European Aviation Safety Agency

EASA

TYPE-CERTIFICATE DATA SHEET

Number : E.055
Issue : 06
Date : 22 April 2008
Type : TAE 125 series engines

Variants
TAE 125-01
TAE 125-02-99
TAE 125-02-114

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I - General

1. Type / Variants : TAE 125 / TAE 125-01, TAE 125-02-99, TAE 125-02-114

2. Type Certificate Holder : Thielert Aircraft Engines GmbH
Platanenstr. 14
D-09350 Lichtenstein

DOA EASA.21J.010

3. Manufacturer: Thielert Aircraft Engines GmbH

4. EASA Certification Application Date:

TAE 125-01	TAE 125-02-99	TAE125-02-114		
27 Febr. 2001	3 June 2005	13 Febr. 2007		

Note: Application for TAE 125-01 was made to JAA before EASA has been established.

5. EASA Certification Date:

TAE 125-01	TAE 125-02-99	TAE125-02-114		
03 May 2002	14 Aug. 2006	06 March 2007		

Note: TAE 125-01 has been certified by LBA Germany (TC/TCDS 4631).
This TCDS replaces LBA TCDS No 4631.
Transfer date to EASA Type Certificate: 24 March 2006
The TAE 125-02-114 engine variant was previously approved as Major Change (power increase to 114 kW) to the initial 99 kW engine version under EASA approval number EASA.E.C.01379 on 3 Jan. 2007 (application date: 11 Sept. 2006).
The TAE 125-02-99 engine variant was previously approved as TAE 125-02.

II - Certification Basis

1. Airworthiness Standards:

TAE 125-01	JAR-E, Change 10, 15 August 1999
TAE 125-02-99 TAE 125-02-114	CS-E, 23 September 2003 except CS-E 130 (h) (see Note 2)

2. Special Conditions (SC):

TAE 125-01	SC1 Electronic Engine Control System SC2 Contaminated Fuel SC3 Failure Analysis SC4 Fire Precautions SC5 Certification of Programmed Logic Devices
TAE 125-02-99 TAE 125-02-114	SC1 Failure Analysis

3. Equivalent Safety Findings (ESF):

TAE 125-01	ESF1 Propeller Functioning Test ESF2 Engine Test Control Parameters ESF3 Engine Type Design
TAE 125-02-99 TAE 125-02-114	CS-E 70 and CS-E100: Engine Type Design

4. Deviations: none

5. Environmental Standards: none (not required for piston engines)

III - Technical Characteristics

1. Type Design Definition:

TAE 125-01: TDD 02-01, Issue 2 dated February 02, 2002 or later approved issue/revision
TAE 125-02-99: TDD 02-02, Issue 1 dated June 30, 2006 or later approved issue/revision
TAE 125-02-114: TDD 02-02, Issue 2 dated Dec. 11, 2006 or later approved issue/revision

2. Description:

The TAE 125 engine is a 4-cylinder, four stroke Diesel piston engine with an displacement of 1689 cm^3 (TAE 125-01) resp. 1991 cm^3 (TAE 125-02-99, TAE 125-02-114), equipped with common rail high pressure direct injection, turbocharger, gearbox with reduction ratio of 1 : 1.689, propeller governor and FADEC.

3. Equipment:

See Installation Manual.

4. Dimensions:

Variant	TAE 125-01	TAE 125-02 -99	TAE 125-02-114	
Overall Length	816 mm	816 mm	816 mm	
Overall Height	636 mm	636 mm	636 mm	
Width	778 mm	778 mm	778 mm	

5. Dry Weight:

Variant	TAE 125-01	TAE 125-02-99	TAE 125-02-114	
Weight	134 kg	134 kg	134 kg	

6. Ratings: (see Note 1)

Rating		TAE 125-01	TAE 125-02-99	TAE125-02-114	
Power	Take-off	99 kW at 3900 rpm	99 kW at 3900 rpm	114 kW at 3900 rpm	
	Max. Continuous				
	Max. Recommended Cruising	71 kW at 3400 rpm	71 kW at 3400 rpm	97 kW at 3400 rpm	
	Max. Best Economy Cruising				

Note : The performance values specified above correspond to minimum values defined under the conditions of ICAO or ARDC standard atmosphere.

7. Control System

The engine is equipped with a Full Authority Digital Engine Control (FADEC). Software verified to level C according to RTCA Document DO-178B.

TAE 125-01:

FADEC P/N 02-7610-55001 R1 or later approved standard
Software: TAE-125 m2.7 or later approved standard
Software Mapping: Refer to Service Bulletin TM TAE 000-0007 for approved software P/N.

TAE 125-02-99, TAE 125-02-114:

FADEC P/N 05-7610-K000101 or later approved standard
Software: TAE-125 m2.7 or later approved standard
Software Mapping: Refer to Service Bulletin TM TAE 000-0007 for approved software P/N.

8. Fluids (Fuel/Oil/Additives):

See Operation & Maintenance Manual for approved fluids (see also Note 4).

9. Aircraft Accessory Drives:

There are no provisions for customer/aircraft furnished equipment.

IV - Operational Limitations

1. Temperature limits:

Minimum opening up Fuel Temperature (for Diesel fuel operation only, see also OM-02-01 resp. OM-02-02):	- 5 °C (23 °F)
Minimum opening up Oil Temperature:	50 °C (122 °F)
Max. Oil Temperature:	140 °C (284 °F)
Minimum ambient temperature for starting:	-32 °C (-26 °F)
Minimum opening up Cooling Fluid Temperature:	60 °C (140 °F)
Max. Cooling Fluid Temperature:	105 °C (221 °F)
Max. Gearbox Temperature:	120 °C (248 °F)

2. Speed Limits:

Maximum Engine Overspeed (Crankshaft Speed):	4220 rpm

3. Pressure Limits:

Minimum Fuel Pressure (at inlet of LP engine pump):	200 mbar (2.9 psi)
Minimum Oil Pressure:	1.0 bar (14.5 psi)
Oil Pressure (normal operation):	2.3 … 6.0 bar (33.4 … 87 psi)
Maximum Oil Pressure (for cold start, max. up to 20 sec):	6.5 bar (94.3 psi)

V - Operational and Service Instructions

	TAE 125-01	TAE 125-02 -99	TAE 125-02-114
Installation Manual	IM-02-01	IM-02-02	IM-02-02
Operation & Maintenance Manual	OM-02-01	OM-02-02	OM-02-02
Overhaul Manual	OHM-02-01	OHM-02-02	OHM-02-02
Service Bulletins and Service Letters	as issued		

VI - Notes

Note 1: Engine model numbers may include suffixes in parentheses to define installation specific configuration changes. The software of the electronic engine control for each application has a specific software mapping. See Service Bulletin TM TAE 000-0007 for the installation versions and software mappings. Also refer to Installation Manual for appropriate installation.

Note 2: The applicable EASA Certification Basis for the TAE 125-02 engine variants would have been the same as for the TAE 125-01 engine variant, however, TAE elected to comply to CS-E except for CS-E 130 (h).

Note 3: The TAE 125 engine is approved for the installation in Part 23 normal and utility category airplanes.

Note 4: The TAE 125 engine is approved for the operation with Jet fuels (see Operation & Maintenance Manual) and Diesel fuel according to EN 590. However, the cloud point (CFPP) of Diesel fuel is regulated by national appendices to the EN 590 Standard, and it varies between the countries and the time of the year. Therefore, the installation of a fuel tank thermometer is required as well as a minimum engine starting temperature is defined (refer to Installation Manual IM-02-01 resp. IM-02-02).

Note 5: The TAE 125 engine, including the FADEC, is approved for use with the propeller MTV-6-A/187-129, MTV-6-A/190-129 and MTV-6-A-CF/CF187-129 models. This approval does not include the approval of the propellers and their control systems (see also Note 12).

Note 6: Overhaul is permitted for several engine parts only, see Overhaul Manual.

Note 7: For the core engine a recommended engine life has been established. The Time Between Replacement (TBR) is published in Service Bulletin TM TAE 125-0001.

Note 8: The engine control system has been tested according to DO-160D for lightning protection and magnetic interference. The demonstrated levels are declared in the Installation Manual.

Note 9: The FADEC must not be installed in a dedicated fire zone. The installation conditions are defined in the Installation Manual.

Note 10: Installation Assumptions: See Installation Manual.

Note 11: Dispatch Limitations: At present there are no dispatch limitations.

Note 12: This engine design features an integrated propeller control in the FADEC. The software in the FADEC has been developed in accordance with DO-178B at level C. The approval of the engine and its FADEC does not include approval of the propeller control system.

Note 13: Sales name of the variant

TAE 125-01:	CENTURION 1.7
TAE 125-02-99:	CENTURION 2.0
TAE 125-02-114:	CENTURION 2.0 S