

**Compliance Document for Helicopter Operations in accordance with CAT.POL.H.305 Operations  
without an assured safe forced landing capability**

(a) Operations without an assured safe forced landing capability during the take-off and landing phases shall only be conducted if the operator has been granted an approval by the competent authority.

(b) To obtain and maintain such approval the operator shall:

(1) conduct a risk assessment, specifying:

- (i) the type of helicopter; and
- (ii) the type of operations;

(2) implement the following set of conditions:

- (i) attain and maintain the helicopter/engine modification standard defined by the manufacturer;
- (ii) conduct the preventive maintenance actions recommended by the helicopter or engine manufacturer;
- (iii) include take-off and landing procedures in the operations manual, where they do not already exist in the AFM;
- (iv) specify training for flight crew; and
- (v) provide a system for reporting to the manufacturer loss of power, engine shutdown or engine failure events; and

(3) implement a usage monitoring system (UMS).

Operators should use this document to demonstrate how they comply with the requirements of CAT.POL.H.305. In the 'Means of Compliance' column operators should provide sufficient information to explain how compliance with the various requirements will be achieved. This may be a reference to the equipment fitted, a process, procedure or policy. In the 'References' column the appropriate publication, or manual should be referenced. Once completed the document should be forwarded to their Flight Operations Inspector for processing

**A Risk Assessment must accompany this Compliance Document.**

*CAT.POL.H.225 Helicopter operations to/from a public interest site* need only satisfy CAT.POL.H.305 (b)(2) and (b)(3);

*SPA.HEMS.125 Performance requirements for HEMS operations Helicopters conducting operations to/from a HEMS operating site located in a hostile environment* shall be exempt from the approval required by CAT.POL.H.305 (a), provided compliance is shown with CAT.POL.H.305 (b)(2) and (b)(3).



**CAT.POL.H.305(b)(1) The Risk Assessment:**

**AMC1 CAT.POL.H.305(b) refers**

<b>Type of Helicopter:</b>	<b>Type of Operation</b> <i>Describe operation</i>  <b>Note:</b> <i>For operations from a helideck located in a hostile environment the take off mass and landing masses shall take into account the procedure, deck edge-miss and dropdown appropriate to the height of the helideck with the critical engine(s) inoperative and the remaining engines operating at an appropriate power rating.</i>  <i>The operator shall must be able to demonstrate that their procedures are able to satisfy this requirement for each type operated.</i>
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<b>Item</b>	<b>Requirement</b>	<b>Means of Compliance</b>	<b>Operator's References</b>
(a)	Provide appropriate engine reliability statistics available for the helicopter type and the engine type.		
(b)	Except in the case of new engines, the data in (a) above should show sudden powerloss from the set of in-flight shutdown (IFSD) events not exceeding 1 per 100,000 engine hours in a 5 year moving window. However, a rate in excess of this value, but not exceeding 3 per 100,000 engine hours, may be accepted by the Authority after an assessment showing an improving trend.		
(c)	New engines should be assessed on a case-by-case basis.		
(d)	After the initial assessment, updated statistics should be periodically reassessed; any adverse sustained trend will require an immediate evaluation to be accomplished by the operator in consultation with the competent authority and		

Item	Requirement	Means of Compliance	Operator's References
	the manufacturers concerned. The evaluation may result in corrective action or operational restrictions being applied		
(e)	The purpose of this paragraph is to provide guidance on how the in-service power plant sudden power loss rate is determined::	<i>Note</i>	
(e)(1)	Share of roles between the helicopter and engine Type Certificate Holders (TCH) for establishing the sudden power loss rate.	<i>Note</i>	
(e)(1)(i)	The provision of documents establishing the in-service sudden power loss rate for the helicopter/ engine installation; the interface with the operational authority of the State of the operator should be the engine TCH or the helicopter TCH depending on the way they share the corresponding analysis work.		
(e)(1)(ii)	The engine TCH should provide the helicopter TCH with a document including: the list of in service power loss events, the applicability factor for each event (if used), and the assumptions made on the efficiency of any corrective actions implemented (if used).		
(e)(1)(iii)	<p>The engine or helicopter TCH should provide the operational authority of the State of the operator, with a document that details the calculation results – taking into account the following:</p> <p>(A) events caused by the engine and the events caused by the engine installation;</p> <p>(B) applicability factor for each event (if used), the assumptions made on the efficiency</p> <p>of any corrective actions implemented on the engine and on the helicopter (if used);</p> <p>and</p> <p>(C) calculation of the power plant power loss rate.</p>		

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(e)(2)	<p><b>Documentation</b></p> <p>The following documentation should be updated every year:</p>		
(e)(2)(i)	the document with detailed methodology and calculation as distributed to the authority of the State of design;		
(e)(2)(ii)	a summary document with results of computation as made available on request to any operational authority; and		
(e)(2)(iii)	a service letter establishing the eligibility for such operation and defining the corresponding required configuration as provided to the operators.		
(e)(3)	<p><b>Definition of 'sudden in-service power loss'</b></p> <p>Sudden in-service power loss is an engine power loss:</p> <p>(i) larger than 30 % of the take-off power;</p> <p>(ii) occurring during operation; and</p> <p>(iii) without the occurrence of an early intelligible warning to inform and give sufficient time for the pilot to take any appropriate action.</p>	<i>Definition</i>	
(e)(4)	<p><b>Database documentation</b></p> <p>Each power loss event should be documented, by the engine and/or helicopter TCHs, as follows:</p> <p>(i) incident report number;</p> <p>(ii) engine type;</p> <p>(iii) engine serial number;</p> <p>(iv) helicopter serial number;</p> <p>(v) date;</p> <p>(vi) event type (demanded IFSD, un-demanded IFSD);</p> <p>(vii) presumed cause;</p> <p>(viii) applicability factor when used; and</p> <p>(ix) reference and assumed efficiency of the corrective actions that will have to be applied (if any).</p>		

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(e)(5)	<p><b>Counting methodology</b></p> <p>Various methodologies for counting engine power loss rate have been accepted by authorities.</p> <p>The following is an example of one of these methodologies.</p> <p>(i) The events resulting from:</p> <p>(A) unknown causes (wreckage not found or totally destroyed, undocumented or unproven statements);</p> <p>(B) where the engine or the elements of the engine installation have not been investigated (for example when the engine has not been returned by the customer); or</p> <p>(C) an unsuitable or non-representative use (operation or maintenance) of the helicopter or the engine, are not counted as engine in-service sudden power loss and the applicability factor is 0 %.</p>	<p><i>Define counting methodology</i></p>	
	<p>(ii) The events caused by:</p> <p>(A) the engine or the engine installation; or</p> <p>(B) the engine or helicopter maintenance, when the applied maintenance was compliant with the maintenance manuals, are counted as engine in-service sudden power loss and the applicability factor is 100 %.</p>		
	<p>(iii) For the events where the engine or an element of the engine installation has been submitted for investigation but where this investigation subsequently failed to define a presumed cause, the applicability factor is 50 %.</p>		
(e)(6)	<p><b>Efficiency of corrective actions.</b></p> <p>The corrective actions made by the engine and helicopter manufacturers on the definition or maintenance of the engine or its installation may be defined as mandatory for specific</p>		

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	<p>operations. In this case the associated reliability improvement may be considered as a mitigating factor for the event. A factor defining the efficiency of the corrective action may be applied to the applicability factor of the concerned event.</p>		
(e)(7)	<p><b>Method of calculation of the powerplant power loss rate</b></p> <p>The detailed method of calculation of the powerplant power loss rate should be documented by engine or helicopter TCH and accepted by the relevant authority.</p>	<p><i>Explain the powerplant loss rate</i></p>	

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<p><b>CAT.POL.H.305(b)(2) The Set of Conditions:</b></p> <p><b>AMC2 CAT.POL.H.305(b) refers</b></p>			
(a)	Attain and then maintain the helicopter/engine modification standard defined by the manufacturer that has been designated to enhance reliability during the take-off and landing phases.		
(b)	Conduct the preventive maintenance actions recommended by the helicopter or engine manufacturer as follows:		
(b)(1)	Engine oil spectrometric and debris analysis- as appropriate		
(b)(2)	Engine trend monitoring, based on available power assurance checks.		
(b)(3)	Engine vibration analysis (plus any other vibration monitoring systems where fitted)		
(b)(4)	Oil consumption monitoring.		

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<b>CAT.POL.H.305(b)(3) The Usage Monitoring System:</b> <b>AMC2 CAT.POL.H.305(b) refers</b>			
(c)	The usage monitoring system shall fulfil at least the following:		
(c)(1)	Recording of the following data: <ul style="list-style-type: none"> <li>• Date and time of recording, or a reliable means of establishing these parameters;</li> <li>• Amount of flight hours recorded during the day plus total flight time;</li> <li>• N1 (gas producer RPM) cycle count</li> <li>• N2 (power turbine RPM) cycle count; (if the engine features a free turbine);</li> <li>• Turbine temperature exceedance: value, duration;</li> <li>• Power-shaft torque exceedance: value, duration (if a torque sensor is fitted); and</li> <li>• Engine shafts speed exceedance: value, duration</li> </ul>		
(c)(2)	Data storage of the above parameters, if applicable, covering the maximum flight time in a day, and not less than 5 flight hours, with an appropriate sampling interval for each parameter.		
(c)(3)	The system should include a comprehensive self-test function with a malfunction indicator and a detection of power-off or sensor input disconnection		

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(c)(4)	A means should be available for downloading and analysis of the recorded parameters. Frequency of downloading should be sufficient to ensure data is not lost through over-writing.		
(c)(5)	The analysis of parameters gathered by the usage monitoring system, the frequency of such analysis and subsequent maintenance actions should be described in the maintenance documentation.		
(c)(6)	The data should be stored in an acceptable form and accessible to the Authority, for at least 24 months.		
(d)	<p>The training for flight crew should include the discussion, demonstration, use and practice of the techniques necessary to minimise the risks.</p> <p>Include take-off and landing procedures in the operations manual, where they do not already exist in the Helicopter Flight Manual.</p>		
(e)	<p>Report to the manufacturer any loss of power control, engine shutdown (precautionary or otherwise) or power unit failure for any cause (excluding simulation of power unit failure during training). The content of each report shall provide:</p> <ul style="list-style-type: none"> <li>• Date and time;</li> <li>• Operator (and Maintenance organisations where relevant)</li> <li>• Type of helicopter and description of operations;</li> <li>• Registration and serial number of airframe;</li> <li>• Engine type and serial number;</li> <li>• Power unit modification standard where relevant to failure;</li> </ul>		

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	<ul style="list-style-type: none"> <li>• Engine position;</li> <li>• Symptoms leading up to the event;</li> <li>• Circumstances of power unit failure including phase of flight or ground operation;</li> <li>• Consequences of the event;</li> <li>• Weather/environmental conditions;</li> <li>• Reason for power unit failure- if known;</li> <li>• Circumstances of power unit failure;</li> <li>• In case of an In Flight Shut Down (IFSD), nature of the IFSD (Demanded/Undemanded);</li> <li>• Procedure applied and any comment regarding engine restart potential;</li> <li>• Engine hours and cycles; (from new and last overhaul);</li> <li>• Airframe flight hours;</li> <li>• Rectification actions applied if any, component changes with part number and serial number of the removed equipments and</li> <li>• Any other relevant information.</li> </ul>		

**Compliance Statement CAT.POL.H.305 Helicopter Operations without an assured safe forced landing capability**

**Operator:**  
**AOC**  
**Aircraft:**

**Reference:** \_\_\_\_\_  
**CAA use only**

**Supporting Documentation:**

- 1.
- 2.
- 3.
- 4.
- 5.

<b>For the Operator</b>	Name	Signature	date
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**CAA use only**

<b>Airworthiness Surveyor</b>  Technical review carried out in accordance current instructions	Name	Signature	date
<b>Propulsion Surveyor (as applicable)</b>	Name	Signature	date
<b>Flight Operations Inspector</b>	Name	Signature	date