

# CIVIL AVIATION AUTHORITY OF THE CZECH REPUBLIC

72-04  
Revision 4  
MORAVAN – AEROPLANES a.s.  
Model Z 526 AFS  
Model Z 526 AFS-V  
11.04.2007

## TYPE CERTIFICATE DATA SHEET No. 72-04

This data sheet which is a part of Type Certificate No. 72-04 prescribes conditions and limitations under which the product for which the type certificate was issued meets the airworthiness requirements of the Czech Republic.

<b>Model</b>	<b>Application Date</b>	<b>Certification Date</b>
Z 526 AFS	-	30.06.1972
Z 526 AFS-V	-	24.09.1982

Page No.	1	2	3	4	5	6	7	8	9	10	11	12	13
Revision No.	4	4	4	4	4	4	4	4	4	4	4	4	4

## Model Z 526 AFS

### I. General

1. Data Sheet No.: 72-04
2. Model: Z 526 AFS
3. Airworthiness category: Normal (N)  
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: 30.06.1972

### II. Certification Basis

1. Certification Basis: FAR PART 23, Amdt. 23-9 including
2. Special Conditions: None.
3. Exemptions:

§ 23.177	Static directional and lateral stability
§ 23.207	Stall warning
§ 23.613(c), § 23.615	Material strength properties and design values
§ 23.729(f)(1)	Landing gear extension and retraction system
§ 23.991(b)	Fuels pumps
§ 23.1183(a)	Lines, fittings and components
§ 23.1357(d)	Circuit protective devices
4. Equivalent Safety Findings:

§ 23.177	– Requirements are met except for flight characteristics at sideslips when aileron and rudder control forces are inexpressive and, in some cases, the tendency to raise the low wing is not demonstrated according to regulation requirement. It is admitted with regard to very good aircraft controllability, to the fact that uncontrollable tendencies do not occur and to the fact that the aircraft is acrobatic, for which higher maneuverability is required.
§ 23.207	– Stall warning is inexpressive. It is admitted

with regard to good flight characteristics at stall, to very good aircraft controllability and to the fact that dangerous tendencies do not occur.

§ 23.613(c), § 23.615 – 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.

§ 23.729(f)(1) – A warning device is not used. It is admitted with regard to the fact that the aircraft is intended for acrobatic flying only.

§ 23.991(b) – The aircraft is not equipped with emergency pump for fuel supply recovery in case of main fuel pump failure. It is admitted with regard to these reasons:

- The engine is equipped with high-pressure pump, which is joined with low-pressure pump to a single aggregate. A failure of this aggregate could cause contemporaneous break of fuel supply by 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 or effort. A failure of low-pressure pump has not been occurred yet and its occurrence is extremely improbable.

§ 23.1183(a) – Requirement for hoses fire resistance is not met.

§ 23.1357(d) – Requirement for battery circuit breaker during flight is not met. It is admitted with regard to operation experiences.

5. Environmental Standards: None.

### III. Technical Characteristics and Operational Limitations

1. Type Design Definition:      The specification drawing:              No. AFS 526.000  
    The specification list of Aircraft        No. S-AFS 526.000
  
2. Description:                    The Z 526 AFS Aircraft is one-seat, low wing, single-engine, cantilever monoplane.
  
3. Equipment:                    Speed indicator                              LUN 1106  
    Altimeter                                        LUN 1121  
    Turn and bank indicator                    LUN 1213  
    Magnetic compass                            LUN 1222  
    Tachometer                                    LUN 1312  
    Cylinder heads thermometer              LUN 1380  
    Three-scale indicator                        LUN 1521  
    Landing gear position indicator            LUN 1692  
    Accelerometer                                LUN 1722  
    Clock    AČS  
    Pittot tube                                      PVD-6M
  
4. Dimensions:                    Span:    8.840 m  
    Length:    7.806 m  
    Height:    1.900 m  
    Wing Area:                                    13.810 m<sup>2</sup>
  
5. Engine:
  - 5.1. Model:                        M 137 A
  
  - 5.2. Type Certificate:            No. 69-01, Issued by SLI
  
  - 5.3. Limitations:                Take-off power
 

Max. Power	132 kW (180 HP)
Max. Engine speed	2 750 RPM
Max. Consumption	59 l/h
Max. Manifold pressure	100 kPa

  
 Continuous power
 

Max. Power	118 kW (160 HP)
Max. Engine speed	2 680 RPM
Max. Consumption	52 l/h
Max. Manifold pressure	95 kPa

  
 Cruising power
 

Max. Power	103 kW (140 HP)
Max. Engine speed	2 580 RPM
Max. Consumption	43 l/h
Max. Manifold pressure	88 kPa
  
6. Propeller:
  - 6.1. Model:                        V 503 A
  
  - 6.2. Type Certificate:            No. 69-02, 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: Not-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  
AVGAS 80  
AVGAS 100 LL  
(DEFENCE STANDARD 91/90, ASTM D910)
8. Oil: For engine operation are recommended mineral oils with minimal kinematic viscosity of  $20 \text{ mm}^2 \text{ s}^{-1}$  at  $100^\circ\text{C}$ , which percentual carbon residue does not exceed the value of 0.29 %.
- MS 20 – Running in  
AEROSHELL Oil 100 – Running in  
Aeroshell W100  
Aeroshell W120 (in tropical climates)  
ELF Aviation AD 100  
BP Aero D 100  
TOTAL Aero D 100
9. Air Speeds:
- |  |              |
|--|--------------|
| Never exceed speed limit $V_{NE}$<br>category A, N             | 305 km/h IAS |
| Normal operating speed limit $V_{NO}$<br>category A, N         | 230 km/h IAS |
| Design manoeuvring speed limit $V_A$<br>category A, N          | 238 km/h IAS |
| Maximum open landing gear speed $V_{LE}$<br>category A, N      | 180 km/h IAS |
| Maximum landing gear operating speed $V_{LO}$<br>category A, N | 140 km/h IAS |
| Maximum permissible Snap Maneuver speed                        | 160 km/h IAS |
10. Load factors: For category Acrobatic (A) +7.0 g, -4.5 g  
For category Normal (N) +3.8 g, -1.5 g
11. Maximum Operating Altitude: 5 800 m

12. Weights:	<p>Max. Take-off and landing weight:</p> <p>- For category Acrobatic (A) 740 kg</p> <p>- For category Normal (N) 840 kg</p> <p>Max. Variable Load:</p> <p>- For category Acrobatic (A) 136 kg</p> <p>- For category Normal (N) 236 kg</p> <p>Standard empty weight:</p> <p>- For category Acrobatic (A) 604 kg ± 3 %</p> <p>- For category Normal (N) 635 kg ± 3 %</p>																																																				
13. Centre of Gravity Range:	24.8 % – 31 % MAC																																																				
14. Datum:	The back part of fire wall; from it are measured, for purpose assignation of Gravity Centre, all horizontal length.																																																				
15. Mean Aerodynamic Cord (MAC):	1 609 mm																																																				
16. Leveling Means:	There is 850 mm below basic plane, see point 2, 3, 4 on the fuselage.																																																				
17. Minimum Flight Crew:	1																																																				
18. Number of seats:	1																																																				
19. Baggage/Cargo Compartments:	None.																																																				
20. Control surface deflections:	<table border="0" style="width: 100%;"> <tr> <td style="width: 30%;">Elevator deflection</td> <td style="width: 10%;">up</td> <td style="width: 10%;">28°</td> <td style="width: 10%;">± 2°</td> </tr> <tr> <td></td> <td>down</td> <td>24°</td> <td>± 1°</td> </tr> <tr> <td>Elevator trim tab</td> <td>up</td> <td>25°</td> <td>± 2°</td> </tr> <tr> <td></td> <td>down</td> <td>40°</td> <td>± 2°</td> </tr> <tr> <td>Rudder deflection</td> <td>right and left</td> <td>30°</td> <td>± 2°</td> </tr> <tr> <td>Rudder trim tab</td> <td>left</td> <td>5°</td> <td>± 1°</td> </tr> <tr> <td></td> <td>right</td> <td>30°</td> <td>± 2°</td> </tr> <tr> <td colspan="4">Outside aileron deflection</td> </tr> <tr> <td></td> <td>up</td> <td colspan="2">112 mm; (+ 5; - 3) mm</td> </tr> <tr> <td></td> <td>down</td> <td colspan="2">108 mm; (+ 5; - 3) mm</td> </tr> <tr> <td colspan="4">Inside aileron deflection</td> </tr> <tr> <td></td> <td>up</td> <td colspan="2">84 mm; (+ 5; - 3) mm</td> </tr> <tr> <td></td> <td>down</td> <td colspan="2">81 mm; (+ 5; - 3) mm</td> </tr> </table>	Elevator deflection	up	28°	± 2°		down	24°	± 1°	Elevator trim tab	up	25°	± 2°		down	40°	± 2°	Rudder deflection	right and left	30°	± 2°	Rudder trim tab	left	5°	± 1°		right	30°	± 2°	Outside aileron deflection					up	112 mm; (+ 5; - 3) mm			down	108 mm; (+ 5; - 3) mm		Inside aileron deflection					up	84 mm; (+ 5; - 3) mm			down	81 mm; (+ 5; - 3) mm	
Elevator deflection	up	28°	± 2°																																																		
	down	24°	± 1°																																																		
Elevator trim tab	up	25°	± 2°																																																		
	down	40°	± 2°																																																		
Rudder deflection	right and left	30°	± 2°																																																		
Rudder trim tab	left	5°	± 1°																																																		
	right	30°	± 2°																																																		
Outside aileron deflection																																																					
	up	112 mm; (+ 5; - 3) mm																																																			
	down	108 mm; (+ 5; - 3) mm																																																			
Inside aileron deflection																																																					
	up	84 mm; (+ 5; - 3) mm																																																			
	down	81 mm; (+ 5; - 3) mm																																																			
21. Wheels and Tyres:	<p>Wheels of main landing gear K 12-0100.00 with tyre Mitas 420 x 150 model 2, or Barum 420 x 150 model 2</p> <p>Tail wheel K 13-0000.00 with tyre Barum 260 x 85, or with tyre Mitas 260 x 85</p>																																																				
22. Other Limitations:	The aircraft is approved for VFR Day flights.																																																				

#### IV. Operating and Service Instructions

##### 1. Flight Manual:

- In Czech language  
Letová příručka ZLIN 526 AFS, date of issue October, 1971
- In English language  
Flight Manual ZLIN 526 AFS, date of issue June 1972
- In German language  
Flugzeug – Betriebshandbuch ZLIN 526 AFS date of issue June 1972

##### 2. Maintenance Manual:

- In Czech language  
Popis – obsluha – údržba ZLIN 526 AFS, date of issue November, 1972
- In English language  
Description – Operation – Maintenance ZLIN 526 AFS, date of issue November 1972
- In Germany language  
Beschreibung – Bedienung – Instandhaltung ZLIN 526 AFS, date of issue November 1972

##### 3. Overhaul Manual:

- In Czech language  
Oprávérenská příručka ZLIN 526 AFS (Dodatek k Oprávérenské příručce Z 526 F), date of issue March 1972
- In English language  
Overhaul Manual ZLIN 526 AFS (Supplement to Overhaul Manual of the Z 526 F Aircraft), date of issue March 1972
- In German language  
Reparaturhandbuch ZLIN 526 AFS (Nachtrag zum Reparaturhanbuch Z 526 F), date of issue March, 1972

##### 4. Illustrated Parts Catalogue:

- In Russian, Czech, German and English language, date of issue July 1972  
Katalog Z 526 AFS (Dodatek ke katalogu Z 526 F)  
Ersatzteil Katalog (Nachtrag zum Katalog für das Fugzeug Z 526 F)  
Spare Parts Catalogue (Catalogue Supplement of the Z 526 F Aircraft)

##### 5. Catalogue Supplement:

- In Russian, Czech, German and English language, issued 1973  
Dodatek ke katalogu pro Z 526 AFS  
Nachtrag zum Katalog für das Fugzeug Z 526 AFS  
Supplement of the Z 526 AFS Catalogue

#### V. Notes

1. EASA TC No. EASA.A.353 was issued for model Z 526 AFS aircraft on 28.3.2007.

## Model Z 526 AFS-V

### I. General

1. Data Sheet No.: 72-04
2. Model: Z 526 AFS-V
3. Airworthiness category: Normal (N)
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: 24.09.1982

### II. Certification Basis

1. Certification Basis: FAR PART 23, Amdt. 23-9 including
2. Special Conditions: None.
3. Exemptions:

§ 23.177	Static directional and lateral stability
§ 23.207	Stall warning
§ 23.613(c), § 23.615	Material strength properties and design values
§ 23.991(b)	Fuels pumps
§ 23.1183(a)	Lines, fittings and components
§ 23.1357(d)	Circuit protective devices
4. Equivalent Safety Findings:

§ 23.177 – Requirements are met except for flight characteristics at sideslips when aileron and rudder control forces are inexpressive and, in some cases, the tendency to raise the low wing is not demonstrated according to regulation requirement. It is admitted with regard to very good aircraft controllability, to the fact that uncontrollable tendencies do not occur and to the fact that the aircraft is acrobatic, for which higher maneuverability is required.

§ 23.207 – Stall warning is inexpressive. It is admitted with regard to good flight characteristics at stall, to very good aircraft controllability and to the fact that dangerous tendencies do not occur.



§ 23.613(c), § 23.615 – 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.

§ 23.991(b) – The aircraft is not equipped with emergency pump for fuel supply recovery in case of main fuel pump failure. It is admitted with regard to these reasons:

- The engine is equipped with high-pressure pump, which is joined with low-pressure pump to a single aggregate. A failure of this aggregate could cause contemporaneous break of fuel supply by 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 or effort. A failure of low-pressure pump has not been occurred yet and its occurrence is extremely improbable.

§ 23.1183(a) – Requirement for hoses fire resistance is not met.

§ 23.1357(d) – Requirement for battery circuit breaker during flight is not met. It is admitted with regard to operation experiences.

5. Environmental Standards: None.

### III. Technical Characteristics and Operational Limitations

1. Type Design Definition:
 

The specification drawing	No. AFS 526.000
The specification list of Aircraft	No. S-AFS 526.000, AFN 526
  
2. Description:
 

The Z 526 AFS-V Aircraft is one-seat, low wing, single-engine, cantilever monoplane.
  
3. Equipment:
 

Speed indicator	LUN 1106
Altimeter	LUN 1121
Variometer	LUN 1147
Turn and bank indicator	LUN 1213
Magnetic compass	LUN 1222
Tachometer	LUN 1312
Cylinder heads thermometer	LUN 1380
Three-scale indicator	LUN 1521
Landing gear position indicator	LUN 1692
Accelerometer	LUN 1722
Clock	AČS
Pitot tube	PVD-6M
Towing gear including rear-view mirror	
Acoustic landing gear position indicator and stall warning	
Oil cooler	F 526.1191
Engine fire extinguisher	
Electric system with battery	
  
4. Dimensions:
 

Span:	8.840 m
Length:	7.806 m
Height:	1.900 m
Wing Area:	13.810 m <sup>2</sup>
  
5. Engine:
  - 5.1. Model: M 137 A
  - 5.2. Type Certificate: No. 69-01, Issued by SLI
  - 5.3. Limitations:
 

Take-off power	
Max. Power	132 kW (180 HP)
Max. Engine speed	2 750 RPM
Max. Consumption	59 l/h
Max. Manifold pressure	100 kPa
Continuous power	
Max. Power	118 kW (160 HP)
Max. Engine speed	2 680 RPM
Max. Consumption	52 l/h
Max. Manifold pressure	95 kPa
Cruising power	
Max. Power	103 kW (140 HP)
Max. Engine speed	2 580 RPM
Max. Consumption	43 l/h
Max. Manifold pressure	88 kPa

6. Propeller:
- 6.1. Model: V 503 A
- 6.2. Type Certificate: No. 69-02, 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: Not-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
- AVGAS 80
- AVGAS 100 LL  
(DEFENCE STANDARD 91/90, ASTM D910)
8. Oil: For engine operation are recommended mineral oils with minimal kinematic viscosity of  $20 \text{ mm}^2 \text{ s}^{-1}$  at  $100^\circ\text{C}$ , which percentual carbon residue does not exceed the value of 0.29 %.
- MS 20 – Running in
- AEROSHELL Oil 100 – Running in
- Aeroshell W100
- Aeroshell W120 (in tropical climates)
- ELF Aviation AD 100
- BP Aero D 100
- TOTAL Aero D 100
9. Air Speeds:
- |   |              |
|---|--------------|
| Never exceed speed limit $V_{NE}$<br>category N             | 305 km/h IAS |
| Normal operating speed limit $V_{NO}$<br>category N         | 230 km/h IAS |
| Design manoeuvring speed limit $V_A$<br>category N          | 238 km/h IAS |
| Maximum open landing gear speed $V_{LE}$<br>category N      | 180 km/h IAS |
| Maximum landing gear operating speed $V_{LO}$<br>category N | 140 km/h IAS |
10. Load factors: +3.8 g, -1.5 g
11. Maximum Operating Altitude: 5 800 m

12. Weights:	Max. Take-off and landing weight:	840 kg
	Max. Variable Load:	200 kg
	Standard empty weight:	640 kg $\pm$ 3 %
13. Centre of Gravity Range:	24.8 % – 31 % MAC	
14. Datum:	The back part of fire wall; from it are measured, for purpose assignation of Gravity Centre, all horizontal length.	
15. Mean Aerodynamic Cord (MAC):	1 609 mm	
16. Leveling Means:	There is 850 mm below basic plane, see point 2, 3, 4 on the fuselage.	
17. Minimum Flight Crew:	1	
18. Number of seats:	1	
19. Baggage/Cargo Compartments:	None.	
20. Control surface deflections:	Elevator deflection	up 28° $\pm$ 2°
		down 24° $\pm$ 1°
	Elevator trim tab	up 25° $\pm$ 2°
		down 40° $\pm$ 2°
	Rudder deflection	right and left 30° $\pm$ 2°
	Rudder trim tab	left 5° $\pm$ 1°
		right 30° $\pm$ 2°
	Outside aileron deflection	
		up 112 mm; (+ 5; - 3) mm
		down 108 mm; (+ 5; - 3) mm
Inside aileron deflection		
	up 84 mm; (+ 5; - 3) mm	
	down 81 mm; (+ 5; - 3) mm	
21. Wheels and Tyres:	Wheels of main landing gear K 12-0100.00 with tyre Mitas 420 x 150 model 2, or Barum 420 x 150 model 2	
	Tail wheel K 13-0000.00 with tyre Barum 260 x 85, or with tyre Mitas 260 x 85	
22. Other Limitations:	The aircraft is approved for VFR Day flights.	

#### IV. Operating and Service Instructions

6. Flight Manual:
  - In Czech language  
Letová příručka ZLIN 526 AFS, date of issue October 1971
7. Flight Manual Supplement
  - In Czech language  
Z 526 AFS-V dodatek Letové příručky Z 526 AFS
8. Maintenance Manual:
  - In Czech language  
Popis – obsluha – údržba ZLIN 526 AFS, date of issue November 1972
9. Overhaul Manual:
  - In Czech language  
Oprávérenská příručka ZLIN 526 AFS (Dodatek k Oprávérenské příručce Z 526 F),  
date of issue March 1972
10. Illustrated Parts Catalogue:
  - In Czech language  
Katalog Z 526 AFS (Dodatek ke Katalogu Z 526 F), date of issue July 1972

#### V. Notes

1. EASA TC No. EASA.A.353 was issued for model Z 526 AFS-V aircraft on 28.3.2007.