



SUBJ: Reciprocating Engine Liquid Cooling: Bombardier-Rotax 912 & 914 Series Engines

SAIB: NE-05-84R1

Date: September 10, 2009

This is information only. Recommendations aren't mandatory.

Introduction

This **Revised** Special Airworthiness Information Bulletin (SAIB) alerts you, owners and operators of **Bombardier-Rotax (Rotax) 912 A, 912 F, 912 S, and 914 F series reciprocating engines** and facilities that maintain and repair these engines, to revised information related to monitoring of cooling system temperatures and the type of liquid coolant to use in these engines. All other information remains the same. These engines are installed on, but not limited to, Aeromot-Industria Meccanica Metalurgica AMT-200, AMT-200S, and AMT-300; Aquila Technische Entwicklungen GmbH AT01; Diamond Aircraft Industries (Austria and Canada) DA20-A1, HK36 R, HK36 TC, HK36 TS, HK36 TTC, HK36 TTC-ECO, and HK36 TTS; Iniziative Industriali Italiane 650 TC, 650 TCN, 650 TCS, and 650 TCNS; and Stemme GmbH S10-VT aircraft. These engines may also be installed on amateur-built and light-sport aircraft. At this time, this airworthiness concern is not an unsafe condition that would warrant airworthiness directive (AD) action under Title 14 of the Code of Federal Regulations (14 CFR) part 39.

Background

The European Aviation Safety Agency (EASA) has advised us of possible loss of coolant and engine overheating on Rotax 912 and 914 series engines. Based on these findings, EASA published AD 2007-0155, dated May 29, 2007, that requires use of a waterless type coolant if the engine coolant exit temperature will exceed 120° centigrade (C). Use of waterless coolant may not apply to all Rotax 912 and 914 series engines because coolant exit temperatures are affected by the aircraft installation and operating conditions. The maximum cylinder head temperature limits approved for these engines remain the same.

If you use a conventional ethylene-glycol/water coolant, and engine coolant exit temperatures exceed 120° C, loss of coolant, engine overheating, knocking, and engine damage can occur, which could result in an in-flight shutdown. You should monitor the coolant exit temperature to prevent engine overheating when using conventional coolant. You can also prevent engine overheating by monitoring cylinder head temperature if an appropriate correlation is established between coolant exit temperature and cylinder head temperature.

Rotax service bulletins SB-912-043 Revision 2, dated November 10, 2006, and SB-914-029 Revision 2, dated November 10, 2006, provide additional information about coolant usage. The applicable Rotax 912 and 914 installation manuals and operator's manuals also provide related information.

Recommendations

We recommend that you comply with the coolant usage information provided in Rotax service bulletins SB-912-043 Revision 2, dated November 10, 2006, and in SB-914-029 Revision 2, dated November 10, 2006, and the applicable Rotax 912 and 914 installation manuals and operator's manuals.

We also recommend that you comply with the coolant usage information and cooling system temperature limits defined by the manufacturer of your aircraft because of installation effects on engine cylinder head and coolant exit temperatures.

For Further Information Contact

Richard Woldan, Aerospace Engineer, FAA, Engine Certification Office, 12 New England Executive Park, Burlington, MA 01803; telephone: 781-238-7136; fax: 781-238-7199; e-mail: richard.woldan@faa.gov.

For Related Service Information Contact

BRP-Rotax GmbH & Co. KG, Welser Strasse 32, A-4623 Gunskirchen, Austria; telephone: (43) 7246-601-0; fax: (43) 7246-601-760; Internet: www.rotax-aircraft-engines.com