TEMPORARY REVISION

Cooling system

Introduction:

For liquid cooled engines the temperature of the cooling liquid and not the temperature of the aluminium in the cylinder head is the essential factor for operating the engine. As the old cylinder heads did not allow this kind of measurement it had to be ensured for the installation in compliance with the respective Installation Manual (Chapter “Cooling System”, 2.1), that the maximum permissible temperature of the cooling liquid did not exceed CT=120 °C. In other words with the old cylinder heads the measurement of the aluminium temperature (CHT) has been taken as indicator for the temperature of the cooling liquid (CT). The reason for that was that measuring the temperature of the cooling liquid apart from the cylinder head would not deliver reliable results in case of loss of coolant liquid.

With the introduction of new cylinder heads* for the ROTAX 912 / 914 Series the measurement position on the cylinder heads has changed. With this installation position of the temperature sensor, a loss of coolant can be recognized easily. The change to the new cylinder heads does not affect the cooling capacity.

* 914 F from S/N 4 421 178 inclusive
* 914 UL from S/N 7 682 718 inclusive

In order to reflect this we will revise all currently valid documents (for example, Type Certificates, data sheets, Manuals etc.) and adapt them corresponding to the changes mentioned above so that in future a coolant temperature of 120 °C (measured at the new measuring point on the new cylinder head) will constitute the only valid operating limit

The limitations and information contained herein either supplement or, in the case of conflict, replace those in the Installation Manual.

The technical content of this document is approved under the authority of DOA ref. EASA.21J.048.

Installation Manual part number	Chapter	Affected pages
897817	7.3	24
	12.2, 12.3 12.4, 12.6	44, 45 46
	23	133

Instruction:

- Print this document on yellow paper (single-sided).
- Insert this cover page as the first page of the Installation Manual.
- Insert the other pages of this Temporary Revision before the corresponding pages of the Installation Manual.

Temporary Revision

Affected Chapters: Description of design

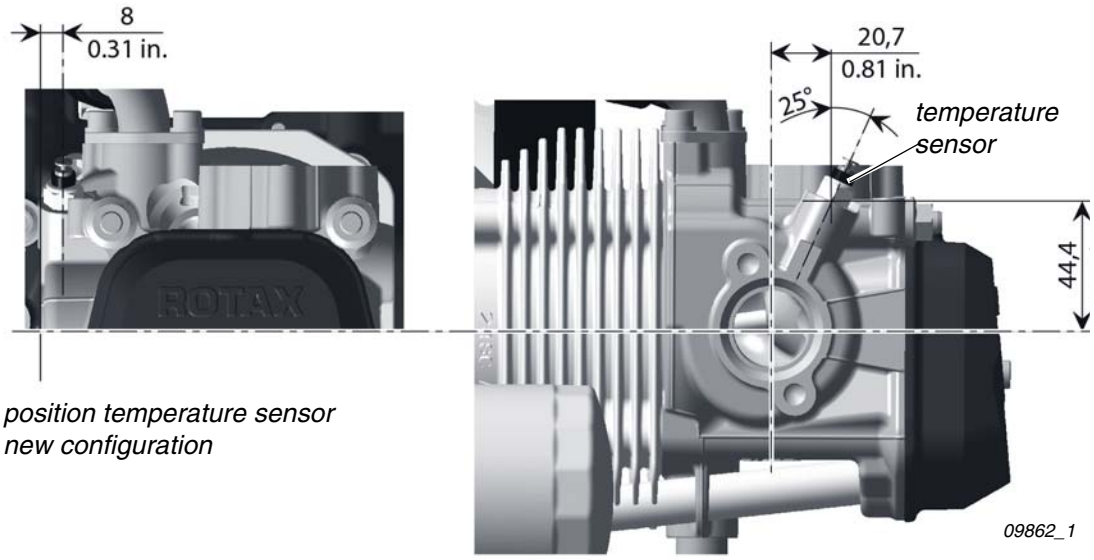
1) Engine components, engine views, cylinder designation and denomination of main axes

The following is added:

Regarding change of temperature sensor position, see Fig. 1 and Fig. 2.

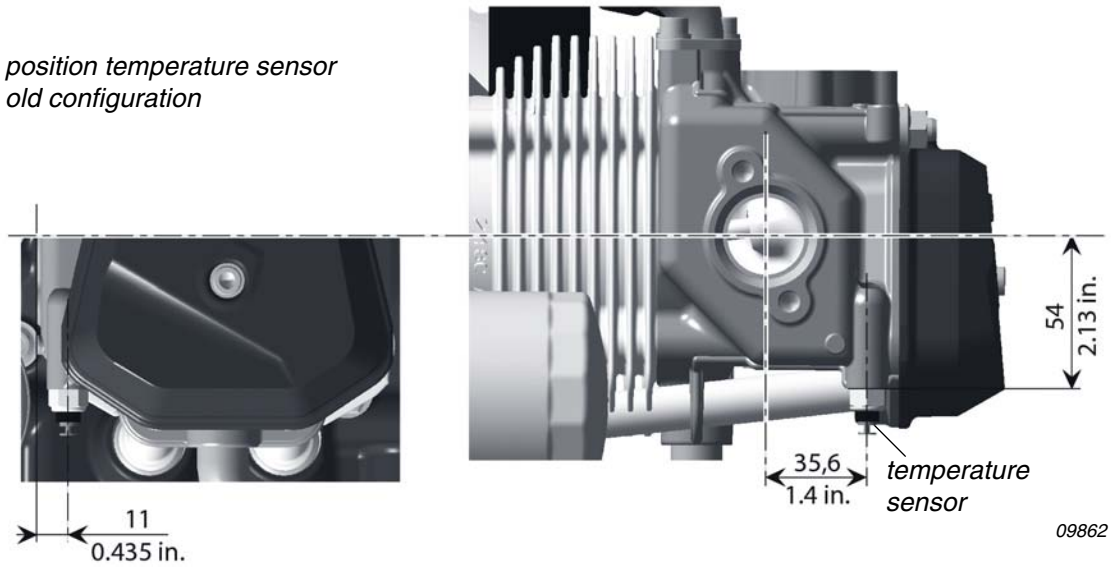
NOTE: It is NOT mandatory to retrofit engines with the old cylinder heads. The different versions of the cylinder heads can be mixed installed, but make sure, if and at which position the cylinder head temperature and coolant temperature is measured. This also defines the denomination of the indicating instrument with the appropriate temperature limit.

Fig. 1



position temperature sensor new configuration

Fig. 2



position temperature sensor old configuration

Temporary Revision

Affected Chapters: Cooling system

12.2) Operating limits

The following is added:

At engines with new cylinder head configuration:

Coolant temperature limit for measuring point in the cylinder head (new configuration)	Engine type
maximum 120 °C (248 °F)	914 Series
Permanent monitoring of coolant temperature is necessary	

d06007.fm

Temporary Revision

Affected Chapters: Cooling system

12.3) Coolant types

The following is added:

Type 1

Conventional coolant (cylinder head - new configuration):

Conventional coolant with a rate of 50 % water cannot boil at a temperature below 120 °C (248 °F) and at a pressure of 1.2 bar (18 psi). The max. coolant temperature limit is therefore 120°C (248 °F).

Permanent monitoring of coolant temperature is necessary.

Temporary Revision

Affected Chapters: Cooling system

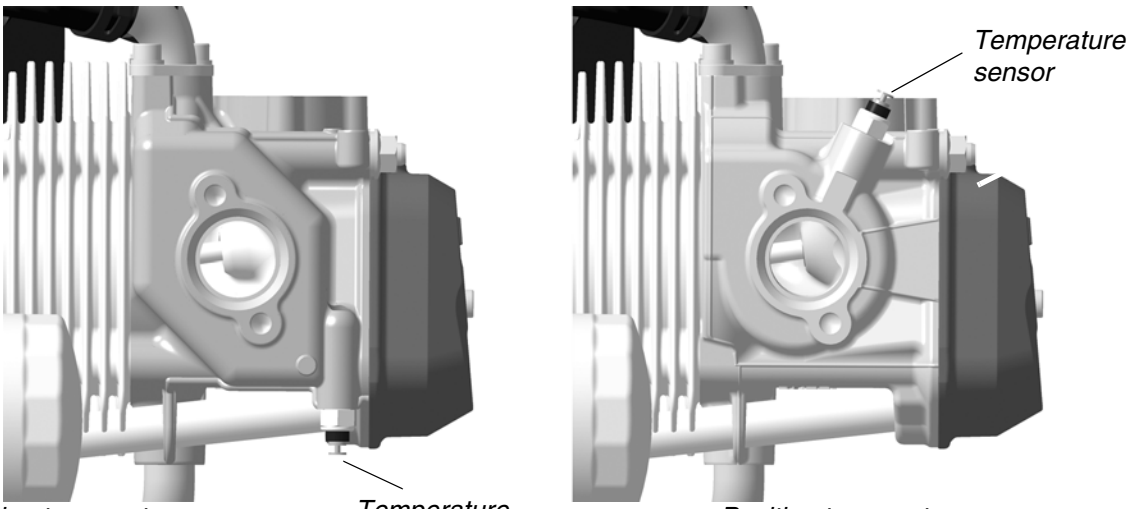
12.4) Checking the efficiency of the cooling system

The following is added:

NOTE: At engines with cylinder heads of the new configuration, the cooling system must be designed so that the operating limits are not exceeded. A determination of the dependancy on coolant temperature and cylinder head temperature is not necessary any more.

Temperature sensor

Fig. 16



Position temperature sensor old configuration

Position temperature sensor new configuration

09862_2

d06007.fm

Temporary Revision

Affected Chapters: Connections for instrumentation

23.1) Temperature sensor

23.1.1) Cylinder head temperature sensor

The following is added:

23.1.2) Coolant temperature sensor (cylinder head - new configuration)

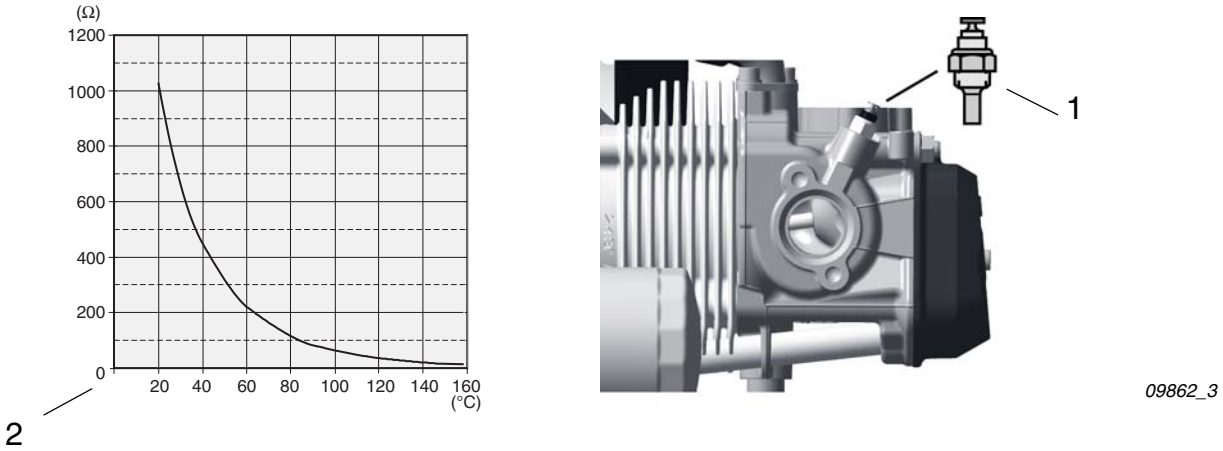
Technical data

NOTE: A measurement of the cylinder head temperature and thus a measurement of the material temperature is not provided.

The temperature sensor (1) is directly fitted into cylinder head i.e. the temperature of the coolant temperature is measured directly.

NOTE: The temperature sensor part no. 965531 and its connection remain unchanged. In case of a retrofit / repair / overhaul the installation and maintenance-related changes should be considered and taken into account. If a cylinder head of the new version is installed at the position where the temperature is measured, specific changes in the sensor position and wiring will be necessary.

Coolant temperature sensor



Part	Function
1	Coolant temperature sensor
2	Graph resistance over temperature

d06007.fm