



European Aviation Safety Agency

EASA TYPE CERTIFICATE DATA SHEET

EASA.AS.127 WDL I - SERIES

Type Certificate Holder:

WDL Luftschiffgesellschaft mbH
Lilienthalstraße 8
45470 Mülheim an der Ruhr
GERMANY

For models: WDL I
 WDL I B

Issue 1, 02-Sep-2015



CONTENT

SECTION A: WDL I

- AI. General
- AII. Certification Basis
- AIII. Technical Characteristics and Operational Limitations
- AIV. Operating and Service Instructions
- AV. Notes

SECTION B: WDL I B

- BI. General
- BII. Certification Basis
- BIII. Technical Characteristics and Operational Limitations
- BIV. Operating and Service Instructions
- BV. Notes

OPERATION SUITABILITY DATA (OSD)

ADMINISTRATIVE SECTION

- I. Acronyms
- II. Type Certificate Holder Record
- III. Change Record



SECTION A: WDL I

A.I. General

- | | | |
|-----|--|---|
| 1. | a) Type | WDL I |
| | b) Model | WDL I |
| | c) Variant | --- |
| 2. | Airworthiness Category | Normal |
| 3a. | Type Certificate Holder: | WDL Luftschiffgesellschaft mbH
Lilienthalstraße 8, 45470 Mülheim an der Ruhr,
Germany |
| 3b. | Contracted DOA Holder: | Gomolzig Flugzeug- und
Maschinenbau GmbH
Eisenwerkstrasse 9
D-58332 Schwelm |
| 4. | Manufacturer: | WDL Luftschiffgesellschaft mbH
Lilienthalstraße 8, 45470 Mülheim an der Ruhr,
Germany

Westdeutsche Luftwerbung Theodor
Wüllenkemper
Lilienthalstraße 8, 4330 Mülheim an der Ruhr,
Germany |
| 5. | Certification Application Date: | --- |
| 6. | The LBA Certification Date: | 01-Dec-1972 |
| 7. | The EASA Type Certificate replaces for the WDL I the LBA Type Certificate No. 9002, issue 9, dated 30-Sep-1990 | see Note 3 |

A.II Certification Basis

- | | | |
|----|---|--|
| 1. | Reference Date for determining the applicable requirements: | -- |
| 2. | (reserved) | |
| 3. | (reserved) | |
| 4. | Airworthiness Requirements: | "Lufttüchtigkeitsrichtlinien für Prallluftschiffe",
recognized by LBA

"Zusatzforderungen für eine erweiterte Zulassung
des Luftschiffs WDL I entsprechend dem
Verwendungszweck "Personenbeförderung 3" |
| 5. | Requirements elected to comply: | None |
| 6. | EASA Special Conditions | None |



7. EASA Exemptions:

None

8. EASA Equivalent Safety Findings:

None

9. EASA Environmental Standards:

Not applicable

A.III Technical Characteristics and Operational Limitations

1. Type Design Definition:

List of applicable drawings for WDL I,
Issue 30-Nov-1972

List of applicable drawings for "Beleuchtungsfeld",
Issue 28-Mar-1974

2. Description:

Blimp with forward, middle, and rear ballonets, two engines, traction propeller and single wheel landing gear.

3. Equipment:

Minimum equipment i.a.w. Pilot's Operating Handbook for the airship WDL I

4. Dimensions:

Length	56.0 m (183.7 ft)	see Note 2
Hull diameter	14.3 m (46.9 ft)	
Height over all	18.9 m (62.0 ft)	
Width over all	16.4 m (53.8 ft)	
Hull volume (under pressure)	6100 m ³ (215,419.5 ft ³)	see Note 2

5. Engines:

No.

1

Model:

Continental IO-360-C

Type Certificate

EASA.IM.E.005

No.

2

Model:

Continental IO-360-CB

Type Certificate

EASA.IM.E.005



5.1. Engine Limits (for version "C" and "CB")

Max RPM	2800 min ⁻¹
Continuous RPM	2800 min ⁻¹
Take-off RPM	2800 min ⁻¹

6. Propellers:	No.	1
	Model	Hartzell BHC-92WF-3G/W 8447-6R
	Type Certificate	LBA 32.130/18
	Number of blades	2
	Diameter	198,1 cm +/- 0 cm (78.0 in +/- 0 in)
	No.	2 (optional)
	Model	Mc Cauley D2A34C67/76C-6
	Type Certificate	LBA 32.130/20
	Number of blades	2
	Diameter	185,5 cm +/- 7,5 cm (73.0 in +/- 3 in)

7. Fluids

7.1 Fuel

AVGAS 100

7.2 Oil

In accordance with Continental Spec. MHS-24,
or refer also to the Limitations Section of the Pilot's Operating Handbook (latest revision).

8. Fluid Capacities

8.1 Fuel

Front Tank	Total:	400 lt	(105.6 US Gal)
	Usable:	400 lt	(105.6 US Gal)
Rear Tank	Total:	400 lt	(105.6 US Gal)
	Usable:	400 lt	(105.6 US Gal)

8.2 Oil (per engine)

Total:	7.6 lt	(2.0 US Gal)
--------	--------	--------------

9. Air Speeds



	Speed		km/h (KIAS)
	Maximum operating speed	V _{NE}	90 (48)
	Maneuvering speed	V _A	65 (35)
10.	Lifting Gas:		
10.1:	Type		Helium
10.2:	maximum gas pressure		55 mm (2.17 in) water column
10.3:	minimum gas pressure (indication in gondola)		20 mm (0.79 in) water column
11.	Normal Lift (static)		5443 kg (12,000 lb)
12.	Masses		
	Seat 1 to seat 8		max. 90 kg (198 lb) each
	Baggage		n.a.
	Water Ballast		min. 180 kg (397 lb) max. 300 kg (661 lb)
13.	Buoyancy Centre:		
	Reference plane		Bulkhead No. 0
	Centre of lift (with ballonets 50% filled)		26.7 m (87.6 ft) see Note 2
14.	Minimum Flight Crew		1 (Pilot)
15.	Maximum Passenger Seating Capacity		7
16.	Life Limit Parts		See Airship Maintenance Manual
17.	Control Deflections		See Airship Maintenance Manual

A.IV Operating and Servicing Instructions

1. Operating Instructions

Pilot's Operating Handbook for the airship WDL I, Issue November 1972, recognized by LBA

IO-360 Series Installation and Operation Manual, OI-7

Hartzell Propeller Owner's Manual 169

2. Maintenance Instructions

Maintenance Manual for the airship WDL I, Issue 15-Mar-1990

IO-360 Series Engine Maintenance and Overhaul Manual, M-7

Hartzell Propeller Owner's Manual 169



A.V Notes

1. The installation of the illumination assembly in accordance with Service Bulletin No. 1 of Westdeutsche Luftwerbung, Mülheim, is permissible
2. The enlargement of the envelope in accordance with Service Bulletin No. 7 of Westdeutsche Luftwerbung, Mülheim, is permissible
This enlargement will affect the following data:
 4. Dimensions:

Length	58 m (190.3 ft)
Hull volume (under pressure)	6429 m ³ (227,038 ft ³)
 13. Buoyancy Centre:

Reference plane	Bulkhead No. 0
Centre of lift (with ballonets 60% filled)	27.1 m (88.9 ft)
3. The WDL I has been developed by WDL on the basis of the airship PL 4360 A, designed by Metallwerk Friedrichshafen GmbH. The WDL I has been certified under the TC of the PL 4360 A by LBA using the "Ergänzende Musterzulassung" procedure, which resulted in a separate model. Although under the same LBA TC Number (9002) the two airships can be seen as different types and do have two different TC Holders (Metallwerk Friedrichshafen and WDL).
EASA TCDS EASA.AS.127 covers only the WDL I (and the WDL I B later under B). For more details of the PL 4360 A, please refer to LBA TC 9002.



SECTION B: WDL I B

B.I General

- | | | |
|----|---|--|
| 1. | a) Type | WDL I |
| | b) Model | WDL I B |
| | c) Variant | --- |
| 2. | Airworthiness Category | Normal |
| 3a | Type Certificate Holder: | WDL Luftschiffgesellschaft mbH
Flughafen, 45470 Mülheim an der Ruhr _
Germany |
| 3b | Contracted DOA Holder: | Gomolzig Flugzeug- und
Maschinenbau GmbH
Eisenwerkstrasse 9
D-58332 Schwelm |
| 4. | Manufacturer: | WDL Luftschiffgesellschaft mbH
Flughafen, 45470 Mülheim an der Ruhr,
Germany |
| 5. | Certification Application Date: | 20-Feb-1985 |
| 6. | The LBA Certification Date: | 22-Sep-1988 |
| 7. | The EASA Type Certificate replaces the LBA Type Certificate No. 07.9002, Issue 1, dated 22-Sep-1988 | |

B.II Certification Basis

- | | | |
|----|---|--|
| 1. | Reference Date for determining the applicable requirements: | 20-Feb-1985 |
| 2. | (reserved) | |
| 3. | (reserved) | |
| 4. | Airworthiness Requirements: | "Lufttüchtigkeitsrichtlinien für Prallluftschiffe",
recognized by LBA

FAR Part 23, Amdt. 12, Subpart E

"Zusatzforderungen für eine erweiterte Zulassung des
Luftschiffs WDL I entsprechend dem
Verwendungszweck "Personenbeförderung 3" |
| 5. | Requirements elected to comply: | Airship Design Criteria (ADC) No. FAA P-81102-2
(issue 02-Nov-1987), Items 2.1 to 2.10, 3.5, 5.1 to
5.73, 6.1 to 6.41, 7.1 to 7.29 |



- | | |
|-------------------------------------|----------------|
| 6. EASA Special Conditions | None |
| 7. EASA Exemptions: | None |
| 8. EASA Equivalent Safety Findings: | None |
| 9. EASA Environmental Standards: | Not applicable |

B.III Technical Characteristics and Operational Limitations

- | | | | | | | | | | | | |
|------------------------------|---|--------|-------------------|---------------|-----------------------|------------------|------------------|----------------|------------------|------------------------------|--|
| 1. Type Design Definition: | Master Drawing List WDL I B, revision date 10-Jul-1992, or later approved revisions,

if Modification GA 2014-50 (new envelope) is installed:
Type Definition Document_2034194_rev0_20150820
dated 20-Aug-2015 or later approved revision
see Note 6 | | | | | | | | | | |
| 2. Description: | Blimp with forward, middle, and rear ballonets, two engines, traction propeller and single wheel landing gear. | | | | | | | | | | |
| 3. Equipment: | Minimum equipment i.a.w. Pilot's Operating Handbook for the airship WDL I B | | | | | | | | | | |
| 4. Dimensions: | <table border="0"><tr><td>Length</td><td>59.9 m (196.5 ft)</td></tr><tr><td>Hull diameter</td><td>15.2 m (49.9 ft)</td></tr><tr><td>Height over all</td><td>19.2 m (63.0 ft)</td></tr><tr><td>Width over all</td><td>16.4 m (53.8 ft)</td></tr><tr><td>Hull volume (under pressure)</td><td>6904 m³ (243,812.5 ft³)</td></tr></table> | Length | 59.9 m (196.5 ft) | Hull diameter | 15.2 m (49.9 ft) | Height over all | 19.2 m (63.0 ft) | Width over all | 16.4 m (53.8 ft) | Hull volume (under pressure) | 6904 m ³ (243,812.5 ft ³) |
| Length | 59.9 m (196.5 ft) | | | | | | | | | | |
| Hull diameter | 15.2 m (49.9 ft) | | | | | | | | | | |
| Height over all | 19.2 m (63.0 ft) | | | | | | | | | | |
| Width over all | 16.4 m (53.8 ft) | | | | | | | | | | |
| Hull volume (under pressure) | 6904 m ³ (243,812.5 ft ³) | | | | | | | | | | |
| 5. Engines: | <table border="0"><tr><td>No.</td><td>2</td></tr><tr><td>Model:</td><td>Continental IO-360-CB</td></tr><tr><td>Type Certificate</td><td>EASA.IM.E.005</td></tr></table> | No. | 2 | Model: | Continental IO-360-CB | Type Certificate | EASA.IM.E.005 | | | | |
| No. | 2 | | | | | | | | | | |
| Model: | Continental IO-360-CB | | | | | | | | | | |
| Type Certificate | EASA.IM.E.005 | | | | | | | | | | |



5.1. Engine Limits

Max RPM	2800 min ⁻¹
Continuous RPM	2800 min ⁻¹
Take-off RPM	2800 min ⁻¹

6. Propellers:	No.	1
	Model	Hartzell BHC-92WF-3G/W 8447-6R
	Type Certificate	LBA 32.130/18
	Number of blades	2
	Diameter	198,1 cm +/- 0 cm (78.0 in +/- 0 in)
	No.	2 (optional)
	Model	Mc Cauley D2A34C67/76C-6
	Type Certificate	LBA 32.130/20
	Number of blades	2
	Diameter	185,5 cm +/- 7,5 cm (73.0 in +/- 3.0 in)

7. Fluids

7.1 Fuel

AVGAS 100

7.2 Oil

In accordance with Continental Spec. MHS-24,
or refer also to the Limitations Section of the Pilot's Operating Handbook (latest revision).

8. Fluid Capacities

8.1 Fuel

Front Tank	Total:	400 lt	(105.6 US Gal)
	Usable:	400 lt	(105.6 US Gal)
Rear Tank	Total:	400 lt	(105.6 US Gal)
	Usable:	400 lt	(105.6 US Gal)

8.2 Oil

(per engine)

Total:	7.6 lt	(2.0 US Gal)
--------	--------	--------------



9. Air Speeds

Speed		km/h (KIAS)
Maximum operating speed	V_{NE}	90 (48)
Maneuvering speed	V_A	65 (35)

10. Lifting Gas:

10.1:	Type	Helium
10.2:	maximum gas pressure	55 mm (2.17 in) water column
10.3:	minimum gas pressure (indication in gondola)	20 mm (0.79 in) water column

11. Normal Lift (static) 6212 kg (13,695.1 lb)

12. Masses

Seat 1 to seat 8	max. 90 kg (198 lb) each
Baggage	n.a.
Water Ballast	min. 180 kg (397 lb) max. 300 kg (661 lb)

13. Buoyancy Centre:

Reference plane	Bulkhead No. 0
Centre of lift (with ballonets 50% filled)	27,23 m (89.3 ft)

14. Minimum Flight Crew 1 (Pilot)

15. Maximum Passenger Seating Capacity 7

16. Life Limit Parts See Airship Maintenance Manual

17. Control Deflections See Airship Maintenance Manual

B.IV Operating and Servicing Instructions

1. Operating Instructions

a.) Airship

Airship Flight Manual WDL I B, approved 20-Oct-1992, recognized by LBA

if modification GO 2014-50 is installed

Supplement SPOH_2034194_rev0_20150601 or later approved revision must be used

b.) Engine

IO-360 Series Installation and Operation Manual, No. OI-7

c.) Propeller

Hartzell Propeller Owner's Manual 169



2. Maintenance Instructions

a.) Airship

Maintenance Manual for the airship WDL I B, approved on 20-Oct-1992, or later approved revision,
if modification GO 2014-50 is installed, MMS_2034194_rev0_20150601, or later approved revision must be used.

b.) Engine

IO-360 Series Engine Maintenance and Overhaul Manual, No. M-7
Overhaul Manual No. X-30030A

c.) Propeller

Hartzell Propeller Owner's Manual 169
Owner's Manual Operation Service for Mc Cauley Met.-L. Matic Constant Speed Propellers Model 2A34C Series and its translation (done by Hoffmann Propeller), when installed.

B.V **Notes**

1. Only industrial production of the airship is permitted
2. Unless Major Change GO 2014-50 is installed, the installation of the night sign assembly in accordance with Service Bulletin No. 14 of Westdeutsche Luftwerbung, Mülheim, is permissible
3. Seating and cabin configuration have to be in accordance with LBA recognized
4. The airship WDL I B is approved for Day and Night VFR
5. Unless Major Change GO 2014-50 is installed, the airship WDL I B is approved for banner towing with
 - a.) pick-up in flight
 - b.) extension and retraction of the banner in flightFor this operation the "Zulassungsbedingungen für Schleppflug mit dem Prallluftschiff PL 4360A der DVL/PFL", dated 13-Jun-1962, need to be taken into account.
6. With Major Change GO 2014-50, WDL introduced a new envelope material together with a new manufacturing processes. This new envelope is separated by an own Master Drawing List.
Both envelopes, the old design as well as the new design can be installed.



OPERATIONAL SUITABILITY DATA (OSD)

The WDL I and the WDL I B airships are ELA 2 airships and are of simple design.
OSD is not applicable.



ADMINISTRATIVE SECTION

I Acronyms

None

II Type Certificate Holder Record

Westdeutsche Luftwerbung Theodor Wüllenkemper
Lilienthalstraße 8, 4330 Mülheim an der Ruhr
Germany

III Change Record

Issue	Date	Changes
1	02-Sep-2015	- Initial EASA issue, replacing LBA TCDS - incorporation of Major Change No. GO 2014-50, "New Envelope Material"