


<b>EASA</b>	<b>NOTIFICATION OF A PROPOSAL TO ISSUE AN AIRWORTHINESS DIRECTIVE</b>
	<p><b>PAD No.: 09-059</b></p> <p><b>Date: 24 April 2009</b></p> <p>Note: This Proposed Airworthiness Directive (PAD) is issued by EASA, acting in accordance with Regulation (EC) No 216/2008 on behalf of the European Community, its Member States and of the European third countries that participate in the activities of EASA under Article 66 of that Regulation.</p>
<p>In accordance with the EASA Continuing Airworthiness Procedures, the Executive Director is proposing the issuance/cancellation of an EASA Airworthiness Directive (AD), applicable to the aeronautical product(s) identified below. All interested persons may send their comments, referencing the PAD Number above, to the e-mail address specified in the 'Remarks' section, prior to the consultation closing date indicated.</p>	
<p><b>Type Approval Holder's Name :</b></p> <p>ATR - GIE Avions de Transport Régional</p>	<p><b>Type/Model designation(s) :</b></p> <p>ATR 42 and ATR 72 series aeroplanes</p>
<p>TCDS Number : EASA A.084</p>	
<p>Foreign AD : Not applicable</p>	
<p>Supersedure : None</p>	
<b>ATA 31</b>	<p><b>Indicating / Recording Systems - Aeroplane Flight Manual (AFM) and Multi Purpose Computer (MPC) with Aircraft Performance Monitoring (APM) Function - Revision / Installation</b></p>
Manufacturer(s):	<p>ATR - GIE Avions de Transport Régional (formerly AEROSPATIALE – AERITALIA, AEROSPATIALE – ALENIA, AEROSPATIALE ATR–ALENIA, EADS ATR – ALENIA).</p>
Applicability:	<p>Model ATR 42-200, 42-300, 42-320, 42-400 and 42-500 aeroplanes, all serial numbers, and</p> <p>Model ATR 72-101, 72-102, 72-201, 72-202, 72-211, 72-212 and 72-212A aeroplanes, all serial numbers.</p>
Reason:	<p>This Airworthiness Directive (AD) is intended to minimize hazards associated with the inadvertent encounter of severe icing conditions (which are beyond current certification envelope requisites for Part 25 aeroplanes) by providing the flight crew with measurable and objective evidence and timely alert when such severe ice conditions are encountered.</p> <p>The accumulated experience on the worldwide fleet of commuter aeroplanes, and recently reported ATR42/72 in-flight incidents, show that a long exposure to severe icing conditions, outside the certification envelope, can result in “unsafe conditions” leading to rapid performance degradation leading to sudden stall of the lifting/controlling aerodynamic surfaces and subsequent loss of control of the aeroplane.</p>

	<p>Prolonged exposures to these severe icing conditions are due to the lack of crew awareness of these extreme environmental conditions leading to their late detection and/or untimely or incorrect application of the existing AFM procedures, which require the flight crew to actively monitor the encountered icing conditions and to leave them as soon as they are recognised as severe.</p> <p>Current ATR42/72 AFM emergency procedures for the encounter of severe icing conditions - as mandated by AD F-1999-015-040 R2 - remain valid and must be applied by the flight crew. However, their application is based on the detection of such severe icing conditions by means of flight crew subjective interpretation of:</p> <ul style="list-style-type: none"> <li>• an unexpected decrease of the aeroplane speed and/or rate of climb and/or;</li> <li>• a set of very different visual cues like ice covering unheated portion of either forward windows, possibly associated with water splashing and streaming on the windshield and/or;</li> <li>• several secondary indications based on visual observation of ice accretion on different parts of the airframe.</li> </ul> <p>All these together require the flight crew to perform a final qualitative judgement based upon its experience to fly icing conditions, and which could be different depending on the specific circumstances of each case where other concurrent environmental factors like poor light conditions, night operations, etc..., can impair the decision-making process.</p> <p>In addition, even if the severe icing conditions are quickly identified by the crew and the escape manoeuvre promptly initiated, it may still take a few minutes for the aircraft to exit these conditions.</p> <p>In order to improve flight crew situation awareness in icing conditions, ATR developed a new function called Aircraft Performance Monitor (APM) that is available on ATR aeroplanes with Multi Purpose Computer (MPC) installed.</p> <p>The APM processes a collection of different parameters (among them the aeroplane take-off weight as selected by the crew on a specific rotary selector), and in particular computes and compares the actual drag on the current flying path with the theoretical/expected value. From the comparison, a measurable and objective determination of the performance degradation possibly due to abnormal ice accretion can be calculated. When the performance degradation passes given thresholds, the APM annunciates warning signals by triggering up to two different levels of alerts while on climb/descent and three levels of alerts on cruise to the flight crew to make them aware of potential severe icing conditions degrading the aircraft performance.</p> <p>It is recognised that, although the ice protection system of the aeroplane is compliant with the current certification envelope for flight into known-icing-conditions, the possible unsafe condition originating from a prolonged exposure to severe icing environment will be annunciated by the alert(s) provided by the APM, which has proved to be reliable during its in-service experience.</p> <p>Because the APM warning will only indicate the significant aerodynamic penalties, the current AFM Emergency Procedures for severe icing remain totally valid and applicable. No relief to the pilot procedures concerning the current visual cues to detect severe icing conditions can result from this AD because APM function provides flight crews with objective indications which complement and enhance the situation awareness.</p>
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	EASA has therefore decided to make mandatory the APM system and the associated specific Flight Manual content for ATR 42 and 72 series aeroplanes.
Effective Date:	[TBD: 14 days after final AD issue date]
Required action(s) and Compliance Time(s):	<p>Required as indicated, unless accomplished previously:</p> <p>(1) Within 48 months after the effective date of this AD, install a Multi Purpose Computer (MPC) in accordance with the accomplishment instructions of Service Bulletin (SB) ATR42-31-0068 revision 7 [or Modification (Mod.) 05567 + Mod.05592 + Mod.05630] or SB ATR42-31-0071 revision 7 [or Mod.08420] or SB ATR72-31-1051 revision 8 [or Mod.05567 + Mod. 05592 + Mod. 05630] or SB ATR72-31-1054 revision 4 [or Mod.08442] or SB ATR72-31-1047 revision 1 [or Mod.08367], as applicable to aeroplane models.</p> <p>Installation of a MPC done before the effective date of this AD in accordance with earlier revisions of the aforementioned SBs, satisfy the requirements of paragraph (1) of this AD.</p> <p><b>NOTE 1:</b> Mods. 05567, 05592 and 05630 were factory-incorporated onto ATR 42-500 aeroplanes from Manufacturer Serial Number (MSN) 659 onwards and on ATR 72-212A aeroplanes from MSN 742 onwards</p> <p>(2) After accomplishment of paragraph (1) of this AD, operate the aeroplane as specified in the appendix No. 15 "Aircraft Performance Monitoring - APM" of the Aeroplane Flight Manual.</p> <p><b>NOTE 2:</b> At the effective date of this AD, the appendix 15 is included in the following Normal Revisions of the AFM:</p> <ul style="list-style-type: none"> <li>- AFM 42-200/300/320 Normal Revision 27 dated April 2008.</li> <li>- AFM 42-400/500 Normal Revision 13 dated October 2008.</li> <li>- AFM 72-101/102/201/202/211/212 Normal Revision 22 dated July 2008.</li> <li>- AFM 72-212A Normal Revision 11 dated July 2008.</li> </ul>
Ref. Publications:	<p><b>ATR Service Bulletins:</b></p> <p>ATR42-31-0068 original issue up to revision 07;  ATR42-31-0071 original issue up to revision 07;  ATR72-31-1051 original issue up to revision 08;  ATR72-31-1054 original issue up to revision 04;  ATR72-31-1047 original issue up to revision 01;  ATR42-31-0073 original issue up to revision 02;  ATR72-31-1056 original issue up to revision 02;  SB ATR72-31-1050 original issue or revision 01;</p> <p><b>Aeroplane Flight Manuals:</b></p> <p>AFM 42-200/300/320 Normal Revision 27 dated April 2008;  AFM 42-400/500 Normal Revision 13 dated October 2008;  AFM 72-101/102/201/202/211/212 Normal Revision 22 dated July 2008;  AFM 72-212A Normal Revision 11 dated July 2008.</p> <p>The use of later approved revisions of these documents is acceptable for</p>

	compliance with requirements of this AD.
Remarks :	<ol style="list-style-type: none"> <li>1. This Proposed AD will be closed for consultation on 29 May 2009.</li> <li>2. If requested and appropriately substantiated, EASA can approve Alternative Methods of Compliance for this AD.</li> <li>3. Enquiries regarding this PAD should be referred to the Airworthiness Directives, Safety Management &amp; Research Section, Certification Directorate, EASA. E-mail <a href="mailto:ADs@easa.europa.eu">ADs@easa.europa.eu</a>.</li> <li>4. For any questions concerning the technical content of the requirements in this PAD, please contact:            ATR - GIE Avions de Transport Régional            Continued Airworthiness Service            Tel.: +33 (0)5 62 21 62 21 - Fax: +33 (0) 5 62 21 67 18            E-mail: <a href="mailto:continued.airworthiness@atr.fr">continued.airworthiness@atr.fr</a></li> </ol>