

DEPARTMENT OF TRANSPORTATION  
FEDERAL AVIATION ADMINISTRATION

A58CE Revision 1 Aero Vodochody a.s. Ae 270 October 17, 2006
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**TYPE CERTIFICATE DATA SHEET No. A58CE**

This data sheet, which is part of Type Certificate No. A58CE, prescribes conditions and limitations under which the product for which the Type Certificate was issued meets the airworthiness requirements of the Federal Aviation Regulations.

Type Certificate Holder: Aero Vodochody a.s.  
U letiště 374  
250 70 Odolena Voda  
Czech Republic

I. Model Ae 270, Single-engine airplane, (Normal Category), approved February 24, 2006

Engines 1 Pratt & Whitney Canada, model PT6A-66A turboprop, two-shaft engine with a free turbine, a compressor section having four axial stages and one centrifugal stage, with an annular combustion chamber.  
Compression ratio: 12: 1  
Gear ratio to prop. Shaft 0.0662:1  
FAA Engine Type Certificate: TCDS E26NE

Fuel Grade and Approved Fuel Additives

JET A-50	ASTM-D1655
JET A	ASTM-D1655
JET B	ASTM-D1655
JET A-1	ASTM-D1655
JET A-2	ASTM-D1655
JP-4	MIL-PRF-5624
JP-5	MIL-PRF-5624
JP-8	MIL-DTL-83133
JP-8-100	MIL-DTL-83133

For approved additives and other approved fuel grades refer to latest revision of P&W Canada Service Bulletin 14004

Oil Aero Shell Turbine Oil 500, Royco Turbine Oil 500,  
Mobil Jet Oil II, Castrol 5000, Exxon Turbo Oil 2380,  
Turbonycoil 525-2A, in accordance with P&W Canada SB No. 14001

Page No.	1	2	3	4	5	6	7	8
Rev. No.	1	0	0	0	0	1	1	1

Engine Performance:

Power Setting	Power	$M_K$	$n_g$	$n_p$	Max. ITT	Oil Pressure	Oil Temperature
	[SHP (kW)]	[lb ft]	[%]	[RPM]	[°C]	[psi]	[°C]
Takeoff	850 (634)	2,230	104	2,000	800	100 to 135	0 to 104
Max. Continuous	<b>9</b>				800 <b>8</b>		
Max. Climb	850 (634)				785		10 to 104
Max. Cruise	<b>10</b>				<b>7</b>		
Ground Idle			65 <b>3</b>		785	min. 60	-40 to 110
Flight Idle			73 <b>3</b>				
Starting					1,000 max. 5 s	max. 200	min. -40
Transient		2,750 max. 20 s	104	2,205 <b>6</b>	870 max. 20 s	40 to 200 max. 20 s	0 to 110 <b>5</b>
Max. Reverse	800 (597)			1,900	780	100 to 135	0 to 104

- 1** For propeller speed below 1,600 RPM the torque is limited to 1,100 lb ft.
- 2** Normal oil pressure with gas generator speed above 72 %. At normal oil temperature between 60 to 70° C and torque below 2,000 lb ft the minimum oil pressure is 60 psi. Oil pressures under 90 psi are undesirable. Under emergency conditions, to complete a flight, a lower oil pressure limit of 60 psi is permissible at reduced power level not exceeding 1,100 lb ft torque. If oil pressure drops below 60 psi, shutdown the engine or make a precautionary landing using minimum power required to sustain flight. During an extremely cold weather start, oil pressure may reach 200 psi.
- 3** Valid for the (Bleed Air) **ECS** switch in the position **OFF**. With the environmental control system switched on (ECS ON) and the outside air temperature influence combined, the low and high idle speeds may be lower by 3 %.
- 4** For increased oil service life, an oil temperature below 80° C is recommended. A minimum oil temperature of 55° C is recommended for fuel heater operation at takeoff power.
- 5** Oil temperature limits are -40 to 104° C with limited periods of 10 min at 104 to 110° C.
- 6** May be employed in an emergency condition, at all ratings, to complete a flight.
- 7** Climb power may be set by using nominal ITT of 735° C.
- 8** Max. continuous power may be set by using nominal ITT of 750° C.
- 9** Takeoff power is limited to 5 minutes. 850 SHP (634 kW) up to 50.1° C OAT.
- 10** 850 SHP (634 kW) up to 44.5° C OAT.

Number of propellers 1

Propeller and Propeller Limits Hartzell Propeller Inc. (USA)  
 HC-E4N-3P/D9511FASK/D-630-3P  
 four-blade, all-metal, hydraulically-actuated with constant-speed, full  
 feathering and reversible  
 Propeller diameter: 96 in. (2.438 m)  
 Sense of Rotation: Clockwise (in view of flight direction)  
 US Propeller Type Certificate: TCDS P10NE

Propeller Pitch:

Pitch Angle on the radius  $r = 30$  in (762 mm):

- fine pitch	21.5+/- 0.1°
- reverse angle	-12.8+/- 0.5°
- feather	86.1+/-0.5°

Airspeed Limits:

$V_{MO}$ (maximum operating speed) - up to 16400 ft	205 KIAS
$M_{MO}$ (maximum operating speed) - above 16400 ft	0.42
$V_A$ (Manoeuvring Speed at 3800 kg)	154 KIAS
$V_{FE}$ (Maximum Flap Extended Speed )	
flaps 20° $V_{FE20}$	148 KIAS
flaps 36° $V_{FE36}$	125 KIAS
$V_{LO}$ (Maximum landing gear operating speed)	132 KIAS
$V_{LE}$ (Maximum landing gear extended speed)	132 KIAS

Flight Load Factor Limits:

Maximum Positive Flight Load Factor:	
-flaps retracted (0°)	3.41
-flaps extended (20 and 36)	2.00
Maximum Negative Flight Load Factor:	
-flaps retracted (0°)	-1.36

Weights:

Max. Ramp	8422lbs. (3820kg)
Max. Takeoff	8377lbs. (3800 kg)
Max. Landing	8377lbs. (3800 kg)
Max. Zero Wing Fuel	8157lbs. (3700 kg)
Max. Weight in Baggage Compartment	132 lbs. (60kg)
Typical Empty Weight -Green airplane	5370 lbs. (2436 kg) +/- 2%
Typical Empty Weight –PAX version	5974 lbs. (2710 kg) +/- 2%
Max. Payload – PAX version	1984 lbs. (900 kg)

Center-of-Gravity Limits:

Weight		Forward C.G. Limit			Aft C.G. Limit		
[lbs]	[kg]	[in]	[m]	[% b <sub>MAC</sub> ]	[in]	[m]	[% b <sub>MAC</sub> ]
6,206	2,815	212.8	5.405	21	213.4	5.421	22
7,165	3,250	212.8	5.405	21	-	-	-
7,844	3,558	-	-	-	218.3	5.547	30
8,377	3,800	213.4	5.421	22	218.3	5.547	30

Datum: Reference Datum is a distance of 116.5 in (2.960 m) from the firewall (bulkhead No. 1). The leading edge of the MAC is 199.8 in (5.076 m) aft of the Reference Datum

Mean Aerodynamic Chord (MAC): The MAC length is 61.7 in (1.568 m).

Leveling Means: Refer to the "Ae 270 Maintenance Manual", Doc. No. BMAI01EN, Chapter 8 or to the applicable Pilot's Operating Handbook and Airplane Flight Manual, Sec. 6.

Seating Capacity: 8 passenger seats in cabin\* and 2 crew seats in the flight deck. Maximum of 9 passengers.  
\*For flights above 10,000 feet the 4<sup>th</sup> left rear passenger seat must not be occupied (See NOTE 6). Refer to the POH/AFM for passenger and flight crew loading instructions and approved configuration.

Minimum Crew: 1 pilot in the left seat

Fuel Tank Capacity:

Total Fuel Tanks Capacity:	Both Tanks	304.4 U.S. Gal	(1152 l)
	Each Tank	152.2 U.S. Gal	(576 l)
Max. Allowable Fuel:	Both Tanks	185.0 U.S. Gal	(700 l)
	Each Tank	92.5 U.S. Gal	(350 l)
Usable Fuel:	Both Tanks On	172.6 U.S. Gal	(653.0 l)
	Single Tank On	86.3 U.S. Gal	(326.5 l)
Unusable Fuel:	Both Tanks On	12.4 U.S. Gal	(47.0 l)
	Single Tank On	6.2 U.S. Gal	(23.5 l)
Maximum Allowable Fuel Unbalance		12 U.S. Gal	(45 l)

Oil Tank Capacity:

Total Capacity:	14.8 U.S. Quarts	(14.0 l)
Drain Quantity:	14.5 U.S. Quarts	(13.7 l)
Operating Range:	1.6 U.S. Quarts	(1.50 l)

Approved Kinds of Operation:

- VFR flights, day and night,
- IFR flights, day and night

Prohibited Kinds of Operation:

- Flight into known or forecast icing is prohibited.

Maximum Operating Altitude: 26,000 ft

Landing Gear:

- Retractable, tricycle type.
- Can operate on unpaved runways.
- Main Gear: swinging fork of tow type and oil pneumatic shock absorbers,
- Nose Gear: telescopic oil-pneumatic shock absorber and oil shimmy damper,
- Nose Wheel rotation angle:  $\pm 15^\circ$
- Nose Wheel castoring angle with steering OFF:  $\pm 55^\circ$

Control Surface Movements:

Ailerons:	Up	$22.5^\circ \pm 1^\circ$
	Down	$13.5^\circ \pm 1^\circ$
Aileron Trim Tab:	Up	$15^\circ \pm 1^\circ$
	Down	$15^\circ \pm 1^\circ$
Elevator:	Up	$30^\circ \pm 1^\circ$
	Down	$15^\circ \pm 1^\circ$
Elevator Trim Tab (Left / Right):	Up	$13^\circ \pm 1^\circ$
	Down	$28^\circ \pm 1^\circ$
Rudder	Left	$25^\circ \pm 1^\circ (-0^\circ)$
	Right	$25^\circ \pm 1^\circ (-0^\circ)$
Rudder Trim Tab: (Rudder Neutral)		$23^\circ \pm 1^\circ$
	Left	
	Right	$7^\circ - 1^\circ (+0^\circ)$
Wing Flaps:	Neutral (Left)	$8^\circ \pm 1^\circ$
	Takeoff	$20^\circ \pm 2^\circ$
	Landing	$36^\circ \pm 1^\circ$
	Neutral	$0^\circ \pm 1^\circ$

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<u>Operating Ambient Temperature Range:</u>	ISA-22°F to ISA+68°F (ISA-30°C to ISA+20°C) Minimum Temperature above 17700 ft: -58°F (-50°C) See Approved Airplane Flight Manual, listed in Service Information a) for more details.
<u>Standard Equipment:</u>	As defined in section 6 of the Ae 270 Airplane Flight Manual, Ref. No. BPOH01EN, (Revision 1, dated July 12, 2006) or later revision.
<u>Optional &amp; Operational Equipment</u>	As defined in section 6 of the Ae 270 Airplane Flight Manual, Ref. No. BPOH01EN, (Revision 1, dated July 12, 2006) or later revision.
<u>Service Life Limits</u>	Airframe Service Life: 5,000 flight hours. Components: as listed in Chapter 4 of Maintenance Manual, Ref No. BMAI01EN, Revision 0, dated March 31, 2006 or later FAA approved revision.
<u>Serial Nos. Eligible</u>	Ae 270 Airplane with serial number 0006 and subsequent, are eligible for import into the United States. See Details under <u>Import Requirements</u> below.
<u>Certification Basis</u>	The regulations (unless otherwise stated) are Title 14 of the Code of Federal Regulations (14 CFR):  14 CFR Part 23 dated February 1, 1965, as amended through Amendment 23-55 effective March 1, 2002;  14 CFR Part 34 dated September 10, 1990, as amended through Amendment 34-3 effective February 3, 1999;  14 CFR Part 36 dated December 1, 1969, as amended through amendment 36-24 effective August 7, 2002.  Equivalent Safety Items:  Equivalent levels of safety finding made per the provision of 14 CFR Part 21.21(b)(1) for:  14 CFR 23 § 23.145(b)(2): ELOS ACE-05-14, Refer to FAA memorandum dated October 14, 2005.  14 CFR 23 § 23.145(b)(4): ELOS ACE-05-13, Refer to FAA memorandum dated October 7, 2005.  Special Conditions: High Intensity Radiated Fields, (HIRF), Number 23-137-SC, issued September 16, 2003.  Date of Application for U.S. Type Certificate June 8, 1998.

Validation Basis  
under

The applicable airworthiness requirements for a U.S. certification

14 CFR 21 section 21.29 identified above were established considering the airworthiness requirements applied by the responsible exporting Czech-Republic civil aviation authority under the Bilateral Aviation Agreement (BAA) authorized by the Agreement between the Government of the Czech-Republic and the Government of the United States of America, including the Operating Procedure and the interim working agreement between the Government of the United States of America and the European Aviation Safety Agency (EASA) per FAA Order 8110.52.

This Type Certificate was issued pursuant to the certification by the CAA-CZ and EASA that the Aero Vodochody Model Ae 270 complies with the above requirements.

EASA issued EASAType Certificate No. A.060, as described in EASA TCDS No. EASA.A.060 Issue 001.

Import Requirements

When eligible, a U.S. Standard Airworthiness Certificate may be issued on the basis of an Export Certificate of Airworthiness signed by a representative of EASA containing the following statement:

"The Aero Vodochody Model Ae 270 aircraft covered by this certificate has been examined, tested, and found to conform to the type design approved under FAA Type Certificate A58CE and is found to be in a condition for safe operation."

Model Ae 270 airplane with serial numbers 0006 and subsequent are eligible for a U.S. Standard Airworthiness Certificate.

Equipment

The basic required equipment as prescribed in the applicable airworthiness regulations (see Certification Basis) must be installed in the airplane for certification. Such equipment is listed in the current FAA approved Airplane Flight Manual, BPOH01EN, (Revision 1, dated July 12, 2006) or later approved revisions.

Service Information

Service bulletins, structural repair manuals, vendor manuals, and overhaul and maintenance manuals, which contain a statement that the document is EASA approved, are accepted by the FAA.

Aircraft Flight Manuals, which contain a statement that the document is EASA approved, are considered to be approved by the FAA.

Each airplane is provided with the following approved documents:

a) Aero Vodochody Ae 270 Airplane Flight Manual, Ref. No.: BPOH01EN, (Revision 1, dated July 12, 2006) or later FAA approved revision.

b) Aero Vodochody Ae 270 Airplane Maintenance Manual, Ref. No.: BMAI01EN, Rev. 0, dated March 31, 2006 or later FAA approved revision, including:

Chap. 4: "Airworthiness Limitations" and Chap. 5: "Time Limits/ Maintenance Check".

c) Aero Vodochody Ae 270 Airplane Wiring Manual, Ref. No.: BWIR02EN, Rev. 0, dated March 31, 2006 or later FAA approved revisions.

NOTES:

NOTE 1. Current weight and balance data including list of equipment included in the certificated empty weight and loading instructions, when necessary, must be provided for each airplane at the time of original certification, and remain with the airplane at all times thereafter. The certificated empty weight and corresponding center of gravity locations must include the following:

Unusable fuel of 12.4 US gal (82.8 lbs.) {47.0 l; 37.5 kg}

NOTE 2. Airplane operation must be in accordance with the EASA approved Airplane Flight Manual listed above. All placards listed in Section 2 must be displayed in clear view of the pilot.

NOTE 3. Airworthiness Limitations are specified in the Section 2 LIMITATIONS chapter of the Flight Manual and Chapter 4 of the Instructions for Continued Airworthiness (Maintenance Manual) and are approved by EASA and the FAA. These LIMITATIONS specify mandatory replacement times, and operating limitations, and may not be changed without EASA and FAA approval.

The FAA must approve revisions to the Airworthiness Limitations. The inspections, maintenance, repair and painting must be accomplished according to the Maintenance Manual or other procedures acceptable to the FAA.

NOTE 4. Information essential for the proper operation, maintenance and inspection of the airplane is contained in the Aero Vodochody Ae 270 Airplane Flight Manual and Maintenance Manual.

NOTE 5. All avionics installed in this aircraft must meet the applicable FAA Technical Standard Order (TSO) and/or equivalent FAA approved safety requirements.

NOTE 6. For flights above 10,000 feet the 4<sup>th</sup> left rear passenger seat must not be occupied.

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