# TYPE CERTIFICATE DATA SHEET

No. EASA.R.100

**for**

PZL SW-4

**Type Certificate Holder**

Wytwórnia Sprzętu Komunikacyjnego “PZL-Świdnik” Spółka Akcyjna

Al. Lotników Polskich 1
21-045 Świdnik
Poland

For Model: PZL SW-4

**TABLE OF CONTENTS**

**SECTION 1: PZL SW-4**

I. General

| | | |
|---|---|---|
| 1. | Type/ Model/ Variant | |
| | 1.1 Type | PZL SW-4 |
| | 1.2 Model | PZL SW-4 |
| | 1.3 Variant | - - - |
| 2. | Airworthiness Category | Small Rotorcraft, Category B |
| 3. | Manufacturer | Wytwórnia Sprzętu Komunikacyjnego "PZL-Świdnik" Spółka Akcyjna<br>Al. Lotników Polskich 1<br>21-045 Świdnik, Poland |
| 4. | Type Certification Application Date to ULC | 14 April 1994 |
| 5. | State of Design Authority | EASA<br>(pre EASA: ULC, Poland) |
| 6. | Type Certificate Date by ULC | 14 November 2002 |
| 7. | Type Certificate n° by ULC | BC-217 |
| 8. | Type Certificate Data Sheet n° by ULC | BC-217 |
| 9. | EASA Type Certification Date | 28 September 2007 (see Note 2) |

II. Certification Basis

| | | |
|---|---|---|
| 1. | Reference Date for determining the applicable requirements | 16 February 1998 |
| 2. | Airworthiness Requirements | - JAR 27, Amdt. 27/98/1 (Change 1), effective 16 February 1998;<br>- JAR 36 (Initial issue, 23 May 1997), Subpart A Para 2, Subpart E Para .400, .410, .420, .430, .440, .450;<br>- CS 34 (Initial issue, 17 October 2003), Paragraph 1, Fuel Venting. |
| 3. | Special Conditions | none |
| 4. | Exemptions | none |
| 5. | Deviations | none |
| 6. | Equivalent Safety Findings | none |
| 7. | Requirements elected to comply | none |
| 8. | Environmental Protection Requirements | |
| | 8.1 Noise Requirements | See EASA Type Certificate Data Sheet for Noise TCDSN EASA.R.100 |
| | 8.2 Emission Requirements | none |
| 9. | Operational Suitability Data (OSD) | see SECTION 2 below |

III. Technical Characteristics and Operational Limitations

| | | |
|---|---|---|
| 1. | Type Design Definition | PZL SW-4 Helicopter Type Definition<br>Doc. No SW-60-0251, Revision C, or later |
| 2. | Description | Multi-purpose/multi version helicopter for VFR day/night.<br>Main rotor: Conventional fully articulated, 3 blades<br>Tail rotor: Conventional, teetering type,2 blades<br>Fuselage: Metallic primary structure |

Landing gear: Conventional skids
Powerplant: Single turboshaft powered

3. Equipment

Basic equipment required by airworthiness requirements shall be installed on the helicopter for Airworthiness Certificate release. Refer to Rotorcraft Flight Manual for the equipment list.

4. Dimensions

4.1 Fuselage

Length: 8.238 m
Width of Cabin: 1.515 m
Landing gear: 2.280 m
Height: 3.139 m

4.2 Main Rotor

Diameter: 9.000 m

4.3 Tail Rotor

Diameter: 1.500 m

5. Engine

5.1 Model

Rolls-Royce Corporation (former: Allison Engine Company)
1 x Model 250-C20R/2

5.2 Type Certificate

FAA TC/TCDS: E4CE

EASA TC/TCDS: EASA.IM.E.052

5.3 Limitations

5.3.1 Installed Engine Limits

| | Max. TQ [%] | Gas producer speed (continuous) [%] | PWR turbine speed continuous [%] | Temperature Outlet Temp. [°C] |
|---|---|---|---|---|
| TOP (5 min) | 100 | 105 | max. 103<br>- - -<br>min. 100 | 810 |
| MCP | 85(*) | 105 | max. cont. 103<br>max. 108 (in descent)<br>min. 100 | 752 |
| (*) corresponds to indicated TQ:<br>- 85% for helicopters equipped with TQ indicator P/N 4354-3007, and<br>- 83% for helicopters equipped with TQ indicator P/N 4354-3011 | | | | |

5.3.2 Transmission Torque Limits 100 %

6. Fluids (Fuel/ Oil/ Additives)

6.1 Fuel

| Item | Fuel type | Conforming to |
|---|---|---|
| 1 | JP-8 (F-34) | MIL-T-83133 |
| 2 | JP-5 (F-44) | MIL-T–5624 |
| 3 | Jet A1 (F-35) | ASTM D-1655 |
| 4 | Jet A | ASTM D-1655 |
| 5 | JP-1 | ASTM D-1555 (corresponds to Jet A) |
| 6 | TS-1 | GOST 10227-86 |
| 7 | RT | GOST 16564-71 |

6.2 Oil

Engine oils:
- AeroShell Turbine Oil 555 MIL-PRF-23699F, or, DEF STAN 91-100 or DOD-L-85734
- AeroShell Turbine Oil 500 MIL-PRF-23699F
- Mobil Jet Oil 254 or 291 MIL-PRF-23699F HTS
- AeroShell Turbine Oil 560 MIL-PRF-23699F HTS
- Exxon ETO 2197 (BPTO 2197) MIL-PRF-23699F HTS

MGB and TGB oils:
- AeroShell Turbine Oil 500 conforming to MIL-L-23699;
- AeroShell Turbine Oil 555 conforming to DOD-L 85734 / DERD 2497
- Castrol 599 conforming to DERD 2497

6.3 Additives

Refer to approved RFM for fuel anti-ice additives

7. Fluid capacities

7.1 Fuel

Total tank capacity: 471 litres (377 kg)
Unusable fuel: 4.8 litres (3.8 kg)

7.2 Oil

Engine: 6.8 litres
6.32 litres (with cooler P/N 60.06.340.00.00)
MGB: 6.81 litres (with cooler 60.06.350.00.00 installed on the fuel cell ceiling panel)
6.0 litres (with cooler P/N 60.06.350.00.00 installed on the engine intake shield)
TGB: 0.38 litre

8. Air Speed Limitations

$V_{NE\ PWR\text{-}On}$: 140 KIAS (260 km/h)
Note: for $V_{NE\ PWR\text{-}On}$ variations versus actual weight, OAT, and altitude refer to Limitations Section of approved RFM.
$V_{NE\ PWR\text{-}Off}$: 102 KIAS (190 km/h)

Note: for $V_{NE\ PWR\text{-}Off}$ variations versus altitude refer to Limitations Section of approved RFM.
$V_{min\ PWR\text{-}Off}$ (steady autorotation): 44 KIAS (80 km/h)

9. Rotor Speed Limitations

Power on:

| | |
|---|---|
| Max. transient (15 sec): | 108 % |
| Max. continuous: | 103 % |
| Max. continuous in descent: | 108 % |
| Min. continuous: | 100 % |
| Min. transient (5 sec): | 95 % |

Power off:

| | |
|---|---|
| Max. transient (15 sec): | 115 % |
| Max. continuous: | 108 % |
| Min. continuous: | 90 % |
| Min. transient (5 sec): | 85 % |

Note: 100% main rotor speed corresponds to 437.3 rpm.

10. Operating Altitude and Temperature Limitations

10.1 Altitude

Max. flight altitude: 16 400 ft (5 000 m) PA
Max. TO/LDG altitude: 9 000 ft (2 742 m) DA

10.2 Temperature

-30°C to +46°C OAT MSL
Note: For variation of altitude with OAT refer to Limitations Section of approved RFM

| | | |
|---|---|---|
| 11. | Operating Limitations | |
| | 11.1 Kinds of operations | - VFR day/night<br>- no flight into known icing conditions |
| | 11.2 Additional limitations for TO/LDG | Max. wind velocity for starting and stopping rotor:<br>head wind: 48 knots (90 km/h, 25 m/s)<br>side wind: 17 knots (32 km/h, 9 m/s)<br>tail wind: 17 knots (32 km/h, 9 m/s<br>Max. landing slope: 5° |
| 12. | Maximum Mass | Max. TO/LDG mass: 1 800 kg<br>Min. LDG mass: 1 150 kg |
| 13. | Centre of Gravity Range | Longitudinal limitations:<br>Aft 500 mm<br>Fwd 750 mm<br>Lateral limitations:<br>Right 60 mm<br>Left 60 mm |
| 14. | Datum | Longitudinal:<br>The centre of gravity datum position is 499 mm aft from intersection point of the main rotor axis and base plane of the fuselage.<br>Lateral: helicopter symmetry plane |
| 15. | Levelling Means | Vertical line from ceiling reference point to the index plate located on the passenger compartment floor |
| 16. | Minimum Flight Crew | 1 (one) pilot |
| 17. | Maximum Passenger Seating Capacity | 4 (four) |
| 18. | Passenger Emergency Exit | - 2 forward doors are jettisonable<br>- 2 forward door window panels are jettisonable from s/n 60.04.01<br>- 2 rear door window panels are jettisonable |
| 19. | Maximum Baggage/ Cargo Loads | Passenger/cargo cabin: 323 kg<br>Baggage compartment: 150 kg |
| 20. | Rotor Blade Control Movement | See Maintenance Manual, Doc. No. AE-60.01.04.0 MM (Chapter 6) |
| 21. | Auxiliary Power Unit (APU) | none |
| 22. | Life-limited Parts | Refer to document AE-60.01.04.0.MM Volume 1, Chapter 4, Subchapter 4.00.00 Airworthiness Limitations |

IV. Operating and Service Instructions

| | | |
|---|---|---|
| 1. | Flight Manual | AE-60.01.04.1 RFM (English), EASA approved |
| 2. | Maintenance Manual | AE-60.01.04.0 MM (English) |
| 3. | Structural Repair Manual | 60.10.000.02.00 (specification of repair manuals) |
| 4. | Weight and Balance Manual | AE-60.01.04.0 MM Chapter 8 |
| 5. | Illustrated Parts Catalogue | AE 60.02.02.0 IPC Vol. I & II |
| 6. | Service Letters and Service Bulletins | As published by PZL |
| 7. | Required equipment | Refer to approved RFM for mandatory and optional equipment |

V. Notes

1. Manufacturer's eligible serial numbers:
   s/n 60.02.02, and subsequent 60.XX.YY numbers
   (s/n format is 60.XX.YY where XX is the production batch number and YY the number within the batch).

2. In accordance with the provisions of CR (EU) 1702/2003, Article 2, point 3. (c), the BC-217 Type Certification standard was "grandfathered" to become the EASA standard on 28 March 2007. The “EASA Type Certification date” reflects the date at which changes to the grandfathered type design resulting from a European Type Certification exercise (initiated prior to EASA) and incorporated into the basic EASA Type Definition of paragraph III.1 were formally accepted and adopted by EASA.
   All aircraft falling within the serial number applicability range of Note 1 above conform to the BC-217 plus “28 September 2007” design standard.

* * *

**SECTION 2: OPERATIONAL SUITABILITY DATA (OSD)**

The OSD elements listed below are approved by the European Aviation Safety Agency as per Commission Regulation (EU) 748/2012, as amended by Commission Regulation (EU) No 69/2014.

I. OSD Certification Basis

I.1 Reference Date for determining the applicable OSD requirements

MMEL: 17 February 2014
FCD: 10 July 2015 (refer to CRI A-01 OSD)

I.2 MMEL - Certification Basis

JAR MMEL/MEL Amdt. 1, dated 1 August 2005

I.3 Flight Crew Data - Certification Basis

CS-FCD – Initial Issue, dated 31 January 2014

I.4 SIM Data - Certification Basis

*reserved*

I.5 Maintenance Certifying Staff Data - Certification Basis

*reserved*

II. OSD Elements

II.1 MMEL

PZL SW-4 Master Minimum Equipment List, Document No. AE 60.04.20.0 MMEL (reference in English), Revision 0, dated 6 May 2008, or later EASA approved revision

II.2 Flight Crew Data

PZL SW-4 Operational Suitability Data - Flight Crew Data, Document No. AE 60.01.04.0 FCD (reference in English), Revision 0, dated 11 January 2018, or later EASA approved revision

II.3 SIM Data

*reserved*

II.4 Maintenance Certifying Staff Data

*reserved*

**SECTION 3: ADMINISTRATIVE**

I. Acronyms and Abbreviations

| | | | |
|---|---|---|---|
| ALS | Airworthiness Limitations Section | MSL | Mean Sea Level |
| Amdt. | Amendment | OAT | Outside Air Temperature |
| C.G. | Centre of Gravity | OSD | Operational Suitability Data |
| CS | Certification Specifications | P/N | Part number |
| DA | Density altitude | PA | Pressure altitude |
| FCD | Flight Crew Data | PWR | Power |
| fwd | forward (vis-à-vis aft) | RFM | Rotorcraft Flight Manual |
| JAR | Joint Aviation Requirements | RH | Right Hand |
| LDG | Landing | s/n | Serial number |
| LH | Left Hand | TGB | Tail Gear Box |
| max. | maximum | TO/LDG | Take-off/Landing |
| MCP | Maximum Continuous Power | TQ | Torque |
| MGB | Main Gear Box | ULC | Urząd Lotnictwa Cywilnego<br>Civil Aviation Authority of Poland |
| min. | minimum | VFR | Visual Flight Rules |
| MMEL | Master Minimum Equipment List | $V_{NE}$ | Never Exceed Speed |

II. Type Certificate Holder Record.

| **Type Certificate Holder** | **Period** |
|---|---|
| Wytwórnia Sprzętu Komunikacyjnego “PZL-Świdnik” Spółka Akcyjna<br>Al. Lotników Polskich 1<br>21-045 Świdnik, Poland | Since<br>14 November 2002 |

III. Change Record

| **Issue** | **Date** | **Changes** | **TC issue** |
|---|---|---|---|
| Issue 1 | 28 Sep 2007 | Initial Issue | Initial Issue,<br>28 September 2007 |
| Issue 2 | 31 Mar 2008 | Set up of required type design definition after completion of post-TC actions | - - - |
| Issue 3 | 26 Oct 2009 | ‘Outside temperature at sea level’ limitation extended | - - - |
| Issue 4 | 29 Jul 2011 | Environmental standard including noise applicable sections corrected; ‘Outside temperature at sea level’ limitation extended | - - - |
| Issue 5 | 25 Aug 2011 | Abbreviations removed from company name | - - - |
| Issue 6 | 7 Dec 2011 | Minimum flight crew limitation changed | - - - |
| Issue 7 | 14 May 2018 | OSD data added; review/correction of data;<br>TCDS format updated | - - - |

- end of file -