TYPE-CERTIFICATE DATA SHEET

No. IM.P.134

for Propeller
HC-F3Y, HC-M3Y series propellers

Type Certificate Holder
Hartzell Propeller Inc.

One Propeller Place
Piqua, OH 45356-2634
USA

For Models:
HC-F3YR-1
HC-F3YR-2
HC-M3YR-1

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TABLE OF CONTENTS

I. General

1. Type / Models

HC-F3Y / HC-F3YR-1, HC-F3YR-2
HC-M3Y / HC-M3YR-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

HC-F3YR-1: Before 1969*
HC-F3YR-2: Before 1969*
HC-M3YR-1: Before 1969*

*: The exact Date of Application was not recorded in individual EASA Member States.

5. EASA Type Certification Date

HC-F3YR-1: 18 September 1969*
HC-F3YR-2: 18 September 1969*
HC-M3YR-1: 18 September 1969*

*: The EASA Certification Date has been taken over from individual EASA Member States.

II. Certification Basis

1. State of Design Authority Certification Basis

Refer to FAA TCDS no. P31EA.

2. Reference Date for determining the applicable airworthiness requirements

28 April 1967

3. EASA Certification Basis

3.1. Airworthiness Standards

HC-F3YR-1:
14 CFR Part 35 with amendments 35-1 through 35-9 effective 19 March 2013.

HC-F3YR-2, HC-M3YR-1:
14 CFR Part 35 with amendments 35-1 through 35-6 effective 18 August 1990.

Note 1:
Application was made to EASA Member States before EASA was established. Refer to Commission Regulation (EU) No 748/2012.

Note 2:
The above mentioned propeller models are EASA certified based on member states approvals prior to EASA existence. The original and updated FAA certification basis as indicated above had been taken over from the FAA TCDS.

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).

HC-F3YR-1	Drawing D-4520 dated 20 March 1979
HC-F3YR-2	Drawing D-3265 dated 09 May 1967
HC-M3YR-1	Drawing E-6011 dated 03 December 2003

2. Description

The propeller is a 3-blade variable pitch propeller with a hydraulically operated blade pitch change mechanism providing the operation mode “Constant Speed”. The -2 models incorporate feathering and unfeathering features. The -1 models do not feather. (See Notes 1 and 4)
The hub is a two piece aluminium hub. Each blade is supported in the hub with a ball thrust bearing which transfers all centrifugal and bending loads from the blade into the hub. The blade material is aluminium alloy. Optional equipment includes spinner and ice protection. (See Note 7)

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
Non-Counterweighted Propellers HC-F3YR-1, HC-M3YR-1							
7282-0 to 7282-6	223,7	2700	223,7	2700	195,6 to 170,2 (+2 to -8)	32,2	Aluminium Alloy
7392-0 to 7392-10	261,0	2850	261,0	2850	190,5 to 165,1 (-0 to -10)	34,2.	Aluminium Alloy
7479-2 to 7479-8	283,4	2900	283,4	2900	188,8 to 172,7 (-2 to -8)	35,8.	Aluminium Alloy
7663-0 to 7663-10	231,2	2800	231,2	2800	198,1 to 172,7 (-0 to -10)	32,7.	Aluminium Alloy
7666-0 to 7666-10	231,2	2700	231,2	2700	198,1 to 172,7 (-0 to -10)	35,8.	Aluminium Alloy
8459-0 to 8459-14	298,3	2700	298,3	2700	218,4 to 182,9 (-0 to -14)	34,0	Aluminium Alloy
8465-0 to 8465-14	298,3	2700	298,3	2700	218,4 to 182,9 (-0 to -14)	34,9	Aluminium Alloy
8467-0 to 8467-14	298,3	2575	298,3	2575	218,4 to 182,9 (-0 to -14)	36,7	Aluminium Alloy
8468-0 to 8468-14	298,3	2700	298,3	2700	218,4 to 182,9 (-0 to -14)	35,4	Aluminium Alloy
8470-0 to 8470-14	298,3	2700	298,3	2700	218,4 to 182,9 (-0 to -14)	34,9.	Aluminium Alloy
8475-0 to 8475-14	298,3	2575	298,3	2575	218,4 to 182,9 (-0 to -14)	36,7.	Aluminium Alloy
8477-0 to 8477-14	298,3	2575	298,3	2575	218,4 to 182,9 (-0 to -14)	38,1.	Aluminium Alloy
Non-counterweighted propellers HC-M3YR-1							
7693-0 to 7693-10	261,0	2700	261,0	2700	198,1 to 172,7 (-0 to -10)	34,5	Aluminium Alloy
Non-counterweighted propellers HC-F3YR-1							
7693+2 to 7693-10	261,0	2700	261,0	2700	203,2 to 172,7 (+2 to -10)	34,5.	Aluminium Alloy
8068+2 to 8068-10	261,0	2700	261,0	2700	213,4 to 182,9 (+2 to -10)	36,3	Aluminium Alloy
NG8301-0 to NG8301-10	261,0	2700	261,0	2700	215,9 to 190,5 (-0 to -10)	29,5	Composite

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 10)	Approx. Max Wt. Complete (kg) (see Notes 3 and 7)	Blade Construction
Counterweighted propellers HC-F3YR-2							
C7479-2 to C7479-8	283,4	2900	283,4	2900	188,8 to 172,7 (-2 to -8)	39,9	Aluminium Alloy
C7663-0 to C7663-10	231,2	2800	231,2	2800	198,1 to 172,7 (-0 to -10)	36,7	Aluminium Alloy
C7666-0 to C7666-10	231,2	2700	231,2	2700	198,1 to 172,7 (-0 to -10)	39,9	Aluminium Alloy
C8459-0 to C8459-14	298,3	2700	298,3	2700	218,4 to 182,9 (-0 to -14)	38,1	Aluminium Alloy
C8465-0 to C8465-14	298,3	2700	298,3	2700	218,4 to 182,9 (-0 to -14)	39,0	Aluminium Alloy
C8467-0 to C8467-14	298,3	2575	298,3	2575	218,4to 182,9 (-0 to -14)	40,8	Aluminium Alloy
C8468-0 to C8468-14	298,3	2700	298,3	2700	218,4 to 182,9 (-0 to -14)	39,5	Aluminium Alloy
C8470-0 to C8470-14	298,3	2700	298,3	2700	218,4 to 182,9 (-0 to -14)	39,0	Aluminium Alloy
C8475-0 to C8475-14	298,3	2575	298,3	2575	218,4 to 182,9 (-0 to -14)	40,8	Aluminium Alloy
C8477-0 to C8477-14	298,3	2575	298,3	2575	218,4 to 182,9 (-0 to -14)	42,2	Aluminium Alloy

1. Approved Installations

The Hartzell propellers are intended for use on single engine aircraft models using engines up to 261,0 kW and 2700 RPM. (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)

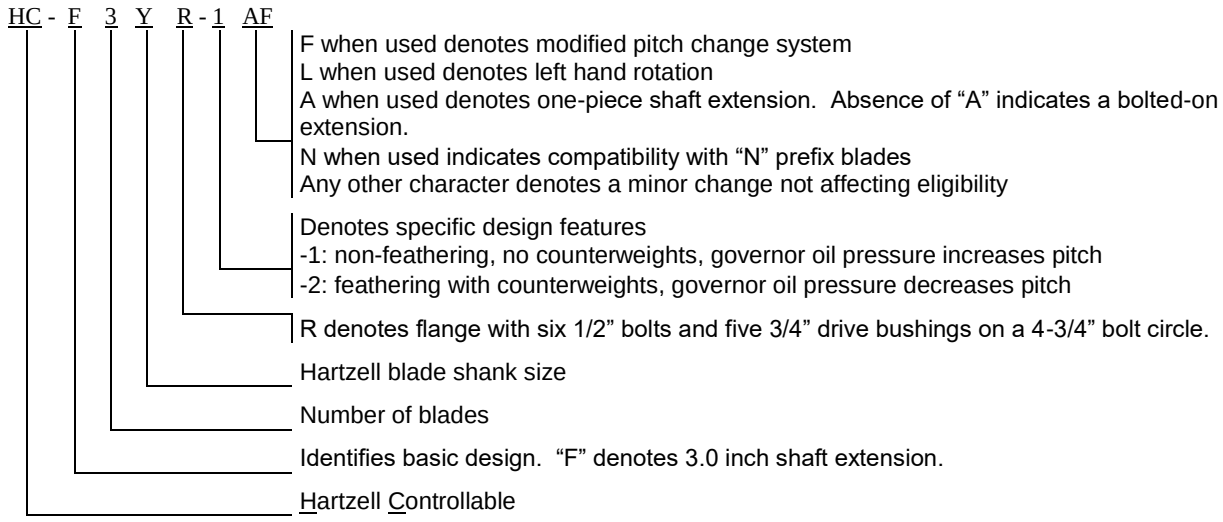
V. Operating and Service Instructions

Propeller Maintenance Manual	Hartzell Manual 113B (*)
Standard Practices Manual	Hartzell Manual 202A (*)
Propeller Owner's Manual and Logbook (incl. Airworthiness Limitations, if any)	Hartzell Manual 115N, 145 (*)
Aluminum Blade Overhaul Manual	Hartzell Manual 133C (*)
Composite Blade Overhaul Manual	Hartzell Manual 135F (*)
Metal Spinner Maintenance Manual	Hartzell Manual 127 (*)
Propeller Integration Manaul	Hartzell Manual 191 (*)
Service Bulletins	

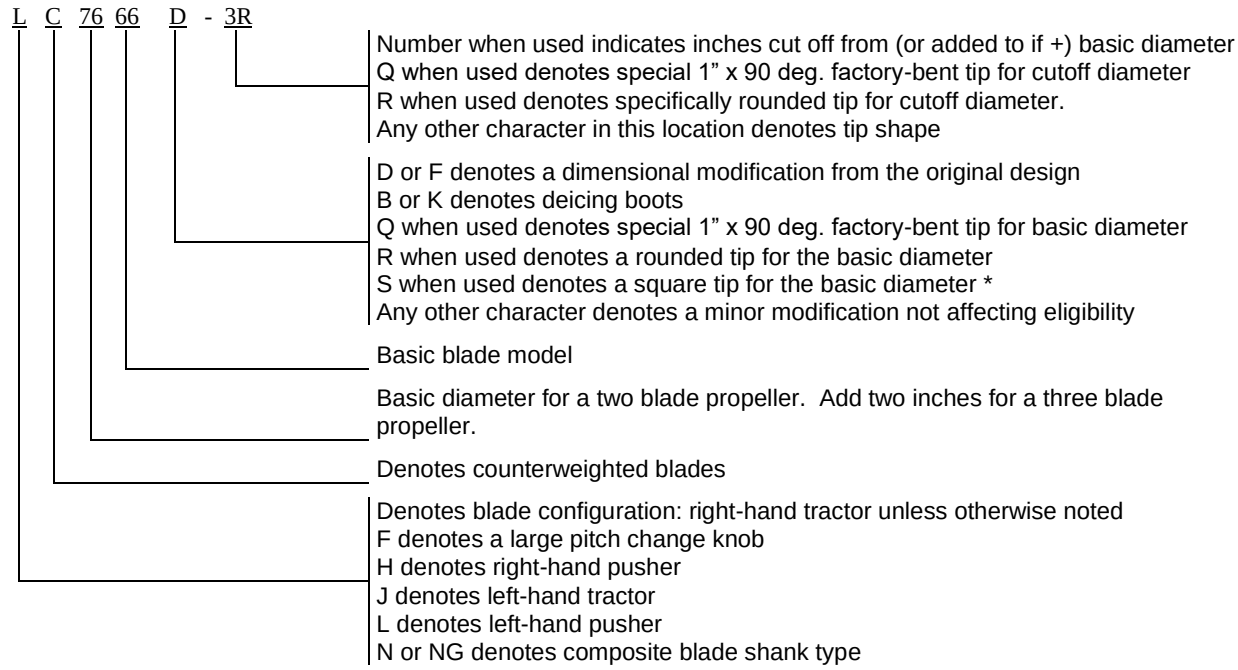
(*): or later approved revision

VI. Notes

1. Hub Model Designation: (See Notes 2, 4, 5 and 6)



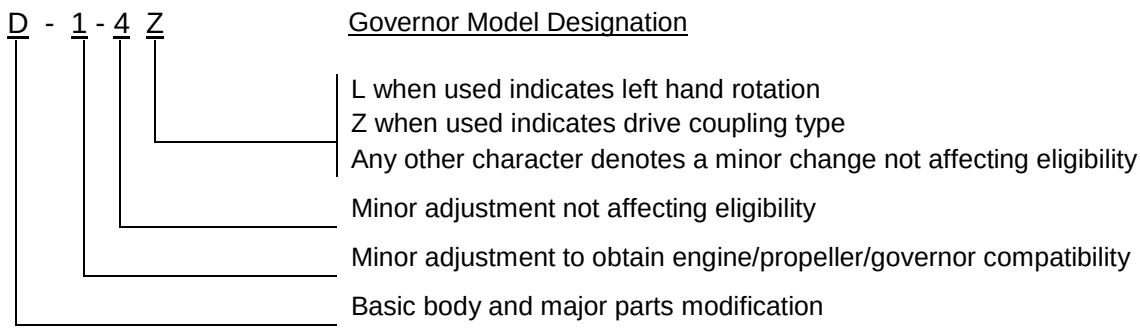
2. Blade Model Designation: (See Notes 5 and 6)



* 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.

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

(a) Approved with Hartzell governors per drawings C-4770 and C-4772. Wt.: 2,04 kg.



(b) The -2 models have counterweighted blades and use oil to decrease pitch. The -1 models do not have counterweighted blades and use oil to increase pitch.

(c) Maximum governor output pressure: 2413,16 kPa 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.
The -2 models incorporate feathering and unfeathering features.

Reversing: Not applicable.

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 1 and 2)

(a) Propellers

Propeller models 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.

(c) Blades

Shot-peened blades may replace non shot-peened blades either individually or as a set.

(d) 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.

(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.

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. (inches)	Min. Dia. (inches)	Placards
HC-F3YR	7479	LYC TIO-541 series, 7.3 to 1 compression ration or less, one 6th, one 5th, one 4th and one 3.5th order dampers, 380 HP at 2900 RPM or less	74	70	none
HC-F3YR	F7663D-2Q	LYC IO-540-C4B5, N1A5, W3A5D	76	76	none
HC-F3YR	F8468( )-8Q	LYC IO-540-K1A5	78	78	none
HC-F3YR	F8468( )-8Q	LYC TIO-540-J2BD	78	78	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.

11. Retirement Time:

(a) Life Limits and Mandatory Inspections

(1) Airworthiness limitations, if any, are specified in Hartzell Manual 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".

14 EASA Type Certificate and Type Certificate Data Sheet No. IM.P.134 replace the associated Type Certificates and Type Certificate Data Sheets of the EASA Member States

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SECTION: ADMINISTRATIVE

I. Acronyms and Abbreviations

None.

II. Type Certificate Holder Record

N/A.

III. Change Record

Issue	Date	Changes	TC issue
Issue 01	30 August 2013	Initial Issue	13 August 2013
Issue 02	21 November 2017	Add blade NG8301	

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