

# **ATTACHMENT 14**

#### **POWERPLANTS GROUP CHAIRMAN'S FACTUAL REPORT**

### **CEN13FA174**

**Eurocopter Safety Information Notice No. 2645-S-30** 

(2 pages)

# No. 2645-S-30

# **SAFETY INFORMATION NOTICE**

#### **SUBJECT: ICE AND RAIN PROTECTION**

IROCOPTER

Recommendations in case of snow/ice accumulation in and around the engine air intakes



AIRCRAFT CONCERNED	Version(s)	
	Civil	Military
AS350	B, BA, BB, B1, B2, B3, D	L1
AS550		A2, C2, C3, U2
EC130	B4, T2	

EUROCOPTER has participated in investigations concerning an accident which occurred following sudden engine flame-out in flight.

The investigations revealed that the engine flame-out occurred shortly after take-off and was due to a snow and ice accumulation in the engine air intake plenum, and the snow/ice mixture suddenly being ingested by the engine. The aircraft had been shutdown after a previous flight and the inlet covers had not been used. Several centimeters of snow accumulated on the upper surface of the sand filter prior to engine start. The snow was not removed from the upper surface of the particle separator and the engine air intake was not inspected prior to engine start.

A turbine engine has a good rainwater or falling-snow absorption capacity in continuous operation. However, the engine is sensitive to the absorption of an instantaneous volume of water, snow or ice, because this quantity (even if it is limited) can exceed the instantaneous absorption capacity of an operating engine.

When operated in accordance with the Flight Manual, the engine air intakes are designed to prevent - in flight or on the ground with the engine running (rotor spinning or not) - an accumulation which could lead to this type of engine flame-out.

When an area close to the engine air intake or the air intake itself is not cleaned on the ground, an instantaneous volume of water, snow or ice may detach. The design of the engine air intakes (including those equipped with a sand filter) does not ensure correct engine operation in these conditions.

EUROCOPTER would like to remind you that the check of the engine air intakes is required in all Ecureuil Flight Manuals. In order to underline the importance of this check, EUROCOPTER will progressively introduce the modifications below in all the Ecureuil Flight Manuals.

The following condition will be added to the forbidden conditions in section 2 "Limitations": "*Engine starting when* snow or ice accumulations are in or around the engine air intake".



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The following "*Warning*" will be added to the "Pre-flight check" part of section 4, in the "Sand Filter" and "Use in cold weather" supplements:

"WARNING: Ice or snow accumulations that remain in or around the engine air intake may be ingested and can cause a sudden in-flight engine failure".

The pre-flight check will be adapted as follows:

"Engine air intake......Clean - No foreign objects or accumulations of ice or snow in or around the engine air intake and no stagnant water at the drain hole".

"Exhaust cover.....Removed".

The following complementary information will be added in the "Use in cold weather" supplement:

- General: This supplement details the procedures to be followed when the aircraft is operated in cold weather  $(OAT \le 0^{\circ}C)$  and/or when the aircraft is or could be exposed to falling or blowing snow.
- NOTE: In falling or blowing snow conditions the engine air intake should be checked at the end of the exterior checks. The further checks before engine starting should then be performed without major delay.

EUROCOPTER also reminds you that after arriving on a parking area in cold weather and snowy conditions or falling rain, it is recommended that you install the engine air intake cover rapidly after engine shutdown.

