TYPE-CERTIFICATE DATA SHEET

No. E.128

for Engine
PZL-10W

Type Certificate Holder
Pratt & Whitney Rzeszów S.A.

ul. Hetmańska 120
35-078, Rzeszów
POLAND

For Models:
PZL-10W

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I. General

1. Type / Models

PZL-10W

2. Type Certificate Holder

Pratt & Whitney Rzeszów S.A.
(formerly: Wytwornia Sprzetu Komunikacyjnego S.A.)
ul Hetmańska 120
35-078 Rzeszów
POLAND
Design Organisation Approval No.: EASA.21J.115

3. Manufacturer

As Type Certificate Holder (Production Organisation Approval No, PL.21G.001).

4. Date of Application

CC-190 10 September 1993 – Civil Aviation Office (ULC), Poland

5. EASA Type Certification Date

20 September 1993. EASA Type-Certification is granted in accordance with Article 3 of EU Commission Regulation (EU) 748/2012 based on CAA-Poland TC No. CC-190.

II. Certification Basis

1. EASA Certification Basis

1.1. Airworthiness Standards

JAR E Change 8 dated 4 May 1990

1.2. Special Conditions (SC)

None

1.3. Equivalent Safety Findings (ESF)

None

1.4. Deviations

None

1.5. Environmental Protection

ICAO Annex 16 Volume II, 2nd Edition, 1993 - Emission and Fuel Venting

III. Technical Characteristics

1. Type Design Definition

PZL-10W: 19.0.400

2. Description

Twin spool (free power turbine) turboshaft engine with a six stage axial compressor, single stage centrifugal compressor, annular combustion chamber with centrifugal fuel nozzle, two stage axial turbine for gas generator, single stage axial free power turbine, and direct drive output for the PZL W-3 Sokol multi-engine helicopter application

3. Equipment

The engine equipment list is included in the Installation Manual.

4. Dimensions

Overall Length	1875 mm
Overall Height	595 mm
Width (left variant)	740 mm
Width (right variant)	765 mm

5. Dry Weight

Engine dry weight 141±2.8kg
The dry weight includes only the equipment needed to run the engine without residual fluid.

6. Ratings

Engine Operative Power (shaft power maximum output)

30 minutes OEI	736 kW
2.5 minute OEI	846 kW
Take-off (5 minutes)	662 kW
Maximum Continuous	574 kW

7. Control System

Power Turbine Speed Governor:
- manufacturer: HS Wroclaw (formerly KTEHS "PZL-Hydral" Wroclaw)
- type: ALRT-2A or ALRT-2B

Air Bleed Control Valve:
- manufacturer: HS Wroclaw (formerly KTEHS "PZL-Hydral" Wroclaw)
- type: ALUP-1

Electronic Limiter Unit:
- manufacturer: HS Wroclaw (formerly KTEHS "PZL-Hydral" Wroclaw)
- type: ALAE-2

8. Fluids (Fuel, Oil, Coolant, Additives)

Refer to the Maintenance Manual of the model.

9. Aircraft Accessory Drives

Powered from gas generator

	Rotation direction	Speed Ratio	Max. Torque Nm	Max. Overhang Moment Nm
Electric motor starter	CW	1:1	9.81	11.95
Rotation speed pick-up	CW	0.07925:1	0.3	0.7

CW - clockwise (looking from the engine front)
Powered from power turbine

Rotation speed pick-up*)	n/a	n/a	n/a	n/a

***) There are provided means for delivering the power turbine speed pic-up signal for aircraft application.**

Pick-up of the torque of each engine is installed on the WR-3 main gearbox and the indicator - in the pilot cockpit.

10. Maximum Permissible Air Bleed Extraction

For cabin ventilation – 0.07 kg/s
For inlet dust separator - 0.04 kg/s
Total for aircraft use – 0.11 kg/s
Refer to the Operating Manual of the model for conditions of using the air bleeds.

IV. Operating Limitations

1. Temperature Limits

Maximum Measured Gas Turbine
Maximum Continuous 670 ºC
Take-off 725 ºC
30 Minute OEI 735 ºC
2.5 Minute OEI 770 ºC
During starting 680 ºC
During acceleration check 725 ºC

2. Speed Limits

Engine Operative speed (rpm):

	Take-off (2.5 Minutes)	30 Minute OEI	Take-off (5 Minutes)	Maximum Continuous	Transient
Output Shaft	23 615	23 615	23 615	23 615	-
Gas Generator	32 100	30 900	30 550	29 330	32 100

NOTE: 100% gas generator speed = 31 486 rpm

Power turbine speed (rpm)

Nominal speed	Ground Idle	Transient (15 sec. max)	
		min.	max.
23 615	below 23 615	19 116	25 190

NOTE: 100% turbine speed = 22 490 rpm

3. Torque Limits

The output shaft maximum torque is limited by the Electronic Limiters Unit as applicable for a ratings and conditions specified in point 2.

4. Pressure Limits

4.1 Fuel Pressure

- fuel pressure at the Fuel Metering Pump inlet: 0.05 ÷ 0.12 MPa

4.2 Oil Pressure

- oil pressure at the oil fine filter output at all ratings except of Ground Idle and Flight Idle ratings: 0.25 ÷ 0.4 MPa

- min. oil pressure at the oil fine filter output at Ground Idle and Flight Idle ratings: 0.2 MPa

5. Time Limited Dispatch (TLD)

The engine is not approved for Time Limited Dispatch in accordance with CS-E 1030.

6. ETOPS Capability

The engine is not approved for ETOPS capability in accordance with CS-E 1040.

V. Operating and Service Instructions

19.0.400 - Maintenance Manual
19.0.356 - Installation Manual
19.1.201 - Instruction for Main Repair

VI. Notes

Note 1. The engine ratings are based on dry sea level static ISAO standard atmospheric conditions. No power extraction for helicopter accessories, no air bleed for inlet particle dust separator, and no air bleed for aircraft use and engine icing protection system.

Note 2. The take-off (2.5min. OEI) rating is maintained up to 1000m altitude ISAO +15°C when the inlet particle dust separator is inoperative. The 30min. OEI rating is maintained up to 1000m altitude ISAO, and up to 330m ISAO altitude +15°C when the inlet particle dust separator is inoperative.

Note 3. The take-off (5 min.) and maximum continuous ratings at sea level are maintained for an ambient temperature range of -50°C to 30°C at a minimum sea level atmospheric pressure of 97.3KPa and from sea level to 2000m ISAO altitude conditions.

Note 4. Continuous air bleed for cabin ventilation is permissible for ratings from idle to maximum continuous at an ambient air temperature not exceeding 45°C, and for the take-off (5 min.) rating at an ambient air temperature not exceeding 15°C. Air bleed for inlet particle dust separator is permissible for ratings from idle to take-off (5 min.) at an ambient air temperature not exceeding 45°C.

Note 5. The engine must be operated with the approved (or equivalent) inlet particle dust separator (Part Number 30.68.120.00.10/20).

Note 6. Prior to issue of Overhaul Manual, the engine overhauls outside the Pratt & Whitney Rzeszow S.A. facility are not permitted.

Note 7. The ALAE-2 electronic limiter meets the high intensity radiated field requirements as outlined in RTCA/DO-160B. A peak electric field strength of 1 volt/meter (category z). For installation requirements, refer to Installation Manual.

Note 8. The ALAE-2 electronic limiter and UPM-100 torque meter conforms to the requirements of RTCA/DO-160C Category L. For installation requirements, refer to Installation Manual

Note 9. The engine is provided for operation with the UPM-100, UPM-100M or MW3 torquemeter

SECTION: ADMINISTRATIVE

I. Acronyms and Abbreviations

n/a

II. Type Certificate Holder Record

n/a

III. Change Record

Issue	Date	Changes	TC issue
Issue 01	12 August 2015	Transfer from existing Polish TC (CC-190) into EASA TC / Company Name change	15 December 2015

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