 Direction générale de l'aviation civile France GSAC publication	AIRWORTHINESS DIRECTIVE No F-2005-045		Distribution: B	Issue date: March 16, 2005	Page : 1/2
	This Airworthiness Directive is published by the DGAC on behalf of EASA, Airworthiness Authority of the State of Design for the affected product, part or appliance.			<i>Translation of « Consigne de Navigabilité » of same number. In case of difficulty, reference should be made to the French issue.</i>	
	<p align="center">No person may operate an aircraft to which an Airworthiness Directive applies, except in accordance with the requirements of that Airworthiness Directive, unless otherwise agreed with the Authority of the State of Registry.</p>				
	Corresponding foreign Airworthiness Directive(s): Not applicable		Airworthiness Directive(s) replaced: None		
Person in charge of airworthiness: AIRBUS SAS		Type(s): A340-500/-600 aircraft			
Type certificate(s) No. A.015 TCDS No A.015					
ATA chapter: 72	Subject: Engine - Icing conditions - Ground ice shedding procedure				

1. EFFECTIVITY:

AIRBUS aircraft A340-500 and A340-600 series, all certified models, all serial numbers.

2. REASONS:

Four cases of IPC stage 1 damage due to ice accumulation (1 in-flight and 3 during scheduled inspection) have been reported by operators on RR Trent 700 engine fleet. The in-flight case has caused an engine shut down and resulted in aircraft diversion. The three other cases have resulted in two unplanned engine removals.

Investigations have revealed that the engines were damaged further to operation on ground in severe ice conditions like extended running times at idle in very low outside air temperature (OAT) and in presence of freezing fog. During the subsequent take-off, heat transfer combines with variable inlet guide vanes (VIGV) movements tend to remove ice which then impact and damage IPC stage 1 blades.


In an attempt to reproduce the icing scenario that was experienced by the operator on engine TRENT700, several studies were performed on TRENT500 engines and have demonstrated that this engine was potentially affected by the same problem.

A new ground ice shedding procedure has been developed, in addition to the current procedure, to protect the core engine against severe ice accretion (low OAT accompanied by freezing fog during long taxi periods).

In order to avoid a risk of engine IPC damage and the risk of subsequent surge to all engines, the AFM TR 4.03.00/33 is rendered mandatory by this Airworthiness Directive (AD).

3. MANDATORY ACTIONS AND COMPLIANCE TIMES:

The following measures are rendered mandatory from the effective date (ED) of this AD:

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No later than March 31, 2005, apply the following operational procedure:

“GROUND ICE SHEDDING PROCEDURE:

When taxiing in icing conditions, in temperature lower than + 1 degree C (34 degree F):

- If there is no freezing fog:
Inform ATC, set the parking brake to ON or brake with pedals, accelerate the engines to 50 % N1 for 10 seconds (surface conditions permitting) at least every hour of engine ground running time.
- If there is freezing fog:
Compute the cumulative taxi time (previous flight's taxi-in time plus current flight's taxi-out time, with the engines running).
 - If the cumulative taxi time is being longer than 60 minutes, perform the following actions within a cumulative taxi time of 60 minutes and at least every 60 minutes:
 - If $-8^{\circ}\text{C} < \text{OAT} < 1^{\circ}\text{C}$, inform ATC, set the parking brake to ON or brake with pedals, accelerate the engines to 50 % N1 for 1 minute (surface conditions permitting).
 - If $-18^{\circ}\text{C} < \text{OAT} = -8^{\circ}\text{C}$, inform ATC, set the parking brake to ON or brake with pedals, accelerate the engines to 65 % N1 for 50 seconds (surface conditions permitting).
 - If $\text{OAT} = -18^{\circ}\text{C}$, or surface conditions not permitting the application of previous procedures: delay takeoff and request maintenance action for manual engine de-icing.
 - If the cumulative taxi time is being 60 minutes or less:
Inform ATC, set the parking brake to ON or brake with pedals, accelerate the engines to 50 % N1 for 10 seconds (surface conditions permitting)."

Note 1: This operational procedure will be incorporated in the approved 340 AFM TR4.03.00/33.

Note 2: AFM TR 4.03.00/33 will be incorporated into next general revision of A340 AFM.

Note 3: The incorporation of this AFM TR (or any later approved revision) or insertion of this AD into the aircraft operations manual and application of this procedure by the flight crew allow conformity with this AD to be ensured.

4. REFERENCE PUBLICATION:

A340 Aircraft Flight Manual Temporary Revision 4.03.00/33

(Any further approved revision of this document or general AFM revision including this is acceptable).

5. EFFECTIVE DATE:

Upon receipt from March 16, 2005.

6. REMARK:

For questions concerning the technical contents of this AD's requirements, contact:

AIRBUS SAS - Airworthiness Office - EAL - Fax : 33 5 61 93 45 80.

7. APPROVAL:

This AD is approved under EASA reference No 2005-2238 dated March 09, 2005.