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## TYPE-CERTIFICATE

### DATA SHEET

NO. EASA.A.061

**for**

PZL-104 WILGA Series

**Type Certificate Holder**

AIRBUS POLAND S.A.

Al. Krakowska 110/114

02-256 Warszawa

Poland

For models: PZL-104 Wilga 80  
PZL-104M Wilga 2000  
PZL-104MN Wilga 2000  
PZL-104MF Wilga 2000  
PZL-104MA Wilga 2000  
PZL-104 Wilga 32  
PZL-104 Wilga 32A  
PZL-104 Wilga 35  
PZL-104 Wilga 35A



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**SECTION A: PZL-104 WILGA 80**

**A.I. General**

1. Type/ Model	
1.1 Type	PZL-104 Wilga
1.2 Model	PZL-104 Wilga 80
2. Airworthiness Category	Normal
3. Manufacturer	PZL „Warszawa-Okęcie” Al. Krakowska 110/114 02-256 Warszawa Poland See note 3
4. Type Certification Application Date	August 2, 1978
5. State of Design Authority	Poland
6. State of Design Authority Type Certificate Date	February 25, 1980
7. EASA Type Certification Date	November 16, 2005 (TC No. BB-130)

**A.II. EASA Certification Basis**

1. Reference Date for determining the applicable requirements	August 2, 1978
2. Airworthiness Requirements	FAR 23 dated February 1, 1965 as amended through Amendment 23-20 effective September 1, 1977.
3. Special Conditions	Canadian Engineering and Inspection Manual, Part II, Chap. 1. Section 1.1. Canada 1971 for version with ski landing gear
4. Exemptions	None
5. Deviations	None
6. Equivalent Safety Findings	None
7. Environmental Protection	ICAO, Annex 16, Volume 1, Chapter 6; Edition 1978



**A.III. Technical Characteristics and Operational Limitations**

- 1. Type Design Definition List of Main Drawings of the PZL-104 Wilga 80  
Airplane, Edition B, December 1985
  
- 2. Description Single radial engine, fixed landing gear with tail  
wheel, four-seat cantilever high-wing, all metal  
monoplane
  
- 3. Equipment Refer to Pilot’s Operating Handbook of PZL-104 Wilga  
80, Sec. 5.4
  
- 4. Dimensions
  - Span 11.134 m (36 ft 6.3 in)
  - Length 8.10 m (26 ft 6.9 in)
  - Height 2.96 m (9 ft 8.5 in)
  - Wing Area 15.5 m<sup>2</sup> (166.8 sq. ft)
  
- 5. Engine
  - 5.1. Model AI-14 RA  
Serial No. distinguished by the phrase “KAF”
  - 5.2 Type Certificate CB-052 - issued by CAA in Poland
  - 5.3 Limitations Max allowable rotational speed 2350 rpm (5 min.) at  
sea level  
For other engine limits refer to AFM

6. Load factors

Maximum permissible load factor in flight with maximum mass of 1300 kg:

	Flaps up	Flaps down
Max. positive load factor	3.8	2.0
Max. negative load factor	-1.52	0

7. Propeller

- 7.1 Model US 122 000 hydraulically controlled, constant speed
- 7.2 Type Certificate DB-118 - issued by CAA in Poland
- 7.3 Number of blades 2
- 7.4 Diameter 2650 mm (104.3 in)

8. Fluids

- 8.1 Fuel Minimum 90 Octane Aviation gasoline. Maximum  
tetraethyllead contents: 2.5 g/kg (0.04 oz/lb) of fuel
  
- 8.2 Oil Mineral aviation oil of 20÷22 eSt (3.07÷3.19° E)  
viscosity at 100°C for summer and winter operation;  
e.g: MS-20 or MK-22 acc. to GOST 1013-49,  
Aeroshell W100 or equivalents



## 9. Fluid capacities

9.1 Fuel	Standard: 172 l (45.4 US Gallons) 170 l (45 US Gallons) usable Supplementary tank capacity: 92.2 l (24.3 US Gallons) 90 l (23.8 US Gallons) usable
9.2 Oil	15.5 l (16.4 US qt)

## 10. Air Speeds

Never exceed speed $V_{NE}$ :	Standard 234 km/h (126 kts)
Normal operating speed $V_{NO}$ :	208 km/h (112 kts)
Manoeuvring speed $V_A$ :	178 km/h (96 kts)
Flaps extended speed $V_{FE}$ :	156 km/h (84 kts)
	Version for parachute jumper lifting
Never exceed speed $V_{NE}$ :	200 km/h (108 kts)
Normal operating speed $V_{NO}$ :	180 km/h (97 kts)

11. Maximum Operating Altitude Not defined

12. Approved Operations Capability Day/Night-VFR/IFR  
Flight into known icing conditions - prohibited.

## 13. Maximum Masses

Take-off:	1300 kg (3086 lb)
Zero fuel	1260 kg (2778 lb)
Landing	1265 kg (2789 lb)

## 14. Centre of Gravity Range

Forward limit:	0.425 m (16.7 inches) aft of datum
Rear limit:	0.616 m (24.3 inches) aft of datum

Airplane provided with ski landing gear

Forward limit:	0.480 m (18.9 inches) aft of datum
Rear limit:	0.616 m (24.3 inches) aft of datum

15. Datum A plane tangent to the leading edge of the wing slat and perpendicular to the mean aerodynamic chord (MCA)





#### **A.IV. Operating and Service Instructions**

- |                                |                                                                                                                                                                             |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Flight Manual               | Pilot's Operating Handbook. PZL-104 Wilga 80<br>Issued June 15, 1979; Rev. 6 as per February 17, 1992; (or latest approved revision)                                        |
| 2. Maintenance Manual          | Airplane Maintenance Manual and Scheduled Inspections of the PZL-104 Wilga 80 Airplane<br>Date of issue 1980; Rev. 5 as per October 30, 1990; (or latest approved revision) |
| 3. Structural Repair Manual    | Repair Manual for the PZL-104 Wilga 80 Aircraft<br>Date of issue 1979; Rev. 3 as per April 7, 2009; (or latest approved revision)                                           |
| 4. Weight and Balance Manual   | See Airplane Flight Manual, Section 5                                                                                                                                       |
| 5. Illustrated Parts Catalogue | Catalogue of Spare Parts for the PZL-104 Wilga 80 Airplane<br>Date of issue 1982; (or latest approved revision)                                                             |



**A.V. Notes**

**Note 1.**

A current Weight and Balance Report must be provided with each airplane at the time of original Airworthiness Certification and all times thereafter. The airplane Weight and Balance Report must include:

- Weight of the empty airplane,
- Position of C.G.,
- Unusable fuel quantity in empty weight,
- Full oil quantity in empty weight,
- List of equipment in empty weight.

**Note 2.**

Approved Noise Levels in accordance with ICAO Annex 16, Volume 1, Chapter 6; Edition 1978:  
61.8 dB(A)

**Note 3.**

Currently: Airbus Poland S.A.



**SECTION B: PZL-104M WILGA 2000**

**B.I. General**

1. Type/ Model

1.1 Type	PZL-104 Wilga
1.2 Model	PZL-104M Wilga 2000

2. Airworthiness Category

Normal

3. Manufacturer

EADS PZL „Warszawa-Okęcie” S.A.  
Al. Krakowska 110/114  
02-256 Warszawa  
Poland  
See note 5

4. Type Certification Application Date

June 22, 1995

5. State of Design Authority

Poland

6. State of Design Authority Type Certificate Date

July 11, 1997

7. EASA Type Certification Date

November 16, 2005 (TC No. BB-130)

**B.II. EASA Certification Basis**

1. Reference Date for determining  
the applicable requirements

June 22, 1995

2. Airworthiness Requirements

FAR 23 dated February 1, 1965 as amended through Amendment 23-20 effective September 1, 1977;

FAR 23 Subpart B as amended through Amendment 23-45 effective September 7, 1993;

FAR 23 Subpart E & F as amended through Amendment 23-30 effective March 29, 1984;

FAR 23 Appendix F as amended through Amendment 23-34 effective January 15, 1987;

FAR 23 Appendix G as amended through Amendment 23-34 effective January 15, 1987;

FAR 36 dated December 1, 1969 as amended through Amendment 36-22 effective October 13, 1999;





3. Special Conditions	BCAR, Section K, Chapter K4-10 issued 10th April, 1974 - as far as glider and banner towing is concerned
4. Exemptions	None
5. Deviations	None
6. Equivalent Safety Findings	None
7. Environmental Protection	ICAO, Annex 16, Volume 1, Chapter 10; Edition 1993





7.2 Type Certificate P25EA – issued by FAA  
7.3 Number of blades 3  
7.4 Diameter

HARTZELL HC-C3YR-1RF/F8468A-6R

Maximum diameter 2032 mm (80 in)  
Minimum diameter allowed for repairs 1930.4 mm (76 in)

HARTZELL HC-C3YR-1RF/F8068

Maximum diameter 2083 mm (82 in)  
Minimum diameter allowed for repairs 1981.2 mm (78 in)

8. Fluids

8.1 Fuel 100/100LL minimum grade aviation gasoline  
8.2 Oil

Outside Temperature	MIL-L-6082B Spec. Mineral Grades	MIL-L-22851 Spec. Ashless Dispersant Grades
full range of temperatures		SAE 15W50 or 20W50
above +27°C (80°F)	SAE 60	SAE 60
above +16°C (60°F)	SAE 50	SAE 40 or SAE 50
-1° to 32°C (30° to 90°F)	SAE 40	SAE 40
-18° to 21°C (0° to 70°F)	SAE 30	SAE 30, 40, 20W40
below -12°C (10° F)	SAE 20	SAE 30 , 20W30

9. Fluid capacities

9.1 Fuel 392 l (103.6 US Gallons)  
380 l (100.4 US Gallons) usable  
9.2 Oil 11.4 l (12 U.S. qt) (integrated with engine)  
9.3 Coolant system capacity

10. Air Speeds (CAS)

MTOW	1400 kg	1500 kg
Never exceed speed - $V_{NE}$	243 km/h (131 kts)	243 km/h (131 kts)
Normal operating speed - $V_{NO}$	208 km/h (112 kts)	208 km/h (112 kts)
Manoeuvring speed - $V_A$	185 km/h (100 kts)	192 km/h (104 kts)
Flaps extended speed - $V_{FE}$	162 km/h (87 kts)	162 km/h (87 kts)
Stalling speed - $V_{SO}$	89 km/h (48 kts)	92 km/h (50 kts)

11. Maximum Operating Altitude Not defined  
12. Approved Operations Capability Day/Night-VFR/IFR  
Flight into known icing conditions – prohibited



### 13. Maximum Masses

Take-off & Landing:	1400 kg (3086 lb)	1500 kg (3307 lb)
Zero fuel	1360 kg (2998 lb)	1427 kg (3146 lb)
Minimum in flight	1084 kg (2390 lb)	

### 14. Centre of Gravity Range

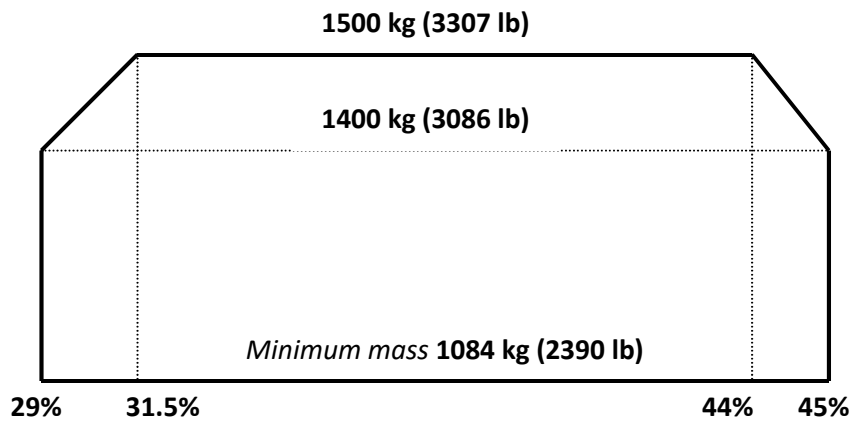
Minimum front centre of gravity location:

Q = 1500 kg (3307 lb)	31.5 % MAC - 0.441 m (17.36 in) aft of datum
Q ≤ 1400 kg (3086 lb)	29.0 % MAC - 0.406 m (16.0 in) aft of datum
	linear variation between these points

Maximum rear centre of gravity location:

Q = 1500 kg (3307 lb)	44.0 % MAC - 0.616 m (24.25 in) aft of datum
Q ≤ 1400 kg (3086 lb)	45.0 % MAC - 0.630 m (24.8 in) aft of datum
	linear variation between these points

MAC	1.4 m (55.1 in)
Position of leading edge of MAC aft of datum	0.0 m (0.0 in)



### 15. Datum

A plane tangent to the leading edge of the wing slat and perpendicular to the mean aerodynamic chord (MCA)



16. Control surface deflections

	Displacement value
Rudder displacement:	
Left	26±2°
Right	26±2°
Elevator displacement:	
Up	38±1°
Down	18±2°
Trimming tab displacement:	
Up	20±2°
Down	20±2°
Aileron displacement:	
Up	26±2°
Down	16±2°
Flap displacement:	
for take-off	21±2°
for landing	44±2°

17. Levelling Means

According to rigging points, elevation of point 6 over point 5:

680 mm (26.8 in) (refer to AFM, Sect. 6.1.)

18. Minimum Flight Crew

1 (Pilot)

19. Maximum Passenger Seating Capacity

3

20. Baggage/ Cargo Compartments

Max. allowable Load:

30 kg (66 lb) in baggage compartment

21. Wheels and Tyres

Main Wheel Tyre Size

STOMIL 500 x 200 mm (19.7 x 7.9 in)

Tail Wheel Tyre Size

STOMIL 255 x 110 mm (10.0 x 4.3 in)

22. Glider and banner towing

Minimum towing speed (IAS):

gliders  $\delta_{KL} = 21^\circ$  110 km/h (59 kts)

$\delta_{KL} = 0^\circ$  125 km/h (67 kts)

banner  $\delta_{KL} = 0^\circ$  125 km/h (67 kts)

Maximum towing speed (IAS),  $\delta_{KL} = 0^\circ$  165 km/h (89 kts)

Maximum take-off and landing mass of the airplane 1400 kg (3086 lb)

Maximum total mass of airplane + glider system 1890 kg (4167 lb)

Maximum number of gliders towed 2

Maximum number of persons aboard 2 (on front seats)

Safety link between the rope and the towing hook with the breaking force not more than 9320 N (950 kg) (2094 lb)



#### **B.IV. Operating and Service Instructions**

- |                                |                                                                                                                   |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------|
| 1. Flight Manual               | PZL-104 M Wilga 2000 Airplane Flight Manual,<br>Date of issue: July, 1997; (or latest approved revision)          |
| 2. Maintenance Manual          | PZL-104 M Wilga 2000 Airplane Maintenance Manual<br>Date of issue: July, 1997; (or latest approved revision)      |
| 3. Structural Repair Manual    | Repair Manual for the PZL-104M/MN/MA Wilga 2000<br>Aircraft<br>Date of issue: 1999; (or latest approved revision) |
| 4. Weight and Balance Manual   | See Airplane Flight Manual, Section 6                                                                             |
| 5. Illustrated Parts Catalogue | PZL-104M/MN/MF Wilga 2000 Catalogue of Spare Parts<br>Date of issue: 1999; (or latest approved revision)          |



## B.V. Notes

### Note 1.

A current Weight and Balance Report must be provided with each airplane at the time of original Airworthiness Certification and at all times thereafter.

The airplane Weight and Balance Report must include:

- weight of the empty airplane,
- position of C.G.,
- unusable fuel quantity in empty weight,
- full oil quantity in empty weight,
- list of equipment in empty weight.

### Note 2.

Operation of the PZL-104M WILGA 2000 airplane at maximum take-off and landing mass of 1500 kg (3307 lb) is approved, providing Technical Bulletin No. 104M04045 has been implemented. Operation will be in accordance with Supplement No. 9.19 of Airplane Flight Manual.

### Note 3.

Type Certificate BB-130 together with this Data Sheet is valid for PZL-104 M WILGA 2000 airplanes serial No. 00960001 and up. The certification process has been run on the airplane serial No. 00960001.

### Note 4.

Approved Noise Levels in accordance with ICAO Annex 16, Volume 1, Chapter 10:

Maximum Takeoff Mass	1400 kg	Propeller HC-C3YR-1RF/F8068	85.9 ± 0.57dB(A)
		HC-C3YR-1RF/F8468A-6R	87.3 ± 0.51 dB(A)
Maximum Takeoff Mass	1500 kg	Propeller HC-C3YR-1RF/F8068	87.2 ± 0.74dB(A)

### Note 5.

Currently: Airbus Poland S.A.



**SECTION C: PZL-104MN WILGA 2000**

**C.I. General**

1. Type/ Model	
1.1 Type	PZL-104 Wilga
1.2 Model	PZL-104MN Wilga 2000
2. Airworthiness Category	Normal
3. Manufacturer	EADS PZL „Warszawa-Okęcie” S.A. Al. Krakowska 110/114 02-256 Warszawa Poland See note 4
4. Type Certification Application Date	December 20, 2000
5. State of Design Authority	Poland
6. State of Design Authority Type Certificate Date	March 8, 2001
7. EASA Type Certification Date	November 16, 2005 (TC No. BB-130)

**C.II. EASA Certification Basis**

1. Reference Date for determining the applicable requirements	December 20, 2000
2. Airworthiness Requirements	<p>FAR 23 dated February 1, 1965 as amended through Amendment 23-20 effective September 1, 1977; FAR 23 Subpart B as amended through Amendment 23-45 effective September 7, 1993; FAR 23 Subpart E &amp; F as amended through Amendment 23-30 effective March 29, 1984; FAR 23 Appendix F as amended through Amendment 23-34 effective January 15, 1987; FAR 23 Appendix G as amended through Amendment 23-34 effective January 15, 1987; FAR 36 dated December 1, 1969 as amended through Amendment 36-22 effective October 13, 1999;</p>
3. Special Conditions	BCAR, Section K, Chapter K4-10 issued 10th April, 1974 - as far as glider and banner towing is concerned
4. Exemptions	None
5. Deviations	None
6. Equivalent Safety Findings	None
7. Environmental Protection	ICAO, Annex 16, Volume 1, Chapter 10; Edition 1993







7.2 Type Certificate	P25EA – issued by FAA	
7.3 Number of blades	3	
7.4 Diameter		
	HARTZELL HC-C3YR-1RF/F8468A-6R	
	Maximum diameter	2032 mm (80 in)
	Minimum diameter allowed for repairs	1930.4 mm (76 in)
	HARTZELL HC-C3YR-1RF/F8068	
	Maximum diameter	2083 mm (82 in)
	Minimum diameter allowed for repairs	1981.2 mm (78 in)

8. Fluids

8.1 Fuel 100/100LL minimum grade aviation gasoline

8.2 Oil

Outside Temperature	MIL-L-6082B Spec. Mineral Grades	MIL-L-22851 Spec. Ashless Dispersant Grades
full range of temperatures		SAE 15W50 or 20W50
above +27°C (80°F)	SAE 60	SAE 60
above +16°C (60°F)	SAE 50	SAE 40 or SAE 50
-1° to 32°C (30° to 90°F)	SAE 40	SAE 40
-18° to 21°C (0° to 70°F)	SAE 30	SAE 30, 40, 20W40
below -12°C (10° F)	SAE 20	SAE 30 , 20W30

9. Fluid capacities

9.1 Fuel 392 l (103.6 US Gallons)  
380 l (100.4 US Gallons) usable

9.2 Oil 11.4 l (12 U.S. qt) (integrated with engine)

10. Air Speeds

Never exceed speed -  $V_{NE}$  243 km/h (131 kts)  
Normal operating speed -  $V_{NO}$  208 km/h (112 kts)  
Manoeuvring speed -  $V_A$  185 km/h (100 kts)  
Flaps extended speed -  $V_{FE}$  162 km/h (87 kts)  
Stalling speed -  $V_{SO}$  89 km/h (48 kts)

11. Maximum Operating Altitude Not defined

12. Approved Operations Capability Day/Night-VFR/IFR  
Flight into known icing conditions - prohibited

13. Maximum Masses

Take-off & Landing: 1400 kg (3086 lb)  
Zero fuel 1360 kg (2998 lb)



14. Centre of Gravity Range

Centre of gravity location between 29.0 % MAC through 45.0 % MAC  
 0.406 m ÷ 0.630 m (16.0 in ÷ 24.8 in) aft of datum  
 MAC 1.4 m (55.1 in)  
 Position of leading edge of MAC aft of datum 0.0 m ( 0.0 in)

15. Datum A plane tangent to the leading edge of the wing slat and perpendicular to the mean aerodynamic chord (MCA)

16. Control surface deflections

	Displacement value
Rudder displacement:	
Left	26±2°
Right	26±2°
Elevator displacement:	
Up	38±1°
Down	18±2°
Trimming tab displacement:	
Up	20±2°
Down	20±2°
Aileron displacement:	
Up	26±2°
Down	16±2°
Flap displacement:	
for take-off	21±2°
for landing	44±2°

17. Levelling Means According to rigging points, elevation of point 6 over point 5:  
 680 mm (26.8 in) (refer to AFM, Sect. 6.1.)

18. Minimum Flight Crew 1 (Pilot)

19. Maximum Passenger Seating Capacity 3

20. Baggage/ Cargo Compartments  
 Max. allowable Load: 30 kg (66 lb) in baggage compartment

21. Wheels and Tyres  
 Main Wheel Tyre Size STOMIL 500 x 200 mm (19.7 x 7.9 in)  
 Tail Wheel Tyre Size STOMIL 255 x 110 mm (10.0 x 4.3 in)



## 22. Glider and banner towing

### Minimum towing speed (IAS):

gliders	$\delta_{KL} = 21^\circ$	110 km/h (59 kts)
	$\delta_{KL} = 0^\circ$	125 km/h (67 kts)
banner	$\delta_{KL} = 0^\circ$	125 km/h (67 kts)
Maximum towing speed (IAS), $\delta_{KL} = 0^\circ$		165 km/h (89 kts)
Maximum take-off and landing mass of the airplane		1400 kg (3086 lb)
Maximum total mass of airplane + glider system		1890 kg (4167 lb)
Maximum number of gliders towed		2
Maximum number of persons aboard		2 (on front seats)
Safety link between the rope and the towing hook with the breaking force not more than		9320 N (950 kg) (2094 lb)



#### **C.IV. Operating and Service Instructions**

- |                                |                                                                                                                      |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------|
| 1. Flight Manual               | Airplane Flight Manual for PZL-104 MN Wilga 2000,<br>Date of issue: December, 2000; (or latest approved revision)    |
| 2. Maintenance Manual          | PZL-104 MN Wilga 2000 Airplane Maintenance Manual<br>Date of issue: December 20, 2000; (or latest approved revision) |
| 3. Structural Repair Manual    | Repair Manual for the PZL-104M/MN/MA Wilga 2000 Aircraft<br>Date of issue: 1999; (or latest approved revision)       |
| 4. Weight and Balance Manual   | See Airplane Flight Manual, Section 6                                                                                |
| 5. Illustrated Parts Catalogue | PZL-104M/MN/MF Wilga 2000 Catalogue of Spare Parts<br>Date of issue: 1999; (or latest approved revision)             |



## C.V. Notes

### Note 1.

A current Weight and Balance Report must be provided with each airplane at the time of original Airworthiness Certification and at all times thereafter.

The airplane Weight and Balance Report must include:

- weight of the empty airplane,
- position of C.G.,
- unusable fuel quantity in empty weight,
- full oil quantity in empty weight,
- list of equipment in empty weight.

### Note 2.

The type Certificate BB-130 together with this Data Sheet is valid for PZL-104 MN WILGA 2000 airplanes serial No. 00960001 and up. The certification process has been run on the airplane serial No. 00960001.

### Note 3.

Approved Noise Levels in accordance with ICAO Annex 16, Volume 1, Chapter 10:

Propeller	HC-C3YR-1RF/F8068	82.25 ± 0.37 dB(A)
	HC-C3YR-1RF/F8468A-6R	85.2 ± 0.20 dB(A)

### Note 4.

Currently: Airbus Poland S.A.



**SECTION D: PZL-104MF WILGA 2000**

**D.I. General**

1. Type/ Model

1.1 Type	PZL-104 Wilga
1.2 Model	PZL-104MF Wilga 2000

2. Airworthiness Category

Normal

3. Manufacturer

EADS PZL „Warszawa-Okęcie” S.A.  
Al. Krakowska 110/114  
02-256 Warszawa  
Poland  
See note 5

4. Type Certification Application Date

December 21, 2000

5. State of Design Authority

Poland

6. State of Design Authority Type Certificate Date

April 25, 2001

7. EASA Type Certification Date

November 16, 2005 (TC No. BB-130)

**D.II. EASA Certification Basis**

1. Reference Date for determining  
the applicable requirements

December 21, 2000

2. Airworthiness Requirements

FAR 23 dated February 1, 1965 as amended through Amendment 23-20 effective September 1, 1977;  
FAR 23 Subpart B as amended through Amendment 23-45 effective September 7, 1993;  
FAR 23 Subpart E & F as amended through Amendment 23-30 effective March 29, 1984;  
FAR 23 Appendix F as amended through Amendment 23-34 effective January 15, 1987;  
FAR 23 Appendix G as amended through Amendment 23-34 effective January 15, 1987;  
FAR 36 dated December 1, 1969 as amended through Amendment 36-22 effective October 13, 1999;

3. Special Conditions

BCAR, Section K, Chapter K4-10 issued 10th April, 1974 -  
as far as glider and banner towing is concerned

4. Exemptions

None

5. Deviations

None

6. Equivalent Safety Findings

None

7. Environmental Protection

ICAO, Annex 16, Volume 1, Chapter 10; Edition 1993



**D.III. Technical Characteristics and Operational Limitations**

- 1. Type Design Definition Master Drawings List of PZL-104MF Wilga 2000  
Airplane, Issue 2, November 22, 2002
  
- 2. Description Single radial engine, fixed landing gear with tail  
wheel, four-seat cantilever high-wing, all metal  
monoplane
  
- 3. Equipment Master Equipment List of PZL-104MF WILGA 2000  
Airplane, Issue 2, November 22, 2002.  
Refer also to Airplane Flight Manual
  
- 4. Dimensions
  - Span 11.28 m (37 ft 0.1 in)
  - Length 8.46 m (27 ft 9.1 in)
  - Height 2.58 m (8 ft 5.6 in)
  - Wing Area 15.5 m<sup>2</sup> (166.8 sq ft)
  
- 5. Engine
  - 5.1. Model LYCOMING IO-540 K1J5D  
LYCOMING IO-540 K1D5  
LYCOMING IO-540 K1B5
  
  - 5.2 Type Certificate 1E4 – issued by FAA
  
  - 5.3 Limitations
    - Maximum take-off and continuous rating 223.7 KW (304.2 metric HP) (300 HP)
    - Maximum engine speed for take-off and continuous rating 2700 rpm
    - For other engine limits refer to AFM

6. Load factors

Maximum permissible load factor in flight with maximum mass of 1400 kg:

	Flaps up	Flaps down
Max. positive load factor	3.8	2.0
Max. negative load factor	-1.52	0





## 7. Propeller

### 7.1 Model

HARTZELL HC-C3YR-1RF/F8468A-6R - concerns version of MTOW of 1400 kg  
constant speed

HARTZELL HC-C3YR-1RF/F8068 - concerns version of MTOW of 1400 kg & 1500 kg  
constant speed

### 7.2 Type Certificate

P25EA – issued by FAA

### 7.3 Number of blades

3

### 7.4 Diameter

HARTZELL HC-C3YR-1RF/F8468A-6R

Maximum diameter 2032 mm (80 in)

Minimum diameter allowed for repairs 1930.4 mm (76 in)

HARTZELL HC-C3YR-1RF/F8068

Maximum diameter 2083 mm (82 in)

Minimum diameter allowed for repairs 1981.2 mm (78 in)

## 8. Fluids

### 8.1 Fuel

100/100LL minimum grade aviation gasoline

### 8.2 Oil

Outside Temperature	MIL-L-6082B Spec. Mineral Grades	MIL-L-22851 Spec. Ashless Dispersant Grades
full range of temperatures		SAE 15W50 or 20W50
above +27°C (80°F)	SAE 60	SAE 60
above +16°C (60°F)	SAE 50	SAE 40 or SAE 50
-1° to 32°C (30° to 90°F)	SAE 40	SAE 40
-18° to 21°C (0° to 70°F)	SAE 30	SAE 30, 40, 20W40
below -12°C (10° F)	SAE 20	SAE 30 , 20W30

## 9. Fluid capacities

### 9.1 Fuel

392 l (103.6 US Gallons)

380 l ( 100.4 US Gallons) usable

### 9.2 Oil

11.4 l (12 U.S. qt) (integrated with engine)



10. Air Speeds

MTOW	1400 kg	1500 kg
Never exceed speed - $V_{NE}$	243 km/h (131 kts)	243 km/h (131 kts)
Normal operating speed - $V_{NO}$	208 km/h (112 kts)	208 km/h (112 kts)
Manoeuvring speed - $V_A$	185 km/h (100 kts)	192 km/h (104 kts)
Flaps extended speed - $V_{FE}$	162 km/h (87 kts)	162 km/h (87 kts)
Stalling speed - $V_{SO}$	89 km/h (48 kts)	92 km/h (50 kts)

11. Maximum Operating Altitude

Not defined

12. Approved Operations Capability

Day/Night-VFR/IFR

Flight into known icing conditions – prohibited

13. Maximum Masses

Take-off & Landing:	1400 kg (3086 lb)	1500 kg (3307 lb)
Zero fuel	1360 kg (2998 lb)	1427 kg (3146 lb)
Minimum in flight	1084 kg (2390 lb)	

14. Centre of Gravity Range

Minimum front centre of gravity location:

Q = 1500 kg (3307 lb) 31.5 % MAC - 0.441 m (17.36 in) aft of datum

Q ≤ 1400 kg (3086 lb) 29.0 % MAC - 0.406 m (16.0 in) aft of datum

linear variation between these points

Maximum rear centre of gravity location:

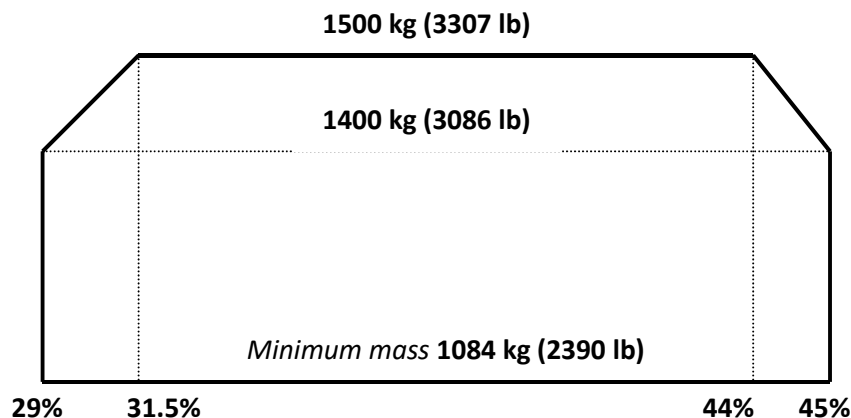
Q = 1500 kg (3307 lb) 44.0 % MAC - 0.616 m (24.25 in) aft of datum

Q ≤ 1400 kg (3086 lb) 45.0 % MAC - 0.630 m (24.8 in) aft of datum

linear variation between these points

MAC 1.4 m (55.1 in)

Position of leading edge of MAC aft of datum 0.0 m (0.0 in)



15. Datum A plane tangent to the leading edge of the wing slat and perpendicular to the mean aerodynamic chord (MCA)

16. Control surface deflections

	Displacement value
Rudder displacement:	
Left	26±2°
Right	26±2°
Elevator displacement:	
Up	38±1°
Down	18±2°
Trimming tab displacement:	
Up	20±2°
Down	20±2°
Aileron displacement:	
Up	26±2°
Down	16±2°
Flap displacement:	
for take-off	21±2°
for landing	44±2°

17. Levelling Means According to rigging points, elevation of point 6 over point 5:

680 mm (26.8 in) (refer to AFM, Sect. 6.1.)

18. Minimum Flight Crew 1 (Pilot)

19. Maximum Passenger Seating Capacity 3

20. Baggage/ Cargo Compartments

Max. allowable Load: 30 kg (66 lb) in baggage compartment

21. Wheels and Tyres

Main Wheel Tyre Size STOMIL 500 x 200 mm (19.7 x 7.9 in)

Tail Wheel Tyre Size STOMIL 255 x 110 mm (10.0 x 4.3 in)

22. Glider and banner towing

Minimum towing speed (IAS):

gliders  $\delta_{KL} = 21^\circ$  110 km/h (59 kts)

$\delta_{KL} = 0^\circ$  125 km/h (67 kts)

banner  $\delta_{KL} = 0^\circ$  125 km/h (67 kts)

Maximum towing speed (IAS),  $\delta_{KL} = 0^\circ$  165 km/h (89 kts)

Maximum take-off and landing mass of the airplane 1400 kg (3086 lb)

Maximum total mass of airplane + glider system 1890 kg (4167 lb)

Maximum number of gliders towed 2

Maximum number of persons aboard 2 (on front seats)

Safety link between the rope and the towing hook with the breaking force not more than 9320 N (950 kg) (2094 lb)



#### **D.IV. Operating and Service Instructions**

- |                                |                                                                                                                    |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------|
| 1. Flight Manual               | Airplane Flight Manual for PZL-104 MF Wilga 2000,<br>Date of issue: April, 2001; (or latest approved revision)     |
| 2. Maintenance Manual          | PZL-104 MF Wilga 2000 Airplane Maintenance Manual,<br>Date of issue: April 23, 2001; (or latest approved revision) |
| 3. Structural Repair Manual    | Repair Manual for PZL-104M/MN/MF/MA Wilga 2000<br>Aircraft<br>Date of issue: 1999; (or latest approved revision)   |
| 4. Weight and Balance Manual   | See Airplane Flight Manual, Section 6                                                                              |
| 5. Illustrated Parts Catalogue | PZL-104M/MN/MF Wilga 2000 Catalogue of Spare Parts<br>Date of issue: 1999; (or latest approved revision)           |



**D.V. Notes**

**Note 1.**

A current Weight and Balance Report must be provided with each airplane at the time of original Airworthiness Certification and at all times thereafter.

The airplane Weight and Balance Report must include:

- weight of the empty airplane,
- position of C.G.,
- unusable fuel quantity in empty weight,
- full oil quantity in empty weight,
- list of equipment in empty weight.

**Note 2.**

Operation of the PZL-104MF WILGA 2000 airplane at maximum take-off and landing mass of 1500 kg (3307 lb) is approved, providing Technical Bulletin No. 104MF04012 has been implemented. Operation will be in accordance with Supplement No. 8 of Airplane Flight Manual.

**Note 3.**

The type Certificate BB-130 together with this Data Sheet is valid for PZL-104 MF WILGA 2000 airplanes serial No. 00960001 and up. The certification process has been run on the airplane serial No. 00980008.

**Note 4.**

Approved Noise Levels in accordance with ICAO Annex 16, Volume 1, Chapter 10:

Maximum Takeoff Mass	1400 kg	Propeller HC-C3YR-1RF/F8068	85.9 ± 0.57dB(A)
		HC-C3YR-1RF/F8468A-6R	87.3 ± 0.51 dB(A)
Maximum Takeoff Mass	1500 kg	Propeller HC-C3YR-1RF/F8068	87.2 ± 0.74dB(A)

**Note 5.**

Currently: Airbus Poland S.A.



**SECTION E: PZL-104MA WILGA 2000**

**E.I. General**

1. Type/ Model	PZL-104 Wilga
1.1 Type	PZL-104MA Wilga 2000
1.2 Model	
2. Airworthiness Category	Normal
3. Manufacturer	EADS PZL „Warszawa-Okęcie” S.A. Al. Krakowska 110/114 02-256 Warszawa Poland See note 4
4. Type Certification Application Date	February 6, 2004
5. State of Design Authority	Poland
6. State of Design Authority Type Certificate Date	October 25, 2005
7. EASA Type Certification Date	November 16, 2005 (TC No. BB-130)

**E.II. EASA Certification Basis**

1. Reference Date for determining the applicable requirements	February 6, 2004
2. Airworthiness Requirements	

FAR 23 dated February 1, 1965 as amended through Amendment 23-20 effective September 1, 1977;

FAR 23 Subpart B as amended through Amendment 23-45 effective September 7, 1993;

FAR 23 Subpart E & F as amended through Amendment 23-30 effective March 29, 1984;

FAR 23 Appendix F as amended through Amendment 23-34 effective January 15, 1987;

FAR 23 Appendix G as amended through Amendment 23-34 effective January 15, 1987;

FAR 36 dated December 1, 1969 as amended through Amendment 36-22 effective October 13, 1999;

3. Special Conditions	BCAR, Section K, Chapter K4-10 issued 10th April, 1974 - as far as glider and banner towing is concerned
4. Exemptions	None
5. Deviations	None
6. Equivalent Safety Findings	None
7. Environmental Protection	ICAO, Annex 16, Volume 1, Chapter 10; Edition 1993





## 8. Fluids

8.1 Fuel 100/100LL minimum grade aviation gasoline

### 8.2 Oil

Outside Temperature	MIL-L-6082B Spec. Mineral Grades	MIL-L-22851 Spec. Ashless Dispersant Grades
full range of temperatures		SAE 15W50 or 20W50
above +27°C (80°F)	SAE 60	SAE 60
above +16°C (60°F)	SAE 50	SAE 40 or SAE 50
-1° to 32°C (30° to 90°F)	SAE 40	SAE 40
-18° to 21°C (0° to 70°F)	SAE 30	SAE 30, 40, 20W40
below -12°C (10° F)	SAE 20	SAE 30 , 20W30

## 9. Fluid capacities

9.1 Fuel 392 l (103.6 US Gallons)  
380 l (100.4 US Gallons) usable

9.2 Oil 11.4 l (12 U.S. qt) (integrated with engine)

## 10. Air Speeds (CAS)

Never exceed speed -  $V_{NE}$  243 km/h (131 kts)  
Normal operating speed -  $V_{NO}$  208 km/h (112 kts)  
Manoeuvring speed -  $V_A$  192 km/h (104 kts)  
Flaps extended speed -  $V_{FE}$  162 km/h (87 kts)  
Stalling speed -  $V_{SO}$  89 km/h (48 kts)

11. Maximum Operating Altitude Not defined

12. Approved Operations Capability Day/Night-VFR/IFR  
Flight into known icing conditions – prohibited

## 13. Maximum Masses

Take-off & Landing: 1500 kg (3307 lb)  
Zero fuel 1427 kg (3146 lb)  
Minimum in flight 1078 kg (2377 lb)





14. Centre of Gravity Range

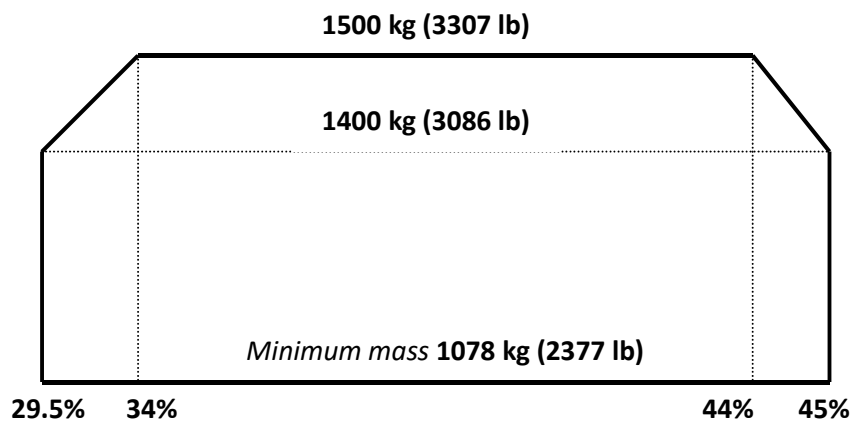
Minimum front centre of gravity location:

Q = 1500 kg (3307 lb)      34.0 % MAC - 0.476 m (18.74 in) aft of datum  
 Q ≤ 1400 kg (3086 lb)      29.5 % MAC - 0.413 m (16.3 in) aft of datum  
 linear variation between these points

Maximum rear centre of gravity location:

Q = 1500 kg (3307 lb)      44.0 % MAC - 0.616 m (24.25 in) aft of datum  
 Q ≤ 1400 kg (3086 lb)      45.0 % MAC - 0.630 m (24.8 in) aft of datum  
 linear variation between these points

MAC      1.4 m (55.1 in)  
 Position of leading edge of MAC aft of datum      0.0 m (0.0 in)



15. Datum

A plane tangent to the leading edge of the wing slat and perpendicular to the mean aerodynamic chord (MCA)

16. Control surface deflections

	Displacement value
Rudder displacement:	
Left	22±1°
Right	22±1°
Elevator displacement:	
Up	38±1°
Down	18±2°
Trimming tab displacement:	
Up	20±2°
Down	20±2°
Aileron displacement:	
Up	26±2°
Down	16±2°
Flap displacement:	
for take-off	21±2°
for landing	44±2°



17. Levelling Means According to rigging points, elevation of point 6 over point 5:  
680 mm (26.8 in) (refer to AFM, Sect. 6.1.)
18. Minimum Flight Crew 1 (Pilot)
19. Maximum Passenger Seating Capacity 3
20. Baggage/ Cargo Compartments  
Max. allowable Load: 30 kg (66 lb) in baggage compartment
21. Wheels and Tyres  
Main Wheel CLEVELAND 40-75D  
Main Wheel Tyre Size GOODYEAR 8.00-6TT 486 x 191 mm (19.1 x 7.5 in)  
Tail Wheel Tyre Size STOMIL 255 x 110 mm (10.0 x 4.3 in)
22. Glider and banner towing

Minimum towing speed	IAS	CAS
gliders $\delta_{KL} = 21^\circ$	110 km/h (59 kts)	108 km/h (58 kts)
$\delta_{KL} = 0^\circ$	125 km/h (67 kts)	124 km/h (67 kts)
Maximum towing speed (IAS), $\delta_{KL} = 0^\circ$	165 km/h (89 kts)	167 km/h (90 kts)
Maximum take-off and landing mass of the airplane	1400 kg (3086 lb)	
Maximum total mass of airplane + glider system	1890 kg (4167 lb)	
Maximum number of gliders towed	2	
Maximum number of persons aboard	2 (on front seats)	
Safety link between the rope and the towing hook with the breaking force not more than	9320 N (950 kg) (2094 lb)	



#### **E.IV. Operating and Service Instructions**

- |                                |                                                                                                                   |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------|
| 1. Flight Manual               | Airplane Flight Manual for PZL-104 MA Wilga 2000,<br>Date of issue: August, 2005; (or latest approved revision)   |
| 2. Maintenance Manual          | PZL-104 MA Wilga 2000 Airplane Maintenance Manual, Date<br>of issue: July 22, 2005; (or latest approved revision) |
| 3. Structural Repair Manual    | Repair Manual for the PZL-104M/MN/MA Wilga 2000 Aircraft<br>Date of issue: 1999; (or latest approved revision)    |
| 4. Weight and Balance Manual   | See Airplane Flight Manual, Section 6                                                                             |
| 5. Illustrated Parts Catalogue | PZL-104MA Wilga 2000 Catalogue of Spare Parts<br>Date of issue: 2006; (or latest approved revision)               |



## **E.V. Notes**

### Note 1.

A current Weight and Balance Report must be provided with each airplane at the time of original Airworthiness Certification and at all times thereafter.

The airplane Weight and Balance Report must include:

- weight of the empty airplane,
- position of C.G.,
- unusable fuel quantity in empty weight,
- full oil quantity in empty weight,
- list of equipment in empty weight,

### Note 2.

The type Certificate BB-130 together with this Data Sheet is valid for PZL-104 MA WILGA 2000 airplanes serial No. 00050019, 00050021 and up. The certification process has been run on the airplane serial No. 00050019.

### Note 3.

Approved Noise Level in accordance with ICAO Annex 16, Volume 1, Chapter 10:  $84.6 \pm 0.26$  dB(A)

### Note 4.

Currently: Airbus Poland S.A.



**SECTION F: PZL-104 WILGA 32, PZL-104 WILGA 32A**

**F.I. General**

1. Type/ Model

1.1 Type	PZL-104 Wilga
1.2 Model	PZL-104 Wilga 32, PZL-104 Wilga 32A – aeroclub, for glider towing and parachute jumper lifting See: Note 3

2. Airworthiness Category

Normal

3. Manufacturer

WSK „Warszawa-Okęcie”  
Al. Krakowska 110/114  
02-256 Warszawa  
Poland  
See note 4

4. Type Certification Application Date

October 11, 1967

5. State of Design Authority

Poland

6. State of Design Authority Type Certificate Date

March 31, 1969

7. EASA Type Certification Date

January 8, 2007 (TC No. BB-55)

**F.II. EASA Certification Basis**

1. Reference Date for determining  
the applicable requirements

October 11, 1967

2. Airworthiness Requirements

BCAR, Section D, 1959

3. Special Conditions

None

4. Exemptions

None

5. Deviations

None

6. Equivalent Safety Findings

None

7. Environmental Protection

None



### **F.III. Technical Characteristics and Operational Limitations**

1. Type Design Definition Drawings No. 32.900.000 Universal plane,  
32.910.000 Basic aircraft
  
2. Description Single radial engine, fixed landing gear with tail  
wheel, four-seat cantilever high-wing, all metal  
monoplane
  
3. Equipment Refer to Flight Manual for the PZL-104 Wilga 32  
aircraft, see also TCDS No. BB-55, issued March 1969
  
4. Dimensions
  - Span 11.12 m (36 ft 5.8 in)
  - Length 8.16 m (26 ft 9.2 in)
  - Height 2.51 m (8 ft 2.8 in)
  - Wing Area 15.57 m<sup>2</sup> (167.6 sq ft)
  - MAC 1.4 m (4 ft 7.1 in)
  
5. Engine
  - 5.1. Model Continental O-470L  
Continental O-470R
  - 5.2 Type Certificate E-273 – issued by FAA
  - 5.3 Limitations Maximum take-off and continuous rating 171.5 kW (233.2 metric HP) (230 BHP)  
Max allowable rotational speed for all operations 2600 rpm  
For other engine limits refer to AFM
  
6. Load factors
  - Max. positive load factor 3.5
  - Max. negative load factor -1.5
  
7. Propeller
  - 7.1 Model McCauley 2A-34C-50/90A2  
hydraulically controlled  
constant speed
  - 7.2 Type Certificate P3EA – issued by FAA
  - 7.3 Number of blades 2
  - 7.4 Diameter 2200 mm (86.6 in)
  
8. Fluids
  - 8.1 Fuel Aviation gasoline, 80/87 minimum grade
  - 8.2 Oil Aero Shell W100 or equivalents



## 9. Fluid capacities

9.1 Fuel	Overall 190 l (140 kg) (50.2 US Gal) in two tanks in wings
9.2 Oil	13.5 l (11 kg) (14.3 US qt) in an integral engine tank

## 10. Air Speeds

Never exceed speed $V_{NE}$ :	279 km/h ( 151 kts)
Normal operating speed $V_{NO}$ :	228 km/h (123 kts)
Manoeuvring speed $V_A$ :	160 km/h (86 kts)
Flaps extended speed $V_{FE}$ :	130 km/h (70 kts)

For air speed limits and other limitations for glider towing and parachute jumper lifting – see Flight Manual for the PZL-104 Wilga 32 aircraft

## 11. Maximum Operating Altitude

Not defined

## 12. Approved Operations Capability

VFR (standard) and IFR (with navigation equipment on special request) flights

## 13. Maximum Masses

Take-off & Landing	1230 kg (2712 lb)
For glider towing:	
Permissible number of gliders in tow	3
Overall mass of towed gliders	not exceeding 1125 kg (2481 lb)
Permissible mass of single glider	650 kg (1433 lb)

## 14. Centre of Gravity Range

Forward limit:	26% MAC, i.e. 0.364 m (14.3 in) aft of datum
Rear limit:	44% MAC, i.e. 0.616 m (24.3 in) aft of datum

## 15. Datum

A plane tangent to the leading edge of the wing slat and perpendicular to the mean aerodynamic chord (MAC)







**F.IV. Operating and Service Instructions**

- |                       |                                                                                                                                                                                                                                                                                                          |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Flight Manual      | Flight Manual for the PZL-104 Wilga 32 aircraft,<br>Issued March 1968; (or latest approved revision)                                                                                                                                                                                                     |
| 2. Maintenance Manual | Service and Maintenance Instruction of the PZL-104 Wilga<br>32 aircraft, Issued 1968;<br>Scheduled Inspection and Maintenance Requirements for<br>the PZL-104 Wilga 32 aircraft, Issued 1968;<br>Technical Description of the PZL-104 Wilga 32 aircraft,<br>Issued 1968<br>(or latest approved revision) |



**F.V. Notes**

Note 1.

For airspeed limits with gliders in tow and with door removed for parachute jumps, and other limitations – see Flight Manual for the PZL-104 Wilga 32 aircraft.

Note 2.

Permissible crew number, baggage and fuel amount depend on loading version – see Flight Manual for the PZL-104 Wilga 32 aircraft.

Note 3.

Variant PZL-104 Wilga 32A differs from variant PZL-104 Wilga 32 only by installation of towing hook and wider step. All instructions and other documents applicable to PZL-104 Wilga 32 are valid for variant PZL-104 Wilga 32A.

Note 4.

Currently: Airbus Poland S.A.



**SECTION G: PZL-104 WILGA 35, PZL-104 WILGA 35A**

**G.I. General**

1. Type/ Model	
1.1 Type	PZL-104 Wilga
1.2 Model	PZL-104 Wilga 35, PZL-104 Wilga 35A – aeroclub, for glider towing and parachute jumper lifting See: Note.6
2. Airworthiness Category	Normal
3. Manufacturer	PZL „Warszawa-Okęcie” Al. Krakowska 110/114 02-256 Warszawa Poland See note 8
4. Type Certification Application Date	October 11, 1967
5. State of Design Authority	Poland
6. State of Design Authority Type Certificate Date	March 31, 1969
7. EASA Type Certification Date	January 8, 2007 (TC No. BB-55)

**G.II. EASA Certification Basis**

1. Reference Date for determining the applicable requirements	October 11, 1967
2. Airworthiness Requirements	BCAR, Section D, 1959
3. Special Conditions	None
4. Exemptions	None
5. Deviations	None
6. Equivalent Safety Findings	None
7. Environmental Protection	ICAO Annex 16, Volume 1, Chapter 6; Edition 1978 See: Note 4



### **G.III. Technical Characteristics and Operational Limitations**

1. Type Design Definition Drawings No.: 35.900.000 Universal plane,  
35.910.000 Basic aircraft
  
2. Description Single radial engine, fixed landing gear with tail wheel, four-seat cantilever high-wing, all metal monoplane
  
3. Equipment 35.W-02 "List of equipment installed on the aircraft", Edition 2 of August 27, 1960 and Edition B of Nov. 11, 1983.  
Refer also to Flight Manual for the PZL-104 Wilga 35 aircraft; see also TCDS No. BB-55, issued March 1969
  
4. Dimensions
  - Span 11.12 m (36 ft 5.8 in)
  - Length 8.10 m (26 ft 6.8 in)
  - Height 2.94 m (9 ft 7.7 in)
  - Wing Area 15.57 m<sup>2</sup> (167.6 sq ft)
  - MAC 1.4 m (4 ft 7.1 in)
  
5. Engine
  - 5.1. Model AI-14 RA
  - 5.2 Type Certificate CB-052 - issued by CAA in Poland
  - 5.3 Limitations
    - Maximum take-off rating (5 minutes) 193.9 kW (263.6 metric HP) (260 BHP)
    - Maximum continuous rating 164.1 kW (223.1 metric HP) (220 BHP)
    - Maximum engine speed for take-off rating 2350 rpm at sea level
    - Maximum engine speed for continuous rating 2050 rpmFor other engine limits refer to AFM
  
6. Load factors
  - Max. positive load factor 3.5
  - Max. negative load factor -1.5
  
7. Propeller
  - 7.1 Model US 122 000 hydraulically controlled, constant speed
  - 7.2 Type Certificate DB-118 - issued by CAA in Poland
  - 7.3 Number of blades 2
  - 7.4 Diameter 2650 mm (104.3 in)



## 8. Fluids

8.1 Fuel B70 aviation gasoline

8.2 Oil MS20 or MK22 acc. to GOST 1013-49,  
Aero Shell W100 or equivalents

## 9. Fluid capacities

9.1 Fuel Overall 190 l (140 kg) (50.2 US Gal) in two tanks in wings  
Additionally 90 l (65 kg) in an extra fuel tank installed in a place of rear seats – See: Note 5

9.2 Oil 16 l (13 kg) (16.9 U.S. qt) in tank on fire-wall

## 10. Air Speeds

Never exceed speed  $V_{NE}$ : 279 km/h ( 151 kts)

Normal operating speed  $V_{NO}$ : 228 km/h (123 kts)

Manoeuvring speed  $V_A$ : 160 km/h (86 kts)

Flaps extended speed  $V_{FE}$ : 130 km/h (70 kts)

For airspeed limits and other limitations for version for glider towing and parachute jumper lifting – see Flight Manual for the PZL-104 Wilga 35A aircraft

11. Maximum Operating Altitude Not defined

12. Approved Operations Capability VFR (standard) and IFR (with navigation equipment on special request) flights

## 13. Maximum Masses

Take-off & Landing 1230 kg (2712 lb)  
1300 kg (2866 lb) (for A/C SN from 85218)

## 14. Centre of Gravity Range

Forward limit: 24.2 % MAC, i.e. 0.339 m (13.35 in) aft of datum

Rear limit: 44.0 % MAC, i.e. 0.616 m (24.3 in) aft of datum

## 15. Datum

A plane tangent to the leading edge of the wing slat and perpendicular to the mean aerodynamic chord (MCA)



16. Control surface deflections

	Displacement value
Rudder displacement:	
Left	26±2°
Right	26±2°
Elevator displacement:	
Up	38±1°
Down	18±2°
Trimming tab displacement:	
Up	30±2°
Down	30±2°
Aileron displacement:	
Up	26±2°
Down	16±2°
Max. flap displacement:	44°

17. Levelling Means

MAC positioned horizontally

18. Minimum Flight Crew

1 (Pilot)

19. Maximum Passenger Seating Capacity

3 standard  
1 for a version for prolonged cruise

Version for parachute jumpers lifting

Maximum Passenger Seating Capacity: 4 – See: Note 7

20. Baggage/ Cargo Compartments

Max. allowable Load: 35 kg (77.2 lb) in baggage compartment

21. Wheels and Tyres

Main Wheel Tyre Size 500 x 200 mm (19.7 x 7.9 in)

Tail Wheel Tyre Size 255 x 110 mm (10.0 x 4.3 in)

22. (Reserved)



**G.IV. Operating and Service Instructions See: Note 6**

- |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Flight Manual               | Flight Manual for the PZL-104 Wilga 35A aircraft, Issued 1981; valid for A/C SN from 48031 - 74217; (or latest approved revision)<br><br>Flight Manual for the PZL-104 Wilga 35A aircraft, Issue A, 1976; valid for A/C SN from 85218; (or latest approved revision)                                                                                                                                                                                                                                                                                                                                                          |
| 2. Maintenance Manual          | Maintenance Instruction and Scheduled Inspection for the PZL-104 Wilga 35A Aircraft, Issued 1981; valid for A/C SN from 48031 - 74217; (or latest approved revision)<br><br>Maintenance Instruction and Scheduled Inspection for the PZL-104 Wilga 35 Aircraft, Issue B, 1975; valid for A/C SN from 85218; (or latest approved revision)<br><br>Maintenance Instruction and Scheduled Inspection for the PZL-104 Wilga 35A Aircraft, Issue C, 1982; valid for A/C SN from 16820629; (or latest approved revision)<br><br>Technical Description of the PZL-104 Wilga35A Aircraft Issue D, 1982; (or latest approved revision) |
| 3. Structural Repair Manual    | Repair Manual for the PZL-104 Wilga 35 Aircraft, Issued 1979; (or latest approved revision)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 4. Weight and Balance Manual   | See Airplane Flight Manual, Section 2.6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 5. Illustrated Parts Catalogue | PZL-104 Wilga 35 Catalogue of Spare Parts, Issue D, 1993; (or latest approved revision)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |



## **G.V. Notes**

### Note 1.

For airspeed limits with gliders in tow and with door removed for parachute jumps, and other limitations - see Flight Manual for the PZL-104 Wilga 35A aircraft. See: Note 6.

### Note 2.

Permissible crew number, baggage and fuel amount depend on loading version - see Flight Manual for the PZL-104 Wilga35 aircraft.

### Note 3.

For glider towing:

Permissible number of gliders in tow	3
Overall weight of towed gliders	not exceeding 1125 kg (2481 lb)
Permissible weight of single glider	650 kg (1433 lb)

### Note 4.

Approved Noise Level in accordance with ICAO Annex 16, Volume 1, Chapter 6; Edition 1978:  
63.0 dB(A)

### Note 5.

For prolonged cruise the additional fuel tank could be installed instead of rear seats - see: Supplement No. 2 to the airplane's AFM.

### Note 6.

Variant PZL-104 Wilga 35A differs from variant PZL-104 Wilga 35 only by installation of towing hook and wider step. After 1979 only PZL-104 Wilga 35A variant was manufactured. Instructions and other documents edited before 1979 assigned to PZL-104 Wilga 35 considering later revisions are valid for variant PZL-104 Wilga 35A.

### Note 7.

Valid for airplanes up to XV Series (S/N 15 XX XXX) inclusive.

### Note 8.

Currently: Airbus Poland S.A.





## **SECTION ADMINISTRATIVE**

### **I. Acronyms & Abbreviations**

AFM - Aeroplane Flight Manual  
FAA - Federal Aviation Administration  
VFR - Visual Flight Rules  
IFR – Instrumental Flight Rules  
CAS – Calibrated Air Speed  
IAS – Indicated Air Speed  
rpm - revolutions per minute

### **II. Type Certificate Holder Record**

Airbus Poland S.A.  
Al. Krakowska 110/114  
02-256 Warszawa  
Poland

### **III. Change Record**

<b>Issue</b>	<b>Date</b>	<b>Changes</b>	<b>TC Issue No. &amp; Date</b>
Issue 01	16 November 2005	Initial Issue	Initial Issue, 16 November 2005
Issue 02	08 January 2007	Adding the following aircraft models: PZL-104 Wilga 32, 32A, 35, 35A.	Issue 02, 08 January 2007
Issue 03	17 October 2008	Editorial refinement and corrections to flight and maintenance manual references, titles and dates.	Issue 03, 08 January 2007
Issue 04	23 August 2019	Change of TC holder name from PZL "Warszawa - Okęcie" S.A. to Airbus Poland S.A.	Issue 04, 23 August 2019

-END-

