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SERVICE BULLETIN
PRIORITY 1 – SAFETY

Service Bulletin No. / Date: SB CG 125-1030 P1, Rev. 2 / August 20, 2024

Subject: Additional Coolant Liquid Analysis

Type affected: TAE 125-02-125 (CD-170)

Models affected: all

Classification: Category P1 – Safety

Time of Compliance: Analysis shall be accomplished within the next 5 flight hours or with the next maintenance action, whichever occurs first.
Further operation is permitted after the sample has been taken and until the results of the analysis are available.
In case of the coolant has been exchanged during the last 50 flight hours a FADEC data readout must be performed only within the time of compliance. The sampling of the coolant for analysis in this case must be taken after the coolant had been in use for 50 flight hours.

Note: The acceptable ranges of the coolant liquid analysis have been tightened with Rev. 2 of this Service Bulletin. All analyses which have been carried out according to a previous issue of this Service Bulletin have to be reassessed relating to the new limits (except silicium). In case of exceeding the newly defined limits Continental Aerospace Technologies GmbH must be informed to coordinate further steps.

Reason: In the cooling system, instances of coolant contamination have been detected, which may potentially lead to corrosion damage in the engine's coolant circuit. Consequently, this can result in coolant loss and engine overheating during operation.

Checked	Approved
T. Kreißl, CVE	M. Heinich, Office of Airworthiness 22. AUG. 2024

Correction: Carry out a coolant liquid analysis in accordance with the attached table and submit either the results or the sample taken to Continental Aerospace Technologies GmbH for further analysis. Additionally, an extended FADEC download is required. (Red Wrench – FADEC Service Tool)

In case of the coolant has been exchanged during the last 50 flight hours an extended FADEC download is sufficient, coolant sample must be taken after the coolant had been in use for 50 flight hours.

When the TAE-125-02-125 engine is installed in a Tecnam P2010 TDI, SB 719-CS shall be applicable and a coolant system check must be performed in accordance with the relevant instructions (including dedicated Tecnam temporary revision or later approved AMM revision).

If any limit (see appendix A) exceeds the acceptable range, it is necessary to drain the coolant system, flush the coolant system and refill it with new coolant in accordance with the applicable engine and aircrafts Manuals to both eliminate contamination of the coolant and restore the anti-corrosion properties of the coolant.

Note: The acceptable ranges for fluoride and aluminum have been tightened with Rev. 2 of this Service Bulletin as well as silicon is added. Refer to Table 1 at Appendix A.

Furthermore, if either aluminum or fluoride exceeds its limit, a cylinder head exchange is requested in accordance with RM-02-02, Chapter 72-30.13 Issue 5, Rev. 0 or later approved revision before refilling the coolant.

Note: The acceptable ranges for aluminum and fluoride have been tightened with Rev. 2 of this Service Bulletin. Refer to Table 1 at Appendix A.

Remarks:

Coolant sample analysis:
Labor effort: 0.5hr

Coolant exchange:
Labor effort: 4hr

Cylinder head exchange:
Labor effort: 16hr

Approval: The technical content of this document is approved under the authority of the DOA ref. EASA.21J.010.

Attachments:

Appendix A: Materials; Methods; Limits
Appendix B: Instruction to take coolant sample

Appendix A: Material, Methods and Limits

Num	Name	Note	Method	Unit	Acceptable Range	
					min	max
1	Glycol concentration		see RM-02-02	% [Vol/Vol]	45	55
2	freezing point	alternative (1)	see RM-02-02	°C	-40	-36
3	pH-value 25°C		ASTM D1287	-	6,5	8,5
4	water hardness		ASTM D6130	°dH	0	15
5	alkaline earths ions	alternative (4)	ASTM D6130	mmol/l	0	2,7
6	sulphate		ASTM D5827	mg/l	0	100
7	Chloride		ASTM D5827	mg/l	0	100
8	Fluoride		ASTM D5827	mg/l	0	20
9	Potassium (K)		ASTM D6130	mg/l	0	350
10	Aluminum (Al)		ASTM D6130	mg/l	0	2.5
11	Silicon (Si)		ASTM D6130	mg/l	60	---

Table 1: Limit values

Appendix B: Instruction to take coolant sample

How to remove the coolant

1. Ensure that engine is cold (T_{H2O} max. 10C above ambient temperature)
2. Remove expansion tank cap
3. Remove coolant (min. 100ml) and fill it into the test set
    a. Ensure that the removal device, hoses etc. are not contaminated with water or other mediums to avoid incorrect measurement results
4. Refill the same amount of coolant into the expansion tank
    a. Refer to OM-02-02B Chapter 3.5 or AMM of the Aircraft Manufacturer
5. Install expansion tank cap

Ensure that all work on the system is done in accordance to aircraft manufacturer's instructions and Service Bulletins

Labeling of coolant samples

Coolant Sample
Date: ……..
Call sign: ……..
Aircraft S/N: ……..
Engine S/N: ……..
Engine TT [hrs.]: ……..
Coolant type: .....
Coolant TT [hrs]: .....
Remarks: ..……