TYPE CERTIFICATE DATA SHEET Nº EH-2020T08

Type Certificate Holder:

Hartzell Propeller Inc.
Piqua, OH 45356
USA

EH-2020T08-00
Sheet 01
Hartzell
4C1
21 October 2020

Propellers of models described herein conforming with this data sheet, which is part of Type Certificate No. 2020T08, meet the minimum standards for use in certificated aircraft in accordance with pertinent aircraft data sheets and applicable portions of the Brazilian Aeronautical Regulations provided they are installed, operated, and maintained as prescribed by the approved manufacturer's manuals and other instructions.

TYPE	Constant speed; hydraulic (see Notes 3 and 4)
ENGINE SHAFT	Special flange (see Note 1)
HUB MATERIAL	Aluminum Alloy
BLADE MATERIAL	See “Notes” column in table below
NUMBER OF BLADES	4
HUB ELIGIBLE	4C1 (see Notes 1 and 4)

Blade Eligible (See Notes 2)	Max.Continuous Power		Takeoff power		Diameter Limits (see Note 2)		Approx. Max. Weight Compl. (For Reference Only) (See Notes 3 and 7)		Notes
	hp	rpm	hp	rpm	m	in	Kg	lb	
Hub Model 4C1- ( )(430 through 919) (See Note 1)									
76C04-0 to 76C04-6	350	2 700	350	2 700	1,99 to 1.84	(78.6 to 72.6)	28,03	(61.8)	Carbon Composite

CERTIFICATION BASIS

Brazilian Type Certificate No.2020T08 is based on the is RBAC §21.29 and RBAC 35, which correspond to 14 CFR Part 35, Amendments 35-1 through 35-10, effective August 30, 2017.

TYPE CERTFICATION

Model	Application	Issued TC
4C1	18/12/2019	21/10/2020

IMPORT REQUIREMENTS

Each propeller imported separately and/or spare parts must be accompanied by a FAA Export Airworthiness Approval through the FAA Authorized Release Certificate, certifying that the propeller is conforms to a type design approved by the ANAC, as specified in the ANAC's type certificate data sheet No. 2020T08-00, is in condition for safe operation and has undergone a final operational check. The original Authorized Released Certificate should be sent with the propeller and a copy remains with the issuing organization.
For each propeller it is required a list of exceptions (if any) in respect to the ANAC approved Type Design, listed in the FAA Authorized Release Certificate above mentioned.

NOTES:

NOTE 1

Hub model Designation 4 C 1 - L 761 A1 where
[1] [2] [3] [4] [5] [6]

[1] 4 Number of blades

[2] C Preload type: Basic hub series (C)

[3] 1 Operating Mode: (See Notes 3 and 4)
1 – Constant speed, oil to increase pitch, no blade counterweights

[4] L Mounting flange:
First character is mounting flange type
F: flange with six 1/2" bolts and two 1/2" dowels on a 4" bolt circle
L: SAE #2 flange with six 7/16" bolts and four 5/8" drive bushings on a 4-3/4" bolt circle
R: SAE #2 flange with six ½" bolts and five ¾" bushings on a 4-3/4" bolt circle

[5] 761 Extension:
Distance in inches from engine mounting flange to blade centerline (implied decimal after first digit)
Example: 675 = 6.75 inches

[6] A1 One or more alphanumeric hub descriptor (first character must be alpha)
L when used denotes left-hand rotation
Any alpha character listed here denotes a minor change not affecting eligibility
Any numeric character indicates minor configuration change not affecting eligibility

NOTE 2 Blade Model Designation H 76 C 04 B - 2R
[1] [2] [3] [4] [5] [6]

[1] H Denotes blade configuration:
Blank – Right-hand tractor
H - Right-Hand pusher
J - Left hand tractor
L - Left-hand pusher

[2] 76 Basic diameter rounded to the nearest inch.*

[3] C First Character: Basic blade series for hub model (must match hub series)
Second character when used: Major blade characteristic

[4] 04 Basic blade model (two character numeric)

[5] B B or K denotes deicing or anti-ice boots

[6] 2R Number of inches cut off from (or added to if +) basic diameter
R when used denotes specifically rounded tip for cutoff diameter
Any other character in this location denotes tip shape

* Diameter limits are nominal diameters of the assembled propeller. They do not include the + or – 1/8 inch manufacturing tolerance the FAA allows for propellers with a basic diameter of less than 14 feet.

NOTE 3 Pitch Control (weight of pitch control extra) (See Notes 4 and 10)
(a) Approved with Hartzell governors per drawings C-4770 and C-4772. Wt: 4.5 lb (See Note 10)

D – 1 – 4 Z Governor Model Designation
[1] [2] [3] [4]

[1]D Basic body and major parts modification

[2]1 Minor adjustment to obtain engine/propeller/governor compatibility

[3]4 Minor adjustment not affecting eligibility

[4]Z L when used indicates left hand rotation
Z when used indicates drive coupling type
Any other character denotes a minor change not affecting eligibility

(b) Maximum output pressure: 350 psi
(c) The 4C1 models use governor oil to increase pitch and do not have counterweighted blades. (See Note 4)
(d) All governors and propeller control systems must be approved as part of the aircraft installation regardless of manufacturer. (See Note 10)

NOTE 4 Feathering: Not applicable
Reversing: Not applicable

NOTE 5 Left-Hand Models: (see Notes 1 and 2)
The left-hand version of an approved propeller model is approved at the same rating and diameter as listed for the right-hand model.

NOTE 6 Interchangeability:

(a) Propellers: Not applicable

(b) Governors: Hartzell governors with a “Z” suffix in their model designation may be used interchangeably with corresponding governors without the “Z”. For example, the F-6-24Z is a replacement for the F-6-24 and the F-6-24 is a replacement for the F-6-24Z.

(c) Blades: Not applicable

(d) Ice Protection Systems: Refer to Hartzell service Letter HC-SL-30-260 for ice protection system component interchangeability.

NOTE 7 Accessories:

(a) Propeller spinner. (weight of spinner extra)

(1) Approved with Hartzell and other manufacturers' spinners when listed on Hartzell type design data.

(2) All propeller spinners must be approved as part of the aircraft installation regardless of manufacturer. (See NOTE 10)

(b) Propeller ice protection system (weight of ice protection equipment extra)

(1) Propeller models listed in this data sheet are approved for use with propeller ice protection equipment listed in Hartzell Manual 159( ) or in other Hartzell type design data.

(2) All propeller ice protection equipment must be approved as part of the aircraft installation regardless of manufacturer. (See NOTE 10)

NOTE 8 Shank Fairings: Not applicable.

NOTE 9 Special Limits:

Table of Propeller - Engine Combinations

Approved Vibrationwise for Use on Normal Category Single Engine Tractor Aircraft

The maximum and minimum propeller diameters that can be used from a vibration standpoint are shown below. No reduction below the minimum diameter listed is permissible, since this figure includes the diameter reduction allowable for repair purposes.

The engine models listed below are the configurations on the engine type certificate unless specifically stated otherwise. Modifications to the engine or airframe that alter the power of the engine models listed below during any phase of operation have the potential to increase propeller stresses and are not approved by this list. Such modifications include, but are not limited to, the addition of a turbocharger or turbonormalizer, increased boost pressure, increased compression ratio, increased RPM, altered ignition timing, electronic ignition, full authority digital engine controls (FADEC), or tuned induction or exhaust. Also, any change to the mass or stiffness of the crankshaft/counterweight assembly is not approved by this list.

Hub Model	Blade Model	Engine Model	Max. Dia. m (inches)	Min. Dia m (inches)	Placards

NOTE 10 Propeller installation must be approved as part of the aircraft Type Certificate and demonstrate compliance with the applicable aircraft airworthiness standards.

Propeller models listed herein consist of basic hub and blade models. Most propeller models include additional characters to denote minor changes and specific features as explained in Notes 1 and 2. Refer to the aircraft Type Certificate Data Sheet for the specific propeller model applicable to the installation.

Propellers with composite blades must be evaluated for bird impact resistance prior to approval on any type aircraft. Hartzell Propeller must perform tests and/or analyses based on aircraft configuration and operating conditions to determine the potential hazard as a result of a bird strike.

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Ofício nº 918/2020/GTPR/GCPP/SAR-ANAC

São José dos Campos, 21 October 2020.

Hartzell Propeller inc.
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Subject: **4C1 – TCDS Issuance.**

Ref.: EH-2020T08-04, SEI no. 4917336.

1. In attention to the document referred above, ANAC hereby issues Initial Revision of TCDS no. EH-2020T08.

2. This TCDS revision is available at ANAC website: *https://sistemas.anac.gov.br/certificacao/Produtos/EspecificacaoOrgE.asp*

Mario Igawa
Aeronautical Product Design Certification Branch, Manager

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Documento assinado eletronicamente por **Mário Igawa**, **Gerente de Certificação de Projeto de Produto Aeronáutico**, em 23/10/2020, às 13:55, conforme horário oficial de Brasília, com fundamento no art. 6º, § 1º, do Decreto nº 8.539, de 8 de outubro de 2015.

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