DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

P27EA
Revision 14
Hartzell
HC-F2Y, DHC-F2Y
January 6, 2016

TYPE CERTIFICATE DATA SHEET NO. P27EA

Propellers of models described herein conforming with this data sheet (which is part of Type Certificate No. P27EA) and other approved data on file with the Federal Aviation Administration meet the minimum standards for use in certificated aircraft in accordance with pertinent aircraft data sheets and applicable portions of the Federal Aviation Regulations provided they are installed, operated and maintained as prescribed by the approved manufacturer's manuals and other approved instructions.

Type Certificate Holder	Hartzell Propeller Inc. Piqua, OH 45356
Type	Constant speed; hydraulic (see Notes 3 and 4)
Engine shaft	Special flange (see Note 1)
Hub material	Aluminum Alloy
Blade material	See Below
Number of blades	Two
Hub models	HC-F2YL-1,2, HC-F2YR-1,2, DHC-F2YR-1 (see Notes 1 and 4)

Blades (See Note 2)	Maximum Continuous HP	Maximum Continuous RPM	Takeoff HP	Takeoff RPM	Diameter Limits (See Note 2)	Approx. Max. Wt. Complete (For Reference Only) (See Notes 3 & 7)	Blade Construction (See Note 10)
Non-Counterweighted Propellers - Hub models HC-F2YR-1, DHC-F2YR-1, HC-F2YR-2							
7068-0 to 7068-10	300	2700	300	2700	70" to 60" (-0 to -10)	64.0 lb.*	Aluminum Alloy
7280+ 1/2 to 7280-7	250	2700	250	2700	72 1/2" to 65" (+1/2 to -7)	58.0 lb.*	Aluminum Alloy
7479-0 to 7479-6	380	2900	380	2900	74" to 68" (-0 to -6)	59.0 lb.*	Aluminum Alloy
7497-0 to 7497-6	250	2700	250	2700	74" to 68" (-0 to -6)	63.8 lb.*	Aluminum Alloy
7663-0 to 7663-8	210	2800	210	2800	76" to 68" (-0 to -8)	57.0 lb.*	Aluminum Alloy
7666-0 to 7666-8	180 or 250	2900 or 2700	180 or 250	2900 or 2700	76" to 68" (-0 to -8)	63.0 lb.*	Aluminum Alloy
7681-0 to 7681-8	250	2700	250	2700	76" to 68" (-0 to -8)	58.0 lb.*	Aluminum Alloy
7694-4 to 7694-10	310	2700	310	2700	72" to 66" (-4 to -10)	56.5 lb.*	Aluminum Alloy
8068-0 to 8068-8	285	2700	285	2700	80" to 72" (-0 to -8)	63.0 lb.*	Aluminum Alloy
8459-0 to 8459-18	260	2800	260	2800	84" to 66" (-0 to -18)	58.0 lb.*	Aluminum Alloy
8465-0 to 8465-14	315	2575	315	2575	84" to 70" (-0 to -14)	59.0 lb.*	Aluminum Alloy
8465-6 to 8465-14	260	2700	260	2700	78" to 70" (-6 to -14)	58.0 lb.*	Aluminum Alloy
8467-0 to 8467-12	285	2700	285	2700	84" to 72" (-0 to -12)	63.0 lb.*	Aluminum Alloy

Blades (See Note 2)	Maximum Continuous HP	RPM	Takeoff HP	RPM	Diameter Limits (See Note 2)	Approx. Max. Wt. Complete (For Reference Only) (See Notes 3 & 7)	Blade Construction (See Note 10)
8468-0 to 8468-12	260	2700	260	2700	84” to 72” (-0 to -12)	61.0 lb.*	Aluminum Alloy
8470-0 to 8470-8	260	2700	260	2700	84” to 76” (-0 to -8)	56.0 lb.*	Aluminum Alloy
8475-0 to 8475-4	310 or 260	2575 or 2700	310 or 260	2575 or 2700	84” to 80” (-0 to -4)	62.0 lb.*	Aluminum Alloy
8475-4 to 8475-6	350	2700	350	2700	80” to 78” (-4 to -6)	61.0 lb.*	Aluminum Alloy
8475-6 to 8475-14	310	2700	310	2700	78” to 70” (-6 to -14)	60.0 lb.*	Aluminum Alloy
8477-0 to 8477-12	260	2700	260	2700	84” to 72” (-0 to -12)	65.0 lb.*	Aluminum Alloy
Non-Counterweighted Propellers: Hub Models HC-F2YL-1, HC-F2YL-2							
7663-0 to 7663-10	160	2700	160	2700	76” to 66” (-0 to -10)	57.0 lb.*	Aluminum Alloy
7692-0 to 7692-8	180 or 250	2900 or 2700	180 or 250	2900 or 2700	76” to 68” (-0 to -8)	57.0 lb.*	Aluminum Alloy
8468-0 to 8468-14	160	2700	160	2700	84” to 70” (-0 to -14)	61.0 lb.*	Aluminum Alloy
Counterweighted Propellers: Hub Models HC-F2YR-2							
C7479-0 to C7479-6	380	2900	380	2900	74” to 68” (-0 to -6)	63.0 lb.	Aluminum Alloy
C7497-0 to C7497-6	250	2700	250	2700	74” to 68” (-0 to -6)	67.8 lb.	Aluminum Alloy
C7663-0 to C7663-8	210	2800	210	2800	76” to 68” (-0 to -8)	61.0 lb.	Aluminum Alloy
C7666-0 to C7666-8	180 or 250	2700 or 2700	180 or 250	2700 or 2700	76” to 68” (-0 to -8)	67.0 lb.	Aluminum Alloy
C7681-0 to C7681-8	250	2700	250	2700	76” to 68” (-0 to -8)	62.0 lb.	Aluminum Alloy
C8459-0 to C8459-12	260	2800	260	2800	84” to 72” (-0 to -12)	62.0 lb.	Aluminum Alloy
C8465-0 to C8465-14	315	2575	315	2575	84” to 70” (-0 to -14)	63.0 lb.	Aluminum Alloy
C8465-6 to C8465-14	260	2700	260	2700	78” to 70” (-6 to -14)	62.0 lb.	Aluminum Alloy
C8467-0 to C8467-12	285	2700	285	2700	84” to 72” (-0 to -12)	67.0 lb.	Aluminum Alloy
C8468-0 to C8468-12	260	2700	260	2700	84” to 72” (-0 to -12)	65.0 lb.	Aluminum Alloy

Blades (See Note 2)	Maximum Continuous HP	RPM	Takeoff HP	RPM	Diameter Limits (See Note 2)	Approx. Max. Wt. Complete (For Reference Only) (See Notes 3 & 7)	Blade Construction (See Note 10)
C8470-0 to C8470-8	260	2700	260	2700	84" to 76" (-0 to -8)	60.0 lb.	Aluminum Alloy
C8475-0 to C8475-4	310 or 260	2575 or 2700	310 or 260	2575 or 2700	84" to 80" (-0 to -4)	66.0 lb.	Aluminum Alloy
C8475-4 to C8475-6	350	2700	350	2700	80" to 78" (-4 to -6)	65.0 lb.	Aluminum Alloy
C8475-6 to C8475-14	310 or 300	2700 or 2850	310 or 300	2700 or 2850	78" to 70" (-6 to -14)	64.0 lb.	Aluminum Alloy
C8477-0 to C8477-12	260	2700	260	2700	84" to 72" (-0 to -12)	69.0 lb.	Aluminum Alloy
Counterweighted Propellers: Hub Models HC-F2YL-2							
C7663-0 to C7663-10	160	2700	160	2700	76" to 66" (-0 to -10)	61.0 lb.	Aluminum Alloy
C7692-0 to C7692-8	180 or 250	2900 or 2700	180 or 250	2900 or 2700	76" to 68" (-0 to -8)	61.0 lb.	Aluminum Alloy

* Weights shown are for non-counterweighted -2 models only. Subtract 3 lb. for -1 model.

Certification Basis:	14 CFR Part 35 effective February 1, 1965 with amendments 35-1 thereto. Type Certificate No. P27EA issued December 8, 1966. Models added on or after September 27, 1967 were approved under Delegation Option Authorization provisions of 14 CFR Part 21 Subpart J. Date of application for Type Certificate: December 5, 1966. The following models were included under the original certification basis: HC-F2YR-2 The following models were added, updated or revised in accordance with 14 CFR Part 35 with amendments 35-1 and 35-2 effective April 3, 1967: HC-F2YR-1, HC-F2YR-2 The following models were added, updated or revised in accordance with 14 CFR Part 35 with amendments 35-1 through 35-5 effective October 14, 1980: HC-F2YL-1, HC-F2YL-2 The following models were added, updated or revised in accordance with 14 CFR Part 35 with amendments 35-1 through 35-6 effective August 1, 1990: HC-F2YL-1, HC-F2YL-2, HC-F2YR-1, HC-F2YR-2 Models added after August 31, 2009 are approved in accordance with Organization Designation Authorization procedures of 14 CFR Part 183 Subpart D The following models were added, updated or revised in accordance with 14 CFR Part 35 with amendments 35-1 through 35-9 effective March 19, 2013: HC-F2YR-1, DHC-F2YR-1
Production Basis:	Production Certificate no. 10

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

D HC - F 2 Y R - 2 UF

- UF: A when used indicates one-piece shaft extension; L when used denotes left hand rotation; F when used denotes modified pitch change system; P when used denotes a hub unit with a "B" suffix serial number; U denotes spring kit (package) in propeller dome; Any other character denotes a minor change not affecting eligibility
- 2: Denotes specific design features; -1: non-feathering, no counterweights, governor oil pressure increases pitch; -2: feathering with or without counterweights, governor oil pressure decreases pitch
- R: L denotes SAE # 2 flange with 6 7/16" bolts and 4 5/8" drive bushings on a 4-3/4" B.C.; R denotes SAE # 2 flange with 6 1/2" bolts and 5 3/4" drive bushings on a 4-3/4" B.C.
- Y: Hartzell blade shank size
- 2: Number of blades
- F: Identifies basic design - "F" denotes 3 inch shaft extension
- HC: Hartzell Controllable
- D: When used indicates Flange Angular Index with respect to #1 blade, viewed clockwise facing propeller flange

Prefix	Angular Index	Clocking Feature	Flange
Blank	0 and 180 degrees	Non counter bored hole	R
Blank	0 and 180 degrees	Dowel Pins	L
D	60 and 240 degrees	Non counter bored hole	R

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

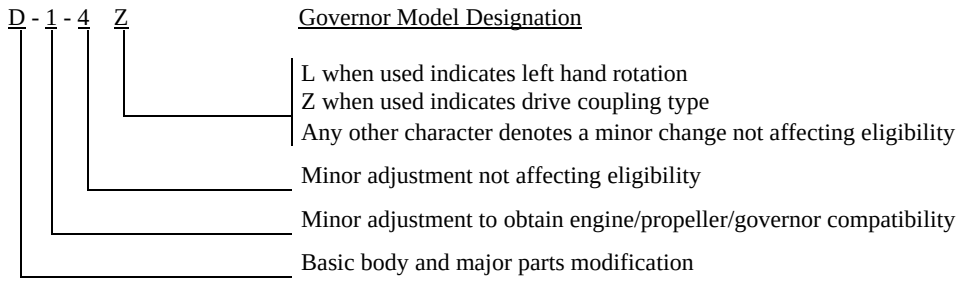
L C 76 63 D - 3R

- 3R: Number of inches cut off from (or added to if +) basic diameter; Q when used denotes special 1" x 90 deg. factory-bent tip. No cutoff permitted.; R when used denotes specifically rounded tip for cutoff 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 deicing 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
- 63: Basic blade model or template
- 76: Basic diameter in inches
- C: Denotes counterweighted blades
- L: 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

* Blades may incorporate either round or square tips, yet may not be marked with an "R" or "S" in the 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 (See Notes 4, 6 and 10)

(a) Approved with Hartzell governors per drawings C-4770 and C-4772. Wt.: 4.5 lb.



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

(c) Maximum governor output pressure: 350 psi for all propeller models

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

NOTE 4: (a) Feathering The -1 models do not feather. The -2 models incorporate feathering and unfeathering features.

(b) Reversing Not applicable

NOTE 5: Left-Hand Models (See Notes 1 and 2)

The left-hand version of an approved model propeller is approved at the same rating and diameter as listed for the right-hand model.

NOTE 6: Interchangeability (See Notes 1 and 2)

(a) Propellers

"F" type propellers with large pitch change knobs are interchangeable with corresponding propellers with the standard pitch change system.

Propeller models containing a "P" suffix, for example HC-F2YR-1FP, may replace corresponding models without the "P" suffix, for example HC-F2YR-1F. Propeller models without the "P" suffix may not replace those containing the "P" suffix.

(b) Blades

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

Blades with provisions to attach counterweights (denoted by a "C" prefix) can replace non-counterweighted blades on feathering propellers (-2 suffix in hub model) only, providing the air charge is reduced to 80 psi at 70 deg. F. Attached decal specifying air charge must be changed accordingly.

(c) 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.

(d) Ice Protection Systems

Refer to Hartzell Service Letter HC-SL-30-260 for ice protection system component interchangeability.

NOTE 7: Accessories (See Note 10)

(a) Propeller ice protection system (weight of ice protection system 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 manufacturer's 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)

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. (inches)	Min. Dia. (inches)	Placards
HC-F2YR	F7068	LYC IO-360-B1A, -B1B, -B1C, -B1D, -B1E, -B1F, -E1A, -F1A	68	67	Stabilized operation is prohibited above 25" manifold pressure between 2300-2500 RPM and below 15" manifold pressure above 2600 RPM.
HC-F2YR	F7068	LYC O-360-A1F6, -A1F6D, -A1G6, -A1G6D, -A1H6, -F1A6, -G1A6 LYC IO-360-A1B6, -A1B6D, -A1D6, -A1D6D, -B1F6, -C1C6, -C1D6, -C1E6, -C1E6D	68	66	none
HC-F2YR-1FP	F7497	LYC O-360-A1A, -A1C, -A1D, -A1F, -A1G, -A1H, -A1P	74	72	none
HC-F2YR-1FP	F7497	LYC IO-360-A1B6, -A1B6D, -A1D6, -A1D6D, -C1C6, -C1D6, -C1E6, -C1E6D, -B1A, -B1B, -B1D, -B1E, -B1F, -E1A, -M1A	74	72	none
HC-F2YR-1FP	F7497	LYC IO-360-A1A, -A1B, -A1C, -A1D, -C1A, -C1B, -C1C, -C1F, -D1A	74	72	Continuous operation is prohibited above 24" manifold pressure between 2350 and 2550 RPM.

Hub Model	Blade Model	Engine Model	Max. Dia. (inches)	Min. Dia. (inches)	Placards
HC-F2YL	7663	LYC O-320 series with 8.5:1 compression ratio, rated 160 HP at 2700 RPM or less	73	72	none
HC-F2YR	F7694-( )T	LYC IO-540-D4A5, -D4B5, -D4C5, -N1A5, -R1A5, -T4A5D, -T4B5(D), -T4C5D, -V4A5(D), -K1A5(D), -K1B5(D), -K1C5, -K1D5, -K1E5(D), -K1F5(D), -K1G5(D), -K1H5, -K1J5(D), -K1K5, -L1A5(D), -L1B5D, -L1C5, -AC1A5	72	70	Avoid continuous ground operation between 1750 and 2100 RPM. Do not operate above 24" manifold pressure at engine speeds below 2300 RPM.
HC-F2YR	F8468A-4R	LYC IO-540-J3A5D	80	78	none
HC-F2YR	F8468A	LYC IO-540-J1A5D	80	78	Avoid continuous operation below 2300 RPM above 25" Hg manifold pressure.
HC-F2YR	F8475D-4	LYC IO-540-K1A5	80	78	Do not exceed 23" Hg manifold pressure below 2250 RPM.

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

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.

NOTE 11: Retirement Time

(a) Life Limits and Mandatory Inspections

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

NOTE 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.

END