

Bell Helicopter **TEXTRON**

A Subsidiary of Textron, Inc.

November 12, 2003

INFORMATION LETTER 214ST-03-17

TO: All Owners/Operators of Bell 214ST Helicopters

SUBJECT: P/N 214-040-861-101 BLEED AIR DRIVEN FAN ASSEMBLY

The bleed air driven fan assembly is designed to provide a secondary source of oil cooling for the transmission and combining gearbox oil systems. It is intended to operate only when the primary oil cooling system, a hydraulically driven blower, fails or is manually shut down.

During normal operations, the bleed air driven fan is activated only during the oil cooler and bleed air check performed as part of the general systems check at first flight of the day (reference 214ST Flight Manual, section 2). At all other times, while the hydraulically driven fan is operational, the bleed air driven fan will be in a freewheeling mode subject to rotation as may be created by the suction airflow through the cooler assembly.

Recently, during routine maintenance, an operator discovered the two bearings (P/N 59395) supporting the bleed air fan impeller and shaft were severely damaged. The flight crew had not reported any problems with the system or any abnormal operation. Subsequently a second set of bearings on another helicopter were also found defective. Examination of the removed bearings revealed heavily spalled balls, broken races/cages, cracked and fragmented seals, and dried grease.

Vendor data on all four bearings give reason to believe these may have been original equipment on the two helicopters involved and could potentially have been in service for nearly 20 years, accumulating in excess of 19,000 hours combined. Even though the P/N 59395 bearing is a sealed unit, over time, grease will separate and eventually dry out, especially in an elevated temperature environment such as the oil cooler compartment.

The original 214ST maintenance plan determined that the bleed air driven fan was a condition monitored item. As such, it was not specifically called out in the Chapter 5 maintenance schedule. However, as a result of this occurrence, BHT will revise the 214ST Maintenance Manual "D" Inspection (1 year/1000 hours) at its next revision to include a specific inspection of the bleed air driven fan for bearing condition. This can be accomplished on the helicopter by simply hand rotating the fan impeller and feeling for roughness in the bearings. Any roughness, or evidence of grease leakage from the bearing/s, would be cause for replacement of both bearings (refer to BHT-214ST-CR&O-V.2, Chapter 79 for the oil cooling system manuals).

214ST operators should incorporate this inspection into their own maintenance schedule/program pending formal revision to the manual.