

CIVIL AVIATION AUTHORITY OF THE CZECH REPUBLIC

80-01 Revision 5 Moravan – Aeroplanes a.s. Z 142 Z 142 C 11.04.2007

TYPE CERTIFICATE DATA SHEET No. 80-01

This data sheet which is a part of Type Certificate No. 80-01 prescribes conditions and limitations under which the product for which the type certificate was issued meets the airworthiness requirements of the Czech Republic.

Model	Application Date	Certification Date
Z 142	22.11.1977	28.01.1980
Z 142 C	-	18.07.1991

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Model Z 142

I. General

1. Data Sheet No.: 80-01
2. Model: Z 142
3. Airworthiness category: Normal (N)
Utility (U)
Acrobatic (A)
4. Type Certificate Holder: MORAVAN – AEROPLANES, a.s.
Letiště 1578, 765 81 Otrokovice.
5. Manufacturer: Up to S/N 0444 including
Moravan, n.p.
Letiště 1578, 765 81 Otrokovice.

From S/N 0445 up to S/N 0525 including
Moravan, k.p.
Letiště 1578, 765 81 Otrokovice.

From S/N 0526 including
MORAVAN a.s.
Letiště 1578, 765 81 Otrokovice.
6. Application Date: 22.11.1977
7. Certificate Date: 28.01.1980

II. Certification Basis

1. Certification Basis: FAR PART 23, Amdt 23-13 (including)
2. Special Conditions: None.
3. Exemptions: § 23.177(a)(2), (3) – Regulation requirements are not fulfilled in their full extent, for static lateral stability and straight steady slips. It is acceptable with respect to a good maneuverability of the airplane at the described regimes, without entering to dangerous flight regimes.

§ 23.1013(e) – There is no filter screen bypass at the outlet of the oil tank. It is acceptable with respect to much larger area of the filter screen than is the diameter of the threaded joint at the output, so the safety margin stays preserved.

§ 23.1183(a) – The requirement of incombustible housings is not fulfilled. It is acceptable with respect to experience gained by operation of the similar types of airplanes.

§ 23.1323 – Regulation requirements are not fulfilled at

the speeds higher than 240 km/h. It is acceptable with respect to a correction, which is on the safe side.

§ 23.1401 – The landing lights are an older type, without certificate for use in commercial air transportation. The measurement of the luminous intensity and colour spectrum of the position lights and anti-collision beacon have not been done. It is acceptable with respect to exclusively training character of the night flights executed strictly only in the determined area.

4. Equivalent Safety Findings:

§ 23.177 (a)(2), (3) – Ample controllability of the airplane in specified conditions.

§ 23.1013(e) – The level of safety is retained with the multiple area of the strainer surface.

§ 23.1183(a) – The safety of hose materials is proved with experience in operation.

§ 23.1323 – At the speeds above 240 km/hr, the accomplished correction is on the safe side.

§ 23.1383(a); § 23.1389(b); § 23.1391; § 23.1393; § 23.1395; § 23.1401 – The availability of landing and anti-collision lights, absence measurement of their parameters, are acceptable considering the exclusive training character of the night flights.

5. Environmental Standards:

– ICAO Annex. 16/I, Chapter 10

– FAR PART 36, App. G

III. Technical Characteristics and Operational Limitations

1. Type Design Definition: The specification card of Aircraft Z 242 L has name “Aircraft Z 142” and the number of tracing is “Z 142.0000”.
2. Description: The Z 142 aircraft is two-seat, single-engine, low wing cantilever monoplane.
3. Equipment: Approval equipment list is stated in “Flight manual of the Zlin Z 142 aircraft”, Chapt. 6.
4. Dimensions:

Span:	9.160 m
Length:	7.330 m
Height:	2.750 m
Wing Area:	13.15 m ²
5. Engine:
 - 5.1. Model: M 337 AK
 - 5.2. Type Certificate: No. 72-08, issued by SLI
 - 5.3. Limitations:

Take-off power	
Max. Power	154 kW (210 HP)
Max. Engine speed	2 750 RPM
Max. Manifold pressure	118 kPa
Continuous power	
Max. Power	125 kW (170 HP)
Max. Engine speed	2 600 RPM
Max. Manifold pressure	98 kPa
Cruising power	
Max. Power	103 kW (140 HP)
Max. Engine speed	2 400 RPM
Max. Manifold pressure	90 kPa
6. Propeller:
 - 6.1. Model: V 500 A
 - 6.2. Type Certificate: No. 73-03, issued by SLI
 - 6.3. Number of blades: 2
 - 6.4. Diameter: 2 000 mm
 - 6.5. Sense of Rotation: Left, in flight direction.
7. Fuel: LBZ 78
SHELL 80
ESSO 80 (TEO max. 0.06 % volume)
Grade 100/130 (TEO max. 0.06 % volume)
AVGAS 100 LL

(DEFENCE STANDARD 91/90, ASTM D910)

8. Oil: AERO SHELL 100 (a mineral oil) or equivalent – is recommended for Running-in (max. up to 50 hours).
AERO SHELL W 100 or equivalent – is recommended for After-running-in operation in temperate climatic zone.
AERO SHELL W 120 or equivalent – is recommended for After-running-in operation in tropical zone.
AERO SHELL W 65 or equivalent – is recommended for After-running-in operation during winter or in polar zone.
9. Air Speeds:
- | | |
|---------------------------------------------|--------------|
| Never exceed speed limit V_{NE} | |
| category A, U | 333 km/h IAS |
| category N | 332 km/h IAS |
| Normal operating speed limit V_{NO} | |
| category A, U | 273 km/h IAS |
| category N | 272 km/h IAS |
| Design manoeuvring speed limit V_A | |
| category A | 284 km/h IAS |
| category U | 264 km/h IAS |
| category N | 235 km/h IAS |
| Maximum flaps extended speed limit V_{FE} | |
| category A, U | 189 km/h IAS |
| category N | 188 km/h IAS |
10. Load factors:
- | | |
|----------------------------|----------------|
| For category Acrobatic (A) | +6.0 g, -3.5 g |
| For category Utility (U) | +5.0 g, -3.0 g |
| For category Normal (N) | +3.8 g, -1.5 g |
11. Maximum Operating Altitude:
- | | |
|----------------------------|---------|
| For category Acrobatic (A) | 5 000 m |
| For category Utility (U) | 4 700 m |
| For category Normal (N) | 4 300 m |
12. Weights:
- | | |
|---------------------------------------|------------------|
| Max. Take-off and Landing weight: | |
| - For category Acrobatic (A) | 970 kg |
| - For category Utility (U) | 1 020 kg |
| - For category Normal (N) | |
| – Take-off weight | 1 090 kg |
| – Landing weight | 1 050 kg |
| Max. Variable Load: | |
| - For category Acrobatic (A) | 240 kg |
| - For category Utility (U) | 290 kg |
| - For category Normal (N) | 360 kg |
| Standard empty weight with propeller: | 730 kg \pm 3 % |
13. Centre of Gravity Range: 20 % – 26 % MAC
14. Datum: Relative surface is identical with backside of the firewall (vertical at horizontal aircraft attitude).

15. Mean Aerodynamic Cord (MAC): 1 460 mm
(MAC beginning is located 300 mm from datum plane)
16. Leveling Means: There is 600 mm below relative surface.
17. Minimum Flight Crew: 1
18. Number of seats: 2, (includes crew)
19. Baggage/Cargo Compartments: Max. 20 kg for N category.
20. Control surface deflections:
- | | | |
|----------------------|----------------|---------------------------------------|
| Elevation deflection | up | $34^{\circ} + 0^{\circ}; - 1^{\circ}$ |
| | down | $31^{\circ} + 1^{\circ}$ |
| Rudder deflection | right and left | $30^{\circ} \pm 2^{\circ}$ |
| Ailerons deflection | up | $21^{\circ} \pm 1^{\circ}$ |
| | down | $17^{\circ} \pm 1^{\circ}$ |
| Wing flaps positions | retracted | 0° |
| | take-off | $14^{\circ} \pm 1^{\circ}$ |
| | landing | $37^{\circ} \pm 1^{\circ}$ |
21. Wheels and Tyres: Wheels of main gear K 22-0100-7 with tyre Mitas (Barum) 420 x 150 model 2, or
Wheels of main gear K 22-3100-7 with tyre Goodyear 6.00-6.5, P/N 607C41-1.

Wheel of nose gear K 23-0000-7 with tyre Mitas (Barum) 350 x 135, or
Wheel of nose gear K 51-1100-7 with tyre Goodyear 5.00-5, P/N 505C61-8.
22. Other Limitations: The aircraft is approved for Day and Night VFR.

IV. Operating and Service Instructions

1. Flight Manual:

- In Czech language
Letová příručka pro letoun ZLIN 142, date of issue 1982
- In English language
Flight Manual of the ZLIN 142L Aircraft, date of issue 1989
- In French language
Manuel de vol de l'aviation Z 142
- In German language
Flughandbuch Zlin 142, date of issue 1982

2. Technical Manual:

- In Czech language
Technický popis pro letoun ZLIN 142
- In English language
Technical Manual Z 142
- In French language
Description technique et mode d'emploi Z 142
- In German language
Technische Beschreibung und Bedienungsanleitung Zlin 142

3. Repair manual:

- In Czech language
Oprávérenská příručka letounu ZLIN 142
- In French language
Manuel de reparation de l'avion Z 142

4. Catalogue of Spare Parts:

- In Russian, Czech, German and English language, date of issue 1988
Katalog náhradních dílů Z 142
Katalog der Ersatzteile Z 142
Catalogue of Spare Parts Z 142

5. Spare Parts Catalogue – Supplement

- In Russian, Czech, German and English language, date of issue 1982
Dodatek ke Katalogu náhradních dílů letounu Z 142
Spare Parts Catalogue – Supplement Z 142

6. Table of Dimensions, Limits and Clearances:

- In Russian, Czech, German and English language, date of issue 1982
Album rozměrů, tolerancí a vůlí Z 142
Album der Abmessungen, der Toleranz und Spielangaben Z 142
Table of Dimensions, Limits and Clearances Z 142

7. Manual for Operation:

- In Czech language
Doc. No. Z002.071
Příručka pro provoz letounu Z 142 bez generálních oprav draku část 1, prohlídka A, B; část 2, prohlídka C, date of issue June 2, 1996
- In English language
Doc. No. Z002.071
Manual for Operation of Z 142 Aircraft without Airframe Overhaul Part 1, Revision A, B, date of

issue Jun 1, 1996; Part 2, Revisoin C, date of
issue Jun 2, 1996

8. Instruments and Aggregates:

- In Czech language
Doc. No. PRA. 081

Přístroje a agregáty, použité na letounech Z 42 M,
Z 42 MU, Z 142 a Z 43

V. Notes

1. EASA TC No. EASA.A.027 was issued for model Z 142 aircraft on 28.03.2007.

VI. Model Z 142 C

I. General

1. Data Sheet No.: 80-01
2. Model: Z 142 C
3. Airworthiness category: Normal (N)
Utility (U)
Acrobatic (A)
4. Type Certificate Holder: MORAVAN – AEROPLANES, a.s.
Letiště 1578, 765 81 Otrokovice.
5. Manufacturer: Moravan n.p.
Letiště 1578, 765 81 Otrokovice.
6. Application Date: -
7. Certificate Date: 18.07.1991

II. Certification Basis

1. Certification Basis: FAR PART 23, Amdt 23-20 (including)
2. Special Conditions: None.
3. Exemptions:

§ 23.177(a)(2), (3) – Regulation requirements are not fulfilled in their full extent, for static lateral stability and straight steady slips. It is acceptable with respect to a good maneuverability of the airplane at the described regimes, without entering to dangerous flight regimes.

§ 23.1013(e) – There is no filter screen bypass at the outlet of the oil tank. It is acceptable with respect to much larger area of the filter screen than is the diameter of the threaded joint at the output, so the safety margin stays preserved.

§ 23.1323 – Regulation requirements are not fulfilled at the speeds higher than 240 km/h. It is acceptable with respect to a correction, which is on the safe side.
4. Equivalent Safety Findings: § 23.177 (a)(2), (3) – Ample controllability of the airplane in specified conditions.

§ 23.1013(e); § 23.1019(b) – The active strainer input area is thirty-times larger than the critical outlet section. The strainer blocking has never occurred during operation. It's dangerous blocking is prevented by scheduled inspection periods. The airplane is provided with a duplicate oil pressure checking system.

§ 23.1323 – At the speeds above 240 km/hr, the

accomplished correction is on the safe side.

5. Environmental Standards:

- ICAO Annex. 16/I, Chapter 10
- FAR PART 36, App. G

III. Technical Characteristics and Operational Limitations

1. Type Design Definition: The specification card of Aircraft Z 142 C has name “Aircraft Z 142 C” and the tracing number is “C142.0000”.
2. Description: The Z 142 C aircraft is two-seat, single-engine, low wing cantilever monoplane.
3. Equipment: Approval equipment list is stated in “Flight manual of the Zlin Z 142 aircraft”, Chapt. 6.
4. Dimensions:

Span:	9.160 m
Length:	7.330 m
Height:	2.750 m
Wing Area:	13.15 m ²
5. Engine:
 - 5.1. Model: M 337 AK
 - 5.2. Type Certificate: No. 72-08, issued by SLI
 - 5.3. Limitations:

Take-off power	
Max. Power	154 kW, (210 HP)
Max. Engine speed	2 750 RPM
Max. Manifold pressure	118 kPa
Continuous power	
Max. Power	125 kW, (170 HP)
Max. Engine speed	2 600 RPM
Max. Manifold pressure	98 kPa
Cruising power	
Max. Power	103 kW, (140 HP)
Max. Engine speed	2 400 RPM
Max. Manifold pressure	90 kPa
6. Propeller:
 - 6.1. Model: V 500 A
 - 6.2. Type Certificate: No. 73-03, issued by SLI
 - 6.3. Number of blades: 2
 - 6.4. Diameter: 2 000 mm
 - 6.5. Sense of Rotation: Left, in flight direction.
7. Fuel:

LBZ 78
SHELL 80
ESSO 80 (TEO max. 0.06 % volume)
Grade 100/130 (TEO max. 0.06 % volume)
AVGAS 100 LL

(DEFENCE STANDARD 91/90, ASTM D910)

8. Oil: AERO SHELL 100 (a mineral oil) or equivalent – is recommended for Running-in (max. up to 50 hours).
AERO SHELL W 100 or equivalent – is recommended for After-running-in operation in temperate climatic zone.
AERO SHELL W 120 or equivalent – is recommended for After-running-in operation in tropical zone.
AERO SHELL W 65 or equivalent – is recommended for After-running-in operation during winter or in polar zone.
9. Air Speeds:
- | | |
|---------------------------------------------|--------------|
| Never exceed speed limit V_{NE} | |
| category A, U | 333 km/h IAS |
| category N | 332 km/h IAS |
| Normal operating speed limit V_{NO} | |
| category A, U | 273 km/h IAS |
| category N | 272 km/h IAS |
| Design manoeuvring speed limit V_A | |
| category A | 284 km/h IAS |
| category U | 264 km/h IAS |
| category N | 235 km/h IAS |
| Maximum flaps extended speed limit V_{FE} | |
| category A, U | 189 km/h IAS |
| category N | 188 km/h IAS |
10. Load factors:
- | | |
|----------------------------|----------------|
| For category Acrobatic (A) | +6.0 g, -3.5 g |
| For category Utility (U) | +5.0 g, -3.0 g |
| For category Normal (N) | +3.8 g, -1.5 g |
11. Maximum Operating Altitude:
- | | |
|----------------------------|---------|
| For category Acrobatic (A) | 4 750 m |
| For category Utility (U) | 4 500 m |
| For category Normal (N) | 4 300 m |
12. Weights:
- | | |
|---------------------------------------|------------------|
| Max. Take-off and Landing weight: | |
| - For category Acrobatic (A) | 970 kg |
| - For category Utility (U) | 1 020 kg |
| - For category Normal (N) | |
| – Take-off weight | 1 090 kg |
| – Landing weight | 1 050 kg |
| Max. Variable Load: | |
| - For category Acrobatic (A) | 240 kg |
| - For category Utility (U) | 290 kg |
| - For category Normal (N) | 360 kg |
| Standard empty weight with propeller: | 730 kg \pm 3 % |
13. Centre of Gravity Range: 20 % – 26 % MAC

14. Datum: Relative surface is identical with backside of the firewall (vertical at horizontal aircraft attitude).
15. Mean Aerodynamic (MAC): 1 460 mm
16. Leveling Means: There is 600 mm below relative surface.
17. Minimum Flight Crew: 1
18. Number of seats: 2, (includes crew)
19. Baggage/Cargo Compartments: Max. 20 kg for N category.
20. Control surface deflections:
- | | | |
|----------------------|----------------|---------------------------------------|
| Elevation deflection | up | $34^{\circ} + 0^{\circ}; - 1^{\circ}$ |
| | down | $31^{\circ} + 1^{\circ}$ |
| Rudder deflection | right and left | $30^{\circ} \pm 2^{\circ}$ |
| Ailerons deflection | up | $21^{\circ} \pm 1^{\circ}$ |
| | down | $17^{\circ} \pm 1^{\circ}$ |
| Wing flaps positions | retracted | 0° |
| | take-off | $14^{\circ} \pm 1^{\circ}$ |
| | landing | $37^{\circ} \pm 1^{\circ}$ |
21. Wheels and Tyres: Wheels of main gear K 22-0100-7 with tyre Mitas (Barum) 420 x 150 model 2, or
Wheels of main gear K 22-3100-7 with tyre Goodyear 6.00-6.5, P/N 607C41-1.
Wheel of nose gear K 23-0000-7 with tyre Mitas (Barum) 350 x 135, or
Wheel of nose gear K 51-1100-7 with tyre Goodyear 5.00-5, P/N 505C61-8
22. Other Limitations: The aircraft is approved for Day and Night VFR and IFR flights.

IV. Operating and Service Instructions

1. Flight Manual:
 - In English language
Flight Manual of the Z 142 C Aircraft
2. Maintenance Manual:
 - In Czech language
Návod pro údržbu pro letoun ZLIN 142 C, část II
 - In English language
Maintenance Manual of the Z 142 C Aircraft Vol. I
Maintenance Manual of the Z 142 C Aircraft Vol. II
3. Catalogue of spare parts:
 - In Czech, English and German language
Katalog náhradních dílů; Catalogue of spare parts; Katalog der Ersatzteile; Z 142 C
4. Table of dimensions, limits and clearances:
 - In Czech, English and German language
Album rozměrů, tolerancí a vůlí; Table of dimensions, limits and clearances; Album der Abmessungen, der Toleranz – und Spielanlagen; ZLIN 142 C – Z 142 C AF

V. Notes

1. EASA TC No. EASA.A.027 was issued for model Z 142 C aircraft on 28.03.2007.