European Aviation Safety Agency

EASA

TYPE-CERTIFICATE DATA SHEET

EASA.A.108

ZLIN Z 50 Series

Type Certificate Holder:

ZLIN AIRCRAFT A.S.
Letiště 1578
765 81 Otrokovice
CZECH REPUBLIC

For Models: Z 50 L; Z 50 LA; Z 50 LS; Z 50 M; Z 50 LX

Issue 4: 23 July 2010

CONTENT

SECTION A: Z 50 L

AI. General

1.	a) Type:	Z 50
	b) Model:	Z 50 L
2.	Airworthiness category:	Normal (N) Aerobatic (A)
3.	Type Certificate Holder:	ZLIN AIRCRAFT A.S. Letiště 1578 765 81 Otrokovice CZECH REPUBLIC
4.	Manufacturer:	Moravan, n.p. Letiště 1578 765 81 Otrokovice CZECHOSLOVAKIA S/N: 0001 – 0025
5.	Certification Application Date:	06-Apr-1974 (for CAA CZ certification)
6.	CAA CZ Certificate Date:	October 12,1977
7.	The EASA Type Certificate replaces the CAA CZ Type Certificate No. 77-01.	

AII. Certification Basis

1.	Reference date for determining the applicable requirements:	06-Apr-1974
2.	(Reserved)	
3.	(Reserved)	
4.	Airworthiness Requirements:	14 CFR Part 23, incl. Amdt. 23-1 through 23-14
5.	Requirements elected to comply:	None
6.	EASA Special Conditions:	None
7.	EASA Exemptions:	None
8.	EASA Equivalent Safety Findings:	§ 23.177(a)(3) – Requirement upon the control force characteristic in relation to the aileron angle is not completely met. In steady, right slips at 1.2 V_{S1}, the aileron control force and corresponding

aileron movement in relation to the angle of skid has not a stable characteristic. It is admitted under the proviso that the special aerobatic airplane is concerned; the rate of unstability is outweighed by a good controllability; neither dangerous tendency nor exceptional requirements upon piloting skill occur.

§ 23.207(c) – The difference between the stalling speed and the stall warning speed is lesser than the value required in the Regulation. It is admitted under the proviso that the special aerobatic airplane is concerned where the later warning enables the pilot to use a wider range of speed polar.

§ 23.613(c) – Materials and design values used for aircraft design and construction comply with the Czechoslovak State Standard and specifications valid for the Czechoslovak aviation industry. It is admitted with regard to the fact that the requirement sense is met.

§ 23.967(d) – The fuel tank is located in the pilot´s compartment and is not isolated by an impermeable partition. It is admitted under the proviso that the instructions for tank tightness test are included in the Flight Manual.

§ 23.971 – In the normal ground attitude, fuel tank sump cannot be completely discharged. It is admitted because the fuel system construction arrangement avoids water entry into the power plant fuel system.

§ 23.993(d), (e) – Of the fire resistance of hoses is not complied with. It is admitted with regard to operating experiences.

§ 23.1093(a)(4) – Requirement upon temperature of air inducted by the alternate air intake system is not completely met. Induction air temperature is lesser than temperature of cooling air at engine outlet. It is admitted under the proviso that flying in icing conditions is prohibited.

§ 23.1351(d) – For the electrical power supply to be checked, the airplane is equipped with a check light signalling the alternator is out of operation. It is admitted under the proviso that the airplane is equipped with a storage battery securing the electrical power supply for necessary time.

§ 23.1381 – 1401 The airplane is not equipped with light system for night operation. Night flight and IFR

flight are not permitted.

9. EASA Environmental Standards: ICAO Annex 16/I, Chapter 10

AIII. Technical Characteristics and Operational Limitations

1. Type Design Definition: The specification list of Aircraft S-150.1.000.000.

2. Description: The Z 50 L aircraft is a single-engine, single-seater, low-wing, cantilever monoplane fitted with a closed cockpit and a fixed gear.

3. Equipment: List of the basic aircraft equipment is in Flight Manual, Section 6.

4. Dimensions:

Wing span:	8.580 m (9.030 m with wing tip tanks)
Length:	6.620 m
Height:	1.985 m
Wing Area:	12.500 m^2

5. Engine:

5.1 Model: TEXTRON Lycoming AEIO-540-D4B5

5.2 Type Certificate: 1 E 4, issued by FAA; 4535, issued by LBA, EASA approved

5.3 Limitations:

Max. Take-off power (MT)	
Max. Power	191 kW (260 HP)
Max. Engine speed	2 700 RPM
Max. Consumption	90.84 l/h
Max. Manifold pressure	98 kPa (max.)
Continuous cruising power (75 % MC)	
Max. Power	144 kW (195 HP)
Max. Engine speed	2 450 RPM
Max. Consumption	68.13 l/h
Max. Manifold pressure	80 kPa
Economic cruising power (60 % MC)	
Max. Power	114 kW (155 HP)
Max. Engine speed	2 350 RPM
Max. Consumption	48.45 l/h
Max. Manifold pressure	70 kPa

6. Load factors:

For category (A)	+9.0 g,	-6.0 g
For category (N)	+3.8 g,	-1.5 g

7. Propellers:

7.1.1 Model: HOFFMANN HO-V 123 K-F/200 AH

7.1.2 Type Certificate: 32.130/17, Issued by LBA; EASA approved

7.1.3 Number of blades: 3

7.1.4 Diameter: 2 000 mm

7.1.5 Sense of Rotation: clockwise, in flight direction

or

7.2.1 Model: MÜHLBAUER MTV-9-B-C/C 200-15

7.2.2 Type Certificate: 32.130/65, Issued by LBA, EASA approved

7.2.3 Number of blades: 3

7.2.4 Diameter: 2 000 mm

7.2.5 Sense of Rotation: clockwise, in flight direction

8. Fluids:

8.1 Fuel: Aviation gasoline 100L, 100LL

8.2 Oil: See Airplane flight manual

8.3 Coolant: None

9. Fluid capacities:

9.1 Fuel: 1 x 60 litres in main tanks
2 x 50 litres in auxiliary tanks

9.2 Oil: Minimum 7 litres – Maximum 12 litres

9.3 Coolantsystem capacity: None

10. Air Speeds:

Never Exceed Speed Limit	V_{NE}	
category A, N		328 km/h IAS
Normal Operating Speed Limit	V_{NO}	
category A, N		263 km/h IAS
Design Manoeuvring Speed Limit	V_A	
category A		274 km/h IAS
category N		193 km/h IAS
Stall Speed	V_{SO}	
category A		104 km/h IAS
category N		102 km/h IAS
Maximum Speed Limit for flicked figures		
category A, N		234 km/h IAS

11. Maximum Operating Altitude: 7 000 m

12. Allweather Capability: The aircraft is approved for VFR-Day flights.

13. Maximum Weights:

Max. Take-off and Landing weights:	
- For category (A)	720 kg
- For category (N)	800 kg
Max. Variable Load:	
- For category (A)	150 kg
- For category (N)	220 kg
Standard Empty Weights:	
- For category (A)	570 kg ± 3 %
- For category (N)	580 kg ± 3 %

14. Centre of Gravity Range: 22.5 % – 28.5 % MAC
(M.A.C. is 1 485 mm)

15. Datum: Reference point – upper part of the firewall plane – vertical at horizontal position of the aircraft.

16. Control surface deflections:

Elevator deflection	up	28.5°	+ 1°,- 0°
	down	31°	+ 1°,- 0°
Elevator trim L	up	10°	+ 2°,- 0°
	down	30°	+ 1°,- 0°
Elevator trim R	up	27°	± 2°
	down	27°	± 2°
Rudder deflection	right and left	30°	+ 2°, -0°
Rudder trim	left and right	30°	± 1°
Ailerons deflection	up	20°	+ 1°, -0°
	down	20°	+ 1°, -0°
Aileron trim L	up	17°	+ 3°, -0°
	down	17°	+ 3°, -0°
Aileron trim R	up	27°	± 3°
	down	27°	± 3°

17. Levelling Means: Four points 1 to 4 on left side of airplane fuselage to be levelled. Measurement plane to be min 500 mm below.

18. Minimum Flight Crew: 1 (Pilot)

19. Maximum Passenger Seating Capacity: None

20. (Reserved)

21. Baggage/Cargo Compartments: Max. 10 kg (only for category Normal).

22. Wheels and Tyres: Wheels of main landing gear K 29-0100.00 with tyre

Mitas (Barum) 350 x 135.

Tail wheel S/N 150.0.559.000 with tyre 200 x 80.

AIV. Operating and Service Instructions

1. Flight Manual:
   - In Czech language
     Letová příručka Z 50L, LA, issued 1981 or later approved revision
   - In English language
     Flight Manual Z 50L, LA, issued 1981 or later approved revision
   - In German language
     Flughandbuch Z 50L, LA, issued 1981 or later approved revision
2. Technical Manual:
   - In Czech language
     Technický popis Z 50L, LA, issued 1981 or later approved revision
   - In English language
     Technical Manual Z 50L, LA, issued 1981 or later approved revision
3. Catalogue of Spare Parts:
   - In Russian, Czech, German and English language, issued 1981
     Katalog náhradních dílů Z 50L, LA
     Katalog der Ersatzteile Z 50L, LA
     Catalogue of Spare Parts Z 50L, LA

AV. Notes

Note 1: Following Z 50 L Aircraft have been rebuilt to the models:
Z 50 LA S/N: 0002, 0004, 0006, 0008-00017, 0019, 0021-0025
Z 50 LS S/N: 0001, 0005, 0020
at the aircraft manufacturer.

SECTION B: Z 50 LA

BI. General

1.	a) Type:	Z 50
	b) Model:	Z 50 LA
2.	Airworthiness category:	Normal (N) Aerobatic (A)
3.	Type Certificate Holder:	ZLIN AIRCRAFT A.S. Letiště 1578 765 81 Otrokovice CZECH REPUBLIC
4.	Manufacturer:	Moravan, n.p. Letiště 1578, 765 81 Otrokovice CZECHOSLOVAKIA S/N: 0026 – 0030
5.	Certification Application Date:	---
6.	CAA CZ Certificate Date:	November 25,1980

7. The EASA Type Certificate replaces the CAA CZ Type Certificate No. 77-01.

BII. Certification Basis

1.	Reference Date for determining the applicable requirements:	06-Apr-1974
2.	(Reserved)	
3.	(Reserved)	
4.	Airworthiness Requirements:	14 CFR Part 23, incl. Amdt. 23-1 through 23-14
5.	Requirements elected to comply:	None
6.	EASA Special Conditins:	None
7.	EASA Exemptions:	None
8.	EASA Equivalent Safety Findings:	§ 23.177(a)(3) – Requirement upon the control force characteristic in relation to the aileron angle is not completely met. In steady, right slips at 1.2 V_{S1}, the aileron control force and corresponding aileron movement in relation to the angle of skid has not a stable characteristic. It is admitted under

	the proviso that the special aerobatic airplane is concerned; the rate of unstability is outweighed by a good controllability; neither dangerous tendency nor exceptional requirements upon piloting skill occur. § 23.207(c) – The difference between the stalling speed and the stall warning speed is lesser than the value required in the Regulation. It is admitted under the proviso that the special aerobatic airplane is concerned where the later warning enables the pilot to use a wider range of speed polar. § 23.613(c) – Materials and design values used for aircraft design and construction comply with the Czechoslovak State Standard and specifications valid for the Czechoslovak aviation industry. It is admitted with regard to the fact that the requirement sense is met. § 23.967(d) – The fuel tank is located in the pilot´s compartment and is not isolated by an impermeable partition. It is admitted under the proviso that the instructions for tank tightness test are included in the Flight Manual. § 23.971 – In the normal ground attitude, fuel tank sump cannot be completely discharged. It is admitted because the fuel system construction arrangement avoids water entry into the power plant fuel system. § 23.993(d), (e) – Of the fire resistance of hoses is not complied with. It is admitted with regard to operating experiences. § 23.1093(a)(4) – Requirement upon temperature of air inducted by the alternate air intake system is not completely met. Induction air temperature is lesser than temperature of cooling air at engine outlet. It is admitted under the proviso that flying in icing conditions is prohibited. § 23.1351(d) – For the electrical power supply to be checked, the airplane is equipped with a check light signalling the alternator is out of operation. It is admitted under the proviso that the airplane is equipped with a storage battery securing the electrical power supply for necessary time. § 23.1381 – 1401 The airplane is not equipped with light system for night operation. Night flight and IFR flight are not permitted.
9. EASA Environmental	ICAO Annex 16/I, Chapter 10

Standards:

BIII. Technical Characteristics and Operational Limitations

1. Type Design Definition: The specification list of Aircraft S-152.0.000.000.

2. Description: The Z 50 LA aircraft is a single-engine, single-seater, low-wing, cantilever monoplane fitted with a closed cockpit and a fixed gear.

3. Equipment: List of the basic aircraft equipment is in Flight Manual, Section 6.

4. Dimensions:

Wing span:	8.580 m (9.030 m with wing tip tanks)
Length:	6.620 m
Height:	1.985 m
Wing Area:	12.500 m^2

5. Engine:

5.1 Model: TEXTRON Lycoming AEIO-540-D4B5

5.2 Type Certificate: 1 E 4, Issued by FAA; 4535, issued by LBA, EASA approved

5.3 Limitations:

Max. Take-off power (MT)	
Max. Power	191 kW (260 HP)
Max. Engine speed	2 700 RPM
Max. Consumption	90.84 l/h
Max. Manifold pressure	98 kPa (max.)
Continuous cruising power (75 % MC)	
Max. Power	144 kW (195 HP)
Max. Engine speed	2 450 RPM
Max. Consumption	68.13 l/h
Max. Manifold pressure	80 kPa
Economic cruising power (60 % MC)	
Max. Power	114 kW (155 HP)
Max. Engine speed	2 350 RPM
Max. Consumption	48.45 l/h
Max. Manifold pressure	70 kPa

6. Load factors:

For category (A)	+9.0 g,	-6.0 g
For category (N)	+3.8 g,	-1.5 g

7. Propellers:

7.1.1 Model: HOFFMANN HO-V 123 K-V/200 AH

7.1.2 Type Certificate: 32.130/17, Issued by LBA; EASA approved

7.1.3 Number of blades: 3

7.1.4 Diameter: 2 000 mm

7.1.5 Sense of Rotation: clockwise, in flight direction

or

7.2.1 Model: MÜHLBAUER MTV-9-B-C/C 200-15

7.2.2 Type Certificate: 32.130/65, Issued by LBA, EASA approved

7.2.3 Number of blades: 3

7.2.4 Diameter: 2 000 mm

7.2.5 Sense of Rotation: clockwise, in flight direction

8. Fluids:

8.1 Fuel: Aviation gasoline 100L, 100LL

8.2 Oil: See Airplane flight manual

8.3 Coolant: None

9. Fluid capacities:

9.1 Fuel: 1 x 60 litres in main tanks
2 x 50 litres in auxiliary tanks

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 A, N		328 km/h IAS
Normal Operating Speed Limit	V_{NO}	
for category A, N		263 km/h IAS
Design Manoeuvring Speed Limit	V_A	
category A		274 km/h IAS
category N		193 km/h IAS
Stall Speed	V_{SO}	
category A		104 km/h IAS
category N		102 km/h IAS
Maximum Speed Limit for flicked figures		
category A, N		234 km/h IAS

11. Maximum Operating Altitude: 7 000 m

12. Allweather Capability: The aircraft is approved for VFR-Day flight.

13. Maximum Weights:

Max. Take-off weight:	
- For category (A)	720 kg
- For category (N)	800 kg
Max. Variable Load:	
- For category (A)	150 kg
- For category (N)	220 kg
Standard Empty Weight:	
- For category (A)	570 kg ± 3 %
- For category (N)	580 kg ± 3 %

14. Centre of Gravity Range: 22.5 % – 28.5 % MAC
(M.A.C. is 1 485 mm)

15. Datum: Reference point – upper part of the firewall plane – vertical at horizontal position of the aircraft.

16. Control surface deflections:

Elevator deflection	up	28.5°	+ 1°,- 0°
	down	31°	+ 1°,- 0°
Elevator trim L	up	10°	+ 2°,- 0°
	down	30°	+ 1°,- 0°
Elevator trim R	up	27°	± 2°
	down	27°	± 2°
Rudder deflection	right and left	30°	+ 2°, -0°
Rudder trim	left and right	30°	± 1°
Ailerons deflection	up	20°	+ 1°, -0°
	down	20°	+ 1°, -0°
Aileron trim L	up	17°	+ 3°, -0°
	down	17°	+ 3°, -0°
Aileron trim R	up	27°	± 3°
	down	27°	± 3°

17. Levelling Means: Four points 1 to 4 on left side of airplane fuselage to be levelled. Measurement plane to be min 500 mm below.

18. Minimum Flight Crew: 1 (Pilot)

19. Maximum Passenger Seating Capacity: None

20. (Reserved)

21. Baggage/Cargo Compartments: Max. 10 kg (only for category Normal).

22. Wheels and Tyres: Wheels of main landing gear K 29-0100.00 with tyre Mitas (Barum) 350 x 135.

Tail wheel S/N 150.0.559.000 with tyre 200 x 80.

BIV. Operating and Service Instructions

1. Flight Manual:
   - In Czech language
     Letová příručka Z 50 L, LA, issued 1981 or later approved revision
   - In English language
     Flight Manual Z 50 L, LA, issued 1981 or later approved revision
   - In German language
     Flughandbuch Z 50 L, LA, issued 1981 or later approved revision
2. Technical Manual:
   - In Czech language
     Technický popis Z 50 L, LA, issued 1981 or later approved revision
   - In English language
     Technical Manual Z 50 L, LA, issued 1981 or later approved revision
3. Catalogue of Spare Parts:
   - In Russian, Czech, German and English language, issued 1981
     Katalog náhradních dílů Z 50 L, LA
     Katalog der Ersatzteile Z 50 L, LA
     Catalogue of Spare Parts Z 50 L, LA

BV. Notes

None.

SECTION C: Z 50 LS

CI. General

1.	a) Type:	Z 50 L
	b) Model:	Z 50 LS
2.	Airworthiness category:	Normal (N) Aerobatic (A)
3.	Type Certificate Holder:	ZLIN AIRCRAFT A.S. Letiště 1578 765 81 Otrokovice CZECH REPUBLIC
4.	Manufacturer:	Moravan, n.p. Letiště 1578, 765 81 Otrokovice CZECHOSLOVAKIA S/N: 0031-0045 Moravan, k.p. Letiště 1578, 765 81 Otrokovice CZECHOSLOVAKIA S/N: 0046-0050; 0052; 0054; 0057-0058 Moravan, a.s. Letiště 1578, 765 81 Otrokovice CZECH REPUBLIC S/N: 0055-0056; 0061-0067; 0077
5.	Certificate Application Date:	---
6.	CAA CZ Certificate Date:	May 10,1982

7. The EASA Type Certificate replaces the CAA CZ Type Certificate No. 77-01.

CII. Certification Basis

1.	Reference Date for determining the applicable requirements:	06-Apr-1974
2.	(Reserved)	
3.	(Reserved)	
4.	Airworthiness Requirements:	14 CFR Part 23, incl. Amdt. 23-1 through 23-14
5.	Requirements elected to comply:	None

6. EASA Special Conditions: None

7. EASA Exemptions: None

8. EASA Equivalent Safety Findings:

§ 23.177(a)(3) – Requirement upon the control force characteristic in relation to the aileron angle is not completely met. In steady, right slips at 1.2 V_{S1}, the aileron control force and corresponding aileron movement in relation to the angle of skid has not a stable characteristic. It is admitted under the proviso that the special aerobatic airplane is concerned; the rate of unstability is outweighed by a good controllability; neither dangerous tendency nor exceptional requirements upon piloting skill occur.

§ 23.207(c) – The difference between the stalling speed and the stall warning speed is lesser than the value required in the Regulation. It is admitted under the proviso that the special aerobatic airplane is concerned where the later warning enables the pilot to use a wider range of speed polar.

§ 23.613(c) – Materials and design values used for aircraft design and construction comply with the Czechoslovak State Standard and specifications valid for the Czechoslovak aviation industry. It is admitted with regard to the fact that the requirement sense is met.

§ 23.967(d) – The fuel tank is located in the pilot´s compartment and is not isolated by an impermeable partition. It is admitted under the proviso that the instructions for tank tightness test are included in the Flight Manual.

§ 23.971 – In the normal ground attitude, fuel tank sump cannot be completely discharged. It is admitted because the fuel system construction arrangement avoids water entry into the power plant fuel system.

§ 23.993(d), (e) – Of the fire resistance of hoses is not complied with. It is admitted with regard to operating experiences.

§ 23.1093(a)(4) – Requirement upon temperature of air inducted by the alternate air intake system is not completely met. Induction air temperature is lesser than temperature of cooling air at engine outlet. It is admitted under the proviso that flying in icing conditions is prohibited.

§ 23.1351(d) – For the electrical power supply to

be checked, the airplane is equipped with a check light signalling the alternator is out of operation. It is admitted under the proviso that the airplane is equipped with a storage battery securing the electrical power supply for necessary time.

§ 23.1381 – 1401 The airplane is not equipped with light system for night operation. Night flight and IFR flight are not permitted.

9. EASA Environmental Standards: ICAO Annex 16/I, Chapter 10

CIII. Technical Characteristics and Operational Limitations

1. Type Design Definition: The specification list of Aircraft S-153.0.000.000.

2. Description: The Z 50 LS aircraft is a single-engine, single-seater, low-wing, cantilever monoplane fitted with a closed cockpit and a fixed gear.

3. Equipment: List of the basic aircraft equipment is in Flight Manual, Section 6.

4. Dimensions:

Wing span:	8.580 m (9.030 m with wing tip tanks)
Length:	6.620 m
Height:	1.985 m
Wing Area:	12.500 m^2

5. Engine:

5.1.1 Model: TEXTRON Lycoming AEIO-540-L1B5D

5.1.2 Type Certificate: 1 E 4, Issued by FAA; 4535, issued by LBA, EASA approved

5.1.3 Limitations:

Max. Take-off power (MT)	
Max. Power	220 kW (300 HP)
Max. Engine speed	2 700 RPM
Max. Consumption	90.84 l/h
Max. Manifold pressure	101 kPa (max.)
Continuous cruising power (75 % MC)	
Max. Power	165 kW (225 HP)
Max. Engine speed	2 450 RPM
Max. Consumption	68.13 l/h
Max. Manifold pressure	85 kPa
Economic cruising power (60 % MC)	
Max. Power	132 kW (180 HP)
Max. Engine speed	2 350 RPM
Max. Consumption	48.45 l/h
Max. Manifold pressure	73 kPa

or

5.2.1 Model:	TEXTRON Lycoming AEIO-540-L1B5	
5.2.2 Type Certificate:	1 E 4, Issued by FAA; 4535, issued by LBA, EASA approved	
5.2.3 Limitations:	Max. Take-off power (MT)	
	Max. Power	220 kW (300 HP)
	Max. Engine speed	2 700 RPM
	Max. Consumption	90.84 l/h
	Max. Manifold pressure	101 kPa (max.)
	Continuous cruising power (75 % MC)	
	Max. Power	165 kW (225 HP)
	Max. Engine speed	2 450 RPM
	Max. Consumption	68.13 l/h
	Max. Manifold pressure	85 kPa
	Economic cruising power (60 % MC)	
	Max. Power	132 kW (180 HP)
	Max. Engine speed	2 350 RPM
	Max. Consumption	48.45 l/h
	Max. Manifold pressure	73 kPa

6. Load factors:	For category (A)	+8.0 g,	-6.0 g
	For category (N)	+3.8 g,	-1.5 g

7. Propellers:

7.1.1 Model:	HOFFMANN HO-V 123 K-V/200 AH
7.1.2 Type Certificate:	32.130/17, Issued by LBA; EASA approved
7.1.3 Number of blades:	3
7.1.4 Diameter:	2 000 mm
7.1.5 Sense of Rotation:	clockwise, in flight direction

or

7.2.1 Model:	MÜHLBAUER MTV-3-B-C/200-01
7.2.2 Type Certificate:	32.130/54, Issud by LBA, EASA approved
7.2.3 Number of blades:	3
7.2.4 Diameter:	2 000 mm
7.2.5 Sense of Rotation:	clockwise, in flight direction

or

7.3.1 Model:	MÜHLBAUER MTV-9-B-C/C 200-15
7.3.2 Type Certificate:	32.130/65, Issud by LBA, EASA approved
7.3.3 Number of blades:	3
7.3.4 Diameter:	2 000 mm
7.3.5 Sense of Rotation:	clockwise, in flight direction

8. Fluids:

8.1 Fuel:	Aviation gasoline 100L, 100LL
8.2 Oil:	See Airplane flight manual
8.3 Coolant:	None

9. Fluid capacities:

9.1 Fuel:	1 x 60 litres in main tanks 2 x 50 litres in auxiliary tanks
9.2 Oil:	Minimum 10 litres – Maximum 15 litres
9.3 Coolantsystem capacity:	None

10. Air Speeds:

Never Exceed Speed Limit	V_{NE}	
category A, N		328 km/h IAS
Normal Operating Speed Limit	V_{NO}	
category A, N		263 km/h IAS
Design Manoeuvring Speed Limit	V_A	
category A		259 km/h IAS
category N		193 km/h IAS
Stall Speed	V_{SO}	
category A		104 km/h IAS
category N		102 km/h IAS
Maximum Speed Limit for flicked figures		
category A, N		215 km/h IAS

11. Maximum Operating Altitude:	8 000 m
12. Allweather Capability:	The aircraft is approved for VFR-Day flights.
13. Maximum Weights:	Max. Take-off weight:

	- For category (A)	760 kg
	- For category (N)	840 kg
	Max. Landing weight:	
	- For category (A)	760 kg
	- For category (N)	800 kg
	Max. Variable Load:	
	- For category (A)	160 kg
	- For category (N)	230 kg
	Standard Empty Weight:	
	- For category (A)	600 kg ± 3 %
	- For category (N)	610 kg ± 3 %
14. Centre of Gravity Range:	21.5 % – 28 % MAC (M.A.C. is 1 485 mm)	
15. Datum:	Reference point – upper part of the firewall plane – vertical at horizontal position of the aircraft.	
16. Control surface deflections:	Elevator deflection	up 28.5° + 1°,- 0°
		down 31° + 1°,- 0°
	Elevator trim L	up 10° + 2°,- 0°
		down 30° + 1°,- 0°
	Elevator trim R	up 27° ± 2°
		down 27° ± 2°
	Rudder deflection	right and left 30° + 2°, -0°
	Rudder trim	left and right 30° ± 1°
	Ailerons deflection	up 20° + 1°, -0°
		down 20° + 1°, -0°
	Aileron trim Lup	17° + 3°, -0°
		down 17° + 3°, -0°
	Aileron trim R	up 27° ± 3°
		down 27° ± 3°
17. Levelling Means:	Four points 1 to 4 on left side of airplane fuselage to be levelled. Measurement plane to be min 500 mm below.	
18. Minimum Flight Crew:	1 (Pilot)	
19. Maximum Passenger Seating Capacity:	None	
20. (Reserved)		
21. Baggage/Cargo Compartments:	Max. 10 kg (only for category Normal).	
22. Wheels and Tyres:	Wheels of main landing gear K 29-0100.00 with tyre Mitas (Barum) 350 x 135.	

Tail wheel S/N 150.0.559.000 with tyre 200 x 80.

CIV. Operating and Service Instructions

1. Flight Manual:
   - In Czech language
     Letová příručka Z 50 LS, issued 1984 or later approved revision
   - In English language
     Flight Manual Z 50 LS, issued 1984 or later approved revision
   - In German language
     Flughandbuch Z 50 LS, issued 1984 or later approved revision
2. Technical Manual:
   - In Czech language
     Technický popis a návod k obsluze Z 50 LS, issued 1984 or later approved revision
   - In English language
     Technical Manual Z 50 LS, issued 1984 or later approved revision
   - In German language
     Technische Beschreibung und Bedienungsleitung Z 50 LS, issued 1984 or later approved revision
3. Catalogue of Spare Parts:
   - In Russian, Czech, German and English language, issued 1984
     Katalog náhradních dílů Z 50 LS
     Katalog der Ersatzteile Z 50 LS
     Catalogue of Spare Parts Z 50 LS

CV. Notes:

Note 1: Following Z 50 LS Aircraft have been rebuilt to the models:
Z 50 M S/N: 0050
Z 50 LX S/N: 0063, 0067
at the aircraft manufacturer.

SECTION D: Z 50 M

DI. General

1. a) Type:	Z 50
b) Model:	Z 50 M
2. Airworthiness category:	Normal (N) Aerobatic (A)
3. Type Certificate Holder:	ZLIN AIRCRAFT A.S. Letiště 1578 765 81 Otrokovice CZECH REPUBLIC
4. Manufacturer:	Moravan, k.p. Letiště 1578, 765 81 Otrokovice CZECHOSLOVAKIA S/N: 0053; 0059-0060 Moravan, a.s. Letiště 1578, 765 81 Otrokovice CZECH REPUBLIC S/N: 0078-0080
5. Certification Application Date:	---
6. CAA CZ Certificate Date:	February 28,1989

7. The EASA Type Certificate replaces the CAA CZ Type Certificate No. 77-01.

DII. Certification Basis

1. Reference Date for determining the applicable requirements:	06-Apr-1974
2. (Reserved)	
3. (Reserved)	
4. Airworthiness Requirements:	14 CFR Part 23, incl. Amdt. 23-1 through 23-14
5. Requirements elected to comply:	None

6. EASA Special Conditions: None

7. EASA Exemptions: None

8. EASA Equivalent Safety Findings:

§ 23.177(a)(3) – Requirement upon the control force characteristic in relation to the aileron angle is not completely met. In steady, right slips at 1.2 V_{S1}, the aileron control force and corresponding aileron movement in relation to the angle of skid has not a stable characteristic. It is admitted under the proviso that the special aerobatic airplane is concerned; the rate of unstability is outweighed by a good controllability; neither dangerous tendency nor exceptional requirements upon piloting skill occur.

§ 23.207(c) – The difference between the stalling speed and the stall warning speed is lesser than the value required in the Regulation. It is admitted under the proviso that the special aerobatic airplane is concerned where the later warning enables the pilot to use a wider range of speed polar.

§ 23.613(c) – Materials and design values used for aircraft design and construction comply with the Czechoslovak State Standard and specifications valid for the Czechoslovak aviation industry. It is admitted with regard to the fact that the requirement sense is met.

§ 23.967(d) – The fuel tank is located in the pilot´s compartment and is not isolated by an impermeable partition. It is admitted under the proviso that the instructions for tank tightness test are included in the Flight Manual.

§ 23.971 – In the normal ground attitude, fuel tank sump cannot be completely discharged. It is admitted because the fuel system construction arrangement avoids water entry into the power plant fuel system.

§ 23.993(d), (e) – Of the fire resistance of hoses is not complied with. It is admitted with regard to operating experiences.

§ 23.1093(a)(4) – Requirement upon temperature of air inducted by the alternate air intake system is not completely met. Induction air temperature is lesser than temperature of cooling air at engine outlet. It is admitted under the proviso that flying in icing conditions is prohibited.

§ 23.1351(d) – For the electrical power supply to be

checked, the airplane is equipped with a check light signalling the alternator is out of operation. It is admitted under the proviso that the airplane is equipped with a storage battery securing the electrical power supply for necessary time.

§ 23.1381 – 1401 The airplane is not equipped with light system for night operation. Night flight and IFR flight are not permitted.

9. EASA Environmental Standards: ICAO Annex 16/I, Chapter 10

DIII. Technical Characteristics and Operational Limitations

1. Type Design Definition: The specification list of Aircraft S-154.1.000.000.

2. Description: The Z 50 M aircraft is a single-engine, single-seater, low-wing, cantilever monoplane fitted with a closed cockpit and a fixed gear.

3. Equipment: List of the basic aircraft equipment is in Flight Manual, Section 6.

4. Dimensions:
   Wing span: 8.580 m (9.030 m with wing tip tanks)
   Length: 6.960 m
   Height: 1.985 m
   Wing Area: 12.500 m^2

5. Engine:

   5.1 Model: LOM M 137 AZ

   5.2 Type Certificate: 69-01, CAA Czechoslovakia issued, EASA approved

   5.3 Limitations:

Max. Take-off power (MT)	
Max. Power	132 kW (180 HP)
Max. Engine speed	2 750 RPM
Max. Consumption	63 l/h
Max. Manifold pressure	100 kPa
Max. Continuous power	
Max. Power	118 kW (160 HP)
Max. Engine speed	2 680 RPM
Max. Consumption	55 l/h
Max. Manifold pressure	95 kPa
Max. Cruising power	
Max. Power	103 kW (140 HP)
Max. Engine speed	2 580 RPM
Max. Consumption	47 l/h
Max. Manifold pressure	87 kPa

6. Loads factors:	For category (A)	+7.0 g,	-4.5 g
	For category (N)	+3.8 g,	-1.5 g

7. Propellers:

7.1 Model:	AVIA V 503A
7.2 Type Certificate:	69 – 02, CAA Czechoslovakia issued, EASA approved
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:	Aviation gasoline 100L, 100LL BL 78
8.2 Oil:	See Airplane flight manual
8.3 Coolant:	None

9. Fluid capacities:

9.1 Fuel:	1 x 60 litres in main tanks 2 x 50 litres in auxiliary tanks
9.2 Oil:	Minimum 7 litres – Maximum 12 litres
9.3 Coolantsystem capacity:	None

10. Air Speeds:

Never Exceed Speed Limit V_{NE}	
category A, N	307 km/h IAS
Normal Operating Speed Limit V_{NO}	
category A, N	263 km/h IAS
Design Manoeuvring Speed Limit V_A	
for category A	246 km/h IAS
for category N	191 km/h IAS
Stall Speed V_{SO}	
category A	101 km/h IAS
category N	106 km/h IAS
Never exceed Speed for snap maneuvers	
category A	195 km/h IAS

11. Maximum Operating Altitude:	5 200 m
12. Allweather Capability:	The aircraft is approved for VFR-Day flights.

13. Maximum Weights:	Max. Take-off weight:			
	- For category (A)			700 kg
	- For category (N)			780 kg
	Max. Variable Load:			
	- For category (A)			160 kg
	- For category (N)			230 kg
	Standard Empty Weight:			
	- For category (A)			540 kg ± 3 %
	- For category (N)			550 kg ± 3 %
14. Centre of Gravity Range:	24 % – 31 % MAC (M.A.C. is 1 485 mm)			
15. Datum:	Reference point – upper part of the firewall plane – vertical at horizontal position of the aircraft.			
16. Control surface deflections:	Elevator deflection	up		28.5° + 1°,- 0°
		down		31° + 1°,- 0°
	Elevator trim L	up		10° + 2°,- 0°
		down		30° + 1°,- 0°
	Elevator trim R	up		27° ± 2°
		down		27° ± 2°
	Rudder deflection	right and left		30° + 2°, -0°
	Rudder trim	left and right		30° ± 1°
	Ailerons deflection	up		20° + 1°, -0°
		down		20° + 1°, -0°
	Aileron trim Lup		17°	+ 3°, -0°
		down		17° + 3°, -0°
	Aileron trim R	up		27° ± 3°
		down		27° ± 3°
17. Levelling Means:	Four points 1 to 4 on left side of airplane fuselage to be levelled. Measurement plane to be min 500 mm below.			
18. Minimum Flight Crew:	1 (Pilot)			
19. Maximum Passenger Seating Capacity:	None			
20. (Reserved)				
21. Baggage/Cargo Compartments:	Max. 10 kg (only for category Normal).			
22. Wheels and Tyres:	Wheels of main landing gear K 29-0100.00 with tyre Mitas (Barum) 350 x 135.			
	Tail wheel S/N 150.0.559.000 with tyre 200 x 80.			

DIV. Operating and Service Instructions

1. Flight Manual:
   - Czech language
     Letová příručka Z 50 M, issued 1989 or later approved revision
   - English language
     Flight Manual Z 50 M, issued 1989 or later approved revision
2. Technical Manual:
   - Czech language
     Technický popis Z 50 M, issued 1989 or later approved revision
   - English language
     Technical Manual Z 50 M, issued 1989 or later approved revision
3. Catalogue of Spare Parts:
   - Czech and english language, issued 1989
     Katalog náhradních dílů Z 50 M
     Spare Parts Catalogue Z 50 M

DV. Notes

None.

SECTION E: Z 50 LX

EI. General

1. a) Type:	Z 50
b) Model:	Z 50 LX
2. Airworthiness category:	Normal (N) Aerobatic (A)
3. Type Certificate Holder:	ZLIN AIRCRAFT A.S. Letiště 1578 765 81 Otrokovice CZECH REPUBLIC
4. Manufacturer:	Moravan, a.s. Letiště 1578, 765 81 Otrokovice CZECH REPUBLIC S/N: 0068 – 0076
5. Certification Application Date:	---
6. CAA CZ Certificate Date:	October 14, 1991

7. The EASA Type Certificate replaces The CAA CZ Type Certificate No. 77-01.

EII. Certification Basis

1. Reference Date for determining the applicable requirements:	06-Apr-1974
2. (Reserved)	
3. (Reserved)	
4. Airworthiness Requirements:	14 CFR Part 23, incl. Amdt. 23-1 through 23-14
5. Requirements elected to comply:	None
6. EASA Special Conditions:	None
7. EASA Exemptions:	None
8. EASA Equivalent Safety Findings:	§ 23.177(a)(3) – Requirement upon the control force characteristic in relation to the aileron angle is not completely met. In steady, right slips at 1.2

V_{S1}, the aileron control force and corresponding aileron movement in relation to the angle of skid has not a stable characteristic. It is admitted under the proviso that the special aerobatic airplane is concerned; the rate of unstability is outweighed by a good controllability; neither dangerous tendency nor exceptional requirements upon piloting skill occur.

§ 23.207(c) – The difference between the stalling speed and the stall warning speed is lesser than the value required in the Regulation. It is admitted under the proviso that the special aerobatic airplane is concerned where the later warning enables the pilot to use a wider range of speed polar.

§ 23.613(c) – Materials and design values used for aircraft design and construction comply with the Czechoslovak State Standard and specifications valid for the Czechoslovak aviation industry. It is admitted with regard to the fact that the requirement sense is met.

§ 23.967(d) – The fuel tank is located in the pilot´s compartment and is not isolated by an impermeable partition. It is admitted under the proviso that the instructions for tank tightness test are included in the Flight Manual.

§ 23.971 – In the normal ground attitude, fuel tank sump cannot be completely discharged. It is admitted because the fuel system construction arrangement avoids water entry into the power plant fuel system.

§ 23.993(d), (e) – Of the fire resistance of hoses is not complied with. It is admitted with regard to operating experiences.

§ 23.1093(a)(4) – Requirement upon temperature of air inducted by the alternate air intake system is not completely met. Induction air temperature is lesser than temperature of cooling air at engine outlet. It is admitted under the proviso that flying in icing conditions is prohibited.

§ 23.1351(d) – For the electrical power supply to be checked, the airplane is equipped with a check light signalling the alternator is out of operation. It is admitted under the proviso that the airplane is equipped with a storage battery securing the electrical power supply for necessary time.

§ 23.1381 – 1401 The airplane is not equipped with

	light system for night operation. Night flight and IFR flight are not permitted.
9. EASA Environmental Standards:	ICAO Annex 16/I, Chapter 10

EIII. Technical Characteristics and Operational Limitations

1. Type Design Definition:	The specification list of Aircraft S-156.0.000.000.
2. Description:	The Z 50 LX aircraft is a single-engine, single-seater, low-wing, cantilever monoplane fitted with a closed cockpit and a fixed gear.
3. Equipment:	List of the basic aircraft equipment is in Flight Manual, Section 6.
4. Dimensions:	Wing span: 8.580 m with wing tip tanks Length: 6.620 m Height: 1.985 m Wing Area: 12.500 m^2
5. Engine:	
5.1.1 Model:	TEXTRON Lycoming AEIO-540-L1B5
5.1.2 Type Certificate:	1 E 4, Issued by FAA; 4535, issued by LBA, EASA approved
5.1.3 Limitations:	Max. Take-off power (MT) Max. Power 220 kW (300 HP) Max. Engine speed 2 700 RPM Max. Consumption 90.84 l/h Max. Manifold pressure 101 kPa (max.) Continuous cruising power (75 % MC) Max. Power 165 kW (225 HP) Max. Engine speed 2 450 RPM Max. Consumption 68.13 l/h Max. Manifold pressure 85 kPa Economic cruising power (60 % MC) Max. Power 132 kW (180 HP) Max. Engine speed 2 350 RPM Max. Consumption 48.45 l/h Max. Manifold pressure 73 kPa
or	
5.2.1 Model:	TEXTRON Lycoming AEIO-540-L1B5D
5.2.2 Type Certificate:	1 E 4, Issued by FAA; 4535, issued by LBA, EASA approved

5.2.3 Limitations:	Max. Take-off power (MT)	
	Max. Power	220 kW (300 HP)
	Max. Engine speed	2 700 RPM
	Max. Consumption	90.84 l/h
	Max. Manifold pressure	101 kPa (max.)
	Continuous cruising power (75 % MC)	
	Max. Power	165 kW (225 HP)
	Max. Engine speed	2 450 RPM
	Max. Consumption	68.13 l/h
	Max. Manifold pressure	85 kPa
	Economic cruising power (60 % MC)	
	Max. Power	132 kW (180 HP)
	Max. Engine speed	2 350 RPM
	Max. Consumption	48.45 l/h
	Max. Manifold pressure	73 kPa
6. Load factors:	For category (A)	+8.0 g,-6.0 g
	For category (N)	+3.8 g,-1.5 g

7. Propellers:

7.1.1 Model:	HOFFMANN HO-V 123 K-V/200 AH
7.1.2 Type Certificate:	32.130/17, Issued by LBA, EASA approved
7.1.3 Number of blades:	3
7.1.4 Diameter:	2 000 mm
7.1.5 Sense of Rotation:	clockwise, in flight direction

or

7.2.1 Model:	MÜHLBAUER MTV-9-B-C/C 200-15
7.2.2 Type Certificate:	32/130/65, Issued by LBA, EASA approved
7.2.3 Number of blades:	3
7.2.4 Diameter:	2 000 mm
7.2.5 Sense of Rotation:	clockwise, in flight direction

8. Fluids:

8.1 Fuel:	Aviation gasoline 100L, 100LL
8.2 Oil:	See Airplane flight manual
8.3 Coolant:	None

9. Fluid capacities:

9.1 Fuel:	1 x 60 litres in main tanks 2 x 42 litres in auxiliary tanks	
9.2 Oil:	Minimum 10 litres – Maximum 15 litres	
9.3 Coolantsystem capacity:	None	

10. Air Speeds:	Never Exceed Speed Limit V_{NE} category A, N	328 km/h IAS
	Normal Operating Speed Limit V_{NO} category A, N	263 km/h IAS
	Design Manoeuvring Speed Limit V_A category A category N	259 km/h IAS 193 km/h IAS
	Stall Speed V_{SO} category A category N	104 km/h IAS 102 km/h IAS
	Maximum Speed Limit for flicked figures category A, N	215 km/h IAS
11. Maximum Operating Altitude:	8 000 m	
12. Allweather Capability:	The aircraft is approved for VFR-Day flights.	
13. Maximum Weights:	Max. Take-off weight: - For category (A) - For category (N)	 760 kg 840 kg
	Max. Landing weight: - For category (A) - For category (N)	 760 kg 800 kg
	Max. Variable Load: - For category (A) - For category (N)	 160 kg 240 kg
	Standard Empty Weight: - For category (A) - For category (N)	 600 kg ± 3 % 610 kg ± 3 %
14. Centre of Gravity Range:	21.5 % – 28 % MAC (M.A.C. is 1 485 mm)	
15. Datum:	Reference point – upper part of the firewall plane – vertical at horizontal position of the aircraft.	

16. Control surface deflections:	Elevator deflection	up	28.5° + 1°,- 0°
		down	31° + 1°,- 0°
	Elevator trim L	up	10° + 2°,- 0°

	down		30°	+ 1°,- 0°
Elevator trim R	up		27°	± 2°
	down		27°	± 2°
Rudder deflection	right and left		30°	+ 2°, -0°
Rudder trim	left and right		30°	± 1°
Ailerons deflection	up		20°	+ 1°, -0°
	down		20°	+ 1°, -0°
Aileron trim Lup		17°	+ 3°, -0°	
	down		17°	+ 3°, -0°
Aileron trim R	up		27°	± 3°
	down		27°	± 3°

17. Levelling Means: Four points 1 to 4 on left side of airplane fuselage to be levelled. Measurement plane to be min 500 mm below.

18. Minimum Flight Crew: 1 (Pilot)

19. Maximum Passenger Seating Capacity: None

20. (Reserved)

21. Baggage/Cargo Compartments: Max. 10 kg (only for category Normal).

22. Wheels and Tyres: Wheels of main landing gear K 29-0100.00 with tyre Mitas (Barum) 350 x 135.

Tail wheel S/N 150.0.559.000 with tyre 200 x 80.

EIV. Operating and Service Instructions

1. Flight Manual:
   - Czech language
     Letová příručka Z 50 LX, issued 1991 or later approved revision
   - English language
     Flight Manual Z 50 LX, issued 1991 or later approved revision
2. Technical Manual:
   - Czech language
     Technický popis a návod k obsluze Z 50 LX, issued 1991 or later approved revision
   - English language
     Technical Manual Z 50 LX, issued 1991 or later approved revision

EV. Notes

Note 1: Following Z 50 LX Aircraft have been rebuilt to the models:
Z 50 LS S/N: 0070, 0075
at the aircraft manufacturer.

ADMINISTRATIVE SECTION

I Acronyms

N/A

II Type Certificate Holder Record

Current:

ZLIN AIRCRAFT A.S.
Letiště 1578
765 81 Otrokovice
CZECH REPUBLIC

Former:

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

Moravan, k.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	27-Sep-2006	Transfer from CAA CZ Type Certificate No. 77-01 to the EASA Type Certificate
Issue 2	02-May-2007	Introduction of changed company name of Moravan
Issue 3	24-Aug-2009	Introduction of changed company name
Issue 4	23 July 2010	Editorial corrections and revision into standard EASA TCDS format