DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

AS1CE
Revision 2
ZLT Zeppelin Luftschifftechnik GmbH & Co KG
LZ N07-100
LZ N07-101
October 29, 2014

TYPE CERTIFICATE DATA SHEET NO. AS1CE

This data sheet which is part of Type Certificate No. AS1CE prescribes conditions and limitations under which the product for which the type certificate was issued meets the airworthiness requirements of the Federal Aviation Regulations.

Type Certificate Holder	ZLT Zeppelin Luftschifftechnik GmbH & Co KG Messestrasse 132 D-88046 Friedrichshafen Germany

I - Model LZ N07-100, Normal Category (See Note 4) Airship (Approved June 11, 2008)
(Note: some dimensions and quantities in this type certificate data sheet are noted only in metric units.)

Structural Type	Semi-rigid (internal structure in envelope.)
Envelope	Volume 298,409 cubic feet (8450 cubic meters) Maximum Pressure 2.4 inches H_20 (600 Pa) Minimum Pressure 1.2 inches H_20 (300 Pa)
Ballonets (2)	Volume 21,189 cubic feet or with Option B10 14,479 cubic feet (forward) Volume 56,504 cubic feet (aft), also see Note 6.
Lifting Gas	Helium, recommended minimum purity 94%
Engine	3 Textron Lycoming IO-360-C1G6 engines. 2 side mounted, 1 aft mounted. Vectorable propellers. TCDS 1E10
Fuel(s)	100/100LL Minimum Grade Aviation Fuel
Oil	See Airship Flight Manual
Engine Limits	Maximum continuous, 2700 r.p.m. Takeoff, 2700 r.p.m. Maximum cylinder head temperature, 500°F (260 °C) Maximum inlet oil temperature, 244°F (118°C)
Propellers	On each side engine: 1 Hoffman HO-V373( )-D propeller. (driven through Zeppelin vectoring transmission system.) 2.7 meters diameter maximum propeller RPM 1250 TCDS P30BO

Propellers, (continued)	On aft engine:	1 Hoffman HO-V373( )-D propeller 2.7 meters diameter (driven through Zeppelin vectoring transmission system.) maximum propeller RPM 1250 TCDS P30BO 1 Hoffman HO-V123F-DR/220GV lateral propeller 2.2 meters diameter (driven by Zeppelin transmission system.) maximum propeller RPM 2025 TCDS P5EU

Airspeed Limits	Maneuvering Speed	45 knots IAS
	Maximum Operating Limit Speed	70 knots IAS
	Design Speed for Maximum Gust Intensity	45 knots IAS
	Maximum T/O and Landing configuration speed	35 knots IAS

C.G. Range	Take off and Landing	Maximum Forward	39.150 meters
		Maximum Aft	39.900 meters
	In Flight	Maximum Forward	38.400 meters
		Maximum aft	39.900 meters

The above center of gravity limitations are given in the Construction Coordinate System of the airship. The reference datum of this coordinate system is 5.000 m ahead of the nose of the airship. The horizontal reference line runs parallel to the airships centerline.

Leveling Means: Seat rails, or in accordance with Airship Maintenance Manual Chapter 8.

Maximum Weights	Maximum airship equilibrium (normal condition) weight	16,865 lbs. (7650 kg)
	Maximum car (gondola) gross weight	5,390 lbs. (2690 kg)
	Maximum static heaviness: In Flight	1,102 lbs. (500 kg)
	Take off and landing	882 lbs. (400 kg)
	Maximum static lightness	-441 lbs. (-200 kg)

Minimum Crew

Minimum Flight Crew: One pilot. All pilots must comply with the requirements of 14 CFR Part 61.31 (h) (1) and (2) before serving as pilot in command of this aircraft. Type specific training requirements are identified in the current version of the FAA Flight Standardization Board (FSB) Report for the Zeppelin LZ N07.

(For Single Pilot Operation the seat of the pilot is the LH seat.
For Two Pilot Operation the crew station for the Pilot Flying is the LH seat (except training flights).

Other Crew: For passenger-carrying operations, a second crew member, or another crew member in the right-hand seat is required. This crew member may be a qualified flight crew member, or another crew member, who has completed a Zeppelin training program that includes passenger assistance and emergency evacuation procedures.

Number of Seats	15 places total: 2 (flight deck) at gondola station 22.38 meters 1 passenger LH at gondola station 23.31 meters 1 passenger LH at gondola station 24.49 meters 1 passenger LH at gondola station 25.31 meters 1 passenger LH at gondola station 26.12 meters 1 passenger LH at gondola station 26.93 meters 1 passenger LH at gondola station 27.75 meters 1 passenger RH at gondola station 23.31 meters 1 passenger RH at gondola station 24.72 meters 1 passenger RH at gondola station 25.49 meters 1 passenger RH at gondola station 26.25 meters 1 passenger RH at gondola station 27.00 meters 1 passenger RH at gondola station 27.77 meters 1 passenger RH at gondola station 28.53 meters (or optional configurations identified in Zeppelin document 07 TD 01 250, Zeppelin LZ N07-100 Optional Cabin Layouts, but not to exceed 13 passenger seats.)
Baggage/Cargo	No dedicated baggage/cargo station.
Fuel Capacity	110.95 gallons usable at gondola station 29.3 meters (LH) 110.95 gallons usable at gondola station 29.3 meters (RH) 84.57 gallons usable at gondola station 76.6 meters (Aft) The unuseable fuel is included in the certificated empty weight (See Note 1.)
Oil Capacity	8.0 qts. maximum, 5.0 qts. minimum at 29.3 meters (LH) 8.0 qts. maximum, 5.0 qts. minimum at 29.3 meters (RH) 8.0 qts. maximum, 5.0 qts. minimum at 76.6 meters (Aft)
Ballast	In flight: 1543 lbs. (700 kg) of water at 25.6 meters 441 lbs (200 kg) at 26.9 m. (Gondola locker aft) Ground: 1543 lbs. (700 kg) of water at 25.6 meters 441 lbs (200 kg) at 24.1 meters (Gondola locker forward) 661 lbs (300 kg) at 26.9 meters (Gondola locker aft) 397 lbs (180 kg) at 63.2 meters (Landing gear aft) See Note 7.
Maximum Operating Altitude	10,000 feet (pressure altitude.)
Control Surfaces	Three (triform), inverted "Y".
Control Surface Movements	± 20° (all)
Vectored Thrust Movements	Side Engines: 0º (forward horizontal) to 120º up. Aft Engine: 0º (aft horizontal) to 90º down. Avoid sustained operation with forward swivel angles between 43° and 57° during normal operation
Serial Nos. Eligible	002, 003 and 004. (ZLT Option K73 must be installed for US import.)

Import Requirements	The FAA can issue a U.S. airworthiness certificate based on an NAA Export Certificate of Airworthiness (Export C of A) signed by a representative of the Luftfahrt Bundesamt on behalf of the European Community. The Export C of A should contain the following statement: 'The aircraft covered by this certificate has been examined, tested, and found to comply with U.S. airworthiness regulations 14 CFR Part 21.17(b) approved under U.S. Type Certificate No. AS1CE and to be in a condition for safe operation.'
Certification Basis	14 CFR Parts 21.17(b) at amendment 21-70, effective December 31, 1992: Compliance with FAR 21.17(b) has been shown utilizing the provisions of Advisory Circular 21.17-1 dated October 30, 1992, section 5. The airworthiness and environmental requirements met under this provision are the German national requirement the Lufttüchtigkeitsforderungen für Luftschiffe der Kategorien Normal und Zubringer (LFLS), issued April 13, 2001, with additional or alternate requirements as identified in notice for final design criteria in the Federal Register; Volume 73, Number 62, on March 31, 2008. Compliance to LFLS §1415 ditching provisions, has been shown. Application for Type Certificate dated January 10, 2001. Type Certificate No. AS1CE issued June 11, 2008. The Luftfahrt Bundesamt originally type certificated this aircraft under its type certificate Number 9004. The FAA validated this product under U.S. Type Certificate Number AS1CE. Effective September 28, 2003, the European Aviation Safety Agency EASA) began oversight of this product on behalf of Germany. Approved for Day/Night VFR operations.
Equipment	The basic required equipment as prescribed in the applicable airworthiness requirements (see Certification Basis) must be installed in the aircraft for certification. In addition to the above required equipment, the following equipment is also required: FAA approved Airship Flight Manual, Document Number 07 ML 01 200, Revision E, issued April 2, 2003, or later FAA approved revision. (See Note 4.) The airship must be operated in accordance with Zeppelin Airship Ground Handling Manual, 07 ML 01 400, Revision C-00, dated November 16, 2007, or later FAA approved revision. This manual is to be made available to the operator's flight and ground crews.
Service Information	Each of the documents listed below must state that it is approved by the European Aviation Safety Agency (EASA) or – for approvals made before September 28, 2003 – by the Luftfahrt Bundesamt. • Service bulletins, • Structural repair manuals, • Vendor manuals, • Aircraft flight manuals, and • Overhaul and maintenance manuals. The FAA accepts such documents and considers them FAA-approved unless one of the following conditions exists: • The documents change the limitations, performance, or procedures of the FAA approved manuals; or

•The documents make an acoustical or emissions changes to this product's U.S. type certificate as defined in 14 CFR § 21.93.

The FAA uses the post type validation procedures to approve these documents. The FAA may delegate on case-by-case to EASA to approve on behalf of the FAA for the U.S. type certificate. If this is the case it will be noted on the document.

NOTE 1. Current weight and balance report together with list of equipment included in certificated empty weight, and loading instructions when necessary, must be provided for each airship at time of original certification. The certificated empty weight includes unusable fluids.

NOTE 2. All placards required in the Airship Flight Manual and Maintenance Manual must be installed in the appropriate locations.

NOTE 3. Maintenance and Inspection of this airship must be carried out according to Airship Maintenance Manual, Document Number 07 ML 05 200, Revision D-01 dated March 25, 2003, or later FAA accepted revision, including supplements applicable to installed Options.

NOTE 4. This airship is type certificated in the Normal category for airships in the United States, but is approved to carry up to 13 passengers.

NOTE 5. Options listed in ZLT Document 07 TD 01 131 dated May 15, 2008 are FAA approved as noted in this document. Later options will be approved according to the FAA-EASA agreements for type design changes.

NOTE 6. Option B20, smaller aft ballonet, is approved for US registered airships.

NOTE 7. Options P32, ballast station aft engine nacelle, and Option P20, aft undercarriage ballast box, are approved for US registered airships.

II - Model LZ N07-101, Normal Category (See Note 4) Airship (Approved October 29, 2014)

(Note: some dimensions and quantities in this type certificate data sheet are noted only in metric units.)

Structural Type	Semi-rigid (internal structure in envelope.)		
Envelope	Volume 297,490 cubic feet (8425 cubic meters) Maximum Pressure 2.4 inches H_20 (600 Pa) Minimum Pressure 1.2 inches H_20 (300 Pa)		
Ballonets (2)	Volume 21,189 cubic feet Volume 56,504 cubic feet (aft), also see Note 6.		
Lifting Gas	Helium, recommended minimum purity 94%		
Engine	3 Textron Lycoming IO-360-C1G6 engines. 2 side mounted, 1 aft mounted. Vectorable propellers. TCDS 1E10		
Fuel(s)	100/100LL Minimum Grade Aviation Fuel		
Oil	See Airship Flight Manual and Airship Maintenance Manual		
Engine Limits	Maximum continuous, 2700 r.p.m. Takeoff, 2700 r.p.m. Maximum cylinder head temperature, 500°F (260 °C) Maximum inlet oil temperature, 244°F (118°C)		
Propellers	On each side engine:	1 Hoffman HO-V373( )-D propeller. (driven through Zeppelin vectoring transmission system.) 2.7 meters diameter maximum propeller RPM 1250 TCDS P30BO	
	On aft engine:	1 Hoffman HO-V373( )-D propeller 2.7 meters diameter (driven through Zeppelin vectoring transmission system.) maximum propeller RPM 1250 TCDS P30BO 1 Hoffman HO-V123F-DR/220GV lateral propeller 2.2 meters diameter (driven by Zeppelin transmission system.) maximum propeller RPM 2025 TCDS P5EU	
Airspeed Limits	Maneuvering Speed		45 knots IAS
	Maximum Operating Limit Speed		70 knots IAS
	Design Speed for Maximum Gust Intensity		45 knots IAS
	Maximum T/O and Landing configuration speed		35 knots IAS
C.G. Range	Take off and Landing	Maximum Forward	39.150 meters
		Maximum Aft	39.900 meters
	In Flight	Maximum Forward	38.400 meters
		Maximum aft	39.900 meters
	The above center of gravity limitations are given in the Construction Coordinate System of the airship. The reference datum of this coordinate system is 5.000 m ahead of the nose of the airship. The horizontal reference line runs parallel to the airships centerline.		

Leveling Means	Seat rails, or in accordance with Airship Maintenance Manual Chapter 8.
Maximum Weights	Maximum airship equilibrium (normal condition) weight 16,865 lbs. (7650 kg) Maximum car (gondola) gross weight with full fwd fuel 5,390 lbs. (2690 kg) with 190 kg fwd fuel 6834 lbs. (3100 kg) and linear interpolation in between Maximum static heaviness: In Flight 1,102 lbs. (500 kg) Take off and landing 882 lbs. (400 kg) Maximum static lightness -441 lbs. (-200 kg)
Minimum Crew	Minimum Flight Crew: One pilot. All pilots must comply with the requirements of 14 CFR Part 61.31 (h) (1) and (2) before serving as pilot in command of this aircraft. Type specific training requirements are identified in the current version of the FAA Flight Standardization Board (FSB) Report for the Zeppelin LZ N07. (For Single Pilot Operation the seat of the pilot is the LH seat. For Two Pilot Operation the crew station for the Pilot Flying is the LH seat (except training flights). Other Crew: For passenger-carrying operations, a second crew member, or another crew member in the right-hand seat is required. This crew member may be a qualified flight crew member, or another crew member, who has completed a Zeppelin training program that includes passenger assistance and emergency evacuation procedures.
Number of Seats	17 places total: 2 (flight deck) at gondola station 22.38 meters 1 passenger LH at gondola station 23.31 meters 1 passenger LH at gondola station 24.49 meters 1 passenger LH at gondola station 25.31 meters 1 passenger LH at gondola station 26.12 meters 1 passenger LH at gondola station 26.93 meters 1 passenger LH at gondola station 27.75 meters 1 passenger RH at gondola station 23.31 meters 1 passenger RH at gondola station 24.72 meters 1 passenger RH at gondola station 25.49 meters 1 passenger RH at gondola station 26.25 meters 1 passenger RH at gondola station 27.00 meters 1 passenger RH at gondola station 27.77 meters 1 passenger RH at gondola station 28.53 meters 1 passenger LH at gondola station 30.07 meters (Option L35) 1 passenger RH at gondola station 30.07 meters (Option L35) (or optional configurations identified in Zeppelin document 07 TD 01 251, Approved Cabin Layouts LZ N07-101, but not to exceed 15 passenger seats.)
Baggage/Cargo	No dedicated baggage/cargo station.
Fuel Capacity	110 gallons usable at gondola station 29.3 meters (LH) 110 gallons usable at gondola station 29.3 meters (RH) 83.5 gallons usable at gondola station 76.6 meters (Aft) The unuseable fuel is included in the certificated empty weight (See Note 1.)
Oil Capacity	8.0 qts. maximum, 4.0 qts. minimum at 29.3 meters (LH) 8.0 qts. maximum, 4.0 qts. minimum at 29.3 meters (RH) 8.0 qts. maximum, 4.0 qts. minimum at 76.6 meters (Aft)
Ballast	In flight: 1543 lbs. (700 kg) of water at 25.6 meters 660 lbs (300 kg) at 24.1 m. (Gondola underfloor compartment RH fwd)

441 lbs (200 kg) at 26.9 meters (Gondola underfloor compartment LH aft)
441 lbs (200 kg) at 26.9 meters (Gondola underfloor compartment RH aft)
220 lbs (100 kg) at 27.7 meters (Cabin ballast box LH) (Option L47)
220 lbs (100 kg) at 27.8 meters (Cabin ballast box RH) (Option L47)
880 lbs (400 kg) at 5.3 meters (Nose cone ballast)

Ground:
1543 lbs. (700 kg) of water at 25.6 meters
660 lbs (300 kg) at 24.1 m. (Gondola underfloor compartment RH fwd)
441 lbs (200 kg) at 26.9 meters (Gondola underfloor compartment LH aft)
441 lbs (200 kg) at 26.9 meters (Gondola underfloor compartment RH aft)
220 lbs (100 kg) at 27.7 meters (Cabin ballast box LH) (Option L47)
220 lbs (100 kg) at 27.8 meters (Cabin ballast box RH) (Option L47)
880 lbs (400 kg) at 5.3 meters (Nose cone ballast)
397 lbs (180 kg) at 63.2 meters (Landing gear aft)

See Note 7.

Maximum Operating Altitude	10,000 feet (pressure altitude.)
Control Surfaces	Three (triform), inverted "Y".
Control Surface Movements	± 20° (all)
Vectored Thrust Movements	Side Engines: 0º (forward horizontal) to 120º up. Aft Engine: 0º (aft horizontal) to 90º down. Avoid sustained operation with forward swivel angles between 43° and 57° during normal operation
Serial Nos. Eligible	005 and on. (see Note 8) (ZLT Option K73 must be installed for US import.)

Import Requirements

The FAA can issue a U.S. airworthiness certificate based on an NAA Export Certificate of Airworthiness (Export C of A) signed by a representative of the Luftfahrt Bundesamt on behalf of the European Community. The Export C of A should contain the following statement: 'The aircraft covered by this certificate has been examined, tested, and found to comply with U.S. airworthiness regulations 14 CFR Part 21.17(b) approved under U.S. Type Certificate No. AS1CE and to be in a condition for safe operation.'

Certification Basis

See Certification Basis for Model LZ N07-100.

Additions for LZ N07-101: 14 CFR 23 § 23.1308 Amendment 23- 61.

Approved for Day/Night VFR operations.

Equipment

The basic required equipment as prescribed in the applicable airworthiness requirements (see Certification Basis) must be installed in the aircraft for certification.

In addition to the above required equipment, the following equipment is also required: FAA approved Airship Flight Manual, Document Number 07 ML 01 201, Revision A-00, issued July 5, 2014, or later FAA approved revision. (See Note 4.) The airship must be operated in accordance with Zeppelin Airship Ground Handling Manual, 07 ML 01 421, Revision A-00, dated July 10, 2014, or later FAA approved revision. This manual is to be made available to the operator's flight and ground crews.

Service Information

Each of the documents listed below must state that it is approved by the European Aviation Safety Agency (EASA) or – for approvals made before September 28, 2003 – by the Luftfahrt Bundesamt.

- Service bulletins,
- Structural repair manuals,
- Vendor manuals,
- Aircraft flight manuals, and
- Overhaul and maintenance manuals.

The FAA accepts such documents and considers them FAA-approved unless one of the following conditions exists:

- The documents change the limitations, performance, or procedures of the FAA approved manuals; or

- The documents make an acoustical or emissions changes to this product's U.S. type certificate as defined in 14 CFR § 21.93.

The FAA uses the post type validation procedures to approve these documents. The FAA may delegate on case-by-case to EASA to approve on behalf of the FAA for the U.S. type certificate. If this is the case it will be noted on the document.

NOTE 1. Current weight and balance report together with list of equipment included in certificated empty weight, and loading instructions when necessary, must be provided for each airship at time of original certification. The certificated empty weight includes unusable fluids.

NOTE 2. All placards required in the Airship Flight Manual and Maintenance Manual must be installed in the appropriate locations.

NOTE 3. Maintenance and Inspection of this airship must be carried out according to Airship Maintenance Manual, Document Number 07 ML 05 260, Revision A-00 dated May 30, 2014, or later FAA accepted revision, including supplements applicable to installed Options.

NOTE 4. This airship is type certificated in the Normal category for airships in the United States, but is approved to carry up to 15 passengers.

NOTE 5. Options listed in ZLT Document 07 TD 01 131 dated May 15, 2008 are FAA approved as noted in this document. Later options will be approved according to the FAA-EASA agreements for type design changes.

NOTE 6. Option B10, smaller forward ballonet , Option B20, smaller aft ballonet, and Option B30, mid-sized aft ballonet are approved for US registered airships.

NOTE 7. Options P32, ballast station aft engine nacelle, and Option P20, aft undercarriage ballast box, are approved for US registered airships.

NOTE 8. Airships with serial numbers 002, 003 and 004 may be converted to LZ N07-101 airships by the Type Certificate Holder.

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