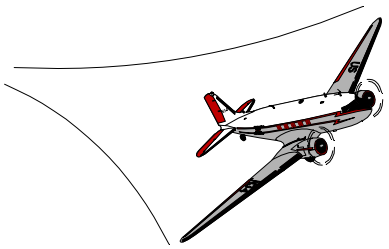
SPECIAL AIRWORTHINESS INFORMATION BULLETIN



U.S. Department of Transportation

Federal Aviation Administration

Aircraft Certification Service
Washington, DC

No. SW-03-08
December 5, 2002

We post SAIBs on the internet at "av-info.faa.gov"

This is information only. Recommendations are not mandatory.

Introduction

This Special Airworthiness Information Bulletin (SAIB) advises you, an owner or operator of turboshaft powered rotorcraft, of the possibility of in-flight engine loss of power, due to the ingestion of ice and snow that has accumulated in the area of the airframe engine inlet while the rotorcraft is on the ground. This SAIB describes procedures to reduce the probability of engine in-flight shutdown due to ice and snow ingestion.

Background

We have determined that ingested snow and ice accumulation in the airframe engine inlet while the rotorcraft is on the ground is the cause of several engine in-flight loss of power events. Some of these events have resulted in accidents and fatalities. Snow and ice can build up in the engine intakes and plenums when the rotorcraft is on the ground without the engine(s) operating and/or when the engine(s) are at a low power setting on the ground for extended periods. When engine power is increased at times during takeoff, the accumulated snow and ice can separate from the airframe inlet surface and be ingested into the engine resulting in decreased power or complete engine failure. **Some of the early turboshaft engines with axial inlets are particularly susceptible to loss of power due to ice and snow ingestion.**

On the ground with the engine(s) operating at a low power setting, ice and snow can accumulate on the airframe cowl forward of the inlet, on the inlet lip, and inside the inlet. Under extreme conditions, usually when the rotorcraft is on the ground waiting for clear weather, the buildup of ice and snow can be enough to cause the engine(s) to lose power or fail completely if it is ingested.

On the ground with the engine(s) not operating, proper use of inlet inserts (pillows) or inlet covers can eliminate the accumulation of snow, but these measures cannot fully guarantee non-formation of ice in the inlet. Ice can also develop in the inlet area when water seeps into the inlet from rain or snow melting on a warm cowl, even when you use proper inlet protection.

Recommendations
In order to reduce the possibility of in-flight engine loss of power due to snow and ice ingestion **we highly recommend and strongly urge** owners and operators of turbine powered rotorcraft to perform the following:

1. Review the aircraft Flight Manual for Limitations and Operations guidance in falling/blowing snow and/or icing. Many aircraft are prohibited from operating in known icing and/or heavy snow.
2. When the aircraft is on the ground without the engines operating install inlet and exhaust inserts or covers.

3. Prior to engine start, after removing the inlet/exhaust inserts or covers, perform a complete inlet/exhaust inspection (using a flashlight). The inspection should include surfaces inside the inlet, the cowl area forward and around the inlet, and the area behind the particle separator or screen (if installed). Remove all accumulated snow or ice.

4. ***CAUTION*: DO NOT** remove ice or snow by chipping or scraping! Use heated air or deicing fluid as necessary. In freezing temperatures, pay particular attention to sheet ice on the bottom and forward of the inlet. This ice can also form behind particle separators. Engine pre-heating may be required.

5. If it is necessary to keep the rotorcraft on the ground for an extended period (i.e. waiting for clear weather), you should shutdown the engine(s). Prior to takeoff, you should accomplish a detailed pre-flight/inspection, removing any snow/ice build-up. You should perform the inspection even if the rotorcraft is fitted with some form of inlet protection such as screens or baffles.

For Further Information Contact:
Matthew Rigsby, Continued Operational Safety (COS), Federal Aviation Administration, Rotorcraft Directorate, Standards Staff, Fort Worth, Texas 76193-0110; telephone (817) 222-5125; fax (817) 222-5961; e-mail: matthew.rigsby@faa.gov