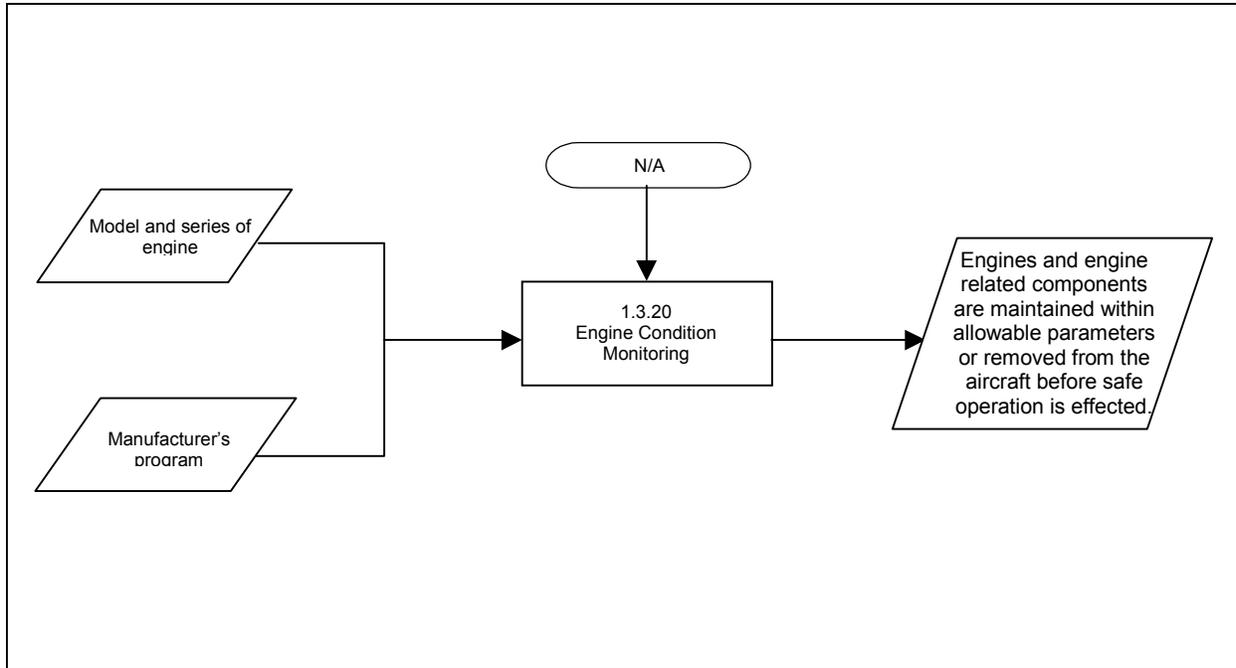


Safety Attribute Inspection (SAI) Job Aid



ELEMENT SUMMARY INFORMATION

Element: 1.3.20 Engine Condition Monitoring

Purpose of this Element (Air Carrier's responsibility): To utilize engine data to detect deterioration at an early stage and allow for corrective action before safe operation is effected.

Objective (FAA responsibility):

To determine if the air carrier's Engine Condition Monitoring process includes safety attributes.

Inputs:

- Model and Series of Engine
- Manufacturer's Program

Outputs: Engines and engine related components are maintained within allowable parameters or removed from the aircraft before safe operation is effected.

Performance Measures:

- The Air Carrier meets the requirements of their approved Engine Condition Monitoring program.

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SRR:

There are no specific regulatory requirements.

Other CFRs and/or FAA Guidance:

- FAA Order 8300.10, Vol. 2, Chap 65 “Evaluate Continuing Analysis and Surveillance Program”
- FAA Order 8300.10, Vol. 2, Chap 66 “Reliability Program”
- FAA Order 8300.10, Vol. 2, Chap 82 “Evaluate ETOPS”
- HBAW 95-06A “Maintenance Programs for Aircraft Engines, Including Leased Engines, Used by Operators”
- 14 CFR 121.363(a)(b) Responsibility for airworthiness
- 14 CFR 121.373(a) Continuing analysis and surveillance
- Refer to Advisory Circulars using a search engine (such as ATP Navigator or Summit)

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SRR SPECIFIC INFORMATION

There are no specific regulatory requirements.

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1.3.20 Engine Condition Monitoring

SECTION 1 - RESPONSIBILITY ATTRIBUTE

Objective: To determine if there is a clearly identifiable, qualified, and knowledgeable person who is accountable for the quality of the Engine Condition Monitoring process.

To meet this objective, the inspector will accomplish the following tasks:

1. Identify the person who is responsible for the quality of the Engine Condition Monitoring process.
2. Review the description in the Manual that delineates the duties and responsibilities of the person.
3. Evaluate the person's qualifications and work experience (or resume', if appropriate).
4. Review the appropriate organizational chart.
5. Discuss the Engine Condition Monitoring process with the person.

To meet this objective, the inspector will answer the following questions:

1. Is there a clearly identifiable person who is answerable for the quality of the Engine Condition Monitoring process?	<input type="checkbox"/> YES If yes, provide the name:
	<input type="checkbox"/> NO If no, explain:
2. Does the person understand the procedures associated with the Engine Condition Monitoring process?	<input type="checkbox"/> YES If no, explain:
	<input type="checkbox"/> NO
3. Does the person understand the controls associated with the Engine Condition Monitoring process?	<input type="checkbox"/> YES If no, explain:
	<input type="checkbox"/> NO
4. Does the person understand the interfaces associated with the Engine Condition Monitoring process?	<input type="checkbox"/> YES If no, explain:
	<input type="checkbox"/> NO
5. Does the person understand the process measurements associated with the Engine Condition Monitoring process?	<input type="checkbox"/> YES If no, explain:
	<input type="checkbox"/> NO
6. Is the responsibility of this position clearly documented in the air carrier's Manual(s)?	<input type="checkbox"/> YES If no, explain:
	<input type="checkbox"/> NO
7. Are the qualification standards for this position clearly documented?	<input type="checkbox"/> YES If no, explain:
	<input type="checkbox"/> NO
7a Are the qualification standards for this position appropriate for the duties that are assigned?	<input type="checkbox"/> YES If no, explain:
	<input type="checkbox"/> NO
8. Does the person meet the qualification standards?	<input type="checkbox"/> YES If no, explain:
	<input type="checkbox"/> NO
9. Does the person acknowledge that he/she has responsibility for the Engine Condition Monitoring process?	<input type="checkbox"/> YES If no, explain:
	<input type="checkbox"/> NO
10. Does the person know who has authority to establish and modify the Engine Condition Monitoring process?	<input type="checkbox"/> YES If no, explain:
	<input type="checkbox"/> NO

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SECTION 2 – AUTHORITY ATTRIBUTE

Objective: To determine if there is a clearly identifiable, qualified, and knowledgeable person with the authority to establish and modify the Engine Condition Monitoring process.

To meet this objective, the inspector will accomplish the following tasks:

1. Identify the person who has the authority to establish or modify the Engine Condition Monitoring process.
2. Review the description in the Manual that delineates the duties and responsibilities of the person.
3. Evaluate the person's qualifications and work experience (or resume', if appropriate).
4. Review the appropriate organizational chart.
5. Discuss the Engine Condition Monitoring process with the person.

To meet this objective, the inspector will answer the following questions:

1. Is there a clearly identifiable person who has authority to establish and modify the air carrier's policies for the Engine Condition Monitoring process?	<input type="checkbox"/> YES If yes, provide the name: <input type="checkbox"/> NO If no, explain:
2. Does the person understand the procedures associated with the Engine Condition Monitoring process?	<input type="checkbox"/> YES If no, explain: <input type="checkbox"/> NO
3. Does the person understand the controls associated with the Engine Condition Monitoring process?	<input type="checkbox"/> YES If no, explain: <input type="checkbox"/> NO
4. Does the person understand the interfaces associated with the Engine Condition Monitoring process?	<input type="checkbox"/> YES If no, explain: <input type="checkbox"/> NO
5. Does the person understand the process measurements associated with the Engine Condition Monitoring process?	<input type="checkbox"/> YES If no, explain: <input type="checkbox"/> NO
6. Is the authority of this position clearly documented in the air carrier's Manual(s)?	<input type="checkbox"/> YES If no, explain: <input type="checkbox"/> NO
7. Are the qualification standards for this position clearly documented?	<input type="checkbox"/> YES If no, explain: <input type="checkbox"/> NO
7a Are the qualification standards for this position appropriate for the duties that are assigned?	<input type="checkbox"/> YES If no, explain: <input type="checkbox"/> NO
8. Does the person meet the qualification standards?	<input type="checkbox"/> YES If no, explain: <input type="checkbox"/> NO
9. Does the person acknowledge that he/she has authority for the Engine Condition Monitoring process?	<input type="checkbox"/> YES If no, explain: <input type="checkbox"/> NO
10. Does the individual know who has the responsibility for the Engine Condition Monitoring process?	<input type="checkbox"/> YES If no, explain: <input type="checkbox"/> NO
11. Are the procedures for delegation of authority clearly documented for the Engine Condition Monitoring process?	<input type="checkbox"/> YES If no, explain: <input type="checkbox"/> NO

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1.3.20 Engine Condition Monitoring

SECTION 3 – PROCEDURES ATTRIBUTE

Objective: To determine if the air carrier has documented procedures for accomplishing the Engine Condition Monitoring process.

To meet this objective, the inspector will accomplish the following tasks:

1. Review the documented instructions and information related to the Engine Condition Monitoring process to ensure that they contain who, what, where, when, and how.
2. Review the other CFRs and/or FAA Guidance included in the supplemental information section of this SAI.
3. Discuss the Engine Condition Monitoring process with appropriate personnel to gain an understanding of the procedures.
4. Observe the Engine Condition Monitoring process to gain an understanding of the procedures.

To meet this objective, the inspector will answer the following questions:

1. Do written procedures exist to achieve the desired result of the Engine Condition Monitoring process:

1.1 Do written procedures provide detailed instructions and information for Engine Condition Monitoring?	<input type="checkbox"/> YES	If no, explain:
	<input type="checkbox"/> NO	

1.2 Do written procedures require the use of adverse trend reporting? (E.g. watch list, performance degradation report, or marginal performance engine notification list).	<input type="checkbox"/> YES	If no, explain:
	<input type="checkbox"/> NO	

1.3 Do written procedures require the use of a qualified individual to review and assess the results of Engine Condition Monitoring data?	<input type="checkbox"/> YES	If no, explain:
	<input type="checkbox"/> NO	

2. Do the procedures identify: who, what, where, when and how?	<input type="checkbox"/> YES	If no, explain:
	<input type="checkbox"/> NO	

3. Are the procedures in compliance with the CFR(s)?	<input type="checkbox"/> YES	If no, explain:
	<input type="checkbox"/> NO	

4. Do the procedures conform to other written guidance (E.g., Operations Specifications, FAA Orders, Airworthiness Directives, Advisory Circulars, Handbook Bulletins, Directives, and Manufacturer's Recommendations)?	<input type="checkbox"/> YES	If no, explain:
	<input type="checkbox"/> NO	

5. Does the air carrier have the resources to support the written procedures for the Engine Condition Monitoring process?	<input type="checkbox"/> YES	If no, explain:
	<input type="checkbox"/> NO	

6. If alternate procedures exist for use during irregular conditions, do they achieve the same desired results as the primary procedures so that an equivalent level of safety is maintained? (E.g., a manual system used as a result of equipment failure).	<input type="checkbox"/> YES	If no, explain:
	<input type="checkbox"/> NO	
	<input type="checkbox"/> N/A, No alternate procedures exist for this element	

7. Are the procedures published in different manuals relating to the Engine Condition Monitoring process consistent?	<input type="checkbox"/> YES	If no, explain:
	<input type="checkbox"/> NO	

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SECTION 3 – PROCEDURES ATTRIBUTE

8. Does the air carrier have a documented method for assessing the impacts of procedural changes to the Engine Condition Monitoring process prior to their implementation?

- YES **If no, explain:**
 NO

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1.3.20 Engine Condition Monitoring

SECTION 4 – CONTROL ATTRIBUTE

Objective: To determine if checks and restraints are designed into the Engine Condition Monitoring process to ensure a desired result is achieved.

To meet this objective, the inspector will accomplish the following tasks:

1. Review the documented instructions and information related to the Engine Condition Monitoring process.
2. Review the other CFRs and FAA Guidance included in the supplemental information section of this SAI
3. Discuss the Engine Condition Monitoring process with appropriate personnel to gain an understanding of the controls.
4. Observe the Engine Condition Monitoring process to gain an understanding of the controls.

To meet this objective, the inspector will answer the following questions:

1. Are the following checks and restraints built into the Engine Condition Monitoring process:

<i>1.1 Do the Air Carrier procedures meet or exceed the standards contained in the engine manufacturer's instructions?</i>	<input type="checkbox"/>	YES	If no, explain:
	<input type="checkbox"/>	NO	
<i>1.2 Does the Air Carrier use qualified individuals to review Engine Condition Monitoring data?</i>	<input type="checkbox"/>	YES	If no, explain:
	<input type="checkbox"/>	NO	
<i>1.3 Does the Air Carrier have a method for documenting the results of Engine Condition Monitoring data reviews (e.g., signatures, stamps, or electronic acknowledgements)?</i>	<input type="checkbox"/>	YES	If no, explain:
	<input type="checkbox"/>	NO	
<i>1.4 Does the Air Carrier use adverse trend reporting (E.g. watch list, performance degradation report, or marginal performance engine notification list) to focus attention on marginal engines?</i>	<input type="checkbox"/>	YES	If no, explain:
	<input type="checkbox"/>	NO	
2. Do the checks and restraints ensure the desired result is achieved for the Engine Condition Monitoring process?	<input type="checkbox"/>	YES	If no, explain:
	<input type="checkbox"/>	NO	
3. Does the air carrier have a documented method for assessing the impacts of any changes made to checks and restraints in the Engine Condition Monitoring process prior to their implementation?	<input type="checkbox"/>	YES	If no, explain:
	<input type="checkbox"/>	NO	
4. Does the air carrier have the resources to support the checks and restraints for the Engine Condition Monitoring process?	<input type="checkbox"/>	YES	If no, explain:
	<input type="checkbox"/>	NO	

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1.3.20 Engine Condition Monitoring

SECTION 5 - PROCESS MEASUREMENT ATTRIBUTE

Objective: To determine if the air carrier measures and assesses its Engine Condition Monitoring process, to identify and correct problems or potential problems.

To meet this objective, the inspector will accomplish the following tasks:

1. Review the documented instructions and information related to the Engine Condition Monitoring process.
2. Discuss the Engine Condition Monitoring process with appropriate personnel to gain an understanding of the process measures.
3. Observe the Engine Condition Monitoring process to gain an understanding of the process measures.

To meet this objective, the inspector will answer the following questions:

1. <Deleted>

2. Does the air carrier's Engine Condition Monitoring process include the following process measurements?

2.1 *The Air Carrier audits the Engine Condition Monitoring program to ensure that the program meets or exceeds the manufacturer's program standards.*

YES **If no, explain:**
 NO

2.2 *The Air Carrier audits the Engine Condition Monitoring program to ensure that trained, qualified, and authorized personnel review and assess the engine performance trends.*

YES **If no, explain:**
 NO

3. Does the air carrier document their process measurement results?

YES **If no, explain:**
 NO

4. Are the air carrier's process measurement methods effective?

YES **If no, explain:**
 NO

5. Does the air carrier use their process measurement results to improve their programs?

YES **If no, explain:**
 NO

6. Are the process measurement results accessible to the FAA?

YES **If no, explain:**
 NO

7. Does the organization that conducts the process measurement have direct access to the person with responsibility for the Engine Condition Monitoring process?

YES **If no, explain:**
 NO

8. Does the air carrier have the resources to support the process measurement for the Engine Condition Monitoring process?

YES **If no, explain:**
 NO

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SECTION 6 – INTERFACES ATTRIBUTE

Objective: To determine if the air carrier identifies and manages the interactions between the Engine Condition Monitoring process and the other element processes within the Air Carrier organization.

To meet this objective, the inspector will accomplish the following tasks:

1. Review the documented instructions and information related to the Engine Condition Monitoring process.
2. Discuss the Engine Condition Monitoring process with appropriate personnel to gain an understanding of the interfaces.
3. Observe the Engine Condition Monitoring process to gain an understanding of the interfaces.

To meet this objective, the inspector will answer the following questions:

1. Are the following interfaces identified for the Engine Condition Monitoring process:

<i>1.1 Maintenance Log/Recording Requirements (Element 1.2.3)</i>	<input type="checkbox"/> YES <input type="checkbox"/> NO	If no, explain:
<i>1.2 Maintenance Program (Element 1.3.1)</i>	<input type="checkbox"/> YES <input type="checkbox"/> NO	If no, explain:
<i>1.3 Inspection Program (Element 1.3.2)</i>	<input type="checkbox"/> YES <input type="checkbox"/> NO	If no, explain:
<i>1.4 Manual Currency (Element 2.1.1)</i>	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A	If no or N/A, explain:
<i>1.5 Content Consistency Across Manuals (Element 2.1.2)</i>	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A	If no or N/A, explain:
<i>1.6 Manual Distribution (Element 2.1.3)</i>	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A	If no or N/A, explain:
<i>1.7 Manual Availability (Element 2.1.4)</i>	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A	If no or N/A, explain:
<i>1.8 Supplemental Operations Manual Requirements (Element 2.1.5)</i>	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A	If no or N/A, explain:
<i>1.9 Airman Duties/Flight Deck Procedures (Element 3.1.3)</i>	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A	If no or N/A, explain:

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SECTION 6 – INTERFACES ATTRIBUTE

1.10 Maintenance Training Program (Element 4.2.1)	<input type="checkbox"/> YES If no or N/A, explain: <input type="checkbox"/> NO <input type="checkbox"/> N/A
1.11 Training of Flight Crewmembers (Element 4.2.3)	<input type="checkbox"/> YES If no or N/A, explain: <input type="checkbox"/> NO <input type="checkbox"/> N/A
1.12 ETOPS (Element 5.1.8)	<input type="checkbox"/> YES If no or N/A, explain: <input type="checkbox"/> NO <input type="checkbox"/> N/A
2. List any additional interfaces identified:	
3. Are there written procedures for the use of air carrier personnel in the application of these interfaces?	<input type="checkbox"/> YES If no, explain: <input type="checkbox"/> NO
4. Are there controls to ensure that interfaces occur?	<input type="checkbox"/> YES If no, explain: <input type="checkbox"/> NO
5. Are the interfaces between the Engine Condition Monitoring process and other processes treated consistently in the Manual(s)?	<input type="checkbox"/> YES If no, explain: <input type="checkbox"/> NO