European Aviation Safety Agency

# EASA

# TYPE CERTIFICATE DATA SHEET

# ZLIN Z 43 Series

## Type Certificate Holder:

**ZLIN AIRCRAFT a.s.**
Letiště 1887
765 02 Otrokovice
CZECH REPUBLIC

For models: Z 43, Z 143 L, Z 143 LSi

Issue 8: 25 April 2016

# CONTENT

# SECTION A: Z 43

## AI. General

| | | |
|---|---|---|
| 1. | a) Type: | Z 43 |
| | b) Model: | --- |
| 2. | Airworthiness category: | Normal (N)<br>Utility (U) |
| 3. | Type Certificate Holder: | ZLIN AIRCRAFT a.s.<br>Letiště 1887<br>765 02 Otrokovice<br>CZECH REPUBLIC |
| 4. | Manufacturer: | MORAVAN n. p.<br>Letiště 1578<br>765 81 Otrokovice<br>CZECHOSLOVAKIA<br>S/N: 0001-0084<br>MORAVAN a.s.<br>Letiště 1578<br>765 81 Otrokovice<br>CZECH REPUBLIC<br>S/N: 0085-0114 |
| 5. | Certification Application Date: | --- |
| 6. | CAA CZ Type Certificate Date: | May 10, 1972 |
| 7. | The EASA Type Certificate replaces the CAA CZ Type Certificate No. 72-03. | |

## AII. Certification Basis

| | | |
|---|---|---|
| 1. | Reference Date for determining the applicable requirements: | --- |
| 2. | (Reserved) | |
| 3. | (Reserved) | |
| 4. | Airworthiness Requirements: | FAR PART 23, Amdt. 23-6 (including) |
| 5. | Requirements elected to comply: | None |
| 6. | EASA Special Conditions: | None |
| 7. | EASA Exceptions: | None |

| | |
|---|---|
| 8. EASA Equivalent Safety Findings: | § 23.177(a) – Requirement for directional and lateral stability is not fully met. It is admitted with regard to the fact that both aileron and rudder control are of sufficient efficiency for instant stopping of aircraft rolling and leading to normal rectilinear flight.<br>§ 23.613(c); 23.615 – Materials and their characteristics according to ČSN and aviation specifications have been used for aircraft design and construction. It is admitted with regard to the fact that an intent of the requirement is met.<br>§ 23.905 – V 500 Propeller is certified according to BCAR, Section C Regulation instead of Far Part 35.<br>§ 23.955 – Requirement for flow rate of fuel supplied by fuel pump to the engine is not met. It is admitted with regard to the fact that fuel flow is constructed by fuel valve and is higher than engine consumption at maximum power.<br>§ 23.991 – The engine is equipped with high and low pressure pumps joined to a single aggregate. Any failure of this aggregate could cause contemporaneous failure of both supply and injection pumps. In such case, no emergency pump could ensure sufficient fuel supply to finish the flight without abnormal pilot's skills nor effort.<br>A failure of low-pressure pump has not been occurred yet and its occurrence is extremely improbable.<br>§ 23.1013 (e), § 23.1019 – A by-pass is missing at the screen of oil tank outlet. It is admitted with regard to the fact that a surface of the screen is multiply bigger than cross section of the outlet fitting, thus safety level is kept.<br>§ 23.1183(a) – Requirement for hoses fire resistance is not met. It is admitted with regard to experiences from operation of similar aircraft of this category.<br>§ 23.1381 – § 23.1401 – Has not been proved, the aircraft is not admitted for night operation. |
| 9. EASA Environmental Standards: | ICAO Annex. 16/I, Chapter 6<br>FAR PART 36, App. G (Amdt. 36-20) |

## AIII. Technical Characteristics and Operational Limitations

1. Type Design Definition: The specification list of Aircraft Z 43 No. S-43.0000; The specification drawing No. Z 43.0000

2. Description: The Z 43 aircraft is all-metal, four-seat, low wing, single-engine, cantilever monoplane.

3. Equipment: Master equipment list is stated in Airplane Flight Manual of the ZLIN Z 43 aircraft.

4. Dimensions:

| | |
|---|---|
| Span: | 9.760 m |
| Length: | 7.750 m |
| Height: | 2.910 m |
| Wing Area: | 14.500 $m^2$ |

5. Engine:

5.1.1 Model: M 337 A

5.1.2 Type Certificate: EASA approved (see Note 2)

5.1.3 Limitations:

Max. Take-off power (MT), and max. Continuous power (MC)

| | |
|---|---|
| Power | 154 kW (210 HP) |
| Engine rotational speed | 2 750 RPM |
| Consumption | 83 l/h |
| Manifold pressure | 118 kPa |

Continuous Cruising power (75 % MC)

| | |
|---|---|
| Power | 125 kW (170 HP) |
| Engine rotational speed | 2 600 RPM |
| Consumption | 54 l/h |
| Manifold pressure | 98 kPa |

Economic Cruising power (60 % MC)

| | |
|---|---|
| Power | 103 kW (140 HP) |
| Engine rotational speed | 2 400 RPM |
| Consumption | 42 l/h |
| Manifold pressure | 90 kPa |

or

5.2.1 Model: M 337 AK

5.2.2 Type Certificate: EASA approved (see Note 3)

5.2.3 Limitations:

Max. Take-off power (MT), and max. Continuous power (MC)

| | |
|---|---|
| Power | 154 kW (210 HP) |
| Engine rotational speed | 2 750 RPM |
| Consumption | 83 l/h |
| Manifold pressure | 118 kPa |

Continuous Cruising power (75 % MC)

| | |
|---|---|
| Power | 125 kW (170 HP) |
| Engine rotational speed | 2 600 RPM |
| Consumption | 54 l/h |
| Manifold pressure | 98 kPa |

Economic Cruising power (60 % MC)

| | |
|---|---|
| Power | 103 kW (140 HP) |
| Engine rotational speed | 2 400 RPM |
| Consumption | 42 l/h |
| Manifold pressure | 90 kPa |

6. Load factors:

| | |
|---|---|
| For category Utility (U) | +4.4 g, -1.76 g |
| For category Normal (N) | +3.8 g, -1.52 g |

7. Propeller:

7.1 Model: AVIA V 500A

7.2 Type Certificate: EASA approved (see Note 4)

7.3 Number of blades: 2

7.4 Diameter: 2 000 mm

7.5 Sense of Rotation: Anticlockwise in flight direction.

8. Fluids:

8.1 Fuel: Non-ethylated aviation gasoline, with minimum 72 octanes. Application of ethylated fuels is only permitted in case the T.E.L. content does not exceed the value of 0.06 % vol.
BL 78, BP 100L, Aviation gasoline AVGAS 80, AVGAS 100L, AVGAS 100LL (see service instruction of engine manufacturer).

8.2 Oil: The oil of kinematic viscosity of 20 $mm^2/s$ min. at 100°C, the carbon residue does not exceed 0,4 % of weight.

Recommended oil types:

running-in:

AEROSHELL Oil 100

MS-20

Continual service:

AEROSHELL Oil W 100

AEROSHELL Oil W 120 (tropic area)

8.3 Coolant: None

9. Fluid capacities:

| | |
|---|---|
| 9.1 Fuel: | Z 43, serial number up to 0084 incl.:<br>Total: 230 litres (2 x 65 litres in main tanks and 2 x 50 litres in wing tip tanks)<br>Usable: 227 litres<br><br>Z 43, serial number 0085 and subsequent:<br>Total: 220 litres (2 x 60 litres in main tanks and 2 x 50 litres in wing tip tanks)<br>Usable: 215 litres |
| 9.2 Oil: | Minimum 7 litres – Maximum 12 litres |
| 9.3 Coolant system capacity: | None |

| | | |
|---|---|---|
| 10. Air Speeds: | Never Exceed Speed Limit $v_{NE}$ | |
| | - category U | 307 km/h IAS |
| | - category N | 286 km/h IAS |
| | Normal Operating Speed Limit $v_{NO}$ | |
| | - category U, N | 222 km/h IAS |
| | Design Manoeuvring Speed Limit $v_A$ | |
| | - category U | 230 km/h IAS |
| | - category N | 248 km/h IAS |
| | Maximum Flaps Extended Speed Limit $v_{FE}$ | |
| | - category U, N | 197 km/h IAS |
| 11. Maximum Operating Altitude: | For category Utility (U) | 5 500 m |
| | For category Normal (N) | 3 800 m |
| 12. Allweather Operations Capability: | The aircraft is approved for VFR-Day flights. | |
| 13. Maximum Weights: | Max. Take-off and Landing weight: | |
| | For category Utility (U) | 1 000 kg |
| | For category Normal (N) – Take-off weight | 1 350 kg |
| | For category Normal (N) – Landing weight | 1 280 kg |
| | Standard empty weight: | 730 kg ± 3 % |
| 14. Centre of Gravity Range: | 21.8 % ÷ 36 % MAC<br>(M.A.C. is 1 489 mm, 0 % M.A.C. is at 376 mm aft of reference datum) | |
| 15. Datum: | The back part of fire wall; from it are measured, for purpose assignation of Gravity Centre, all horizontal length. | |

| | | | |
|---|---|---|---|
| 16. Control surface deflections: | Elevator deflection | up | 30° ± 1° |
| | | down | 27° ± 1° |
| | Elevator trim tab | up | 15° ± 1° |
| | | down | 30° ± 2° |
| | Rudder deflection | right and left | 30° ± 2° |
| | Ailerons deflection | up | 21° ± 1° |
| | | down | 17° ± 1° |
| | Wing flaps positions | retracted | 0° |
| | | take-off | 14° ± 1° |
| | | landing | 37° ± 1° |

17. Levelling Means: Levelling points on left and right side of airplane fuselage to be levelled. Measurement plane to be min. 600 mm below.

18. Minimum Flight Crew: 1 (Pilot)

19. Maximum Passenger Seating Capacity: 4 (including crew)

20. (Reserved)

| | | |
|---|---|---|
| 21. Baggage/Cargo Compartments: | Upper baggage shelf | 20 kg |
| | Lower baggage compartment | 2 x 30 kg |
| | Max. Weight | 60 kg |

22. Wheels and Tyres:

Wheels of main gear K 22-0100-7 with tyre Barum 420 x 150 model 2 or
Wheels of main gear K 22-3100-7 with tyre Mitas 420 x 150 model 2 or Goodyear 6.00-6.5.

Wheel of nose gear K 23-0000-7 with tyre Barum 350 x 135, or
Wheel of nose gear K 51-1100-7 with tyre Mitas 350 x 135 or Goodyear 5.00-5

## AIV. Operating and Service Instructions

### Z 43 – 1st through 3rd series (up to S/N 0084 incl.):

1. Flight Manual:
   - In Czech language — Letová příručka Z 43,
     *Initial issue March 1972 or later approved revisions*
   - In English language — Flight Manual Z 43,
     *Initial issue April 1974 or later approved revisions*
   - In German language — Flugzeug–Betriebhandbuch Z 43,
     *Initial issue April 1973 or later approved revisions*

2. Technical Manual:
   - In Czech language — Technický popis a návod k obsluze Z 43
     *Initial issue June 1972 or later approved revisions*
   - In English language — Technical Manual Z 43,
     *Initial issue April 1973 or later approved revisions*

3. Repair Manual:
   - In Czech language — Opravárenská příručka letounu Z 43,
     *Initial issue 1980 or later approved revisions*

4. Manual for Operation:
   - In Czech language
     Doc. No. 233.071 — Příručka pro provoz letounu Z 43 bez generálních oprav draku – část 1, část 2, prohlídka A, B, C
     *Initial issue 3.3.1997 or later approved revisions*

     Doc. No. 233.021 — Příručka pro údržbu letounu ZLIN 43,
     *Initial issue 8.3.2002 or later approved revisions*
   - In English language
     Doc. No. 233.071 — Manual for Operation of Z 43 Aircraft without Airframe Overhaul Part 1, Part 2, Revision A, B, C
     *Initial issue 3.3.1997 or later approved revisions*

     Doc. No. 233.022 — Maintenance Manual for the ZLIN 43 aircraft,
     *Initial issue 8.3.2002 or later approved revisions*

5. Spare Parts Catalogue:
   - In Russian, Czech, German and English language,
     Katalog náhradních dílů letounu Z 43,
     Catalogue of spare parts Z 43
     *Initial issue 1975 or later approved revisions*

6. Table of Dimensions, Limits and Clearances:
   - In Czech, German and English language
     Album rozměrů, tolerancí a vůlí Z 42, Z 42 M, Z 42 MU a Z 43
     Album der Abmessungen, der Toleranz und Spielangaben Z 42, Z 42 M, Z 42 MU, Z 43
     Table of Dimensions, Limits and Clearances Z 42, Z 42 M, Z 42 MU, Z 43,
     *Initial issue 1976 or later approved revisions*

7. Instruments and aggregates:
   - In Czech language Doc. No. PRA.081.1 Přístroje a agregáty použité na letounech Z 42M Z 42MU, Z 142 a Z 43
     *Initial issue 10.1.2012 or later approved revisions*

**Z 43 – 4th series and subsequent (from S/N 0085 incl.):**

1. Flight Manual:
   - In Czech language Letová příručka Z 43,
     *Initial issue 30.5.1991 or later approved revisions*

2. Technical Manual:
   - In Czech language Technický popis a návod k obsluze Z 43
     *Initial issue 30.5.1991 or later approved revisions*

3. Repair Manual:
   - In Czech language Opravárenská příručka letounu Z 43,
     *Initial issue 1996 or later approved revisions*

4. Manual for Operation:
   - In Czech language Doc. No. 233.071 Příručka pro provoz letounu Z 43 bez generálních oprav draku – část 1, část 2, prohlídka A, B, C
     *Initial issue 3.3.1997 or later approved revision*

Doc. No. 233.021 Příručka pro údržbu letounu ZLIN 43, *Z 43*

*Initial issue 8.3.2002 or later approved revisions*

– In English language Manual for Operation of Z 43 Aircraft without
Doc. No. 233.071 Airframe Overhaul Part 1, Part 2, Revision A, B, C
*Initial issue 3.3.1997 or later approved revision*

Doc. No. 233.022 Maintenance Manual for the ZLIN 43 aircraft,
*Initial issue 8.3.2002 or later approved revisions*

5. Spare Parts Catalogue:
   – In Czech and English language
   Katalog náhradních dílů letounu Z 43 (od 4. série)
   Catalogue of spare parts Z 43 (from 4$^{th}$ séries)
   *Initial issue or later approved revisions*

6. Table of Dimensions, Limits and Clearances:
   – In Czech, German and English language
   Album rozměrů, tolerancí a vůlí Z 42, Z 42 M, Z 42 MU, Z 43,
   Album der Abmessungen, der Toleranz und Spielangaben Z 42, Z 42 M, Z 42 MU, Z 43
   Table of Dimensions, Limits and Clearances Z 42, Z 42 M, Z 42 MU, Z 43
   *Initial issue 1976 or later approved revisions*

7. Instruments and aggregates:
   – In Czech language Přístroje a agregáty použité na letounech Z 42M
   Doc. No. PRA.081.1 Z 42MU, Z 142 a Z 43,
   *Initial issue 10.1.2012 or later approved revisions*

## AV. Notes:

Note 1: The following Z 43 aircraft have been converted by the aircraft manufacturer to the Model Z 143 L:

Serial numbers: 0092, 0093

Note 1A: The following Z 43 aircraft have been converted by the aircraft manufacturer to the Model Z 43M:

Serial number: 0031

Note 2: For the engine the EASA type certification standard includes the TCDS 72 - 05 (issued by CAA CZ) based on individual EU member state acceptance or certification of this standard prior to 28 September 2003. Other standards confirming to TC/TCDS standards certificated by individual EU member state prior to 28 September 2003 are also acceptable.

Note 3: For the engine the EASA type certification standard includes the TCDS 94 - 06 (issued by CAA CZ) based on individual EU member state acceptance or certification of this standard prior to 28 September 2003. Other standards confirming to TC/TCDS standards certificated by individual EU member state prior to 28 September 2003 are also acceptable.

Note 4: For the propeller the EASA type certification standard includes the TCDS 73 - 03 (issued by CAA CZ) based on individual EU member state acceptance or certification of this standard prior to 28 September 2003. Other standards confirming to TC/TCDS standards certificated by individual EU member state prior to 28 September 2003 are also acceptable.

# SECTION B: Z 143 L

## BI. General

| | | |
|---|---|---|
| 1. | a) Type | Z 43 |
| | b) Model: | Z 143 L |
| 2. | Airworthiness category: | Normal (N)<br>Utility (U) |
| 3. | Type Certificate Holder: | ZLIN AIRCRAFT a.s.<br>Letiště 1887<br>765 02 Otrokovice<br>CZECH REPUBLIC |
| 4. | Manufacturer: | MORAVAN a.s.<br>Letiště 1578<br>765 81 Otrokovice<br>CZECH REPUBLIC<br>S/N: 0001-0012, 0014-0029<br><br>MORAVAN – AEROPLANES, a.s.<br>Letiště 1578<br>765 81 Otrokovice<br>CZECH REPUBLIC<br>S/N 0030-0032, 0034-0041, 0043-0054<br><br>Moravan Aviation, s.r.o.<br>Letiště 1578<br>765 81 Otrokovice<br>CZECH REPUBLIC<br>S/N 0056-0058 |
| 5. | Certification Application Date: | October 01, 1991 |
| 6. | CAA CZ Type Certificate Date: | June 10, 1994 |
| 7. | The EASA Type Certificate replaces the CAA CZ Type Certificate No. 94-08. | |

## BII. Certification Basis

| | | |
|---|---|---|
| 1. | Reference Date for determining the applicable requirements: | October 01, 1991 |
| 2. | (Reserved) | |
| 3. | (Reserved) | |

| | | |
|---|---|---|
| 4. | Airworthiness Requirements: | FAR PART 23, Amdt. 23-41 (including) |
| 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: | ICAO Annex. 16/I, Chapter 10<br>FAR PART 36, App. G (Amdt. 36-20) |

## BIII. Technical Characteristics and Operational Limitations

| | | |
|---|---|---|
| 1. | Type Design Definition: | The specification list of Aircraft Z 143 L No. S-L143.0000;<br>The specification drawing No. L143.0000. |
| 2. | Description: | The Z 143 L aircraft is all-metal, four-seat, low wing, single-engine, cantilever monoplane. |
| 3. | Equipment: | Master equipment list is stated in Airplane Flight Manual of the ZLIN Z 143 L aircraft, Chapter 6. |
| 4. | Dimensions: | Span: 10.136 m<br>Length: 7.577 m<br>Height: 2.910 m<br>Wing Area: 14.776 $m^2$ |
| 5. | Engine: | |
| 5.1. | Model: | TEXTRON Lycoming O-540-J3A5 |
| 5.2. | Type Certificate: | EASA approved (see Note 1) |
| 5.3. | Limitations: | Max. Take-off power (MT), and<br>Max. Continuous Power (MC) |

| | |
|---|---|
| Power | 175 kW |
| Engine rotational speed | 2400 RPM |
| Consumption by engine manufacturer | 74 l/h |
| Consumption measured at the aircraft | 96 l/h |
| Manifold pressure | MAX |

Continuous Cruising power (75 % MC)

| | |
|---|---|
| Power | 130 kW |
| Engine rotational speed | 2 200 RPM |
| Consumption by engine manufacturer | 53 l/h |
| Consumption measured at the aircraft | 55.5 l/h |
| Manifold pressure | 84.6 kPa |

Economic Cruising power (60 % MC)

| | |
|---|---|
| Power | 104 kW |
| Engine rotational speed | 2 000 RPM |
| Consumption by engine manufacturer | 38.6 l/h |
| Consumption measured at the aircraft | 44 l/h |
| Manifold pressure | 78.6 kPa |

6. Load factors:
   For category Utility (U) +4.4 g, -1.76 g
   For category Normal (N) +3.8 g, -1.52 g

7. Propeller:
   - 7.1 Model: MTV-9-B/195-45a
   - 7.2 Type Certificate: EASA approved (see Note 2)
   - 7.3 Number of blades: 3
   - 7.4 Diameter: 1950 mm
   - 7.5 Sense of Rotation: Clockwise in flight direction.

8. Fluids:
   - 8.1 Fuel: Aviation gasoline 100L, 100LL (see service instruction of engine manufacturer)
   - 8.2 Oil: By average outside air temperature above + 27°C are recommended mineral oils with SAE 60 or dispersant oils with SAE 60.
     By average outside air temperature above + 16°C are recommended mineral oils with SAE 50 or dispersant oils with SAE 40 or 50.
     By average outside air temperature from - 1°C to + 32°C are recommended mineral oils with SAE 40 or dispersant oils with SAE 40.
     By average outside air temperature from - 18°C to + 21°C are recommended mineral oils with SAE 30 or dispersant oils with SAE 40, 30 or 20W40.
     By outside air temperature under - 12°C are recommended mineral oils with SAE 20 or dispersant oils with SAE 30 or 20W30.
   - 8.3 Coolant: None

9. Fluid capacities:

*Z 143 L*

| | | | |
|---|---|---|---|
| 9.1 Fuel: | Category U: | Total – | 122 litre |
| | | Usable – | 116 litre |
| | Category N: | Total – | 224 litre |
| | | Usable – | 116 litre |
| 9.2 Oil: | Minimum 5.7 litres – Maximum 11.4 litres | | |
| 9.3 Coolant system capacity: | None | | |

| | | |
|---|---|---|
| 10. Air Speeds: | Never exceed speed limit ($v_{NE}$) (category U, N) | 306 km/h IAS |
| | Normal operating speed limit ($v_{NO}$) (category U, N) | 258 km/h IAS |
| | Design manoeuvring speed limit ($v_A$) (category U) | 224 km/h IAS |
| | Design manoeuvring speed limit ($v_A$) (category N) | 236 km/h IAS |
| | Maximum flaps extended speed limit ($v_{FE}$) (category U, N) | 190 km/h IAS |
| 11. Maximum Operating Altitude: | For category Utility (U) | 5 760 m |
| | For category Normal (N) | 4 170 m |
| 12. Allweather Operations Capability: | VFR-Day and VFR-Night, IFR, not in icing conditions | |

| | | | |
|---|---|---|---|
| 13. Maximum Weights: | Take-of: | Category Utility (U) | 1 080 kg |
| | | Category Normal (N) | 1 350 kg |
| | Landing: | Category Utility (U) | 1 080 kg |
| | | Category Normal (N) | 1 280 kg |
| | Standard empty weight: | | 855 kg ± 3 % |
| 14. Centre of Gravity Range: | 21 % ÷ 34 % MAC<br>(M.A.C. is 1 489 mm, 0% MAC is at 368 mm aft of reference datum) | | |
| 15. Datum: | The back part of fire wall; from it are measured, for purpose assignation of Gravity Centre, all horizontal length. | | |

| | | | |
|---|---|---|---|
| 16. Control surface deflections: | Elevator deflection | up | 30° ± 1° |
| | | down | 27° ± 1° |
| | Rudder deflection | right and left | 30° ± 2° |
| | Ailerons deflection | up | 21° ± 1° |
| | | down | 17° ± 1° |

*Z 143 L*

| | | |
|---|---|---|
| Wing flaps positions: | | |
| | retracted | 0° |

| | | |
|---|---|---|
| | take-off | 14° ± 1° |
| | landing | 37° ± 1° |
| 17. Levelling Means: | Levelling points on left and right side of airplane fuselage to be levelled. Measurement plane to be min. 600 mm below. | |
| 18. Minimum Flight Crew: | 1 (Pilot) | |
| 19. Maximum Passenger Seating Capacity: | 4 (including crew) | |
| 20. (Reserved) | | |
| 21. Baggage/Cargo Compartments: | Upper baggage shelf | 20 kg |
| | Lower baggage compartment | 2 x 30 kg |
| | Max. Weight | 60 kg |
| 22. Wheels and Tyres: | Wheels of main gear K 22-0100-7 with tyre Barum 420 x 150 model 2 or Wheels of main gear K 22-3100-7 with tyre Mitas 420 x 150 model 2 or Goodyear 6.00-6.5. | |
| | Wheel of nose gear K 23-0000-7 with tyre Barum 350 x 135, or Wheel of nose gear K 51-1100-7 with tyre Mitas 350 x 135 or Goodyear 5.00-5 | |

*Z 143 L*

## BIV. Operating and Service Instructions

1. Flight Manual:
   - In Czech language — Letová příručka letounu ZLIN 143 L,
     Doc. No. 005.011 — *Initial issue 2.5.1994 or later approved revisions*
   - In English language — ZLIN 143 L Airplane Flight Manual,
     Doc. No. 005.012 — *Initial issue September 1, 1994 or later approved revisions*
     Doc. No. 005.012.US — ZLIN 143 L Airplane Flight Manual,
     *Initial issue September 6, 1996 or later approved revisions*
   - In German language — Flughandbuch Z 143 L
     Doc. No. 005.013 — *Initial issue 1.8.1996 or later approved revisions*

2. Maintenance Manual:
   - In Czech language — Příručka pro údržbu letounu ZLIN 143 L- ZLIN 143 LSi,
     Doc. No. 005.021.2 — *Initial issue 2.2.2011 or later approved revisions*
   - In English language — Z 143 L – Z 143 LSi Airplane Maintenance Manual,
     Doc. No. 005.022.2 — *Initial issue 2.2.2011 or later approved revisions*

3. Illustrated parts catalogue:
   - In Czech and English language
     Doc. No. 005.040.2 — Katalog náhradních dílů letounu Z 143 L - Z 143 LSi,
     Illustrated Parts Catalog Z 143 L - Z 143 LSi
     *Initial issue September 1999 or later approved revisions*

## BV. Notes:

Note 1: For the engine the EASA type certification standard includes the TCDS E-295 (issued by FAA) based on individual EU member state acceptance or certification of this standard prior to 28 September 2003. Other standards confirming to TC/TCDS standards certificated by individual EU member state prior to 28 September 2003 are also acceptable.

Note 2: For the engine the EASA type certification standard includes the TCDS 23.130/65 (issued by LBA) based on individual EU member state acceptance or certification of this standard prior to 28 September 2003. Other standards confirming to TC/TCDS standards certificated by individual EU member state prior to 28 September 2003 are also acceptable.

# SECTION C: Z 143 LSi

## CI. General

| | | |
|---|---|---|
| 1. | a) Type: | Z 43 |
| | b) Model: | Z 143 LSi |
| 2. | Airworthiness category: | Normal (N)<br>Utility (U) |
| 3. | Type Certificate Holder: | ZLIN AIRCRAFT a.s.<br>Letiště 1887<br>765 02 Otrokovice<br>CZECH REPUBLIC |
| 4. | Manufacturer: | MORAVAN – AEROPLANES, a.s.<br>Letiště 1578<br>765 81 Otrokovice<br>CZECH REPUBLIC<br>S/N 0042, 0055<br><br>Moravan-Aviation, s.r.o.<br>Letiště 1578<br>765 81 Otrokovice<br>CZECH REPUBLIC<br>S/N 0060<br><br>ZLIN AIRCRAFT a.s.<br>Letiště 1887<br>765 02 Otrokovice<br>CZECH REPUBLIC<br>S/N: 0059, 0061 and up |
| 5. | Certification Application Date: | June 30, 2000 |
| 6. | CAA CZ Type Certificate Date: | April 30, 2004 |
| 7. | The EASA Type Certificate replaces the CAA CZ Type Certificate No. 94-08. | |

## CII. Certification Basis

| | | |
|---|---|---|
| 1. | Reference Date for determining the applicable requirements: | September 12, 2000 |
| 2. | (Reserved) | |
| 3. | (Reserved) | |
| 4. | Airworthiness Requirements: | FAR PART 23, Amdt. 23-41 (including) |

| | | |
|---|---|---|
| 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: | ICAO Annex 16/I, Chapter 10 |
| 10. | Operational Suitability Requirements: | FAR PART 36, App. G (Amdt. 36-20)<br>OSD MMEL: CS-GEN-MMEL, Initial Issue dated 31 January 2014 |

## CIII. Technical Characteristics and Operational Limitations

| | | |
|---|---|---|
| 1. | Type Design Definition: | The specification list of Aircraft Z 143 L No. S-I 143.0000 |
| 2. | Description: | The Z 143 LSi aircraft is all-metal, four-seat, low wing, single-engine, cantilever monoplane. |
| 3. | Equipment: | Master equipment list is stated in Airplane Flight Manual of the ZLIN Z 143 LSi aircraft, Suppl. 1. |
| 4. | Dimensions: | Span: 10.136 m<br>Length: 7.577 m<br>Height: 2.910 m<br>Wing Area: 14.776 $m^2$ |
| 5. | Engine: | |
| 5.1. | Model: | TEXTRON Lycoming IO-540-C4D5 |
| 5.2. | Type Certificate: | EASA Approved (see Note 1) |
| 5.3. | Limitations: | Max. Take-off power (MT) and Max. Continuous Power (MC)<br>Power 175 kW<br>Engine rotational speed 2 400 RPM<br>Consumption by engine manufacturer 73.1 l/h<br>Consumption measured at the aircraft 96 l/h<br>Manifold pressure MAX<br><br>Continuous Cruising power (75 % MC)<br>Power 130 kW<br>Engine rotational speed 2 200 RPM<br>Consumption by engine manufacturer 55 l/h<br>Consumption measured at the aircraft 55.5 l/h<br>Manifold pressure 84.4 kPa |

| | | |
|---|---|---|
| | Economic Cruising power (60 % MC) | |
| | Power | 104 kW |
| | Engine rotational speed | 2 000 RPM |
| | Consumption by engine manufacturer | 39 l/h |
| | Consumption measured at the aircraft | 43 l/h |
| | Manifold pressure | 82.9 kPa |
| 6. Load factors: | For category Utility (U) | +4.4 g, -1.76 g |
| | For category Normal (N) | +3.8 g, -1.52 g |

7. Propeller:

| | |
|---|---|
| 7.1 Model: | MTV-9-B/195-45a |
| 7.2 Type Certificate: | EASA approved (see Note 2) |
| 7.3 Number of blades: | 3 |
| 7.4 Diameter: | 1 950 mm |
| 7.5 Sense of Rotation: | Clockwise in flight direction. |

8. Fluids:

| | |
|---|---|
| 8.1 Fuel: | Aviation gasoline 100L, 100LL (see service instruction of engine manufacturer) |
| 8.2 Oil: | By average outside air temperature above + 27°C are recommended mineral oils with SAE 60 or dispersant oils with SAE 60.<br>By average outside air temperature above + 16°C are recommended mineral oils with SAE 50 or dispersant oils with SAE 40 or 50.<br>By average outside air temperature from - 1°C to + 32°C are recommended mineral oils with SAE 40 or dispersant oils with SAE 40.<br>By average outside air temperature from - 18°C to + 21°C are recommended mineral oils with SAE 30 or dispersant oils with SAE 40, 30 or 20W40.<br>By outside air temperature under - 12°C are recommended mineral oils with SAE 20 or dispersant oils with SAE 30 or 20W30. |
| 8.3 Coolant: | None |

9. Fluid capacities:

| | | | |
|---|---|---|---|
| 9.1 Fuel: | Category U: | Total – | 122 litre |
| | | Usable – | 116 litre |
| | Category N: | Total – | 224 litre |
| | | Usable – | 216 litre |

| | | | |
|---|---|---|---|
| 9.2 Oil: | Minimum 5.7 litres – Maximum 11.4 litres | | |
| 9.3 Coolant system capacity: | None | | |
| 10. Air Speeds: | Never exceed speed limit ($v_{NE}$) (category U, N) | | 306 km/h IAS |
| | Normal operating speed limit ($v_{NO}$) (category U, N) | | 258 km/h IAS |
| | Design manoeuvring speed limit ($v_A$) (category U) | | 224 km/h IAS |
| | (category N) | | 236 km/h IAS |
| | Maximum flaps extended speed limit ($v_{FE}$) (category U, N) | | 190 km/h IAS |
| 11. Maximum Operating Altitude: | For category Utility (U) | | 5 760 m |
| | For category Normal (N) | | 4 170 m |
| 12. Allweather Operations Capability: | VFR-Day and VFR-Night, IFR, not in icing conditions | | |
| 13. Maximum Weights: | Take-off: | Category Utility (U) | 1 080 kg |
| | | Category Normal (N) | 1 350 kg |
| | Landing: | Category Utility (U) | 1 080 kg |
| | | Category Normal (N) | 1 280 kg |
| | Standard empty weight: | | 855 kg ± 3 % |
| 14. Centre of Gravity Range: | 21 % ÷ 34 % MAC (M.A.C. is 1 489 mm, 0 % M.A.C. is at 368.4 mm aft of reference datum) | | |
| 15. Datum: | The back part of fire wall; from it are measured, for purpose assignation of Gravity Centre, all horizontal length. | | |
| 16. Control surface deflections: | Elevator deflection | up | 30° ± 1° |
| | | down | 27° ± 1° |
| | Rudder deflection | right and left | 30° ± 2° |
| | Ailerons deflection | up | 21° ± 1° |
| | | down | 17° ± 1° |
| | Wing flaps positions | retracted | 0° |
| | | take-off | 14° ± 1° |
| | | landing | 37° ± 1° |
| 17. Levelling Means: | Levelling points on left and right side of airplane fuselage to be levelled. Measurement plane to be min. 600 mm below. | | |
| 18. Minimum Flight Crew: | 1 (Pilot) | | |
| 19. Maximum Passenger Seating Capacity: | 4 (including crew) | | |

*Z 143 LSi*

20. (Reserved)

| | | |
|---|---|---|
| 21. Baggage/Cargo Compartments: | Upper baggage shelf | 20 kg |
| | Lower baggage compartment | 2 x 30 kg |
| | Max. Weight | 60 kg |

22. Wheels and Tyres:

Wheels of main gear K 22-3100-7 with tyre Mitas 420 x 150 model 2 or Goodyear 6.00-6.5.

Wheel of nose gear K 51-1100-7 with tyre Mitas 350 x 135 or Goodyear 5.00-5

## CIV. Operating and Service Instructions

1. Flight Manual:
   - In Czech language Doc. No. Si 005.011 — Letová příručka letounu ZLIN 143 LSi, *Initial issue 30.4.2004 or later approved revisions*
   - In English language Doc. No. Si 005.012 — Airplane Flight Manual ZLIN 143 LSi *Initial issue 30.4.2004 or later approved revisions*

2. Maintenance Manual:
   - In Czech language Doc. No. 005.021.2 — Příručka pro údržbu letounu ZLIN 143 L - ZLIN 143 LSi, *Initial issue 2.2.2011 or later approved revisions*
   - In English language Doc. No. 005.022.2 — Z 143 L - Z 143 LSi Airplane Maintenance Manual, *Initial issue 2.2.2011 or later approved revisions*

3. Illustrated parts catalogue:
   - In Czech and English language Doc. No. 005.040.2 — Katalog náhradních dílů letounu Z 143 L - Z 143 LSi, Illustrated Parts Catalog Z 143 L – Z 143 LSi *Initial issue September 1999 or later approved revisions*

## CV. Operational Suitability Data (OSD)

The Operational Suitability Data elements listed below are approved by the European Aviation Safety Agency under the EASA Type Certificate EASA.A.028 as per Commission Regulation (EU) 748/2012 as amended by Commission Regulation (EU) No 69/2014.

1. Master Minimum Equipment List (MMEL)
   The MMEL is defined in the Zlin 143 LSi MMEL, DOC. No. Si005.062, Initial issue or later approved revisions.

## CVI. Notes:

Note 1: For the engine the EASA type certification standard includes the TCDS 1E4 (issued by FAA) based on individual EU member state acceptance or certification of this standard prior to 28 September 2003. Other standards confirming to TC/TCDS standards certificated by individual EU member state prior to 28 September 2003 are also acceptable.

Note 2: For the propeller the EASA type certification standard includes the TCDS 23.130/65 (issued by LBA) based on individual EU member state acceptance or certification of this standard prior to 28 September 2003. Other standards confirming to TC/TCDS standards certificated by individual EU member state prior to 28 September 2003 are also acceptable.

# ADMINISTRATIVE SECTION

I Acronyms

N/A

II Type Certificate Holder Record

Current:

ZLIN AIRCRAFT a.s.
Letiště 1887
765 02 Otrokovice
CZECH REPUBLIC

Former:

MORAVAN n. p.
Letiště 1578,
765 81 Otrokovice
CZECHOSLOVAKIA

MORAVAN a.s.
Letiště 1578,
765 81 Otrokovice
CZECH REPUBLIC

MORAVAN – AEROPLANES, a.s.
Letiště 1578
765 81 Otrokovice
CZECH REPUBLIC

Moravan Aviation, s.r.o.
Letiště 1578
765 81 Otrokovice
CZECH REPUBLIC

## III Change Record

| Issue | Date | Changes |
|---|---|---|
| Issue 1 | 04-Feb-2005 | Transfer of ZLIN Z 143 L and Z 143 LSi Type Design to EASA |
| Issue 2 | 14-Dec-2006 | Transfer of ZLIN Z 43 as basic Type Design under this TC / TCDS |
| Issue 3 | 02-May-2007 | Introduction of changed Company Name |
| Issue 4 | 24-Aug-2009 | Change of Company name |
| Issue 5 | 23-July-2010 | Editorial corrections and revision into standard EASA TCDS format |
| Issue 6 | 2-Nov-2010 | Corrections to B.I.4 and C.I.4 to specify actual serial numbers manufactured by each company and to exclude airframes used specifically for test purposes. |
| Issue 7 | 28-Oct-2015 | Company's data of Zlin corrected<br>Introduction of OSD MMEL for model Z 143 Lsi |
| Issue 8 | 25-Apr-2016 | Editorial and formal correction<br>Revision of actual accompanying documentation |