EASA
European Union Aviation Safety Agency

TYPE-CERTIFICATE DATA SHEET

No. E.084

for
Limbach L 2400 series engines

Type Certificate Holder
Limbach Flugmotoren GmbH

Kotthausener Str. 5
D-53639 Königswinter
APDOA EASA.AP509

For Models:

L 2400 DF
L 2400 DT
L 2400 EB
L 2400 EE
L 2400 EF
L 2400 ET
L 2400 DX
L 2400 DS

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I. General

1. Type/ Model
Muster/Baureihe:

L 2400 / L 2400 DF, DT, EB, EE, EF, ET, DX, DS

2. Type Certificate Holder
Halter der Musterzulassung:

Limbach Flugmotoren GmbH
Kotthausener Str. 5
D-53639 Königswinter
APDOA EASA.AP509

3. Manufacturer
Hersteller:

Limbach Flugmotoren GmbH

4. Date of Application
Datum des Antrages für EASA-Musterzulassung:

L 2400 DF, L 2400 DT	L 2400 EB	L 2400 EE	L 2400 EF	L 2400 ET	L 2400 DX
10 Jan. 2000	20 March 1984	30 March 1999	24 March 1993	24 March 1999	14 Sept. 2015

L 2400 DS					
22 Dec. 2016					

Note: Application for L 2400 DF, DT, EB, EE, EF, ET was made to LBA before EASA has been established.

Bemerkung: Der Antrag für L 2400 DF, DT, EB, EE, EF, ET wurde an das LBA gestellt bevor die EASA eingerichtet war.

5. EASA Type Certification Date
Datum der EASA-Musterzulassung:

L 2400 DF	L 2400 DT, L 2400 ET	L 2400 EB	L 2400 EE	L 2400 EF	L 2400 DX
23 March 2001	13 Sept. 2001	12 June 1985	21 July 1999	18 Febr. 1997	21 March 2016

L 2400 DS					
03 July 2018					

Note: L 2400 DF, DT, EB, EE, EF, ET had been certified by LBA Germany (TC/TCDS 4607).
This TCDS replaces LBA TCDS No 4607.
Transfer date to EASA Type Certificate: 04 August 2006

Bemerkung: L 2400 DF, DT, EB, EE, EF, ET wurden vom LBA zugelassen (Musterzulassungsschein/Kennblatt Nr. 4607).
Dieses Kennblatt ersetzt das LBA Kennblatt Nr. 4607.
Überführung in die EASA Musterzulassung: 04. August 2006

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II. Certification Basis

Zulassungsbasis

1. EASA Certification Basis

1.1. Airworthiness Standards

Lufttüchtigkeitsforderungen:

L 2400 EB:	JAR-22 H, Amendment 2, dated 13 September 1982
L 2400 DF, DT, EE, EF, ET:	JAR-22 H, Change 5, dated 28 October 1995
L 2400 DX, DS:	CS-22 H, Amendment 2, dated 05 March 2009

1.2. Special Conditions (SC)

Sonderforderungen:

L 2400 DF, DT, EF, ET, DX, DS:	EMC according JAA Interim HIRF Policy "Normal HIRF environment", January 1992, and RTCA/DO-160C, Section 20.4 and 20.5

1.3. Equivalent Safety Findings

Nachweise gleichwertiger Sicherheit

none

1.4. Deviations

Abweichungen

none

1.5. Environmental Protection

Umweltschutzforderungen

None (not required for piston engines)
(nicht gefordert für Kolbentriebwerke)

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III. Technical Characteristics

Technische Merkmale

1. Type Design Definition

Musterdefinition

As defined by the parts list "Strukturstückliste" of the particular model:
Durch die Strukturstückliste der jeweiligen Variante definiert:

L 2400 EB1.AA: 244.000.010.000 or later approved revision
L 2400 EB1.AB: 247.000.001.000 or later approved revision
L 2400 EB1.AC: 248.000.001.000 or later approved revision
L 2400 EB1.AD: 246.000.001.000 or later approved revision
L 2400 EE2: 245.000.002.000 or later approved revision
L 2400 EF1: 250.000.001.000 or later approved revision
L 2400 DF1: 250.000.005.000 or later approved revision
L 2400 ET1: 250.000.003.000 or later approved revision
L 2400 DT1: 250.000.004.000 or later approved revision
L 2400 DX1: 250.000.016.000 or later approved revision
L 2400 DS1: 250.000.017.000 or later approved revision

2. Description

Beschreibung

The L 2400 engine is a four cylinder, four stroke spark ignited air cooled flat piston engine equipped with carburettors and magneto(s) or electronically controlled fuel injection and ignition system (L 2400 DF, DT, EF, ET, DX, DS only). The cylinder heads of the variants L 2400 DF, DT, EF, ET, DX and DS are liquid cooled. L 2400 ET, DT and DX are equipped with a turbocharger.

Der L 2400 ist ein luftgekühlter Vierzylinder-Viertakt-Boxer-Ottomotor, ausgerüstet mit Vergasern und Magnetzündung oder einem elektronisch gesteuerten Kraftstoffeinspritz- und Zündsystem (nur L 2400 DF, DT, EF, ET, DX, DS). Die Zylinderköpfe der Baureihen L 2400 DF, DT, EF, ET, DX und DS sind flüssigkeitsgekühlt. L 2400 ET, DT und DX sind mit einem Turbolader ausgerüstet.

Displacement: Hubraum:	2.424 dm^3
Bore x stroke: Bohrung x Hub:	97 mm x 82 mm
Compression ratio: Verdichtungsverhältnis:	8.5 : 1 (L 2400 EB, EE) 9.5 : 1 (L 2400 DF, EF, DS) 8.0 : 1 (L 2400 DT, ET, DX)
Gear ratio: Übersetzungsverhältnis	N/A

3. Equipment

Ausrüstung

See Operation and Maintenance Manual
Siehe Betriebs- und Wartungshandbuch

4. Dimensions
Abmessungen:

Model		L 2400		L 2400		L 2400 DT, ET, DX
		EB	EE	DF, EF	DS	
Overall Length Gesamtlänge	mm	611		620		688
Overall Height Gesamthöhe	mm	402	390	380	405	427
Width Breite	mm	790		788		793

5. Dry Weight
Trockenmasse:

Model		L 2400		L 2400 DF, EF, DS	L 2400 DT, ET, DX
		EB	EE		
Mass Masse	kg	82	79	76	86

6. Ratings

Rating	L 2400 DF, EF	L 2400 DT, ET	L 2400 EB	L 2400 EB1.AD	L 2400 EE	L 2400 DX
Take-off Startleistung	74 kW at 3000 rpm	96 kW at 3000 rpm	64 kW at 3200 rpm	69 kW at 3400 rpm	66 kW at 3000 rpm	118 kW at 3000 rpm
Max. Continuous Max. Dauerleistung	62 kW at 3000 rpm	85 kW at 3000 rpm	62 kW at 3000 rpm	62 kW at 3000 rpm	62 kW at 3000 rpm	103 kW at 3000 rpm

Rating	L 2400 DS					
Take-off Startleistung	85 kW at 3400 rpm					
Max. Continuous Max. Dauerleistung	78 kW at 3400 rpm					

Note : The performance values specified above correspond to minimum values defined under the conditions of ICAO or ARDC standard atmosphere.
Bemerkung: Die Leistungsangaben entsprechen den Minimalwerten, die unter den Bedingungen der ICAO oder ARDC Standardatmosphäre ermittelt wurden.

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7. Control System
Regelsystem

All engines except L 2400 DF, DT, EF, ET, DX, DS are equipped with carburettors and a magneto ignition system. The L 2400 DF, DT, EF, ET, DX, DS engines are equipped with an electronically controlled fuel injection and ignition system.

Alle Motoren außer L 2400 DF, DT, EF, ET, DX, DS sind mit Vergasern und Magnetzündanlage ausgerüstet. Die Motoren L 2400 DF, DT, EF, ET, DX, DS sind mit einer elektronisch gesteuerten Kraftstoffeinspritz- und Zündanlage ausgerüstet.

8. Fluids (Fuel, Oil, Coolant, Additives)
Betriebsstoffe (Kraftstoff/Öl/Additive):

See Operation and Maintenance Manual for approved fluids.
Siehe Betriebs- und Wartungshandbuch für zugelassene Betriebsstoffe

9. Aircraft Accessory Drives
Hilfsgeräteantriebe:

There are no provisions for customer/aircraft furnished equipment.
Es gibt keine Antriebe für vom Kunden oder Flugzeughersteller beigestellte Ausrüstung.

IV. Operating Limitations
Betriebsgrenzen

1. Temperature Limits
Temperaturbegrenzungen:

Cylinder head: Zylinderkopf:	250 °C (L 2400 EB, EE)
Cooling Fluid: Kühlflüssigkeit:	110 °C (L 2400 DF, DT, EF, ET, DX, DS)
Oil inlet: Öleintritt:	120 °C

2. Speed Limits
Drehzahlbegrenzungen:

Minimum Continuous Speed:	2300 rpm (L 2400 DF, EB, EE, EF, DS)
Mindestdauerdrehzahl:	2400 rpm (L 2400 ET, DT, DX)
Maximum Engine Speed:	3200 rpm
Höchstzulässige Drehzahl:	3400 rpm (L 2400 EB 1.AD, DS)

3. Pressure Limits
Druckbegrenzungen:

Oil Pressure: Öldruck:	100...700 kPa

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V. Operating and Service Instructions

Betriebs- und Instandhaltungsanweisungen

Manuals		in German language	in English language
Installation Manual for all variants		-	P/N 905.170.010.000
Operating Manual Betriebshandbuch	for L 2400 EB, EE	P/N 241.253.900.000	P/N 241.253.905.000
	for L 2400 DF, DT, EF, ET, DX, DS	P/N 250.253.500.000	P/N 250.253.501.000

Instructions for Continued Airworthiness (ICA)		in German language	in English language
Maintenance Manual Wartungshandbuch	for L 2400 EB, EE	P/N 241.253.900.000	P/N 241.253.905.000
	for L 2400 DF, DT, EF, ET, DX, DS	P/N 250.253.500.000	P/N 250.253.501.000
Repair Manual for all variants		-	P/N 905.170.020.000
Service Bulletins Technische Mitteilungen		as required	as required

Note: The ICA do not contain an Airworthiness Limitation Section.
Bemerkung: Die Anweisungen für die Erhaltung der Lufttüchtigkeit enthalten keine Angaben zur Beschränkung der Lufttüchtigkeit.

VI. Notes

Note 1: Engine model numbers may include a suffix to define minor specification changes.
Die Motorbezeichnung kann einen Suffix zur Kennzeichnung von kleinen Änderungen enthalten.

Engine Designation System:
Motorkennzeichnungssystem:

L	2400	E	B	1	.	x	x
--	------	--	--	--		--	--
1	2	3	4	5		6	7

1. Company Designation
   Firmenbezeichnung

2. Cubic displacement in cm^3
   Hubraum

3. E = Single ignition Einzelzündung
   D = Double ignition Doppelzündung

4. Accessories – Basic configuration
Konstruktionsmerkmale

B = Tractor type engine, 2 carburettors in the back, top location, alternator in the back, starter in the back
Zugschrauber, 2 Vergaser oben hinten, Generator hinten, Anlasser hinten
E = Tractor type engine, 2 carburettors in the back, top location, alternator in the front, starter in the front
Zugschrauber, 2 Vergaser oben hinten, Generator vorne, Anlasser vorne
F, T, S, X = Tractor type engine, electronically controlled fuel injection and ignition system, alternator in the back, starter in the back
Zugschrauber, elektronisch geregelte Kraftstoffeinspritz- und Zündanlage, Generator hinten, Anlasser hinten

5. Propeller flange variant
Propellerflanschausführung

1 = Propeller flange for variable pitch propeller
Propellerflansch für Verstellpropeller
2 = Propeller flange for fixed pitch propeller
Propellerflansch für Festpropeller
3 = Propeller flange according to SAE Std. No. 1 for fixed pitch propeller
Propellerflansch für Festpropeller nach SAE 1

6., 7. Differences regarding installation-related changes
Unterschiede bezüglich einbaubedingter Änderungen

X = Engine without certification for experimental purposes
Experimentalmotor ohne Zulassung
AA = Engine for motor gliders GROB G 109
AB = Engine for motor gliders VALENTIN TAIFUN
AC = Engine for motor gliders HOFFMANN HK 36 SUPER DIMONA
AD = Engines for motor gliders STEMME S 10
Motor für Motorsegler ....

Note 2: The engine designation has been changed according Service Bulletin no. 17
Die Motorbezeichnung wurde entsprechend Technischer Mitteilung Nr. 17 geändert

Old designation Alte Bezeichnung	New designation Neue Bezeichnung
L 2400 EB 1	L 2400 EB 1
L 2400 EB 1.A	L 2400 EB 1.AA
L 2400 EB 1.B	L 2400 EB 1.AB
L 2400 EB 1.C	L 2400 EB 1.AC
L 2400 EB 1.D	L 2400 EB 1.AD

Note 3: Conversion of L 2400 EF into L 2400 DF is possible, see Service Bulletin no. 60.
Die Umrüstung von L 2400 EF in L 2400 DF ist möglich, siehe Technische Mitteilung Nr. 60

Note 4: For recommended TBO see Service Bulletin no. 9.
Für die empfohlenen Überholungsintervalle siehe Technische Mitteilung Nr. 9

Note 5: Turbocharger containment has been demonstrated for L 2400 ET, DT and DX.
Turbolader Containment wurde für L 2400 ET, DT and DX nachgewiesen.

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SECTION: ADMINISTRATIVE

I. Acronyms and Abbreviations

n/a

II. Type Certificate Holder Record

Limbach Flugmotoren GmbH & Co. KG (until 17 August 2017)

III. Change Record

Issue	Date	Changes	TC issue
Issue 01	04 August 2006	Initial Issue	Initial Issue, 04 August 2006
Issue 02	21 March 2016	Model L 2400 DX added	21 March 2016
Issue 03	03 July 2018	Model L 2400 DS added	03 July 2018
Issue 04	17 August 2021	APDOA added, Note 1 corrected	

-END-

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