



TYPE-CERTIFICATE DATA SHEET

No. IM.E.249

for Engine
T5309 and T5311 series engines

Type Certificate Holder
Ozark Aeroworks, LLC
3300 S. Golden Ave. (S. Farm Rd. 135)
Springfield, Missouri 65807
USA

For Models:

T5309A
T5309B
T5309C
T5311A
T5311B



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I. General

1. Type / Models

T5309A, T5309B, T5309C, T5311A, T5311B

2. Type Certificate Holder

Ozark Aeroworks, LLC
3300 S. Golden Ave. (S. Farm Rd. 135)
Springfield, Missouri 65807
USA

3. Manufacturer

Textron Lycoming (previously: Avco Lycoming Engine Group), Stratford Division,
Stratford, Connecticut 06497, USA

Avco Lycoming, Charleston Plant, Charleston, South Carolina 29411, USA

4. Date of Application

Application had been made to individual European National Aviation Authorities (NAA) before 28 September 2003.

5. EASA Type Certification Date

T5309A	T5309B	T5309C	T5311A	T5311B
20 Sept. 1962	6 Nov. 1962	18 April 1963	3 Sept. 1963	23 Oct. 1968

EASA Type Certification for the T5309 and T5311 series engines is granted, in accordance with article 2 paragraph 3 (a) (i) of EU Commission Regulation EC 1702/2003, based on NAA approvals prior to 28 September 2003 in several EU Member States.

EASA TC and TCDS EASA.IM.E.249 replaces all TC and TCDS previously issued in the EASA countries for the for the T5309 and T5311 series engines.



II. Certification Basis

1. State of Design Authority Certification Basis

See FAA TCDS E1EA

2. EASA Certification Basis

2.1. Airworthiness Standards

T5309A	CAR 13, effective June 15, 1956
T5309B T5309C T5311A T5311B	CAR 13, as amended by 13-1, 13-2 and 13-3

2.2. Special Conditions (SC)

None

2.3. Equivalent Safety Findings (ESF)

None

2.4. Deviations

None

2.5. Environmental Protection

N/A

III. Technical Characteristics

1. Type Design Definition

As defined by the applicable parts list.

2. Description

Axial - centrifugal flow, free turbine turboshaft. Five stage axial and single stage centrifugal compressor. External annular vaporizing combustion chamber. Single stage gas producer turbine. Single stage power turbine.

3. Equipment

Engine equipment is specified by the Engine Equipment List part number as referenced in the Type Design Definition.



4. Dimensions

	Nominal Length mm (inch)	Nominal Diameter mm (inch)	Nominal Radius mm (inch)
All models	1214 (47.8)	602 (23.7)	344 (13.56)

5. Dry Weight

	Weight ⁽¹⁾ kg (lb.)
T5309A	220 (485)
T5309B T5309C	222 (490)
T5311A T5311B	225 (496)

- ⁽¹⁾ The engine weight includes essential engine accessories but excludes starter, two tachometer generators, oil tank and oil cooler.

6. Ratings

	Maximum Continuous kW (hp)	Take off (5 minutes) kW (hp)
All models, at nominal output shaft speed of 6610 rpm	671 (900)	820 (1100)

Note: Engine ratings are based on calibrated stand performance under the following conditions:

- Static sea level standard conditions of 15°C (59°F) and 1013 mbar (29.92 in. Hg.)
- No inlet duct losses, no loading of the accessory drives and minimum permissible bleed air flow.
- Exhaust configuration as defined by Ozark Aeroworks, LLC drawing 1-000-029-03.

7. Control System

The T5309 and T5311 series engines are controlled by a hydromechanical fuel control system.

8. Fluids (Fuel, Oil, Coolant, Additives)

Fuels: MIL-DTL-5624: Grades JP-4 and JP-5.
MIL-DTL-83133: Grade JP-8.
ASTM D1655: Jet A, Jet A-1.
ASTM D6615: Jet B.

See applicable Ozark Aeroworks, LLC Maintenance Manual for equivalent fuels and additives as well as for oils.



9. Aircraft Accessory Drives

Drive	AND Type	No. Required	Gear Ratio	Maximum Torque Nm (in.-lb.)		Static Nm (in.-lb.)
				Continuous	Short time ⁽¹⁾	
Gas producer tachometer	20005 XV-B Modified	1	0.1670	0.8 (7)	----	5.65 (50)
Starter-generator	20002 XII-D Modified	1	0.2833	24.9 (220)	36.2 (320) ⁽³⁾	146 (1296) ⁽²⁾
Power takeoff	20002 XII-D Modified	1	0.5397	17 (150)	25.4 (225)	76.8 (680)
Power turbine tachometer	20005 XV-B Modified	1	0.1992	0.8 (7)	---	5.65 (50)

Rotation of all drives: clockwise

⁽¹⁾ Maximum permissible torque for 5-minute periods, recurring at not less than 4-hour intervals.

⁽²⁾ Maximum permissible torque during starts is 146 Nm (1296 in.-lb.).

⁽³⁾ Generator torque in excess of 36.2 Nm (320 in.-lb.) is permissible up to a maximum of 70.6 Nm (625 in.-lb.) for a period of not more than 15 seconds.

The customer accessory horsepower extraction limits are presented in the Ozark Aeroworks, LLC Manual of FAA Approved Data.

10. Maximum Permissible Air Bleed Extraction

Maximum permissible air bleed extraction shall be in accordance with Figure 4 in the Ozark Aeroworks, LLC Manual of FAA Approved Data.

IV. Operating Limitation

1. Temperature Limits

1.1 Exhaust Gas Temperature (EGT) Limits:

Maximum permissible exhaust gas temperature varies with ambient temperature as shown in the Ozark Aeroworks, LLC Manual of FAA Approved Data. The exhaust gas temperature is measured by three thermocouples located in the exhaust diffuser of the engine.

1.2 Oil Temperature Limits:

Oil outlet temperature: 149°C (300°F)

1.3 Fuel Control Temperature Limits:

Fuel control ambient temperature: 116°C (240°F)

1.4 Other Temperature Limits:

Ignition unit surface temperature: 114°C (238°F)

Igniter solenoid valve surface temperature: 121°C (250°F)

Air bleed control ambient temperature: 127°C (260°F)



VI. Notes

Note 1: The EASA approved Airworthiness Limitations Section of the Instructions for Continued Airworthiness is published in Service Bulletin T5309/T5311-0002 Rev. 2 dated March 6, 1989. Title: Rotating Component Service - Life Limits.

Note 2: These engines meet FAA requirements for operation in icing conditions, for adequate turbine disc integrity and rotor blade containment and do not require airframe mounted armouring.

SECTION: ADMINISTRATIVE

I. Acronyms and Abbreviations

Not Applicable

II. Type Certificate Holder Record

Since 06 May 2022: Ozark Aeroworks, LLC

Previous Type Certificate Holders:
From 14 Dec. 1999 to 06 May 2022: Honeywell International Inc.

From 31 Jan. 1995 to 14 Dec. 1999: AlliedSignal

Until 31 Jan. 1995: Textron Lycoming (previously: Avco Lycoming Engine Group)

III. Change Record

Issue	Date	Changes	TC issue
Issue 01	01 June 2023	Initial Issue.	01 June 2023

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