

**COMANDO DA AERONÁUTICA
DEPARTAMENTO DE PESQUISAS E DESENVOLVIMENTO
CENTRO TÉCNICO AEROESPACIAL**

TYPE CERTIFICATE DATA SHEET Nº EH-2005T14

Type Certificate Holder:

HARTZELL PROPELLER INC.
One Propeller Place
Piqua, Ohio 45356-2634
USA

EH-2005T14

Sheet 01

HARTZELL
HC-F3Y, HC-M3Y

September 2005

Propellers of models described herein conforming with this data sheet, which is part of Type Certificate No. 2005T14, 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 & 4)
ENGINE SHAFT	Special Flange (see NOTE 1)
HUB MATERIAL	Aluminum Alloy
BLADE MATERIAL	Aluminum Alloy
NUMBER OF BLADES	Three (3)

HUB ELIGIBLE HC-F3YK-1, -2; HC-F3YR-1, -2; HC-M3YR-1 (see NOTES 1 & 4)

Blade Eligible (See Note 2)	Max. Continuous Power hp (rpm)	Takeoff power hp (rpm)	Diameter Limits m (in)	Approx. Max. Weight Compl. kg (lb)
<u>Hub Model Non-counterweighted propellers – HC-F3YK-1, HC-F3YR-1, HC-M3YR-1</u>				
7282-0 to 7282-6	300 (2 700)	300 (2 700)	1.88 (74) to 1.73 (68)	32.21 (71.0)
7392-0 to 7392-10	350 (2 850)	350 (2 850)	1.91 (75) to 1.65 (65)	34.25 (75.5)
7492-2 to 7479-8	380 (2 900)	380 (2 900)	1.88 (74) to 1.73 (68)	35.83 (79.0)
7663-0 to 7663-10	310 (2 800)	310 (2 800)	1.98 (78) to 1.73 (68)	32.66 (72.0)
7666-0 to 7666-10	310 (2 700)	310 (2 700)	1.98 (78) to 1.73 (68)	35.83 (79.0)
8459-0 to 8459-14	400 (2 700)	400 (2 700)	2.18 (86) to 1.83 (72)	34.02 (75.0)
8465-0 to 8465-14	400 (2 700)	400 (2 700)	2.18 (86) to 1.83 (72)	34.93 (77.0)
8467-0 to 8467-14	400 (2 575)	400 (2 575)	2.18 (86) to 1.83 (72)	36.74 (81.0)
8468-0 to 8468-14	400 (2 700)	400 (2 700)	2.18 (86) to 1.83 (72)	35.38 (78.0)
8470-0 to 8470-14	400 (2 700)	400 (2 700)	2.18 (86) to 1.83 (72)	34.93 (77.0)
8475-0 to 8475-14	400 (2 575)	400 (2 575)	2.18 (86) to 1.83 (72)	36.74 (81.0)
8477-0 to 8477-14	400 (2 575)	400 (2 575)	2.18 (86) to 1.83 (72)	38.10 (84.0)
<u>Non-counterweighted propellers – HC-F3YR-1, HC-M3YR-1</u>				
7693-0 to 7693-10	350 (2 700)	350 (2 700)	1.98 (78) to 1.73 (68)	34.47 (76.0)
<u>Counterweighted propellers – HC-F3YK-2, HC-F3YR-2</u>				
C7479-2 to C7479-8	380 (2 900)	380 (2 900)	1.88 (74) to 1.73 (68)	39.92 (88.0)
C7663-0 to C7666-10	310 (2 800)	310 (2 800)	1.98 (78) to 1.73 (68)	36.74 (81.0)
C7666-0 to C7666-10	310 (2 700)	310 (2 700)	1.98 (78) to 1.73 (68)	39.92 (88.0)
C8459-0 to C8459-14	400 (2 700)	400 (2 700)	2.18 (86) to 1.83 (72)	38.10 (84.0)
C8465-0 to C8465-14	400 (2 700)	400 (2 700)	2.18 (86) to 1.83 (72)	39.01 (86.0)
C8467-0 to C8467-14	400 (2 575)	400 (2 575)	2.18 (86) to 1.83 (72)	40.82 (90.0)
C8468-0 to C8468-14	400 (2 700)	400 (2 700)	2.18 (86) to 1.83 (72)	39.46 (87.0)
C8470-0 to C8470-14	400 (2 700)	400 (2 700)	2.18 (86) to 1.83 (72)	39.01 (86.0)
C8475-0 to C8475-14	400 (2 575)	400 (2 575)	2.18 (86) to 1.83 (72)	40.82 (90.0)
C8477-0 to C8477-14	400 (2 575)	400 (2 575)	2.18 (86) to 1.83 (72)	42.18 (93.0)

CERTIFICATION BASIS

Brazilian Type Certificate No. 2005T14 based on the RBHA 35 which endorses the FAR 35 effective 01 February 1965.

The following models were added, updated or revised in accordance with part 35 with amendments 35-1 and 35-2 effective 03 April 1967: HC-F3YK-1, -2

The following models were added, updated or revised in accordance with part 35 with amendments 35-1 and 35-6 effective 18 August 1990: HC-F3YR-1, -2; HC-M3YR-1

TYPE CERTIFICATION

<u>Model</u>	<u>Application</u>	<u>Issued TC</u>
HC-F3Y	01 July 2005	23 September 2005
HC-M3Y	01 July 2005	23 September 2005

PRODUCTION BASIS

Not Applicable.

IMPORT REQUIREMENTS Each propeller imported separately and/or spare parts must be accompanied by an Airworthiness Certificate for Export and/or an Airworthiness Approval Tag, respectively, issued by FAA, attesting that the particular propeller and/or parts were submitted to the governmental quality control before delivery and are in conformity with the CTA approved type design.

NOTES:

NOTE 1 Hub model Designation HC- F 3 Y K- 1 AF , where:

HC: Hartzell Controllable.

F: Identifies basic design

“F” denotes 76.2 mm (3.0 inch) bolted-on shaft extension except as noted by letter ‘A’ below.

“M” denotes an integral shaft extension of 65.09mm (2 9/16 in.)

3: Number of blades.

Y: Hartzell blade shank size

K: “K” denotes flange with six 1/2” bolts and four 3/4” drive bushings on a 4.3/4” bolt circle.

“R” denotes flange with six 1/2” bolts and five 3/4” drive bushings on a 4.3/4” bolt circle.

1: Denotes specific design features (see NOTE 4).

AF: “F” when used denotes modified pitch change system

“L” when used denotes left hand rotation.

“A” when used denotes one-piece shaft extension.

Any other character denotes a minor change not affecting eligibility

NOTE 2 Blade Model Designation LC 76 66 D- 3R , where:

LC: Denotes blade configuration: right-hand tractor unless otherwise noted.

“L” denotes left-hand pusher

“J” denotes left-hand tractor

“H” denotes right-hand pusher

“F” denotes a large pitch change knob

“C” denotes counterweight

76: Basic diameter for a two blade propeller. Add two inches for a three-blade propeller.

66: Basic blade model

D: “B” or “K” denotes deicing boots

“Q” when used denotes special 1” x 90 deg. factory-bent tip for basic diameter

“R” when used denotes a rounded tip for the basic diameter

“S” when used denotes a square tip for the basic diameter*

Any other character denotes a minor modification not affecting eligibility

3R: Number when used denotes inches cut off from basic diameter

“Q” when used denotes special 1” x 90 deg. factory-bent tip for cutoff diameter

“R” when used denotes specifically rounded tip for cutoff diameter

Any other character in this location denotes tip shape.

*Blades may incorporate either round or square tips, yet may not be marked with an “R” or “S” in their model designation. This character is used to distinguish between two or more tip shapes available at the same diameter. Certain blades use “S” to denote shot peening of the exterior surface.

NOTE 3 Pitch Control.

- (a) Approved with Hartzell governors per drawings C-4770 and C-4772. Wt. 2.04 kg (4.5 lb) (see NOTES 6 and 10)

D- 1 -4 Governor Model Designation, where:

- D: Basic body and major parts modifications
1: Minor adjustment to obtain engine / propeller / governor compatibility
4: Minor adjustment not affecting eligibility

(b) Woodward model X210XXX or X210X-XXX. Wt. 1.59 kg (3.5 lb)

(c) McCauley model C290-D3-X/TXX. Wt.: 1.27 kg (2.8 lb)

NOTE 4 Feathering:

The- 1 models do not feather.

The- 2 models incorporate feathering and unfeathering features.

Reversing. Not Applicable.

NOTE 5 Left Hand Models:

The left-hand version of an approved propeller model is approved at the same rating and diameter as listed for the right-hand model. (See NOTES 1 & 2)

NOTE 6 Interchangeability:

- (a) Propellers.

Propellers model HC-F3YR-1RF and HC-F3YR-1ARF are interchangeable.

- (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.

NOTE 7 Accessories.

- (a) Propeller anti-icing (weight of anti-icing equipment extra).

(1)Approved with fluid feed shoes or Ices boots installed in accordance with H-S_2 or Hartzell Manual No. 133().

(2)Approved with Hartzell fluid feed equipment on propeller models for which equipment is available.

- (b) Propeller deicing (weight of deicing equipment extra).

(1)Approved with Goodyear Ice Guards (electrical propeller deicer) when installed in accordance with instructions outlined in Goodyear Report No. AP-147 dated 23 October 1961.

(2)Approved with Goodrich electrical deicing kit 5EXXXX-X, 7EXXXX-X, 77-XXX, 67-XXX or 65-XXX when installed in accordance with Goodrich Report No. ATA 30-60-07.

(3)Approved with ice protection equipment when listed on Hartzell type design data.

- (c) Propeller spinner (weight of spinner extra).

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

NOTE 8 Shank Fairings: Not applicable.

NOTE 9 Special Limits

Table of propeller – Engine combinations

Approved vibration wise for use on Normal Category Single Reciprocating 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 purpose.

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 turbocharger or turbnormalizer, increased boost pressure, increased compression ratio, increased RPM, altered ignition timing, electronic ignition, full authority digital engine controls (FADEC), or turned 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. Diam. m (in)	Min. Diam. m (in)	Placards
HC-F3YR	7479	LYC TIO-541 series, 7.3 to 1 compression ratio or less, one 6th, on 5th, one 4th and one 3.5th order dampers, 380 hp at 2900 rpm or less.	1.88 (74)	1.78 (70)	None
HC-F3YR	F7663D-2Q	LYC IO-540-CAB5, N1A5, W3A5D	1.93 (76)	1.93 (76)	None
HC-F3YR	F8468(-)8Q	LYC IO-540-K1A5	1.98 (78)	1.98 (78)	None
HC-F3YR	F8468(-)8Q	LYC TIO-540-J2BD	1.98 (78)	1.98 (78)	None

NOTE 10 Special Notes

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

NOTE 11 Retirement Time

(a) Life Limits and Mandatory Inspections.

- (1) Airworthiness limitations, if any, are specified in Hartzell Manuals 113(), 117() or Service Letter 61 ().

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