

**Element Performance Inspection (EPI) Data Collection Tool  
1.3.9 Engineering / Major Repairs and Alterations (AW)**

**ELEMENT SUMMARY INFORMATION**

**Purpose of This Element** (Certificate Holder's responsibility):

- To ensure that all major repairs and major alterations are done in accordance with technical data approved by the administrator.

**Objective** (FAA oversight responsibility):

- To determine if the Certificate Holder follows its procedures, controls, process measurements and interfaces for the Engineering/Major Repairs and Alterations process.
- To determine if there were any changes in the personnel identified by the Certificate Holder as having responsibility and/or authority for the Engineering/Major Repairs and Alterations process.

**Specific Instructions:**

- To accomplish this EPI, the inspector will review the engineering technical data for applicability, accuracy and completion. The inspector should thoroughly review engineering technical data packages to verify referenced drawings, engineering specifications, reference location, photos, etc., are included in the packages. Additionally, the inspector should review the engineering technical data packages to verify they contain engineering analysis, engineering calculation, procedures, instructions and information.

The inspector should make a determination following the review of the engineering technical data packages if the Certificate Holder's engineering data contains FAA-approved technical data. Additionally, the inspector should verify the engineering technical data was appropriate for the major repair or alteration, and that the repair or alteration was properly classified (major/minor).

Engineering technical data described above is defined as an Engineering Order (EO) or Engineering Authorization (EA) generated by a Certificate Holder that provides procedures, instructions, information, recording of steps or tasks, analysis, calculations, referenced drawings or photos, engineering specifications, reference locations etc., to accomplish a repair or alteration. If generated it must identify if the repair or alteration is a major or minor one and if classified as a major repair or alteration it must include the technical data approved by the Administrator.

**Related EPIs:**

- 1.1.1 Aircraft Airworthiness (AW)
- 1.1.2 Appropriate Operational Equipment (AW)

- 1.2.1 Airworthiness Release / Logbook Entry (AW)
- 1.2.2 Major Repairs and Alterations Records (AW)
- 1.3.3 Maintenance Facility / Main Maintenance Base (AW)
- 1.3.6 AD Management (AW)
- 1.3.7 Outsource Organization (AW)
- 1.3.12 SFAR 36 (AW)
- 2.1.1 Manual Currency (AW)
- 2.1.2 Content Consistency Across Manuals (AW)

## SUPPLEMENTAL INFORMATION

### Specific Regulatory Requirements (SRRs):

- SRRs:
  - 121.135(a)(1)
  - 121.135(b)(1)
  - 121.135(b)(2)
  - 121.135(b)(3)
  - 121.379(a)
  - 121.379(b)
  - 43.13(a)
  - 43.13(b)
  - 43.17(e)(1)

### Related CFRs & FAA Policy/Guidance:

- Related CFRs:
  - 43.13(a)
  - 43.13(b)
  - 43.13(c)
  - 43.17(e)(2)
- FAA Policy/Guidance:
  - FAA Order 8300.10, Volume 3, Chapter 146
  - AC 120-77

<b>EPI SECTION 1 – PERFORMANCE OBSERVABLES</b>	
<b>Objective:</b> (FAA oversight responsibility): To determine if the certificate holder follows its procedures, controls, process measurements, and interfaces for the Outsource Organization.	
<b>Tasks</b>	
To meet this objective, the inspector must accomplish the following tasks:	
1. Review the information listed in the Supplemental Information section of this data collection tool.	
2. Review the policies, procedures, instructions and information for the Engineering/Major Repairs and Alterations process contained in the Certificate Holder's manual.	
3. Review the associated SAI for this element with emphasis on the controls, process measurements and interface attribute sections.	
4. Observe the Engineering/Major Repairs and Alterations process to gain an understanding of the procedures, instructions and information contained in the Certificate Holder's manual.	
5. Discuss the Engineering/Major Repairs and Alterations process with the personnel (other than management) that perform the duties and responsibilities required by the process.	
<b>Questions</b>	
To meet this objective, the inspector must answer the following questions:	
1. Were the following Performance Measures met:	
1.1 Did the Certificate Holder use only FAA–approved technical data for major repairs and major alterations?  <i>Related Performance JTI's:</i> <ol style="list-style-type: none"> <li>1. Check at the air carrier specified location that Canadian Approved Maintenance Organization (AMO) is using approved data while performing a major repair. <i>Sources:</i> 43.17(e)(2)</li> <li>2. Check at the air carrier specified location that Canadian Approved Maintenance Organization (AMO) has used approved data for performing a major repair. <i>Sources:</i> 43.17(e)(2)</li> <li>3. Check at the air carrier specified location that Canadian Approved Maintenance Organization (AMO) is using approved data while performing a major alteration. <i>Sources:</i> 43.17(e)(2)</li> <li>4. Check at the air carrier specified location that Canadian Approved Maintenance Organization (AMO) has used approved data for performing a major alteration. <i>Sources:</i> 43.17(e)(2)</li> <li>5. Check at the air carrier specified location that approval for return to service after a major repair is done in accordance with technical data approved by the Administrator. <i>Sources:</i> 121.379(b)</li> <li>6. Check at the air carrier specified location that approval for return to service after a major repair has been done in accordance with technical data approved by the Administrator. <i>Sources:</i> 121.379(b)</li> <li>7. Check at the air carrier specified location that approval for return to service after a major alteration is done in accordance with technical data</li> </ol>	<input type="checkbox"/> Yes <input type="checkbox"/> No, Explain

<p>approved by the Administrator.  <i>Sources:</i> 121.379(b)</p> <p>8. Check at the air carrier specified location that approval for return to service after a major alteration has been done in accordance with technical data approved by the Administrator.  <i>Sources:</i> 121.379(b)</p>	
<p>1.2 Did the Certificate Holder provide a comprehensive engineering technical data package appropriate for the major repair or alteration?</p> <p><i>Related Performance JTI's:</i></p> <ol style="list-style-type: none"> <li>1. Check at the air carrier specified location that maintenance aircraft is being preformed in a manner to ensure the condition of the product is at least equal to its original or properly altered condition  <i>Sources:</i> 43.13(b)</li> <li>2. Check at the air carrier specified location that maintenance on aircraft has been preformed in a manner that ensures the condition of the product is at least equal to its original or properly altered condition  <i>Sources:</i> 43.13(b)</li> <li>3. Check at the air carrier specified location that alterations on aircraft is being preformed in a manner to ensure the condition of the product is at least equal to its original or properly altered condition  <i>Sources:</i> 43.13(b)</li> <li>4. Check at the air carrier specified location that alterations on aircraft has been preformed in a manner that ensures the condition of the product is at least equal to its original or properly altered condition.  <i>Sources:</i> 43.13(b)</li> <li>5. Check at the air carrier specified location that maintenance airframe is being preformed in a manner to ensure the condition of the product is at least equal to its original or properly altered condition  <i>Sources:</i> 43.13(b)</li> <li>6. Check at the air carrier specified location that maintenance on airframe has been preformed in a manner that ensures the condition of the product is at least equal to its original or properly altered condition  <i>Sources:</i> 43.13(b)</li> <li>7. Check at the air carrier specified location that alterations on airframe is being preformed in a manner to ensure the condition of the product is at least equal to its original or properly altered condition  <i>Sources:</i> 43.13(b)</li> <li>8. Check at the air carrier specified location that alterations on airframe has been preformed in a manner that ensures the condition of the product is at least equal to its original or properly altered condition.  <i>Sources:</i> 43.13(b)</li> <li>9. Check at the air carrier specified location that maintenance aircraft engines is being preformed in a manner to ensure the condition of the product is at least equal to its original or properly altered condition  <i>Sources:</i> 43.13(b)</li> <li>10. Check at the air carrier specified location that maintenance on aircraft engines has been preformed in a manner that ensures the condition of the product is at least equal to its original or properly altered condition  <i>Sources:</i> 43.13(b)</li> </ol>	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No, Explain</p>

<p>11. Check at the air carrier specified location that alterations on aircraft engines is being preformed in a manner to ensure the condition of the product is at least equal to its original or properly altered condition <i>Sources:</i> 43.13(b)</p> <p>12. Check at the air carrier specified location that alterations on aircraft engines has been preformed in a manner that ensures the condition of the product is at least equal to its original or properly altered condition. <i>Sources:</i> 43.13(b)</p> <p>13. Check at the air carrier specified location that maintenance propeller is being preformed in a manner to ensure the condition of the product is at least equal to its original or properly altered condition <i>Sources:</i> 43.13(b)</p> <p>14. Check at the air carrier specified location that maintenance on propeller has been preformed in a manner that ensures the condition of the product is at least equal to its original or properly altered condition <i>Sources:</i> 43.13(b)</p> <p>15. Check at the air carrier specified location that alterations on propeller is being preformed in a manner to ensure the condition of the product is at least equal to its original or properly altered condition <i>Sources:</i> 43.13(b)</p> <p>16. Check at the air carrier specified location that alterations on propeller has been preformed in a manner that ensures the condition of the product is at least equal to its original or properly altered condition. <i>Sources:</i> 43.13(b)</p>	
<p>1.3 Did the Certificate Holder's technical data properly classify the repairs or alterations as minor or major?</p> <p><i>Related Performance JTI's:</i></p> <p>1. Check at the air carrier specified location that the manual system has procedures to determine safety related software changes to its Line Replaceable Units (LRU) are controlled and monitored as major alterations in accordance with the Certificate Holder design. <i>Sources:</i> 8300.10, Volume3, Chapter 146, Section 1, Paragraph 5 and Section 2 Paragraph 5.</p> <p>2. Check at the air carrier specified location that safety related software changes to its Line Replaceable Units (LRU) are being treated and performed as major alterations in accordance with the Certificate Holder design. <i>Sources:</i> 8300.10, Volume 3, Chapter 146, Section 1, Paragraph 5 and Section 2 Paragraph 5.</p>	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No, Explain</p>
<p>1.4 Did the Certificate Holder use the proper tools and test equipment when performing the major repair or alteration?</p> <p><i>Related Performance JTI's:</i></p> <p>1. Check at the air carrier specified location that maintenance is performed using accepted methods, techniques, and practices in accordance with the Certificate Holder design. <i>Sources:</i> 43.13(a)</p> <p>2. Check at the air carrier specified location that alterations are performed using accepted methods, techniques, and practices</p>	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No, Explain</p>

<p>in accordance with the Certificate Holder design.  <i>Sources: 43.13(a)</i></p> <p>3. Check at the air carrier specified location that tools, equipment and test apparatus, recommended by the manufacturer or the equivalent acceptable to the Administrator, is being used when performing maintenance in accordance with the Certificate Holder design.  <i>Sources: 43.13(a)</i></p> <p>4. Check at the air carrier specified location that tools, equipment and test apparatus, recommended by the manufacturer or the equivalent acceptable to the Administrator, is being used when performing alterations in accordance with the Certificate Holder design.  <i>Sources: 43.13(a)</i></p>	
<p>2. Were the Certificate Holder's policies, procedures, instructions and information, contained in its manual, for the Engineering / Major Repairs and Alterations process followed?</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No, Explain
<p>3. Were the Engineering / Major Repairs and Alterations process controls followed?</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No, Explain
<p>4. Did the records for the Engineering / Major Repairs and Alterations process comply with the instructions provided in the Certificate Holder's manual?</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No, Explain
<p>5. Were the process measurements for the Engineering / Major Repairs and Alterations process effective in identifying problems or potential problems and providing corrective action for them?</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No, Explain
<p>6. Did personnel properly handle the associated interfaces by complying with other written policies, procedures, instructions and information that are related to this element?</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No, Explain

<b>EPI SECTION 1 – PERFORMANCE OBSERVABLES –Drop Down Menu</b>
1. Personnel.
2. Tools and Equipment.
3. Technical Data.
4. Procedures, policies or instructions or information.
5. Materials.
6. Facilities.
7. Controls.
8. Process Measures.
9. Interfaces.
10. Desired Outcome.
11. Other.

<b>EPI SECTION 2 – MANAGEMENT RESPONSIBILITY &amp; AUTHORITY OBSERVABLES</b>	
<b>Objective:</b> To determine if the person identified by the certificate holder as having responsibility and/or authority for the Outsource Organization process is qualified, knowledgeable, and recognizes that responsibility and/or authority. (The person with the authority may or may not be the person with the responsibility.)	
<b>Tasks</b>	
To meet this objective, the inspector must accomplish the following tasks:	
1. Identify the person who has overall responsibility for the Engineering / Major Repairs and Alterations process.	
2. Identify the person who has overall authority for the Engineering / Major Repairs and Alterations process.	
NOTE: If no personnel or major program changes (as defined by the Principal Inspector) affecting the responsibility or authority attributes for this element have occurred since the last SAI and/or EPI was accomplished, then do not perform tasks 3–6 below. Answer questions 2.1 & 2.2 below, and provide the name/title.	
3. Review the duties and responsibilities for the person(s) who manage the Engineering / Major Repairs and Alterations process documented in the Certificate Holder's manual.	
4. Review the appropriate organizational chart.	
5. Discuss the Engineering / Major Repairs and Alterations process with the management personnel identified in Tasks 1 and 2.	
6. Evaluate the qualifications and work experience of the management personnel identified in Tasks 1 and 2.	
<b>Questions</b>	
To meet this objective, the inspector must answer the following questions:	
2. Are the following aspects of the Management Responsibility and Authority Attributes addressed for the Engineering / Major Repairs and Alterations process:	
2.1 Is there a clearly identified person who is responsible for the quality of the Engineering / Major Repairs and Alterations process?	<input type="checkbox"/> Yes <input type="checkbox"/> No, Explain Name/Title: <input type="text"/>
2.2 Is there a clearly identified person who has authority to establish and modify the Certificate Holder's policies, procedures, instructions and information for the Engineering / Major Repairs and Alterations process?	<input type="checkbox"/> Yes <input type="checkbox"/> No, Explain Name/Title: <input type="text"/>
2.3 Does the responsible person know that he/she has responsibility for the Engineering / Major Repairs and Alterations process?	<input type="checkbox"/> Yes <input type="checkbox"/> No, Explain <input type="checkbox"/> Not Applicable
2.4 Does the person with authority know that he/she has authority for the Engineering / Major Repairs and Alterations process?	<input type="checkbox"/> Yes <input type="checkbox"/> No, Explain <input type="checkbox"/> Not Applicable
2.5 Does the person with responsibility for the Engineering / Major Repairs and Alterations process meet the qualification standards?	<input type="checkbox"/> Yes <input type="checkbox"/> No, Explain <input type="checkbox"/> Not Applicable

2.6 Does the person with authority to establish and modify the Engineering / Major Repairs and Alterations process meet the qualification standards?	<input type="checkbox"/> Yes <input type="checkbox"/> No, Explain <input type="checkbox"/> Not Applicable
2.7 Does the person with responsibility understand the controls, process measurements, and interfaces associated with the Engineering / Major Repairs and Alterations process?	<input type="checkbox"/> Yes <input type="checkbox"/> No, Explain <input type="checkbox"/> Not Applicable
2.8 Does the person with authority understand the controls, process measurements, and interfaces associated with the Engineering / Major Repairs and Alterations process?	<input type="checkbox"/> Yes <input type="checkbox"/> No, Explain <input type="checkbox"/> Not Applicable
2.9 Does the responsible person know who has authority to establish and modify the Engineering / Major Repairs and Alterations process?	<input type="checkbox"/> Yes <input type="checkbox"/> No, Explain <input type="checkbox"/> Not Applicable
2.10 Does the individual with authority know who has the responsibility for the Engineering / Major Repairs and Alterations process?	<input type="checkbox"/> Yes <input type="checkbox"/> No, Explain <input type="checkbox"/> Not Applicable

<b>EPI SECTION 2 – MANAGEMENT RESPONSIBILITY &amp; AUTHORITY OBSERVABLES –Drop Down Menu</b>
1. Assignment of responsibility.
2. Assignment of authority.
3. Does not understand procedures, policies or instructions and information.
4. Does not understand controls.
5. Does not understand process measurements.
6. Does not understand interfaces.
7. Span of control.
8. Position vacant.
9. Other.