

FIRST ARTICLE INSPECTION REPORT REQUIREMENTS

1 PURPOSE

- 1.1 This Instruction establishes requirements for First Article Inspection (F.A.I.) by Subcontractors/sub-tier Subcontractors to CAV Aerospace Group, thus assuring that quality and design attributes are complied with at the beginning of a manufacturing task.
- 1.2 The purpose of F.A.I. is to verify that planning, technical/work instructions, material processing systems and controls, tools and fixtures, inspection/test equipment and level of personnel proficiency will produce a part / product consistently in compliance with applicable drawing / specification requirements.
- 1.3 CAV Aerospace Group will accept FAI reports which conform to the requirements of AS9102 in lieu of the requirements defined within this document.

2 SCOPE

- 2.1 This Instruction applies to Aerospace goods for all projects as specified in the CAV Aerospace Group Contract/Purchase Order. In some cases the CAV Aerospace Group may flow down the requirements of other prime contractors (e.g. Hawker Beechcraft or Airbus) in which case different forms may be required. When necessary, the requirements of this document shall be included in the Subcontractor's purchase orders to his outside sources and be applicable in its entirety.
- 2.2 This Instruction applies to, but is not limited to, the first full production configured item that is manufactured, assembled, processed and tested in the same manner as intended for subsequent production of the airborne hardware.
- 2.3 This instruction does not apply to items classified as "standard parts".

3 REFERENCES

Form FAIR.xls (latest issue).
Form FAIR.xls Sheet 2 (latest issue).
Form FAIR.xls Sheet 3 (latest issue)

4 PROCEDURES

4.1 APPLICABILITY

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If any of the following changes occur, this procedure shall be invoked.

4.1.1 Changes to facilities

A facility change is a change in or to tools, test equipment, measuring or aligning fixtures, processing tanks or equipment, machinery, machine set-ups, other plant manufacturing equipment, etc., used to manufacture, process, assemble, inspect and/or test an article for the CAV Aerospace Group.

4.1.2 Changes to procedures

A procedure change is a change in or to the methods, procedures, planning and/or sequencing used in or applicable to the manufacturing, processing, assembly, inspection and/or testing of an article for the CAV Aerospace Group.

4.1.3 Changes to personnel

A personnel change is a change in the people performing the manufacturing, processing, assembly, inspection and/or testing work, its supervision or management such that a substantially new or different group of people are assigned to producing an article for the CAV Aerospace Group, resulting in loss, displacement or replacement of previous learning, capability, art or other factors important to success.

4.1.4 Change in location

A location change is a change in location of the place where some or all of the work on items for the CAV Aerospace Group is being performed. It may be as little as moving an assembly fixture or it may involve a change in facilities, procedures, personnel and/or processing sources.

4.1.5 Change in source or processing

Such changes may be from an outside processing source to within the Subcontractor's plant, from within the Subcontractor's plant to an outside processing source, or from one outside processing source to another.

4.1.6 Lapse In Production

If an item has not been manufactured for a period exceeding 24 months.

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4.1.7 Combination of Changes

Any combination of the above or as decreed by the CAV Aerospace Group pursuant with current ordering policy.

4.2 REQUIREMENTS

- 4.2.1** The first production item (as identified in paragraph 4.1) will be fully inspected to determine:-
- 4.2.2** Accuracy and adequacy of sub-contracting planning.
- 4.2.3** Correct material and/or parts have been used during manufacture and/or assembly.
- i) Material can be verified by chemical and physical analysis, Subcontractor certification, or approved markings as applied by the material manufacturer.
 - ii) Properly authorised certification from the material manufacturer is acceptable.
- 4.2.4** Dimensional conformance to approved drawings.
- 4.2.5** Correct finish
- 4.2.6** Compliance with non-destructive test requirements.
- 4.2.7** Conformance to functional test requirements.
- 4.2.8** Item identification/part marking adequacy.
- 4.2.9** Compliance with specifications reference call up on drawings and/or associated design documents.
- 4.2.10** Adherence to processing specifications including approved processors.
- 4.2.11** Adequacy of and/or need for check gauges/fixtures.
- 4.2.12** Capability of tooling to produce acceptable parts.
- 4.2.13** Configuration compliance of the item.

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- 4.2.14** Compliance with contract/purchase order requirements.
- 4.2.15** In addition to the F.A.I. at the assembly level, the Subcontractor Shall determine which detail parts forming part of the assembly are of major significance to the assembly. Such detail parts shall be identified by the Subcontractor and subjected to individual F.A.I.'s the numbers of which shall be listed on the assembly F.A.I..
- 4.2.16** First Article Inspection shall be documented on the CAV Aerospace Group First Article Forms quoted in the reference section of this document although the supplier may substitute their own documents provided that the content is equivalent to that required by the CAV documents..
- 4.2.17** Details on how to complete the FAIR are given in the Appendix
- 4.2.18** A CAV Aerospace Group Quality Department Representative or approved delegatee, shall be given the opportunity to witness and participate in the Subcontractor's F.A.I. **The Subcontractor shall advise the CAV Aerospace Group Quality Department at least five (5) working days in advance of Scheduled First Article Inspections for sub-contractors located in the UK and at least two (2) weeks in advance for those sub-contractors located outside of the UK.**
- 4.2.19** For FAIR Serial Numbering, by the Subcontractor, a sequential number is to be used, followed by year (last 2 digits) followed by the issue of the F.A.I.R..
- 4.2.20** Note discrepancies in remarks section of First Article Inspection Report (F.A.I.R.). indicate cause of discrepancies (i.e. human error, tooling, planning, engineering etc.).
- 4.2.21** ***Discovery of any condition during F.A.I. that precludes conformance to drawing configuration or purchase order requirements shall result in immediate corrective action. CAV Aerospace Group QA must be advised accordingly. It may be determined by negotiation, that alternative means of conformity can be attained using media traceable to the original design requirements. Continued production shall be at the Subcontractor's own risk. Non-conformance may preclude acceptance and/or delivery.***

4.3 COMPLETION OF THE F.A.I.R

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- 4.3.1** The F.A.I.R. will be completed as follows (see paragraph 2 for appendices of a F.A.I.R. form):-
- 4.3.2** On the first page enter date of F.A.I., all identification data and the summary of the complete F.A.I. List all discrepancies in the remarks space and affix signatures. Signatures required are the inspector(s) who performed the F.A.I. and authorisation by the Subcontractors Quality Manager/Chief Inspector representative.
- 4.3.3** In the event of a Fail' being recorded against a particular Attribute, the subcontractor will identify remedial actions in the remarks area of the sheet.
- 4.3.4** On the subsequent sheets (page two and subsequent) enter drawing map ref. of the attribute, enter the nominal value of the attribute, enter the tolerance for the attribute, enter the actual results obtained, for each enter the method of inspection used for that attribute (i.e. micrometer, height gauge, tool number, etc.) and enter Pass or Fail for each attribute.
- 4.3.5** The last page of the F.A.I.R. is the manufacturing equipment record. List all major equipment and tools used in the manufacture of the item on this page.
- 4.3.6** *The Subcontractor must ensure all relevant copies of heat treatment, processing and test records, material and process release certifications and other documented substantiating data as to the acceptability of the various attributes are appended to the F.A.I.R..*
- 4.3.7** The FAIR must be approved by CAV or an authorised delegate prior to the part being released for serial production. Approval of the FAIR means the signatory must have confidence that the supplier is fully cognizant to perform this function. This would be achieved by a review of the suppliers competence to perform this task.
- 4.3.8** A copy of (additional copies e.g. into CAV Aerospace Limited QA will be requested by the Purchase Order/Contract) each F.A.I.R. will accompany the first production article when delivered to the CAV Aerospace Group. The article itself will be identified as a first article by tags and/or markings to assure proper identification and inspection at CAV Aerospace Limited.
- 4.3.9** The completed F.A.I.R., along with substantiating data, will be kept on file by the Subcontractor for a minimum of five years after termination or completion of the contract.

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4.3.10 When attributes are changed or added, the Subcontractor will complete a revised F.A.I.R. e.g. issue 2 for the first production article of the new configuration and process it, in accordance with the above requirements. This revised F.A.I.R. need report only the changed or added attributes.

4.3.11 When notified of, or otherwise made aware of, any **“production capability change”** of sufficient significance, CAV Aerospace Group may require that a complete or partial F.A.I. be conducted on the first production article manufactured after such change.

4.4 APPENDICES

See sheets 7, 8 and 9, (Form FAIR.doc “First Article Inspection Report - Summary Sheet”, FAIR.xls Sheet 2 “First Article Inspection Report - Continuation Sheet”, FAIR.doc Sheet 3 “First Article Inspection Report – Manufacturing Equipment Record Sheet” respectively).



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This is intended as a general guide to FAIR Compilation required by the CAV Aerospace Limited Quality Department.

Box Number 1

Enter date

Box Number 2

Page number of Pages

Box Number 3

Purchase Order number

Box Number 4

Report number – individual number from log held by sub-contractor.

Box Number 5

Enter Part Number as it appears on the drawing.

Box Number 6

Enter Supplier name:

Box Number 7

Enter Part Title / Description

Box Number 8

Enter Drawing Issue status

Box Number 9

Enter Process Layout Issue status if applicable.

Box Number 10

Enter Serial No/Job No: as applicable

Box Number 11

Enter Drawing / Spec's / WQN's etc

Box Number 12

Use the L.H. column for entering detail attributes.

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Box Number 13

Use the R.H. column for entering assembly attributes

Box Number 14

Item conform to P/O requirements

Tick if considered acceptable

Attach copy of Purchase Order

Appendix 1

Box Number 15

Is the Process Layout correct fully certified

Attach copy of Engineering Layout/COS

Appendix 2

Box Number 16

Is the material type, spec, gauge, condition correct to drawing and engineering process and has been procured from an approved source.

Tick if considered acceptable

Attach copy of material certificate

Appendix 3

Box Number 17

Specification compliance

Tick if considered acceptable

Appendix 4 for any supporting documentation.

Box Number 18

Processing

Tick if considered acceptable

Attach a copy of result

Appendix 5

Box Number 19

Does the final heat treatment condition and conductivity / hardness tests meet requirements of the drawing & specification.

Attach copy of result

Appendix 6

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Box Number 20

Have all NDT required by drawing and engineering. Process been carried out and are results considered satisfactory and recorded.

Tick if considered acceptable

Attach copy of NDT result

Appendix 7

Box Number 21

Functional tests

Tick if considered acceptable

Attach copy of result

Appendix 8

Box Number 22

Have all surfaces treatments and protective treatments required by the drawing/process been carried out.

Tick if considered acceptable

Attach copy of result

Appendix 9

Box Number 23

Is the Part markings correct to drawing and engineering process requirements.

Tick if considered acceptable

Attach documentary evidence

Appendix 10

Box Number 24

Have all drawing dimensions/attributes been verified and recorded on form Fair Sheet 2.doc.

Box Number 25

Tooling Assy/Sub Assy - Proof of conformance for the installation/certification of tools.

Appendix 11

Box Number 26

Configuration

Tick if considered acceptable

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Box Number 27

Enter remarks - make sketch if necessary
Use continuation sheet if required

Box Number 28

Enter initial material condition at the start of the part manufacturing cycle.

Box Number 29

Enter final material condition. **EXACTLY AS** detailed on the drawing/specification.

Box Number 30

Enter final material condition achieved. If different to Box 29 – Notify CAV Aerospace Limited Quality department immediately.

Box Number 31

Inspection certification
Enter signature and stamp

Box Number 32

Enter Quality Manager/Delegated Nominee signature.

Box Number 33

For CAV Aerospace use only.

Box Number 34

Enter Part Number

Box Number 35

Enter FAIR report number

Box Number 36

Enter manufacturing equipment type

Box Number 37

Enter manufacturing equipment manufacturer



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Box Number 38

Enter manufacturing equipment
year, make and model number

Box Number 39

Enter manufacturing/inspection equipment certificate number