TYPE-CERTIFICATE DATA SHEET

No. IM.P.189

for Propeller
( )HC-L3Y series propellers

Type Certificate Holder
Hartzell Propeller Inc.

One Propeller Place
Piqua, OH 45356-2634
USA

For Models:
EHC-L3YF-1
PHC-L3YF-1
PHC-L3Y1F-1

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I. General

1. Type / Models

( )HC-L3Y / EHC-L3YF-1, PHC-L3YF-1, PHC-L3Y1F-1

2. Type Certificate Holder

Hartzell Propeller Inc.
One Propeller Place
Piqua, OH 45356-2634
USA

3. Manufacturer

Hartzell Propeller Inc.

4. Date of Application

PHC-L3YF-1: 20 July 1998*
EHC-L3YF-1, PHC-L3Y1F-1: 24 August 2016
*: The Date of Application was recorded in individual EU Member States.

5. EASA Type Certification Date

PHC-L3YF-1: 25 August 1998*
EHC-L3YF-1, PHC-L3Y1F-1: 11 September 2017
*: The EASA Certification Date has been taken over from individual EU Member States

II. Certification Basis

1. State of Design Authority Certification Basis

Refer to FAA TCDS no. P41EA.

2. Reference Date for determining the applicable airworthiness requirements

EHC-L3YF-1, PHC-L3YF-1: 01 August 1990
PHC-L3Y1F-1: 23 December 2008

3. EASA Certification Basis

3.1. Airworthiness Standards

EHC-L3YF-1, PHC-L3YF-1:
14 CFR Part 35 with amendments 35-1 through 35-6 effective 01 August 1990.

PHC-L3Y1F-1:
CS-P Amendment 1 dated 16 November 2006 as issued by EASA Decision No 2006/09/R, except the requirements of Subpart D as allowed by CS-P 10(b) (See Note 10a).

3.2. Special Conditions (SC)

None.

3.3. Equivalent Safety Findings (ESF)

None.

3.4. Deviations

None.

III. Technical Characteristics

1. Type Design Definition

The propeller type is defined by a propeller assembly drawing including a parts list (or later approved revisions).

EHC-L3YF-1:	Drawing D-3250, rev BP, dated 03.02.2017
PHC-L3YF-1:	Drawing D-3250, rev BP, dated 03.02.2017
PHC-L3Y1F-1:	Drawing D-3250, rev BP, dated 03.02.2017

2. Description

The ( )HC-L3Y propeller models have 3 blades and a hydraulically operated variable pitch control with constant speed.
The -1 models have no feathering or reverse capability (See Note 4).
The two piece hub is milled out of aluminium alloy. The blade material is aluminium alloy, except for PHC-L3Y1F-1 model the blade material is composite.
Optional equipment includes spinner and ice protection.

3. Equipment

Spinner:	See Note 7
Governor:	See Note 3
Ice Protection:	See Note 7

4. Dimensions

Diameters from 165,1 cm to 218,4 cm. (See Table of Section IV)

5. Weight

Depending on Propeller-Design Configuration. (See Table of Section IV)

6. Hub / Blade Combinations

Details are mentioned within Table of Section IV.

7. Control System

Propeller governor. (See Note 3)

8. Adaptation to Engine

Special flange. (See Note 1)

9. Direction of Rotation

Direction of rotation (viewed in flight direction) as identified by a letter-code in the propeller designation. (See Note 5)

IV. Operating Limitations

Blades (see Note 2)	Maximum Continuous kW	Maximum Continuous RPM (min-1)	Take Off kW	Take Off RPM (min-1)	Diameter Limits (cm) (see Note 2)	Approx. Max Wt. Complete (kg) (see Notes 3 and 7)	Blade Construction
Hub models EHC-L3YF-1, PHC-L3YF-1							
7392-0 to 7392-10	261,0	2850	261,0	2850	190,5 to 165,1 (-0 to -10)	31,30	Aluminium Alloy
7663-0 to 7663-10	231,2	2800	231,2	2800	198,1 to 172,7 (-0 to -10)	31,75	Aluminium Alloy
7666-0 to 7666-10	231,2	2700	231,2	2700	198,1 to 172,7 (-0 to -10)	34,93	Aluminium Alloy
7691-0 to 7691-10	261,0	2850	261,0	2850	198,1 to 172,7 (-0 to -10)	30,84	Aluminium Alloy
8068+2 to 8068-10	261,0	2700	261,0	2700	213,4 to 182,9 (+2 to -10)	35,61	Aluminium Alloy
8068-2 to 8068-10	261,0	2700	231,2	2850	203,2 to 182,9 (-2 to -10)	35,61	Aluminium Alloy
8459-0 to 8459-14	298,3	2700	298,3	2700	218,4 to 182,9 (-0 to -14)	33,11	Aluminium Alloy
8465-0 to 8465-14	298,3	2700	298,3	2700	218,4 to 182,9 (-0 to -14)	34,02	Aluminium Alloy

Blades (see Note 2)	Maximum Continuous kW	RPM (min^{-1})	Take Off kW	RPM (min^{-1})	Diameter Limits (cm) (see Note 2)	Approx. Max Wt. Complete (kg) (see Notes 3 and 7)	Blade Construction
8467-0 to 8467-14	298,3	2575	298,3	2575	218,4 to 182,9 (-0 to -14)	35,83	Aluminium Alloy
8468-0 to 8468-14	298,3	2700	298,3	2700	218,4 to 182,9 (-0 to -14)	34,02	Aluminium Alloy
8468-6 to 8468-14	231,2	2850	231,2	2850	203,2 to 182,9 (-6 to -14)	34,47	Aluminium Alloy
8470-0 to 8470-14	298,3	2700	298,3	2700	218,4” to 182,9 (-0 to -14)	34,02	Aluminium Alloy
8475-0 to 8475-14	298,3	2575	298,3	2575	218,4” to 182,9 (-0 to -14)	35,83	Aluminium Alloy
8477-0 to 8477-14	298,3	2575	298,3	2575	218,4” to 182,9 (-0 to -14)	37,19	Aluminium Alloy
8477-0 to 8477-14	298,3	2575	298,3	2575	218,4” to 182,9 (-0 to -14)	37,19	Aluminium Alloy
Hub models PHC-L3Y1F-1							
N7605+2 to N7605-10	261,0	2700	261,0	2700	203,2 to 172,7 (+2 to -10)	25,85	Composite

1. Approved Installations

The propeller is initially intended for use on Hawker Beechcraft aircraft models 35-( )33, F33 and H35. (See Note 10)

2. Maximum Take Off Power and Speed

Details are mentioned within Table of Section IV.

3. Maximum Continuous Power and Speed

Details are mentioned within Table of Section IV.

4. Propeller Pitch Angle

The propeller has variable pitch capability. Pitch control is provided by a governor. (See Note 3)

V. Operating and Service Instructions

Propeller Owner's Manual and Logbook for Raptor Turbine Series (incl. Airworthiness Limitations, if any)	Hartzell Manual 145 (*)
Overhaul Manual for non-feathering propellers	Hartzell Manual 113B (*)
Composite Blade Overhaul Manual	Hartzell Manual 135F (*)
Standard Practices Manual	Hartzell Manual 202A (*)
Metal Spinner Maintenance Manual	Hartzell Manual 127 (*)
Service Bulletins	

(*): or later approved revision

VI. Notes

1. Hub Model Designation: (See Notes 4 and 5)

E HC - L 3 Y 1 F - 1 RF

- RF: F when used denotes modified pitch change system; L when used denotes left hand rotation; N indicates compatibility with N shank blades (See Note 2); R when used denotes 139,35 cm^2 (21.6 sq. in.) piston area; Any other character denotes a minor change not affecting eligibility
- 1: Denotes specific design features; -1: non-feathering, no counterweights, governor oil pressure increases pitch
- F: F denotes flange with six 1/2" bolts and two 1/2" dowels on a 4" bolt circle
- 1: 1 when used denotes hub design modification compatible only with blade models listed in this data sheet
- Y: Hartzell blade shank size
- 3: Number of blades
- L: Identifies basic design. "L" denotes integral 1,27 cm (0.5 inch) shaft extension
- HC: Hartzell Controllable
- E: When used indicates Flange Angular Index with respect to #1 blade, viewed clockwise facing propeller flange

Prefix	Angular Index	Clocking Feature	Flange
E,P	0 and 180 degrees	Dowel Pins	F

2. Blade Model Designation: (See Notes 5 and 6)

FL 76 66 D - 3R

- 3R: Number when used indicates inches cut off from (or added to if +) basic diameter
  Q when used denotes special 2,54 cm (1") x 90 deg. factory-bent tip. No cut-off permitted
  R when used denotes specifically rounded tip for cut-off diameter
  Any other character in this location denotes tip shape
- D: D or F denotes a dimensional modification from the original design
  B or K denotes de-icing boots
  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
- 66: Basic blade model
- 76: Basic diameter for a two blade propeller. Add 5,08 cm (two inches) for a three blade propeller
- FL: Denotes blade configuration: right-hand tractor unless otherwise noted
  F denotes a large pitch change knob
  H denotes right-hand pusher
  J denotes left-hand tractor
  L denotes left-hand pusher
  N denotes composite blade shank type

***** 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" o denote shot peening of the exterior surface.

3. Pitch Control: (See Notes 4, 6 and 10)

(a) Approved with Hartzell governors per drawings C-4770. Wt.: 2,04 kg (4.5 lb).

D - 1 - 4 Z Governor Model Designation

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

(b) The -1 models do not have counterweighted blades and use oil to increase pitch.

(c) Maximum governor output pressure: 3447,38 kPa (350 psi) for all propeller models

(d) All governors must be approved as part of the aircraft installation regardless of manufacturer.

4. Feathering: The -1 models do not feather.

Reversing: Not applicable.

Piston size: Piston area is 114,19 cm^2 (17.7 sq. in.) except as noted in Note 1.

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.

6. Interchangeability: (See Notes 2 and 3)

(a) 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.

(b) Blades
Shot-peened blades may replace non shot-peened blades either individually or as a set.

(c) Ice protection systems
Refer to Hartzell Service Letter HC-SL-30-260 for ice protection system component interchangeability.

7. Accessories: (See Note 10)

(a) 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)

(b) 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)

8. Shank Fairings: Not applicable.

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. (cm)	Min. Dia. (cm)	Placard
PHC-L3YF	F7691	TCM IO-520-A, B, BA, BB, D, F, J, L	198,12	195,58	Do not exceed 20" manifold pressure below 2250 RPM
PHC-L3YF	F7691	TCM IO-550-B, D, F	198,12	195,58	Do not exceed 20" manifold pressure below 2250 RPM
PHC-L3YF	F8468R	TCM IO-470-C, J, K, L, N	203,20	195,58	none
PHC-L3YF	F8468-8Q	TCM IO-470-C, J, K, L, N	203,20	195,58	none
PHC-L3YF	F8468A( )	TCM IO-520-D	203,20	198,12	none
PHC-L3YF	F8468A( )	TCM IO-550-D	203,20	198,12	none

10. The suitability of a propeller for a certain aircraft/engine combination must be demonstrated within the scope of the type certification of the aircraft.

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.

10a. This propeller model PHC-L3Y1F-1 has been certificated in accordance with CS-P subparts A, B and C. Compliance with the requirements of Subpart D, which is specific to each aircraft installation, has not yet been demonstrated.

11. Retirement Time:

(a) Life Limits and Mandatory Inspections

(1) Airworthiness limitations, if any, are specified in Hartzell Manual 113( ), 115N or 145( ).

12. Special Notes:

(a) Refer to Hartzell Manual no. 202( ) for overspeed and overtorque limits.

(b) Refer to Hartzell Service Letter HC-SL-61-61( ) for overhaul periods.

13. The EASA approved Airworthiness Limitations Section of the Instructions for Continued Airworthiness is published in the applicable Propeller Owner's Manual, chapter 5 "Airworthiness Limitations".

SECTION: ADMINISTRATIVE

I. Acronyms and Abbreviations

None.

II. Type Certificate Holder Record

N/A.

III. Change Record

Issue	Date	Changes	TC issue
Issue 01	11 September 2017	Initial Issue	11 September 2017

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