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 2, 10-Dec-2021
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AIII. Technical Characteristics and Operational Limitations
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AV. Notes

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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: ACC COLUMBIA Jet Service GmbH
    Eisenwerkstrasse 9
    D-58332 Schwelm
    Germany
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:
   28-Apr-1971
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: 28-Apr-1971
2. (reserved)
3. (reserved)
   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 with constant speed propeller and single wheel landing gear.

3. Equipment:
Minimum equipment i.a.w. Pilot’s Operating Handbook for the airship WDL I

4. Dimensions:

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Value</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>56.0 m (183.7 ft)</td>
<td></td>
</tr>
<tr>
<td>Hull diameter</td>
<td>14.3 m (46.9 ft)</td>
<td></td>
</tr>
<tr>
<td>Height over all</td>
<td>18.9 m (62.0 ft)</td>
<td></td>
</tr>
<tr>
<td>Width over all</td>
<td>16.4 m (53.8 ft)</td>
<td></td>
</tr>
<tr>
<td>Hull volume (under pressure)</td>
<td>6100 m³ (215,419.5 ft³)</td>
<td></td>
</tr>
</tbody>
</table>

5. Engines:

5.1 Model: Continental IO-360-CB
Type Certificate EASA.IM.E.005, or

5.2 Model: Continental IO-360-CB
Type Certificate EASA.IM.E.005
5.1. Engine Limits (for version “C” and “CB”)

<table>
<thead>
<tr>
<th>Limits</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max RPM</td>
<td>2800 min⁻¹</td>
</tr>
<tr>
<td>Continuous RPM</td>
<td>2800 min⁻¹</td>
</tr>
<tr>
<td>Take-off RPM</td>
<td>2800 min⁻¹</td>
</tr>
</tbody>
</table>

6. Propellers:

<table>
<thead>
<tr>
<th>6.1 Model</th>
<th>Hartzell</th>
</tr>
</thead>
<tbody>
<tr>
<td>BHC-92WF-3G/W 8447-6R</td>
<td></td>
</tr>
<tr>
<td>Type Certificate</td>
<td>LBA 32.130/18</td>
</tr>
<tr>
<td>Number of blades</td>
<td>2</td>
</tr>
<tr>
<td>Diameter</td>
<td>198,1 cm +/- 0 cm (78.0 in +/- 0 in), or</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>6.2 Model</th>
<th>Mc Cauley</th>
</tr>
</thead>
<tbody>
<tr>
<td>D2A34C67/76C-6</td>
<td></td>
</tr>
<tr>
<td>Type Certificate</td>
<td>LBA 32.130/20</td>
</tr>
<tr>
<td>Number of blades</td>
<td>2</td>
</tr>
<tr>
<td>Diameter</td>
<td>185,5 cm +/- 7,5 cm (73.0 in +/- 3 in)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Tank</th>
<th>Total:</th>
<th>Usable:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front</td>
<td>400 litre</td>
<td>400 litre</td>
</tr>
<tr>
<td></td>
<td>(105.6 US Gal)</td>
<td>(105.6 US Gal)</td>
</tr>
<tr>
<td>Rear</td>
<td>400 litre</td>
<td>400 litre</td>
</tr>
<tr>
<td></td>
<td>(105.6 US Gal)</td>
<td>(105.6 US Gal)</td>
</tr>
</tbody>
</table>

8.2 Oil (per engine)

| Total:  | 7.6 l        | (2.0 US Gal) |

9. Air Speeds

| Speed | km/h (KIAS) |
|-------|-------------|--------------|

WDL I
### Maximum operating speed

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum operating speed</td>
<td>$V_{\text{NE}}$</td>
<td>90 (48)</td>
</tr>
<tr>
<td>Maneuvering speed</td>
<td>$V_A$</td>
<td>65 (35)</td>
</tr>
</tbody>
</table>

### 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

### Normal Lift (static)

- 5443 kg (12,000 lb)

### 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)

### Buoyancy Centre:

- Reference plane Bulkhead No. 0
- Centre of lift (with ballonets 50% filled) 26.7 m (87.6 ft) see Note 2

### Minimum Flight Crew

- 1 (Pilot)

### Maximum Passenger Seating Capacity

- 7

### Life Limit Parts

- See Airship Maintenance Manual

### 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, approved / accepted by LBA
   - IO-360 Series Installation and Operation Manual, OI-7
   - Hartzell Propeller Owner’s Manual 169

2. Maintenance Instructions

   - 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 permitted

2. The enlargement of the envelope in accordance with Service Bulletin No. 7 of Westdeutsche Luftwerbung, Mülheim, is permitted
   
   This enlargement will affect the following data:
   
   4. Dimensions:
      
      | Dimension                      | Value          |
      |--------------------------------|----------------|
      | Length                         | 58 m (190.3 ft) |
      | Hull volume (under pressure)   | 6429 m³ (227,038 ft³) |

   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: ACC COLUMBIA Jet Service GmbH
   Eisenwerkstrasse 9
   D-58332 Schwelm
   Germany

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 with constant speed 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>
<thead>
<tr>
<th>Dimension</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<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>
</tbody>
</table>

5. Engines:

<table>
<thead>
<tr>
<th>Model</th>
<th>Continental IO-360-CB</th>
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</thead>
<tbody>
<tr>
<td>Type Certificate</td>
<td>EASA.IM.E.005</td>
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5.1. Engine Limits

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Max RPM</td>
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<th>Hartzell</th>
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<td></td>
<td>Number of blades</td>
<td>2</td>
</tr>
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<td></td>
<td>Diameter</td>
<td>198,1 cm +/- 0 cm (78.0 in +/- 0 in), or</td>
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<td></td>
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<td></td>
<td>Diameter</td>
<td>185,5 cm +/- 7,5 cm (73.0 in +/- 3.0 in)</td>
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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

<table>
<thead>
<tr>
<th>Subsection</th>
<th>Tank</th>
<th>Total:</th>
<th>Usable:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Front Tank</td>
<td>400 litre</td>
<td>400 litre</td>
</tr>
<tr>
<td></td>
<td>Rear Tank</td>
<td>400 litre</td>
<td>400 litre</td>
</tr>
</tbody>
</table>

8.2 Oil (per engine)

<table>
<thead>
<tr>
<th>Subsection</th>
<th>Total:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>7.6 litre</td>
</tr>
</tbody>
</table>

9. Air Speeds
### Speed

**km/h (KIAS)**

- **Maximum operating speed** $V_{NE}$: 90 (48)
- **Maneuvering speed** $V_A$: 65 (35)

### 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

### Normal Lift (static)

6212 kg (13,695.1 lb)

### 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)

### Buoyancy Centre:

- Reference plane: Bulkhead No. 0
- Centre of lift (with ballonets 50% filled): 27.23 m (89.3 ft)

### Minimum Flight Crew

1 (Pilot)

### Maximum Passenger Seating Capacity

7

### Life Limit Parts

See Airship Maintenance Manual

### Control Deflections

See Airship Maintenance Manual

### B.IV Operating and Servicing Instructions

1. Operating Instructions

   a.) Airship


   if modification GO 2014-50 is installed
   Supplement SPOH_2034194_revo_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 permitted

3. Seating and cabin configuration have to be in accordance with LBA accepted instructions

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 flight
   For 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 Wüllen kemper
Lilienthalstraße 8, 4330 Mülheim an der Ruhr
Germany

III Change Record

<table>
<thead>
<tr>
<th>Issue</th>
<th>Date</th>
<th>Changes</th>
</tr>
</thead>
</table>
| 1     | 02-Sep-2015 | - Initial EASA issue, replacing LBA TCDS  
        |            | - incorporation of Major Change No. GO 2014-50, "New Envelope Material" |
| 2     | 10-Dec-2021 | A.I.3b and B.I.3b: change of contracted DOA name to ACC COLUMBIA Jet Service GmbH  
        |            | Throughout the document: corrections and improvement of wording |

Administrative Section