First Article Inspection (FAI) Training
What is the purpose of an FAI?

- The purpose of the First Article Inspection is to provide objective evidence that all engineering design and specification requirements are properly understood, accounted for, verified, and documented.

- The purpose of this standard is to provide a consistent documentation requirement.
How to write up an FAI step by step

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Specification Number</th>
<th>Part Description</th>
<th>Rejected Part Number</th>
<th>Rejected Part Description</th>
<th>Rejected Part Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>SF-001</td>
<td>12345</td>
<td>PCB</td>
<td>SF-001</td>
<td>PCB</td>
<td>2023-01-01</td>
</tr>
<tr>
<td>SF-002</td>
<td>67890</td>
<td>Connector</td>
<td>SF-002</td>
<td>Connector</td>
<td>2023-01-02</td>
</tr>
</tbody>
</table>

Form 2: Product Accountability – Raw Material, Specifications and Special Process(es), Functional Testing

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Test Number</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>SF-001</td>
<td>1</td>
<td>Passed</td>
</tr>
<tr>
<td>SF-002</td>
<td>2</td>
<td>Passed</td>
</tr>
</tbody>
</table>

Form 3: Characteristic Accountability, Verification and Compatibility Evaluation

<table>
<thead>
<tr>
<th>Characteristic Accountability</th>
<th>Inspection Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bar Code</td>
<td>Test Results</td>
</tr>
<tr>
<td>1234</td>
<td>Passed</td>
</tr>
</tbody>
</table>
Supplier FAI’s

All Detailed, Assembly, and sub-assembly part shall have a FAI done.
<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part Number</td>
<td>Required by Goodrich. Must be completed when information is available.</td>
</tr>
<tr>
<td>Part Name</td>
<td>BLUE or DARK GREY fields – CONDITIONALLY REQUIRED. These fields must be completed when information is available.</td>
</tr>
<tr>
<td>Serial Number</td>
<td>BLUE or DARK GREY fields – CONDITIONALLY REQUIRED. These fields must be completed when information is available.</td>
</tr>
<tr>
<td>FID Report Number</td>
<td>BLUE or DARK GREY fields – CONDITIONALLY REQUIRED. These fields must be completed when information is available.</td>
</tr>
<tr>
<td>Part Rev Level</td>
<td>BLUE or DARK GREY fields – CONDITIONALLY REQUIRED. These fields must be completed when information is available.</td>
</tr>
<tr>
<td>Drawing Number</td>
<td>BLUE or DARK GREY fields – CONDITIONALLY REQUIRED. These fields must be completed when information is available.</td>
</tr>
<tr>
<td>Drawing rev level</td>
<td>BLUE or DARK GREY fields – CONDITIONALLY REQUIRED. These fields must be completed when information is available.</td>
</tr>
<tr>
<td>Additional Changes</td>
<td>BLUE or DARK GREY fields – CONDITIONALLY REQUIRED. These fields must be completed when information is available.</td>
</tr>
<tr>
<td>Manufacturing Process Reference</td>
<td>BLUE or DARK GREY fields – CONDITIONALLY REQUIRED. These fields must be completed when information is available.</td>
</tr>
<tr>
<td>Organization Name</td>
<td>BLUE or DARK GREY fields – CONDITIONALLY REQUIRED. These fields must be completed when information is available.</td>
</tr>
<tr>
<td>Supplier Code</td>
<td>BLUE or DARK GREY fields – CONDITIONALLY REQUIRED. These fields must be completed when information is available.</td>
</tr>
<tr>
<td>P.O. Number</td>
<td>BLUE or DARK GREY fields – CONDITIONALLY REQUIRED. These fields must be completed when information is available.</td>
</tr>
</tbody>
</table>

YELLOW or LIGHT GREY fields – MANDATORY information required.

BLUE or DARK GREY fields – CONDITIONALLY REQUIRED. These fields must be completed when information is available.

WHITE fields – OPTIONAL information required when available.

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

1) Signature indicates that all characteristics are accounted for, meet drawing requirements or are properly documented for disposition.
2) Also indicates if the FAL is complete per Section 5a: FAL complete
19. Signature
20. Date
1. Reviewed by
22. Date
23. Customer Approval
24. Date
# Form 1 of Supplier FAI doc.

- 1 - Part Number
- 2 - Part Name
- 3 - Serial #
- 4 - FAI Report #
- 5 - Part Rev Level
- 6 - Drawing #
- 7 - Drawing Rev Level
- 8 - Additional Changes
- 9 - Manufacturing Process Ref
- 10 - Organization Name
- 11 - Supplier Code
- 12 - Purchase Order Number
- 13 - Delta or Assembly FAI
- 14 - Full or Partial FAI
- Index of part # or sub-assy required to make assy.
  - 15 - Part #
  - 16 - Part Name
  - 17 - Part S/N
  - 18 - FAI Report #
- 19 thru 24 - Signatures and Dates

### Requirements

- **Yellow** - Required
- **Blue** - Conditionally Required
- **White** - Optional

---

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

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Part Name</th>
<th>Part S/N</th>
<th>FAI Report #</th>
</tr>
</thead>
</table>

1) Signature indicates that all characteristics are accounted for, listed drawing requirements or are properly documented for disposition.

2) Also indicate if the FAI is complete per Section 5d: ☐ FAI complete ☐ FAI not complete.

19. Signature

20. Date

21. Reviewed by

22. Date

23. Customer Approval

24. Date
1 - Goodrich Part Number
   The actual part number that is being FAI.

2 - Part Name
   The part name listed on the drawing.

3 - S/N
   The Serial Number for the part being FAI.

4 - FAI Report Number
   FORMAT: Suppliers choice. We at Goodrich use:
   “Part Number_SN_FAIREVX” (If no S/N just “Part Number_FAIREVX”)
   Example: 30138-03_1001_FAIREVB

5 - Part Rev
   Latest part revision that affects the part being FAI. If no revisions indicate as such. Note: The latest drawing revision (Field 7) does not always affect all the parts contained in the drawing. Almost always the same at Field 7.

6 - Drawing Number
   Here you put in the actual drawing number. Not always the same as the part number since many drawings cover more than one part number.

7 - Drawing Revision
   The revision of the Goodrich drawing for this part that this FAI is being performed to.

8 - Additional Changes
   Always ‘N/A’
14 – Type of FAI

What is a Full FAI?
- All Notes and Dimensions with the exception of reference dimensions on the drawing are measured and/or inspected at the appropriate step in the process.

When is it a Full FAI?
- When one has not been submitted.
- Two years since manufacturing the part.
- Changes in manufacturing (look at AS9102 for details)

When is a Partial FAI used?
- When a full FAI is on file
- Have partials on all revs up too current rev
- To document the changes from an ECO
- For a partial FAI enter the reason for the partial.

* In “Reason for Partial FAI” put in ECO#
## Index of Part Numbers or Sub-Assembly required to make assembly.

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Part Name</th>
<th>SIN</th>
<th>FAI Report Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>30138-0401-03</td>
<td>A1 Circuit Board Assembly</td>
<td>0306</td>
<td>30138-0401-03_FA1</td>
</tr>
<tr>
<td>30138-0402-02</td>
<td>A2 Circuit Board Assembly</td>
<td>10001</td>
<td>30138-0402-02_VC4421</td>
</tr>
<tr>
<td>30138-1301-01</td>
<td>Heatsink</td>
<td>NIA</td>
<td>30138-1301-01_VC2720</td>
</tr>
<tr>
<td>30138-1302-01</td>
<td>Top Cover</td>
<td>NIA</td>
<td>30138-1302-01_REVA_FA1</td>
</tr>
<tr>
<td>30138-1303-01</td>
<td>Bottom Cover</td>
<td>NIA</td>
<td>30138-1303-01_REVC_FA1</td>
</tr>
<tr>
<td>30138-1304-0101</td>
<td>Stiffener</td>
<td>NIA</td>
<td>30138-1304-0101_VC2730</td>
</tr>
<tr>
<td>30138-1304-0102</td>
<td>Stiffener</td>
<td>NIA</td>
<td>30138-1304-0102_VC2720</td>
</tr>
<tr>
<td>042651-1</td>
<td>Elastomeric Connector</td>
<td>NIA</td>
<td>042651-2_VC5909</td>
</tr>
</tbody>
</table>

- The index of part numbers or subs that need to be on this list are all parts from the parts list. If the part is MS put N/A for the FAI Report Number, otherwise all the parts must all have documented FAI’s on file.

- All columns must be filled out. If NOT the “FAI Complete” Check box can NOT be checked and “FAI Not Complete” must be checked.
Sign off - 19, 20, 21, 22, 23, and 24

- Check appropriate box of "FAI complete" or "FAI not Complete".

- Then text boxes 19 and 20 must be signed and dated by the appropriate personnel. Text boxes 21 through 24 can be as needed.
### Form 2 of Supplier FAI doc.

#### Table: AS/ENS/SJAC9102 Rev A First Article Inspection Form 2: Product Accountability – Raw Material, Specifications and Special Process(s), Functional Testing

<table>
<thead>
<tr>
<th>1. Part Number</th>
<th>2. Part Name</th>
<th>3. Serial Number</th>
<th>4. FAI Report Number</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>11. Functional Test Procedure Number</th>
<th>12. Acceptance Report Number, if applicable</th>
</tr>
</thead>
</table>

#### Notes:

- 5 - Material or Process Name
- 6 - Specification Number
- 7 - Code
- 8 - Special Process Supplier Code
- 9 - Customer Approval Y/N
- 10 - C of C Number
- 11 - Functional Test Procedure Number
- 12 - Acceptance Report Number
- 13 - Comments
- 14 - Prepared By
- 15 - Date
5 – Material Specification/Certification or Special Process Name:

Enter materials (for example, aluminum bar stock) and any special processes (for example, soldering, brazing, or painting) used in manufacturing with this product. See examples on “Example – Materials, Special Processes & Test Procedures” slide.

6 – Specification Number:

Enter the specification number for the material or special process used, for example, J-STD-001, Mil Specs, etc. See More examples on “Example – Materials, Special Processes & Test Procedures” slide.

7 – Code:

Code is always ‘N/A’

8 – Special Process:

Customer given Supplier code for the organization performing special process(es) or supplying material, as applicable. Or add Special process supplier name and address.

9 – Customer Approval Y/N:

Review customer requirements for special process or material source. Write ‘N/A’ if Customer approval is not required.
10 – C of C:
Number of the certificate: special process completion certification, raw material test report number, Standard Catalog hardware compliance report number, traceability number.

11 – Test Procedure Number and Revision:
Enter all functional test procedures (for example, ATP, and ESS) used to test the product. Include document revision. See examples on “Example – Materials, Special Processes & Test Procedures” slide.

12 – Acceptance Report Number, if applicable:
The functional test certification indicating that test requirements have been met. Some reports will not have a report number – enter ‘N/A’.

13 – Comments:
Enter Comments if necessary.
### Form 2: Product Accountability - Raw Material, Specifications and Special Process(es), Functional Testing

<table>
<thead>
<tr>
<th>1. Part Number</th>
<th>2. Part Name</th>
<th>3. Serial Number</th>
<th>4. FAI Report Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>30002-1110-01</td>
<td>BRACKET SHAFT</td>
<td></td>
<td>64532</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>¼ HD STEEL</td>
<td>ASTM-A-109</td>
<td>MEAD METALS</td>
<td>N/A</td>
<td>A9078</td>
<td></td>
</tr>
<tr>
<td>ELECTROLESS NICKEL</td>
<td>MIL-C-26074E/3</td>
<td>WEPCO</td>
<td>N/A</td>
<td>191-826567</td>
<td></td>
</tr>
</tbody>
</table>
Form 3 of Supplier FAI doc.

Form 3 of Supplier FAI doc. Form 3 of Supplier FAI doc.

5 - Char No.  
6 - Reference Location  
7 - Char. Designator  
8 - Requirement  
9 - Results  
10 - Designated Tooling  
11 - Nonconformance No.  
12 - Prepared by  
13 - Date  
14 - (extra column as needed)  

<table>
<thead>
<tr>
<th>Characteristic Accountability</th>
<th>Inspection / Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Part Number</td>
<td>2. Part Name</td>
</tr>
<tr>
<td>3. Serial Number</td>
<td>4. FAI Report</td>
</tr>
</tbody>
</table>

The signature indicates that all characteristics are accounted for; meet drawing requirements or are properly documented for disposition.

Prepared By: ____________________________  
Date: ____________________________
Example – Characteristic Evaluations

5 – Char. Number

These numbers coincide with the number that will be needed to be marked ("ballooned") on the drawing. Note: the drawing should be attached to the FAI report. Click to see drawing mark up:

6 – Reference Location

Is the page number and grid location on the Engineering drawing. For Example: sh2 – C6, sh1 – A10. For multiple sheet numbers make sure you put in a sheet number.

7 – Characteristic Designator

If applicable, record characteristic type (e.g., key, flight safety, critical, major, etc.).

8 – Requirement

Enter the specified requirement for the characteristic for example, drawing dimensional characteristics with nominal and tolerances, for notes just specifying note number will be enough (Note 2).
9 – Results

Enter measurement(s) obtained for the characteristics.

• For Multiple Characteristics list each characteristic as individual values or list once with the minimum and maximum of measured values attained. If a characteristic is found to be nonconforming then that characteristic must be listed separately with the measured value noted.
• If a Design Requirement requires verification testing, then the actual results will be recorded on the form. If a laboratory report or certificate of test is included in the FAI, then these results need not be written on the form, record the reference number in this field. The laboratory report or certificate of test must show specific values for requirements and actual results.
• For metallurgical characteristics with visual verification requirement that are rated against standard photographs, list the photo number of the closest comparison. A statement of conformance is acceptable (record the reference number in this field).
• For processes that require verification per Design Characteristic, include statement of compliance (e.g., certification of compliance, verification indicator such as “accept”, etc.).
• For part marking, ensure that marking is legible, correct in content and size and properly located, per applicable specification.

10 – Designed Tooling or Measurement Devices

If a specifically designed tooling (including NC programming) is used as a media of inspection, record the tool identification number.
11 – Nonconformance #:

Record a nonconformance document reference number (IE – Waver Number) if the characteristic is found to be nonconforming.

14 – (extra column as needed)

See examples of Form 3 of a FAI on the next slide
<table>
<thead>
<tr>
<th>Characteristic Accountability</th>
<th>Inspection / Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.04±.01</td>
</tr>
<tr>
<td>2</td>
<td>45±5</td>
</tr>
<tr>
<td>3</td>
<td>Ø1.120±.005</td>
</tr>
<tr>
<td>4</td>
<td>Ø1.030±.005</td>
</tr>
<tr>
<td>5</td>
<td>Ø0.075±.005</td>
</tr>
<tr>
<td>6</td>
<td>Ø.055±.005</td>
</tr>
<tr>
<td>7</td>
<td>.26±.010</td>
</tr>
<tr>
<td>8</td>
<td>Ø.92±.01</td>
</tr>
<tr>
<td>9</td>
<td>.225±.005</td>
</tr>
<tr>
<td>10</td>
<td>Ø1.00±.01</td>
</tr>
<tr>
<td>11</td>
<td>Ø1.070±.005</td>
</tr>
<tr>
<td>12</td>
<td>NOTE 1</td>
</tr>
<tr>
<td>13</td>
<td>NOTE 2</td>
</tr>
</tbody>
</table>

Note: Adding a Reference Location is recommended.
For FAI Questions & Info

Questions?