect electronic Forms 1, 2 & 3.
   - To obtain access to Net-Inspect, users will have to contact Net-Inspect helpdesk (helpdesk@net-inspect.com or call 425-233-6176) and request an account for Collins Aerospace Power & Controls (CAPC).
   - Power & Controls consist of Customer: Collins Aerospace- Power & Controls (CAPC) and Division: 2700-2900-SQ-Power and Controls-HSM236.
   - Users profile must be under the following programs.
     i. US Person – Low Tech Data & US Only.
     ii. Non-US Person – Low Tech Data.
   - Above customer designation to be used for all PO's flowing HSM236 including Power and Controls and Global Operations Business Units.
g) All future full/partial FAIs must also be submitted for approval to Collins Aerospace.
h) The holder of the Collins Aerospace PO is responsible for the submittal of the FAI.
i) Suppliers with VC/VU vendor codes (Collins/RTX entities), as identified on your Collins purchase orders, do not need to submit a FAIR in Net-Inspect in accordance with HSM236. These entities are responsible for completing and maintaining FAIRs within their system of record which is likely Net Inspect but a different Customer/Division than our external suppliers.

Note: Collins Aerospace approval of the FAI does not absolve the supplier of the responsibility to ensure the FAI and parts are compliant to the requirements.

2.3 FAIR DOCUMENTATION

FAIR documentation shall include as applicable:

a) Completed AS9102 Forms 1, 2 & 3 or equivalent (all three forms are required for both full and partial FAIs)
   1. See Appendix A for forms and instructions. Equivalent forms shall contain all required information and have the same field reference numbers.
b) Subassembly or component part FAIs. See paragraph 5.0.
c) A ballooned drawing (required for both full and partial FAIs).
d) A copy of the Collins Purchase Order or Scheduling Agreement (required for both full and partial FAIs).

e) A photograph or replication of all marking (required for both full and partial FAIs)
   1. It is highly recommended that the supplier receive approval from the Collins Aerospace Part Marking Team (gphspartmarking@collins.com) prior to marking the part and FAI submittal. If approval is provided, please include this in the FAI package.
   2. All part marking as indicated on drawing must be accounted for.
   3. For 2D matrix / machine readable requirements, a legible copy of the 2D matrix mark, the human readable content, and the input code used to create the content shall be included.

f) All Certifications as required per this procedure, HSM19, COL-ASQR-PRO-0003 and AS9102. When a manufacturer uses Collins Aerospace Supplied Raw Material, the Collins Aerospace Supplied Raw Material shall be accompanied with a certification**.**

g) Copies of closed and approved nonconforming material documentation (QNs, Deviations, Waivers, etc.) as applicable to the FAI.

h) Acceptance Test Data (or other test documents) including results of testing, test equipment and test equipment identification number(s).

i) If requested for validation, inspection report data results such as, but not limited to, CMM report, Faro arm report, Gear trace report or other inspection equipment report print out and any other inspection documentation.

j) Scan data color mapping can be used in with vendee approval for supplier equipment and process.

k) Evidence of Collins Aerospace process or system approvals as required per the PO, drawing or specifications (i.e., Frozen process approval per HS14612, HS14602)

l) Additional documents or procedures maybe requested for the full verification of the approved FAI manufacturing process.

2.4 FAI PERFORMANCE

a) Verify that Key Characteristic requirements have been met, as applicable (Reference specification HSC16199 and COPS database).

b) If necessary, ensure any questions related to drawing interpretation and requirements have been answered by Collins Aerospace or submitted as an SRI through the Supplier Portal for review and disposition.

c) Based on applicability within the HSM17 Special Process Table, verify all special processes suppliers are on the Collins Aerospace 80/85 Report and/or Nadcap accredited for the specific special process. Ensure special process CoCs are accompanied by appropriate test report/certification data, as required by the special process specification, including specification revision when applicable.

d) If the supplier is approved to perform the special process in house and does not generate a CoC, they can provide a copy of the traveler showing the special process operation. If the supplier uses a traveler for this purpose the traveler / process sheet must match the Collins Aerospace engineering requirements including revision of the spec. Supplier proprietary information can be blacked out.

e) Verify all forms and certification documents are completed in English.
f) All blocks of the form must be filled out completely. If a block on a form is not applicable it shall be listed as "N/A" and not left blank.
g) Attribute data is acceptable when any of the following occur:
   1. Non-numerical limits are specified on the Engineering Print.
   2. When Collins approved tooling is used as a check feature and a go/no-go feature has been established.
   3. When authorized, in writing, by customer or contract.
h) Casting and forgings procured to a Collins drawing are considered detail parts to the next level machining and shall be listed as details on Form 1 and listed as make from material on Form 2. When machining a casting that has no other details, the FAI is considered a detail.

Note: FAIs are not required on SK drawings (used for rework, repair and/or upgrades) since the process is not intended for normal production. Alternate inspection/validation is required to ensure parts were manufactured per the contract flow down.

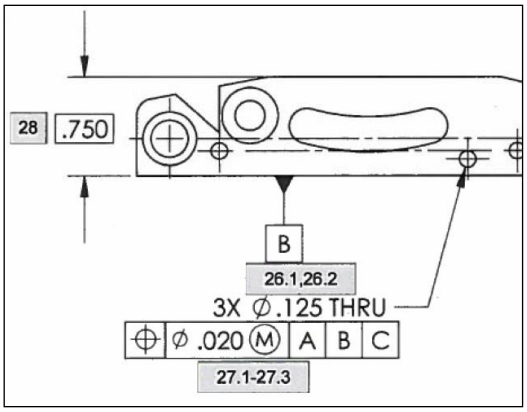
2.5 DFAR 252.225-7009 & 252.225-7012 (MATERIAL)

DFAR 252.225-7009 & 252.225-7012 (previously 252.225-7014) shall be adhered to, as applicable (i.e., Military specialty metals).

2.6 GENERAL REQUIREMENTS

Identification of Characteristics

a) The term "balloon" shall indicate the method of enclosing the characteristic identification number. This can be any geometric shape that is used to enclose the characteristic number.
b) Each design characteristic shall have a unique identifier. The ballooned drawing shall have 100% accountability for all features including, but not limited to, all dimensions, notes, specifications, and drawings called out on the part drawing and UOS block. It is recommended that drawing notes be ballooned first. See example shown in **Figure 1**.



Characteristic Accountability				Inspection / Test Results					
5. Char. No.	6. Reference Location	7. Characteristic Designator	8. Requirement	9. Results	10. Designed / Qualified Tooling	11. Nonconformance Number	12a. Inspection Method	12b. Inspector	12c. Tool ID
26.1	2-5B	Minor	3X Ø .125 ±.005	0.125-0.125	N/A	N/A	GAGE PINS	K. JONES	P1395
26.2	2-5B	Minor	3X THRU	PASS - PASS	N/A	N/A	GAGE PINS	K. JONES	P1395
27.1	2-5B	Minor	⌖ Ø .020 Ⓜ A B C	0.002	N/A	N/A	MICRO-HITE	K. JONES	P163
27.2	2-5B	Minor	⌖ Ø .020 Ⓜ A B C	0.002	N/A	N/A	MICRO-HITE	K. JONES	P163
27.3	2-5B	Minor	⌖ Ø .020 Ⓜ A B C	0.002	N/A	N/A	MICRO-HITE	K. JONES	P163
28	2-5C	Minor	.750	0.750	N/A	N/A	0-1" OD MICROMETER	K. JONES	P135

OR

Characteristic Accountability				Inspection / Test Results					
5. Char. No.	6. Reference Location	7. Characteristic Designator	8. Requirement	9. Results	10. Designed / Qualified Tooling	11. Nonconformance Number	12a. Inspection Method	12b. Inspector	12c. Tool ID
26.1	2-5B	Minor	3X Ø .125 ±.005	0.125-0.125	N/A	N/A	GAGE PINS	K. JONES	P1395
26.2	2-5B	Minor	3X THRU	PASS - PASS	N/A	N/A	GAGE PINS	K. JONES	P1395
27	2-5B	Minor	⌖ Ø .020 Ⓜ A B C	0.002	N/A	N/A	MICRO-HITE	K. JONES	P163
				0.002	N/A	N/A	MICRO-HITE	K. JONES	P163
				0.002	N/A	N/A	MICRO-HITE	K. JONES	P163
28	2-5B	Minor	.750	0.750	N/A	N/A	0-1" OD MICROMETER	K. JONES	P135

Figure 1

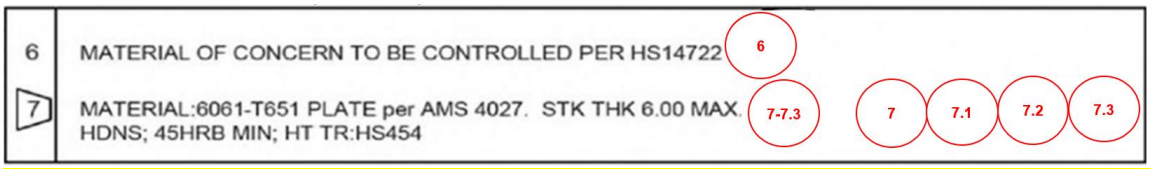
c) Multiple design characteristics within a note shall have a unique identifier assigned for each characteristic. Sub-balloons will be individually listed and accounted for on Form 3.

d) When depth of feature is listed as "THRU" it is considered to be a design characteristic which requires to be ballooned and accounted for on Form 3.

e) If multiple characteristics are dimensioned under a single characteristic (i.e. 0.250 R 8x), it is permissible to use only one balloon with the actual range (i.e. 0.247 – 0.253)

for all (8) places. The comments field in Net-Inspect shall state "range of results" when more than two places of occurrence of a feature exists in lieu of listing all results in block 9. However, all true position characteristics must be accounted for separately with individual characteristic numbers or individual results under (1) characteristic in block 9. **Example:** If the requirement is true position (3) places, then you must have (3) individual unique character identifiers. See **Figure 1**, above. For any true position that is (99x) or greater, a range of results is permitted.

Example: Each characteristic within the note needs to be ballooned and accounted for separately: material, stock thickness, hardness, and heat treat. Each is to be considered a unique design requirement and therefore requires individual results to be recorded. See **Figure 2**.



Characteristic Accountability				Inspection / Test Results					
5. Char. No.	6. Reference Location	7. Characteristic Designator	8. Requirement	9. Results	10. Designed / Qualified Tooling	11. Nonconformance Number	12a. Inspection Method	12b. Inspector	12c. Tool ID
6	G-14	Minor	NOTE 6: MATERIAL OF CONCERN TO BE CONTROLLED PER HS14722	PASS	N/A	N/A	SPECIFICATION	JD	N/A
7	G-14	Minor	NOTE 7: MATERIAL 6061-T651 PLATE PER AMS4027	PASS	N/A	N/A	CERTIFICATION #65432	JD	N/A
7.1	G-14	Minor	NOTE 7 STK THK 6.00 MAX	6.000	N/A	N/A	CERTIFICATION #65432	JD	N/A
7.2	G-14	Minor	NOTE 7 HDHS 45HRB MIN	54 HRB	N/A	N/A	CERTIFICATION #65432	JD	N/A
7.3	G-14	Minor	NOTE 7 HT TRHS464	PASS	N/A	N/A	CERTIFICATION #98765	JD	N/A

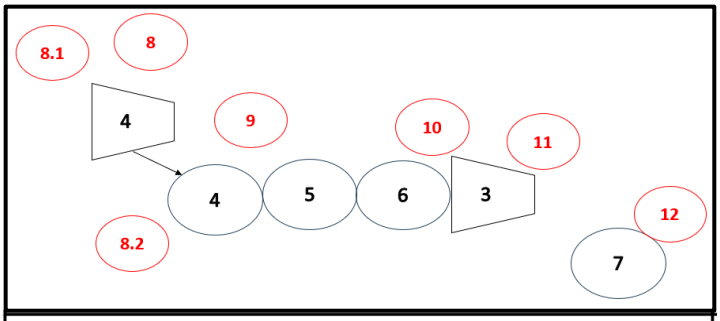
Figure 2

f) Center of gravity and deleted notes/dimensions may be omitted from the FAI.
g) Reference dimensions and reference notes must be uniquely accounted for on the ballooned drawing and listed on the FAI forms, but Form 3, blocks 9-12 can be "N/A".
h) Basic dimensions shall have their actual values recorded on the FAI form 3.
i) If a part exceeds the specification for true position but is acceptable using the drawing bonus tolerance, then the supplier shall document this by the actual true position along with the words "Accept with MMC/LMC" in the comment section associated with that characteristic in Net-Inspect.
j) If the drawing /spec allow the use of multiple methods or alternate details, ensure the actual method /detail used is clearly indicated on Form 3. (Example: "Part marking per Method 8 or 9", indicate which method is used on Form 3)

k) For tabulated or table drawings (drawings that define multiple parts with the same base part number), only the design features and flag notes applicable to the specific dash

number having the FAI performed to need to be ballooned. General notes (not flag notes) shall be ballooned.

l) Flag notes and find numbers shall be uniquely ballooned. This includes a unique characteristic number for each location within the notes *and* within the field of the drawing. Flag notes that appear in the notes section or UOS field need to be written out completely in Form 3, block 8. It is recommended that when note/find numbers are found within the drawing that it is written out completely in Form 3, block 8, however the flag note symbol may be listed in lieu of the full verbiage. See **Figure 3**.



Characteristic Accountability

5. Char. No.	6. Reference Location	7. Characteristic Designator	8. Requirement
8	S1G-7	Minor	FLAG NOTE: 4. PREPARE BOTH SURFACES PER HS1265, METHOD D.
8.1	S1G-7	Minor	FLAG NOTE: 4. PRIME SURFACES WITH HS812, PRIMMER T.
8.2	S1G-7	Minor	NOTE: FIND NUMBER 4- COTTER PIN #69923-01
9	S1G-7	Minor	NOTE: FIND NUMBER 5- SPACER #55556-10
10	S1G-6	Minor	NOTE: FIND NUMBER 6- INNER RING #69995-01
11	S1G-6	Minor	3
12	S1G-6	Minor	NOTE: FIND NUMBER 7 OUTER RING #69995-02

Figure 3

2.7 SPECIFICATIONS ON DRAWINGS

Review all the specifications called out on the drawing and Purchase Order (including specifications embedded in other specifications) to determine if there are any embedded requirements. By accepting the spec, the supplier is also accepting any embedded specs, addendums or requirements that pertain to the FAI**.**

Example: For drawing note, "Weld per HS191 Class 1A", there are embedded specs, HS447, HS31 and HS4845, which are also applicable.

When Collins Aerospace approval (non-Qualification) is required within a specification on the drawing or PO, a copy of the Collins Aerospace approval shall be included in the FAIR. When there are Acceptance Test Procedure (ATP) requirements, the ATP shall be included as part of the FAIR. **Example:** HS14612 requires Collins Aerospace approved Frozen Process form.

2.8 DESIGN SPECIFICATIONS CALLED OUT ON A DRAWING

If design characteristics are defined on the FAI drawing by referring to a design specification (i.e. boss per AS5131B40) then the design characteristics within the design specification shall be accounted for on the FAI. Such design characteristics may be specified as AS Beaded Ends or AN Fittings that are manufactured on the FAI part.

All applicable characteristics must be accounted for on Form 3 by either ballooning the actual design specification or clearly identify the appropriate design specification characteristics on Form 3. See **Figure 4**, below.

Note: This requirement applies to dimensional features that form a part of the manufacturing process. This requirement does not apply to AS, AN or other standard hardware purchased and installed on the part.

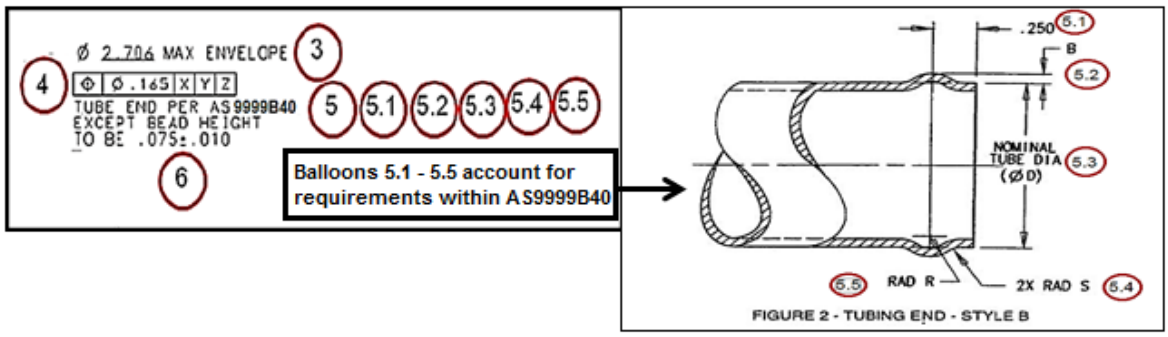


Figure 4

2.9 SUPERSEDED OR CANCELLED SPECIFICATIONS

If a cancelled or superseded specification is called out on a Collins Aerospace drawing, refer to HSM17.

3.0 TRACEABILITY

Traceability is an unbroken record of documentation that includes a means to uniquely identify a particular part (i.e., s/n, lot date code, etc.). For metallic raw materials, full traceability to the original mill is required. Refer to HSM19.

In instances where a drawing specification is referencing a superseded MIL/AMS/Federal standard or equivalent standard, and if the PN is determined to be an HSCOTS item, it is acceptable to establish traceability to the current effective standard through review of the specification revision(supersession) history.

3.1 CERTIFICATE OF CONFORMANCE (C OF C)

CERTIFICATE OF CONFORMANCE (C of C, CoC): A document provided by a Supplier formally declaring that all specification requirements have been met. The document may include information such as manufacturer, distributor, quantity, lot and/or date code, inspection date, revision, etc., and is signed by an authorized party for the Supplier. Ensure that all certification requirements per the specification are captured.

CERTIFICATE OF CONFORMANCE AND SUPPLY CHAIN TRACEABILITY (CoC): A Certificate of Conformance required by certain military specifications which requires documented supply chain traceability from the Qualified Parts List/Qualified Manufacturers List (QPL/QML) manufacturer through delivery to a government agency if the material is not procured directly from the approved manufacturer.

3.2 MIL-CERT

A mil certificate is an industry document that is used to certify the manufacturing standards of the products produced by the mill. It can specify the following:

- A recognized Standard specification number such as an ASTM or AISI number (Example: ASTM A106. This identifies the type of product (sheet, plate, tube, bar, etc.) and the set engineering standards to which it is produced.)
- An analysis of the elements (%) that make up the content of the mill product. (i.e. carbon, nickel, titanium)
- Brief description of the goods such as galvanized carbon steel sheet, welded tube, seamless pipe, zinc coated, hot rolled or cold rolled plate, etc.
- Ensure that all certification requirements per the specification are captured.

4.0 NON-CONFORMANCES

Quality Notification (QN): A nonconformance detected during or after the manufacturing process that requires disposition from Collins Aerospace. The Supplier is responsible for ensuring a QN is submitted per HSM17.

Deviation Waiver (DEV): A specific written authorization to temporarily depart from a particular requirement(s) of an item's current approved configuration documentation for a specific number of units or a specified period of time.

When non-conformances are affecting the associated FAI part, identify the non-conformance on the FAI as follows:

- Form 1, Block 8: Enter applicable Deviations or QNs (Collins 6-digit QN number)
- Include a copy of the closed, approved Deviation or QN in the FAIR
- FAI is checked as "Yes" at the bottom of Form 1, Block 19
- Form 3, block 11: Include the QN number for the applicable characteristic.
- On the next Manufacturing Production Run, when Corrective Action is implemented that affects a previously incomplete FAIR, it is the Supplier's responsibility to perform a partial FAIR for all affected characteristics as evidence that the identified characteristics now conform.

Note: The assembly level FAI will remain "conditionally approved" until all non-conformances are removed from subcomponents.

5.0 COLLINS AEROSPACE ASSEMBLIES

FAIs are required on parts manufactured or purchased (assemblies or detail parts) to Collins Aerospace drawings. For details, subcomponents and drawings referenced on the Collins assembly drawing, the following is required:

a) If the supplier manufactures detail(s) that have a different base part number than the FAI part, then a separate, full FAI is required on the detail(s).
b) When Collins Aerospace supplies detail parts, the Collins Aerospace supplied Shipping Authorization (or other Collins Aerospace supplied shipping documentation) can be used for AS9102 Form 1 column 18.
c) Casting and Forging FAIs must have evidence of a Collins Aerospace approved Form 1. If Collins Aerospace provides the Casting, Collins Aerospace shall also provide the approved Form 1.
d) "Make from parts" are required to be listed on Form 1 blocks 15-18 and have either a FAI completed to account for the requirements on the "make from part" or requirements accounted for on the new FAI part number.
e) When utilizing an alternate part number per the drawing a delta would be require on the top-level part number FAI.

Note: If the same detail level component is used on multiple assemblies, the completed/approved detail FAI can be applied to multiple assembly FAIRs.

6.0 VENDOR OP SHEETS

When the purchase order note states "Build to the B/P and latest vendor operation sheets" the supplier is to balloon both the blueprint (B/P) for the characteristics that pertain to the part and the vendor operations sheets (VOS). If the Op Sheet and the Blueprint have duplicate characteristics, they can be accounted for with the same characteristic number. Example: If dimension A is on both the VOS and the B/P, the same characteristic number can be used for ballooning the VOS and B/P and the characteristic would be accounted for once on Form 3.

7.0 PRE-PRODUCTION DRAWINGS

For Collins Aerospace product placed on a production PO, the FAI is required to be completed on a production lot part. Collins prototype / preproduction (engineering) drawings are intended for development parts only and parts manufactured to preproduction drawings are **NOT** acceptable for use when completing a production FAI. Examples are X-series and "EP" drawings.

The concept and process associated with a FAI may be used to verify conformance of a prototype part to design requirements (Design Intent Article). However, once the first production lot is run, a full production FAI is required to be completed.

7.1 PRE-PRODUCTION UPGRADED TO PRODUCTION

For situations in which pre-production parts are upgraded to production (i.e., <R>) two FAIs are required:

- One full FAI is required for the part being upgraded to production, showing that it was manufactured to the pre-production methods but upgraded to production (include both P/Ns on Form 1, 2, & 3, block 1 with the full production part number in parentheses)
  - Example: X354-PRT-MFG-237465
    (PRT-MFG-237465)
  - Form 2, block 13 (comments) should be filled out with an explanation that parts were upgraded to production.
- One full FAI is also required, once the first full production lot is run.
- If the Quality Notes state that Collins Aerospace approval is required, then both FAIs require approval.

8.0 COLLINS DRAWINGS THAT DEFINE A COTS PART

There are occasions when Collins Aerospace defines a part that is similar to a COTS part but with a Collins Aerospace part number and drawing. Any part with a Collins Aerospace drawing requires a FAI, however Collins Aerospace has simplified the FAI. requirements in the below sections. For this section, a commonly used definition of a COTS part is as follows:

In the United States, commercially available Off-The-Shelf (COTS) is a Federal Acquisition Regulation (FAR) term defining a non-developmental item (NDI) of supply that is both commercial and sold in substantial quantities in the commercial marketplace, and that can be procured or utilized under government contract in the same precise form as available to the general public.

8.1 HS COTS WITH NO VALUE ADDED

There are occasions when Collins Aerospace defines a part that is identical to a COTS part but has a Collins Aerospace part number and drawing. The Collins Aerospace drawing has no value added above the COTS drawing / specification, build process, design content, and/or a change to the operation of the part. In essence, Collins Aerospace uses the part as is and as defined by the OCM (Original Component Manufacturer). For Table 1, this will be considered HS COTS with No Value Added.

Note: When the Collins Aerospace drawing has a note that explicitly states that the Collins Aerospace drawing describes the requirements for procurement of a commercially available part, then the FAI is a HSCOTS no value added. If it is a standard electronic component, refer to section 8.3. Example of Collins Aerospace drawing note: “This document describes the requirements for procurement of commercially available part. Refer to vendor catalog of data sheet for complete performance requirements.”

8.2 HS COTS WITH VALUE ADDED

There are occasions when Collins Aerospace redefines a COTS part onto a Collins Aerospace drawing, Collins Aerospace part number and additional Collins requirements. If there are any additional requirements on the Collins Aerospace drawing, this is considered a HS COTS with Value Added.

Such value-added items may include one or more of the following (but not limited to):
- Part marking requirements other than bag and tag.
- Up-rating (extended operating temperature range) criteria.
- Additional Screening above and beyond that of the normal OCM manufacturing acceptance testing

- Altered Items
  - Lead Refinish
  - Lead Attach
  - Re-Balling
  - Captive Hardware Modifications
- Selected Items
  - Dimensional Selection
  - Temperature Screening
  - Special Parametric Selection
- Qualification Requirements
- SEU or Radiation Requirements.
- Custom Parts w/o Collins Aerospace design content and not fully defined by design.
- Specification

Note: If there are any Collins Aerospace requirements that cannot be validated through the datasheet, they are considered value added and must be accounted for on the FAI.

It is permissible to use the OCM CofC as objective evidence for accountability to the COTS characteristics called out within the Collins Aerospace drawing. For value added characteristics, objective evidence and actual values shall be reported on AS9102 Form 2. or Form 3 as applicable. COTS CofC shall only be used to satisfy the COTS portions of the Collins Aerospace drawing. See Table 1 for required FAI documentation.

8.3 HS COTS ELECTRONIC COMPONENTS

When a standard electronic component part is defined on a Collins Aerospace Source Controlled/Spec Controlled Drawings, additional validation through the datasheet is not required (including direct part marking). Part validation to the data sheet occurred at the time of the Collins Aerospace drawing approval. The FAI shall consist of Form 1 Part Number Accountability and the CoC from the approved source of supply (per the ASL/MPN and Collins Aerospace drawing).

Note: This does not apply to Selected Item or Altered Item Drawings.
Standard electrical components include, but are not limited to, the following list:

- Capacitors
- Circuit Breakers
- Crystals and Crystal Oscillators
- Diodes
- Fiber Optics
- Filters
- Fuses
- Inductors
- Microcircuits
- Relays
- Resistors
- Transistors

The below flowchart is to be used as a guide to help determine when HSCOTS FAIs are applicable. **Note:** This does not cover all circumstances.

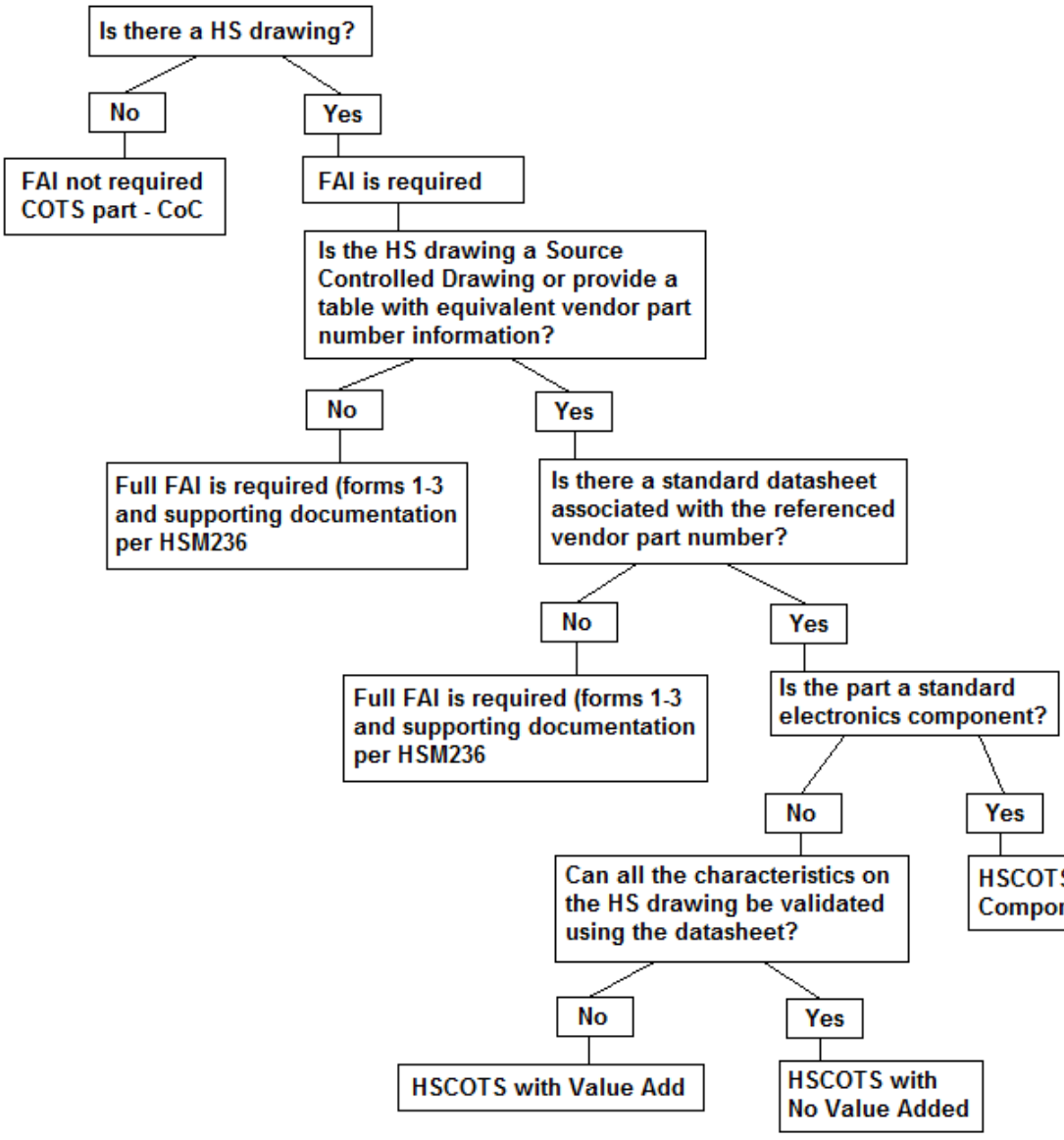


Figure 5

8.4 HS COTS FAI DOCUMENTATION

TABLE 1
HS COTS FAI Requirements

Part Type	AS9102 Form1	AS9102 Form2	AS9102 Form 3	Ballooned Drawing	Data Sheet	C of C	PO
COTS	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**6**	**N/A**
HS COTS No Value Added	**1**	**N/A**	**N/A**	**N/A**	**5**	**7**	**9**
HS COTS with Value Added	**1**	**2**	**3**	**4**	**5**	**8**	**9**
HS COTS Electronic Components	**1**	**N/A**	**N/A**	**N/A**	**N/A**	**7**	**9**

1 Complete AS9102 Form 1, with block 15 – 18 to include the COTS P/N information (block 18 to include the COTS C of C traceability number)
2 Complete AS9102 Form 2, block 5 – 12 apply to Collins value added characteristics.
3 Complete AS9102 Form 3, block 5 – 12 apply to Collins value added characteristics.
4 Balloon print for Collins value added characteristics only.
5 OCM/OEM data sheet/Internal drawing, when applicable
6 C of C (C of C can be included on Packing slip)
7 C of C to the Collins Aerospace or vendor part number
8 C of C for items common with manufacturer data sheet. Items above and beyond must have 100% accountability.
9 Collins PO

Note: Part marking requirement such as bag and tag shall not be considered value added. Replication of non-value-added part marking must be provided but does not need to be accounted for on the FAI Forms. Part marking such as physically marking the part shall be considered value added and must be accounted for on the forms.

Note: For HS COTS FAIs, if there are no sub-components listed on the Collins Aerospace Drawing, then Form 1, Block 13 is checked as detail FAI.

Below is an example of how to fill out a HS COTS Form 1:

FORM 1 – PART NUMBER ACCOUNTABILITY

Sheet ___ of __

1. Part Number: Collins Part Number	2. Part Name: Collins Part Name	3. Serial Number: Serial Number (If required)	4. FAIR Identifier: Unique report number (No specific format)
5. Part Revision Level: Part Rev per Collins Dwg	6. Drawing Number: Collins drawing number	7. Drawing Revision Level: Drawing revision per Collins drawing	8. Additional Changes: QN, Dev, (as applicable)
9. Manufacturing Process Reference: Reference number (can be a cert number)	10. Organization Name: Supplier name	11. Supplier Code: Supplier code (assigned by Collins)	12. Purchase Order Number: PO/LTA number Line number
13. Detail: ☑ Assembly: ☐	14. Full FAI ☑ Partial FAI: ☐ Baseline Part Number (including revision level): Reason for Full / Partial FAI:		

a) If the part number above is a detail part only, go to field 19.
b) If the part number above 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 Type:	18. FAIR Identifier:
COTS part number (per Collins drawing)	COTS part name	Assembly/Detail/ COTS	COTS certification number

19. Does FAIR Contain a Documented Nonconformance(s)? Yes ☐ No ☑

20. FAIR Verified By: Printed name and signature of person verifying the FAIR activity	21. Date: Date FAI was verified
22. FAIR Reviewed/Approved By: Printed name and signature of person who prepared the FAIR	23. Date: Date FAI was prepared
24. Customer Approval: Collins Approval	25. Date: Date FAI was approved

26. Comments: Add any additional comments related to the FAIR

9.0 SOURCE CONTROL DRAWINGS

a) FAIs for Source Controlled Drawings shall be completed for all characteristics identified on the **Collins Aerospace** drawing (including material, special processes, performance characteristics, ATP, Approved Source of Supply notation, etc.).
   – The Supplier is also required to complete an internal FAI to their part number drawing per AS9100, but they do not need to submit to Collins Aerospace for approval. This includes FAIs for sub-components completed per their internal drawing. Collins Aerospace can perform on-site audits to ensure completion.

b) For Form 1 of the Collins part number FAI (Full or Partial):
   – Block 15: Enter the supplier's part number as referenced on the Collins Aerospace drawing.
   – Block 16: Enter the supplier's part name.
   – Block 17: Enter if it is an Assembly/Detail or COTS item.
   – Block 18: Enter the supplier's internal FAI report identifier (Form 1, block 4 of the supplier's internal FAI). This is to be used as evidence that an internal supplier FAI has been completed.
   – **Note:** Form 1, blocks 15-18 is also required to be filled out for Specification Controlled Drawing FAIs if using the suggested source listed on the Collins Aerospace drawing
   – Block 13: If there are no sub-components listed on the Collins Aerospace Source Control Drawing, then Form 1, Block 13 is checked as a detail FAI.

c) If the Source Controlled Drawing is for a HSCOTS part, refer to section 8.1.

10.0 DISTRIBUTOR FAIs

The Distributor is required to flow down all Collins Aerospace FAI requirements to the manufacturer. If the manufacturer completed the FAI to the Collins Aerospace drawing and part number, the distributor may use this to fulfill the FAI requirements; the distributor must also complete a separate Form 1 coversheet.

– The coversheet is AS9102 Form 1.
– On the coversheet, blocks 15 through 18 shall reference the manufacturing FAI information to provide traceability.
– Block 18 will match the manufacturer's FAI report identifier number.

The distributor's coversheet provides traceability from the Collins Aerospace PO to the manufacturer's FAI and provides acknowledgement from the distributor that they reviewed the manufacturer FAI.

If Collins Aerospace approval is required, both the manufacturing and distributor Form 1 must be submitted and approved.

Note: If the manufacturer's FAI is a detail, then the distributor FAI is also checked as a detail.

Note: The Distributor is responsible for providing a copy of the Collins Aerospace PO when submitting the complete FAI package to Collins Aerospace for approval.

Distributor Form 1, Block 15-18 Example**:**

15. Part Number	**16. Part Name**	**17. Part Type**	**18. FAI Identifier**
As listed on the mfg.'s FAI block 1	As listed on the mfg.'s FAI block 2	Assembly/Detail or COTS	As listed on the mfg.'s FAI block 4

If the Distributor completes the FAI, it shall meet all FAI requirements.

11.0 PARENT/CHILD COMPANY FAIs

The below definitions are to be used for this section.
Parent Company: The company location with who Collins Aerospace places the PO
Child Company: The company location that manufactures the part; also referred to as the manufacturer.

In instances where Collins Aerospace places a PO with the Parent Company but the manufacturing of the part occurs at the Child Company (separate location). When this occurs, the Parent Company is responsible for ensuring all requirements are flowed to the Child Company. When the Child Company completes the FAI, this shall be submitted to the Parent Company.

The Parent Company is responsible for reviewing the manufacturer's FAI and completing a separate Form 1 coversheet (similar to the distributor coversheet requirements within section 10.0). The coversheet is AS9102 Form 1. On the coversheet, blocks 15 through 18 shall reference the manufacturing FAI information to provide traceability. Block 18 will match the manufacturer's FAI identifier.

The Parent Company coversheet provides traceability from the Collins Aerospace PO to the manufacturer's FAI and provides acknowledgement from the Parent Company that they reviewed the manufacturer FAI.

If Collins Aerospace approval is required, both the manufacturing and Parent Company Form 1 must be approved.

Note: If the Child Company FAI is a detail, the then Parent Company FAI is also checked as a detail.

Note: The Parent Company is responsible for providing a copy of the Collins Aerospace PO.

Parent Company Form 1, Block 15-18 Example:

15. Part Number	16. Part Name	17. Part Type	18. FAI Identifier
As listed on the mfg.'s FAI block 1	As listed on the mfg.'s FAI block 2	Assembly/Detail or COTS	As listed on the mfg.'s FAI block 4

12.0 MAINTENANCE PARTS

When completing a FAI in which the drawing has a Maintenance Parts List (MPL), account for the MPL with one balloon for the entire list.

When Collins Aerospace is purchasing individual items from a Maintenance Parts List:

- If there is not a Collins Aerospace drawing that defines the part, a FAI is not required to be completed to the Collins Aerospace part number.
- If there is a Collins Aerospace drawing that defines the part, then a FAI must be completed to the Collins Aerospace part number and drawing.

13.0 SAFETY PARTS (FLIGHT SAFETY)

All Safety Parts FAIs (Full & Partial) shall be approved, and the parts released by Collins. The PO holder shall submit the FAI for Collins approval through Net-Inspect. Refer to HSC16199 for Safety Part requirements.

14.0 CASTINGS AND FORGINGS

All Casting and Forgings FAIs shall be approved by Collins Aerospace per HSM17. Regardless of the PO holder, FAIs shall be submitted to Collins for approval. The holder of the Collins PO is responsible for ensuring that the Casting/Forging FAI is at the latest revision and that Collins Aerospace approval has been provided.

14.1 CASTING/FORGING SUPPLIER REQUIREMENTS

All machine houses shall flow-down Collins PO requirements to Casting and Forging facilities. Additional Casting and Forging FAI requirements can be found in the applicable Collins Aerospace specs (reference: HS48, HS424, HS7434, CPS11000, PN29.03 and PN29.08). Complete review and understanding of these specs and any other contractually applicable specs must be completed to ensure all pertinent requirements are met. The listed items must also flow-down, but not limited to:

- For new Collins drawing releases, new tooling FAIs with ultra sonic maps must be approved by Collins engineering through an SRI request. The Casting weight and surface finish shall be recorded as part of the FAIR package.
- The submitted FAIs shall have completed all casting operation unless it is a delta/partial FAI with an authorized Collins approval.
- Casting and Forging FAI documentation shall include but not limited to:
  - Collins approved Part Marking on completed Casting & Forging FAIs.
  - Copy of last approved Form 1 on a Delta FAIs
  - The FAI shall have approved Collins level 3 x-ray tech. to latest casting revision.
- The casting suppliers shall keep their quality system updated to latest drawing revision release. They shall perform a minor delta FAIs on combo casting/machining drawings to latest drawing revision, even when there have been no changes in the casting part revision letter.
- Use of Rapid Casting Technology (RCT) per PN29.08 requires prior written approval by Collins Engineering per the process defined in CPS11000 and PN29.08. Proof of this approval must be furnished with the FAI package.
- All forging FAIs are to be approved by Collins Aerospace Material Engineering.

Note: Collins Aerospace First Article Inspection approval is not required for casting/forging part numbers associated with the Pratt & Whitney design authority parts under the cage codes 55820, 0LYZ0, 00198 and 77445.

14.2 CASTING/FORGING WORK TRANSITIONS

Machine houses receiving Castings that were transitioned to a new facility and new tooling shall complete a 100%-dimensional FAI. The FAI package shall include, but not limited to:

- Form 1: (Casting Collins Approved Form 1 shall be included)
- Form 2: N/A
- Form 3: 100%-dimensional data
- A copy of the shop traveler/Router
- Parts are produced using new tooling, pictures of the new tool are required.

An SRI may be submitted to Collins requesting an alternative FAI inspection plan, supplier to provide proposal. Collins may ask for additional features to be included in the FAIR.

- If supplier selected features fail to meet their respective drawing requirement, Collins may request a Full dimensional FAI.

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14.3 CASTING/FORGING INACTIVITY

For Casting/Forging FAIs that were approved, but the casting has been out of production for more than two years, the supplier may perform the following:

- Request a two-year FAI inactivity waiver through an SRI. Approval of the request is at the discretion of the Collins Aerospace Supplier Quality FAI Manager or designee.
- Suppliers should not submit an FAI until SRI's, QN's and waivers that are pending Collins disposition are closed without prior Collins authorization.
- New FAIs are required for casting and forging every 10 years unless waived by Collins Supplier Quality. Collins recommend that Suppliers should maintain FAI record for 15 years.

14.4 CASTING/FORGING TOOLING REQUIREMENTS

Suppliers shall submit photos of all tooling to Collins Casting Producibility for review at CastingProducibility_Tooling@collins.com prior to FAI being produced in metal.

Photographs shall be of sufficient quality (i.e. picture is in focus, adequate lighting, etc.) to show tooling details. Photos shall show the detail of the tooling as well as the physical marking on the tooling. Multiple photos of the same tooling (core boxes, fixture, etc.) shall be taken if both the equipment detail and the part marking cannot be shown in the same photo. It is preferred that the supplier organize the Tooling Photos into one .pdf document or one document for each type of tooling (Core boxes, Fixturing, etc.).

Contact CastingProducibility_Tooling@collins.com mailbox for photograph requirements.

15.0 INSTALLATION DRAWINGS

Separate FAIRs shall be completed to Collins Aerospace Installation part numbers referenced on the Collins drawing and included with the FAIR.

16.0 BROKERED PARTS

Suppliers shall adhere to COL-ASQR-PRO-0003 and HSM19 for broker buy requirements and approvals. FAI requirements are replaced by the HSER/AER inspection and test plan. Additional requirements shall be defined on the purchase order.

Appendix A: Forms and Supporting Form Instructions

FORM 1: Part Number Accountability

FORM 2: Product Accountability – Materials, Special Processes, and Functional Testing

FORM 3: Characteristic Accountability, Verification and Compatibility Evaluation

This section specifies the requirements for filling out each block within Form 1, 2 and 3. All blocks are to be filled out with the required information as described or "N/A".

FORM 1 – Part Number Accountability

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FORM 1 – PART NUMBER ACCOUNTABILITY

Sheet _1__ of _3__

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 Reference:	10. Organization Name:	11. Supplier Code:	12. Purchase Order Number:
13. Detail: ☐ Assembly: ☐	14. Full FAI: ☐ Partial FAI: ☐ Baseline Part Number (including revision level):		
	Reason for Full / Partial FAI:		AOG ☐ FAA APPROVED ☐
INDEX of part numbers or sub-assembly numbers required to make the assembly noted above.			
15. Part Number:	*16. Part Name:*	*17. Part Type:*	*18. FAIR Identifier:*
Customer		Program	
From Division- To Division			
19. Does FAIR Contain a Documented Nonconformance(s)? *Yes* ☐ *No* ☐			
20. FAIR Verified By:			21. Date:
22. FAIR Reviewed/Approved By:			23. Date:
24. Customer Approval:			*25. Date:*
26. Comments:			

FORM 1

Form 1 is for Part Number Accountability and is used to identify the part for inspection and its associated sub-assemblies or detailed parts.

1. **Form 1, Block 1**: Part Number: Enter the number of the part (FAI part) as shown on the Collins Purchase Order.

2. **Form 1, Block 2**: Part Name: Enter the name of the part as shown on the Collins drawing or Purchase Order. In the case of a mismatch between the purchase order and the drawing, use the part name as shown on the purchase order.

3. **Form 1, Block 3**: Serial Number: Enter the Customer Serial Number when required. Enter N/A if not applicable.

4. **Form 1, Block 4**: FAIR Identifier: Enter a unique number that identifies the FAI. This may be an internal report number.

5. **Form 1, Block 5**: Part Revision Level: Enter the part revision as per the drawing and Purchase Order/Scheduling Agreement.

6. **Form 1, Block 6**: Drawing Number: Enter the Collins drawing number associated with the FAI part. Note that the drawing number is not always the same as part number.

7. **Form 1, Block 7**: Drawing Revision Level: Enter the Collins drawing revision letter.

8. **Form 1, Block 8**: Additional Changes: Enter reference number(s) of any changes that are incorporated into the product as supplement or exclusion from mandatory drawing requirements (e.g., EC/CR, SD drawings, Op Sheets as listed on the PO, Manufacturing Engineering Aids, QN, DEV, etc.). Enter N/A if not applicable. For castings only, SRIs may be included in this field.

9. **Form 1, Block 9**: Manufacturing Process Reference: Enter a number that provides traceability to the documentation of the manufactured lot of products that includes the FAI part (e.g., Shop Traveler, Job Number, Routing Sheet, Manufacturing Process, etc.).

10. **Form 1, Block 10**: Organization Name: Enter the name of the Supplier/Manufacturer performing this FAI as listed on the Purchase Order.

11. **Form 1, Block 11**: Supplier Code: Enter the Supplier Code, which is the unique number assigned by the Customer (Collins Aerospace) to the Organization.

12. **Form 1, Block 12**: Purchase Order number: Enter the Collins Aerospace Purchase Order or Scheduling Agreement number and line-item number.

13. **Form 1, Block 13**: Detail FAI or an Assembly FAI: Check as appropriate to indicate the level of the FAI. A detail is an individual item. An assembly is any part that has details listed on the Collins Aerospace drawing, the parts list, or embedded within the drawing.

14. **Form 1, Block 14**: Full FAI or Partial FAI: Check as appropriate. For a Full or Partial FAI, provide the baseline part number (including revision level) to which a previous FAI was performed. Include the reason for the Full and Partial (e.g., QN, DEV, EC/CR, changes in process, changes in manufacturing, etc.).

    For casting FAIRs, list the reason and number of cavities in this field. Reason examples: New replacement tool; 2-year inactivity/used tool; supplier transition/used (or new) tool; new product; rapid casting technology (computer generated part); Safety Parts part; prior to sample approval.

15. **Form 1, Block 15**: Part Number: Enter the detail (castings, forgings and make from part) or next level sub-assembly part number as listed on the drawing, the parts list, or embedded within the drawing.

    Standard, off-shelf, industry-controlled detail components (e.g., MS, NAS, JAN, etc.) need to be listed but an FAI as a detail component is not required. Only a C of C is required.

    For a Source Controlled drawing, enter the supplier part number as it appears on the drawing (enter the corresponding information in blocks 16-18). Refer to Section 9.0.

    For a HSCOTS FAI, enter the COTS part number as it appears on the Collins Aerospace drawing (enter the corresponding information in blocks 16-18). Refer to section 8.4.

    For a Distributor or Parent Company coversheet, enter the manufacturer's FAI information (enter the corresponding information in blocks 16-18). Refer to section 10.0 & 11.0.

16. **Form 1, Block 16**: Part Name: Enter the name of the part as listed on the drawing, the parts list, or embedded within the drawing.

17. **Form 1, Block 17**: Part Type: Enter whether the part is detail part, sub-assembly, or COTS (or equivalent).

18. **Form 1, Block 18**: FAIR Identifier: For detail part numbers, enter the unique report number that identifies the detail FAI. For COTS details, enter a certification traceability number. If details were supplied by Collins Aerospace, enter the Shipping Authorization or Customs Invoice (or other Collins Aerospace supplier shipping documentation) number.

19. **Form 1, Block 19:** Does FAIR contain a Documented Nonconformances: Check "Yes" if a non-conformance has been documented in the FAIR.

20. **Form 1, Block 20**: FAIR Verified by: Enter the printed name and signature of the person who verified completion of the FAI. Electronic signatures are considered acceptable.

21. **Form 1, Block 21**: Date: Enter the date when the FAI forms and documentation package for this FAI was completed.

22. **Form 1, Block 22**: Reviewed/Approved By: Enter the printed name and signature of the person who is approved by the supplier to review and approve the completed FAI documentation package. This must be a different individual than the person that completed block 20. Electronic signatures are considered acceptable.

23. **Form 1, Block 23**: Date: Enter the date when FAI forms and documentation package for this FAI was approved.

24. **Form 1, Block 24**: Customer Approval: This field will be used by the Collins Aerospace Representative responsible for approval of the completed FAI package (as applicable). Electronic signatures are considered acceptable.

25. **Form 1, Block 25**: Date: Date when FAI forms and documentation package for this FAI was approved by the Collins Aerospace Representative (as applicable).

26. **Form 1, Block 26**: Comments: Provide any supporting comments (e.g. associated non-conformances information, identification of associated documents.

FORM 2: Product Accountability – Materials, Special Processes, and Functional Testing

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FORM 2 – Product Accountability - Materials, Special Processes, and Functional Testing Sheet_2_ of _3_

1. Part Number:	2. Part Name:		3. Serial Number:		4. FAIR Identifier:
5. Material or Process Name:	*6. Specification Number:*	*7. Code:*	*8. Supplier:*	*9. Customer Approval Verification:*	*10. Certificate of Conformance Number:*
Materials					
Processes					
Inspections					
11. Functional Test Procedure Number:			*12. Acceptance Report Number:*		
13. Comments					

FORM 2

Form 2 is for Product Accountability, Materials, Special Processes, and Functional Testing. It is used to identify Raw Material, Specifications, Special Process(s), and Functional Testing as defined by the Collins Aerospace design requirements.

1. **Form 2, Block 1**: Part Number: Enter the number of the part (FAI part) as shown on the Purchase Order.

2. **Form 2, Block 2**: Part Name: Enter the name of the part as shown on the drawing or Purchase Order.

3. **Form 2, Block 3**: Serial Number: Enter the Customer Serial Number when required. Enter N/A if not applicable.

4. **Form 2, Block 4**: FAIR Identifier: Enter a unique number that identifies the FAI. This may be an internal report number.

5. **Form 2, Block 5**: Material or Process Name: Enter the note number and the applicable material used or special process as they appear on the drawing or within the specification. It is recommended that all raw materials and special processes be listed in the same order as they appear on the drawing. When multiple items appear in the same note they must be separated out.

6. **Form 2, Block 6**: Specification Number: Enter the raw material or special process specification number including the revision letter. If listed on the drawing, also include the applicable type, class, method, level, etc. of inspection.

7. **Form 2, Block 7**: Code: Enter any required code from the Customer for material or process listing, when required. Enter N/A if not applicable.

8. **Form 2, Block 8**: Supplier Code: Enter the Supplier name and address performing the Special Process or furnishing raw material.

   For Special Processes, enter the Collins assigned Supplier Code (required for suppliers on Collins Aerospace Report 80/85).

   If material is purchased through distribution, enter the distributor's information. This shall be the last material distributor information.

9. **Form 2, Block 9**: Customer Approval Verification: Indicate if the special process or material source is restricted (e.g., Collins Aerospace Report 80/85 or if the material supplier is restricted per the material specification). When a source is not restricted a statement of No or N/A is deemed acceptable.

10. **Form 2, Block 10**: Certificate of Conformance Number: Enter as applicable; Raw Material Heat number (for metallic raw material the heat number is required as a minimum), Certification number (Report 80/85), Lab Test Report number (e.g., Dirats), Manufacturing Traveler number (with attached verification, including operation number for each in-house performed process), or Shipping Authorization or Customs Invoice Number (or other Collins Aerospace supplied shipping documentation if supplied by Collins Aerospace).

    Note: In cases where heat lot numbers are not provided, such as continuous cast copper tubing, purchase order number can be used in lieu of the heat lot number.

11. **Form 2, Block 11**: Functional Test Procedure Number: Enter any Functional Test Procedure or Specification (including the revision) as called out on the Purchase Order or drawing. Enter the name, date, and rev of the Acceptance Test Procedure Approval, as required.

12. **Form 2, Block 12**: Acceptance report number: Enter the Test Report Certificate number, Router number, etc., as required. When applicable, a copy of the Acceptance Test Procedure must be included as part of FAI package.

13. **Form 2, Block 13**: Comments: Enter any comments, as applicable (this can include any applicable SRIs). If no comments regarding the FAI, enter "N/A" or leave blank.

FORM 3: Characteristic Accountability, Verification and Compatibility Evaluation

AS/EN/SJAC9102 REV C FIRST ARTICLE INSPECTION

FORM 3 - CHARACTERISTIC ACCOUNTABILITY, VERIFICATION, AND COMPATIBILITY EVALUATION

Sheet_3_ of _3_

1. Part Number		2. Part Name			3. Serial Number				4. FAIR Identifier
Characteristic Accountability				Inspection / Test Results					
5. Char. No.	6. Reference Location	7. Characteristic Designator	8. Requirement	9. Results	10. Designed / Qualified Tooling	11. Nonconformance Number	12a. Inspection Method	12b. Inspector	12c. Tool ID
Comments:									
Comments:									
Comments:									
Comments:									

FORM 3

Form 3 is for Characteristic Accountability, Verification and Compatibility Evaluation and is used to record actual measurements, inspection methods and verification for *every* design characteristic on the drawing including drawing notes.

1. **Form 3, Block 1**: Part Number: Enter the number of the part (FAI part) as shown on the Purchase Order.

2. **Form 3, Block 2**: Part Name: Enter the name of the part as shown on the drawing or Purchase Order.

3. **Form 3, Block 3**: Serial Number: Enter the Customer Serial Number when required. Enter N/A if not applicable.

4. **Form 3, Block 4**: FAIR Identifier: Enter a unique number that identifies the FAI. This may be an internal report number.

5. **Form 3, Block 5**: Characteristic Number: Assign and enter a unique sequential number for all characteristics and notes on the drawing, specification, or Engineering Change (e.g., dimensional features, processes, flag notes, etc.).

   When multiple items appear in the same note, they must be assigned a unique sequential number. Dimensions that occur in multiple locations will require a unique characteristic number for each location/position.

   Each true position must be listed out separately (i.e., a true position requirement for a four-hole pattern would require that the true position callout be listed four times with corresponding results – see **Figure 1**).

   Basic and reference dimensions must be entered with a unique sequential number.

6. **Form 3, Block 6**: Reference Location: Enter location of the Design Characteristic, (e.g., drawing/specification page number and location of feature, e.g., E4-2 for Zone E4 on Sheet 2). If a drawing or specification does not include zone locations, enter the page/sheet number.

7. **Form 3, Block 7**: Characteristic Designator: Enter the characteristic classification (e.g., key, Safety Parts, critical, major, minor, etc.). Enter minor if not classified per ASQR-20.1. Over inspection that results in an increase of classification of any characteristic is acceptable such as making a “Minor” characteristic “Major”. Under inspection that results in a decrease of classification of any characteristic is unacceptable such as making a “Major” characteristic “Minor”.

8. **Form 3, Block 8**: Requirement: Enter all drawing characteristics, features, notes (flag notes are to include the note number and complete text), symbols, and specifications as they appear on the drawing or Engineering Change. This will require the breakout of additional requirements that are imposed including MS, AS bosses, flanges etc., generated during the manufacture of the product.

   Note: As applicable, ensure any characteristic multipliers are included in block 8 (this includes accounting for leader lines).

   Note: Ensure each design characteristic is accounted for separately. When multiple requirements are listed in the same note, they must be separated out. When multiple specs/methods are listed in the same note, they can be accounted for on the same design characteristic and in block 9, indicate which spec/method was used. Tolerances in parenthesis shall match drawing call outs.

9. **Form 3, Block 9**: Results: Enter the actual measurement obtained for each characteristic inspected in variable numeric terms.

   Multiple characteristics that are dimensioned under a single characteristic require a range of results. However, each true position must be listed out separately (i.e., a true position requirement for a four-hole pattern would require that the true position callout be listed four times with corresponding results – see **Figure 1**).

   Basic dimensions shall be reported as numeric requirements.

   Reference dimensions can be reported as "N/A" or with a positive statement of conformance (as defined within this document).

   When no variable methods apply, or for reference dimensions, a positive statement of conformance must be used, but not limited to, (i.e., Pass, Comply, etc.). When a range of results is required, they shall be listed using a positive statement of conformance, but not limited to, (Pass/Pass or Pass; Comply/Comply or Comply, etc.) **Note:** ambiguous words such as "OK/good/noted/apply" shall not to be used.

   GO/NO-GO gages for attribute data are allowed. When attribute gaging or specialized tooling is used, traceability to that gage must be included.

   Utilization of the "Comments" field within Net Inspect for additional information, such as "THRU", "All-Around", "TYP", etc., is preferred.

10. **Form 3, Block 10**: Designed Tooling: Enter specially designed tooling, including CNC programming or any other Collins Aerospace approved special tooling as a means of inspection, making sure this tooling is traceable to a controlling number

and it is under calibration control. If no special tooling is required, the field must state "N/A".

Note: Designed tooling requires Collins Aerospace approval.

11. **Form 3, Block 11**: Non-Conformance Number: Record any non-conformance control document number for any characteristic outside of the tolerance or requirement (e.g., QN, DEV). If there are no non-conforming features the field must state "N/A".

12. **Form 3, Block 12**: Additional Comments/Data: The following additional columns are required by Collins to be completed.

    a. **Form 3, Block 12(a): Inspection Method:** Describe the inspection equipment used for the First Article Inspection product acceptance including the traceability number for the inspection equipment.

    Note: COL-ASQR-PRO-003 requires gaging accuracy to be 10 to 1 (4 to 1 minimum). FAI inspection measuring equipment must be capable of accurately measuring the specific requirement (i.e., radius gage, thread gage, Baptist plate, etc.). Suppliers must receive written approval to inspect outside these guidelines prior to submission of the FAI.

    For drawing notes with no measurable characteristics which list a specification, enter "Specification" and the specification number, or enter "Certification" and the certification number, as applicable. Abbreviations are acceptable for the specified verbiage.

    For informational drawing notes with no measurable characteristics, enter "Information" and/or "Visual", as applicable.

    Note: Verbiage used in this block must be traceable to the documented characteristic and is not limited to the aforementioned wording for drawing notes or non-variable characteristics.

    Note: For examples of how to properly document Certifications and Specifications, refer to **Figure 2**.

    b. **Form 3, Block 12(b)**: FAI Inspector Identification: Enter the signature, initials, or stamp of EACH inspector responsible for EACH result recorded Field 9.

    c. **Form 3, Block 12(c)**: Tool ID: Enter the serial number/ID of the tool used to measure the feature. Reference dimensions may list a tool ID with no numerical result.