SERVICE BULLETIN

CHANGE OF COOLANT SPECIFICATION
ON ROTAX® ENGINE TYPE 912 AND 914 (SERIES)

SB-912-043 R2
SB-914-029 R2

MANDATORY

Repeating symbols:
Please, pay attention to the following symbols throughout this document emphasizing particular information.

▲ WARNING: Identifies an instruction, which if not followed, may cause serious injury or even death.
■ CAUTION: Denotes an instruction which if not followed, may severely damage the engine or could lead to suspension of warranty.
◆ NOTE: Information useful for better handling.

1) Planning information

1.1) Engines affected

All versions of the engine type:
- 912 A all
- 912 F all
- 912 S all
- 914 F all
- all aircraft manufacturer which aircraft equipped with ROTAX® engine type as listed.

1.2) Concurrent ASB/SB/SI and SL

More to this Service Bulletin the following additional Service Instruction must be observed and complied with:
- SI-912-016 / SI-914-019 “Selection of suitable operating fluids” current issue

1.3) Reason

Using conventional coolant with a mixing ratio of 50% coolant and 50% water may cause in some applications boiling of the coolant before reaching the max. allowable cylinder head temperature.
On all affected engines the following changes have to be considered and accomplished (if applicable).
- Change of coolant specification
- Change of the cylinder head temperature limits
- Introduction of a new coolant temperature limit and the requirement to measure and monitor this parameter
- Change of radiator cap

1.4) Subject

Change of coolant specification on ROTAX® engine type 912 (Series) and 914 (Series)

1.5) Compliance

- at latest December 31, 2007, incorporate the mandatory use of waterless coolant into the relevant documentation of the aircraft.

Alternatively the use of conventional coolant is possible. In such case the new operating limit (coolant temperature) has to be applied. The work/compliance has to be performed according to section 3.

▲ WARNING: Non-compliance with these instructions could result in engine damages, personal injuries or death.

Current valid documentation see: www.rotax-aircraft-engines.com
1.6) Approval  
The technical content is approved under the authority of DOA Nr. EASA.21J.048.

1.7) Manpower  
Engine installed in the aircraft - - - manpower time will depend on installation and thus, no estimate is available from the engine manufacturer.

1.8) Mass data  
Change of weight - - - none  
Moment of inertia - - - unaffected

1.9) Electrical load data  
No change

1.10) Software accomplishment summary  
No change

1.11) References  
In addition to this technical information refer to current issue of  
- Operator’s Manual (OM)  
- Illustrated Parts Catalog (IPC)  
- Maintenance Manual (MM)  
- all relevant Service Instructions (SI)  

◆ NOTE: The status of manuals can be determined by checking the table of amendments of the manual. The 1st column of this table is the revision status. Compare this number to that listed on the ROTAX WebSite: www.rotax-aircraft-engines.com. Updates and current revisions can be downloaded for free.

1.12) Other publications affected  
The following documentations become effective with this Service Bulletin:

<table>
<thead>
<tr>
<th>Description</th>
<th>part no.</th>
<th>Issue</th>
<th>Date</th>
<th>Rev.</th>
<th>Chapter</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operator's Manual 912 Series</td>
<td>899370</td>
<td>0</td>
<td>1998 07 01</td>
<td>4*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operator's Manual 914 Series</td>
<td>899641</td>
<td>0</td>
<td>1998 12 01</td>
<td>4*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Installation Manual 912 A</td>
<td>897860</td>
<td>0</td>
<td>1997 01 16</td>
<td>2*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Installation Manual 912 F</td>
<td>897796</td>
<td>0</td>
<td>1996 01 23</td>
<td>3*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Installation Manual 912 S</td>
<td>899376</td>
<td>0</td>
<td>1998 09 01</td>
<td>2*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Installation Manual 912 UL</td>
<td>897711</td>
<td>2</td>
<td>1997 03 26</td>
<td>2*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Installation Manual 914 Series</td>
<td>897816</td>
<td>1</td>
<td>2006 07 01</td>
<td>0*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* or higher revision  
The replacement pages have to be included without delay into the respective documentation of the aircraft manufacturer.

1.13) Interchangeability of parts  
Not affected

2) Material Information

2.1) Material - cost and availability  
Price and availability will be supplied on request by ROTAX® Authorized Distributors or their Service Centers.

2.2) Company support information  
None

2.3) Material requirement per engine  

<table>
<thead>
<tr>
<th>Fig.no.</th>
<th>New part no.</th>
<th>Qty/engine</th>
<th>Description</th>
<th>Old part no.</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>922070</td>
<td>1</td>
<td>radiator cap</td>
<td>922075*</td>
<td>ROTAX® 912/914 (Series)</td>
</tr>
</tbody>
</table>


2.4) Rework of parts  
None

2.5) Special tooling/lubricant/-adhesives/-sealing compound - Price and availability  
None

NOVEMBER 10, 2006  
Copyright - ROTAX®
3) Accomplishment / Instructions

Accomplishment

3.1) Replacement of the radiator cap

Replace on all affected engines the radiator cap part no. 922075 (0,9 bar) (13 psi) with a new radiator cap part no. 922070 (1,2 bar) (18 psi).

◆ NOTE: The boiling point depends additionally on other factors such as the system pressure. At higher system pressure slightly higher boiling point can be obtained.

All work has to performed in accordance with the relevant Maintenance Manual.

3.2) Check cooling system - Efficiency of the cooling system

These measures must be performed by the aircraft manufacturer.

◆ NOTE: All work has to performed in accordance with the relevant Installation Manual (section Cooling system).

3.2.1) Determination of the achievable maximum coolant temperature and cylinder head temperature

Depending on the maximum operating temperature achieved following measures have to be taken:

<table>
<thead>
<tr>
<th>Coolant temperature</th>
<th>Cylinder head temperature</th>
<th>Conventional coolant</th>
<th>Waterless coolant</th>
</tr>
</thead>
<tbody>
<tr>
<td>less than 120 °C (248 °F)</td>
<td>less than 135 °C (1) (275 °F) 150 °C (2) (300 °F)</td>
<td>Additional instruments for displaying coolant temperature is necessary (3)</td>
<td>Modifications to the instruments or limit not necessary</td>
</tr>
<tr>
<td>more than 120 °C (248 °F)</td>
<td>less than 135 °C (1) (275 °F) 150 °C (2) (300 °F)</td>
<td>Cooling capacity too low. Check of the installation necessary</td>
<td>Cooling capacity too low. Check of the installation necessary</td>
</tr>
<tr>
<td>less than 120 °C (248 °F)</td>
<td>more than 135 °C (1) (275 °F) 150 °C (2) (300 °F)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>more than 120 °C (248 °F)</td>
<td>more than 135 °C (1) (275 °F) 150 °C (2) (300 °F)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

◆ NOTE: Depending on the gained temperatures (coolant outlet temperature compared to cylinder head temperature) the aircraft manufacturer has to adapt the obtained limits in the relevant documentation (Operators Manual and/or Flight Manual).

1) engine type 912S / 914F
2) engine type 912A / 912F
3) Additional instruments for displaying coolant temperature marked with a 120 °C (248 °F) max. limit is necessary or new calibration of the CHT gauge to an aircraft specific cylinder head temp. See current relevant Installation Manual section “cooling system”.

Procedure for engine installations for which the CHT-limit was reduced previously to 120 °C (248 °F) with the initial issue of this Service Bulletin:

This limit is conservative, as the actual temperature of the liquid is normally lower than the temperature of the aluminium head material. If no problems occur with exceeding of this limit of 120 °C (248 °F) no further verification is necessary.

Approval of translation to best knowledge and judgment - in any case the original text in the German language and the metric units (SI-system) are authoritative.