

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

P28EA Revision 10 Hartzell HC-B3R December 22, 2014

TYPE CERTIFICATE DATA SHEET NO. P28EA

Propellers of models described herein conforming with this data sheet (which is part of Type Certificate No. P28EA) 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.

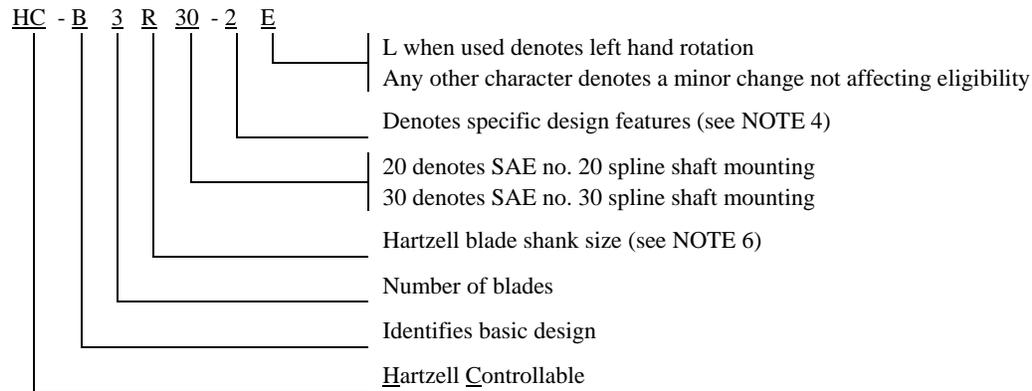
Type Certificate Holder	Hartzell Propeller Inc. Piqua, OH 45356
Type	Constant speed; hydraulic (see NOTES 3 and 4)
Engine shaft	SAE Spline (see NOTE 1)
Hub material	Alloy Steel
Blade material	Aluminum Alloy
Number of blades	Three
Hub models	HC-B3R20-4; HC-B3R30-1, -2, -4 (see NOTES 1 and 4)

Blades (See NOTES 2 and 6)	Maximum Continuous		Takeoff		Diameter Limits (see NOTE 2)	Approx. Max. Wt. Complete (For Reference Only) (See NOTES 3 and 7)
	HP	RPM	HP	RPM		
R9349+ 1/2 to R9349-13	390	2330	420	2330	93 1/2" to 80" (+ 1/2 to -13)	107.0 lb.
R9350+ 1/2 to R9350-13	390	2330	420	2330	93 1/2" to 80" (+ 1/2 to -13)	107.0 lb.
R10151-0 to R10151-11	390	2180	390	2180	101" to 90" (-0 to -11)	110.0 lb.
R10152-0 to R10152-11	450	2300	450	2300	101" to 90" (-0 to -11)	122.0 lb.
R10160-0 to R10160-6	450	2300	450	2300	101" to 95" (-0 to -6)	123.0 lb.
R10160-6 to R10160-11	468	2400	468	2400	95" to 90" (-6 to -11)	123.0 lb.
R10178-11 to R10178-15	375	2275	375	2275	90" to 86" (-11 to -15)	110.0 lb.

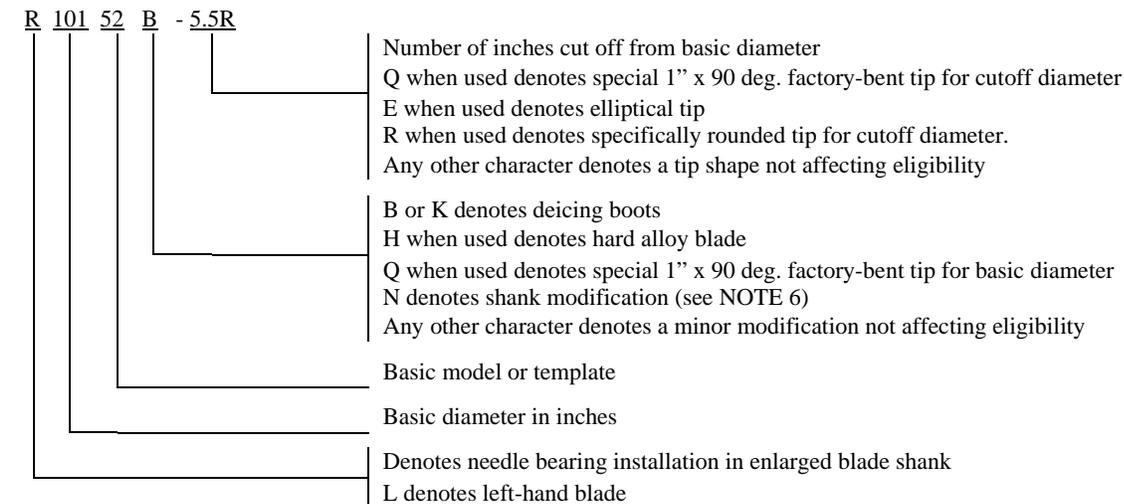
Certification Basis:	<p>14 CFR Part 35 effective February 1, 1965, with amendments 35-1 and 35-2 thereto. Type Certificate no. P28EA issued April 13, 1967 under Delegated Option Authorization provisions of Part 21 Subpart J of the Federal Aviation Regulations.</p> <p>Models approved to the original certification basis include the following: HC-B3R30-2, HC-B3R20-4, HC-B3R30-4</p> <p>Models added, updated or revised in accordance with 14 CFR Part 35 effective May 2, 1977 with amendments 35-1 through 35-4 include the following: HC-B3R30-1</p> <p>Date of application for Type Certificate: March 27, 1967.</p>
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Production Basis:	Production Certificate no. 10
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NOTE 1: Hub Model Designation



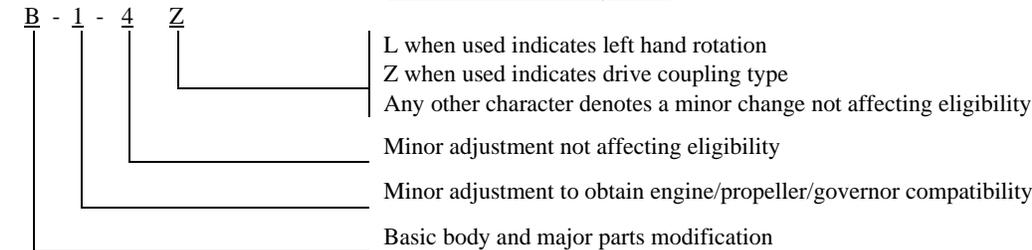
NOTE 2: Blade Model Designation



NOTE 3: Pitch Control

- (a) Approved with Hartzell governors per drawings C-4770 and C-4772. Wt.: 4.5 lb. (see NOTE 10)

Governor Model Designation



- (b) The -1 and -2 models have counterweighted blades and use governor oil to decrease pitch. The -4 models have stub counterweights and use oil to increase pitch. (see NOTE 4)
- (c) Governors must be approved as part of the aircraft installation regardless of manufacturer. (see NOTE 10)
- (d) Maximum control pressure for all models: 400 psig

- NOTE 4: (a) Feathering The -1 and -4 models do not feather. The -2 models incorporate feathering and unfeathering features. The -1 and -2 models have counterweights.
- (b) Reversing Not applicable

NOTE 5: Left-Hand Models

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

NOTE 6: Interchangeability

(a) Blades

Blades with the suffix "N" in the basic model number may replace those without an "N" either individually or as a set. When the aircraft Type Certificate or Supplemental Type Certificate specifies blades with the letter "N" in the basic model number, the "N" character must be retained in all replacement blade models.

For example: Blades without the "N" suffix may be replaced by "N" suffix blades.
Blades with the "N" suffix may only be replaced by "N" suffix blades.

Only blades listed in the same groups of the following listed groups are sufficiently similar aerodynamically and vibrationwise to permit interchangeability in the same diameter without a flight test.

Group (1) R9349, R9350

(b) Propellers

The HC-B3R() hub assembled with blades prefixed with the letter "R" may replace corresponding HC-93Z, HC-B3Z, and HC-B3W propellers fitted with corresponding blades, and are interchangeable with corresponding models HC-B3P. See table below (read across rows):

<u>Propeller models on TCDS P-891</u> HC-93Z30-2	may be replaced by	<u>corresponding models on TCDS P28EA</u> HC-B3R30-2
<u>Propeller models on TCDS P-907</u> HC-B3Z30-2	may be replaced by	<u>corresponding models on TCDS P28EA</u> HC-B3R30-2
<u>Propeller models on TCDS P2EA</u> HC-B3W20-4 HC-B3W30-2 HC-B3W30-4	may be replaced by	<u>corresponding models on TCDS P28EA</u> HC-B3R20-4 HC-B3R30-2 HC-B3R30-4
<u>Propeller models on TCDS P28EA</u> HC-B3R20-4 HC-B3R30-1 HC-B3R30-2	are interchangeable with	<u>corresponding models on TCDS P29EA</u> HC-B3P20-4 HC-B3P30-1 HC-B3P30-2

(c) Governors (See NOTE 3)

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.

<u>Hub Model</u>	<u>Blade Model</u>	<u>Engine Model</u>	<u>Max. Dia. (inches)</u>	<u>Min. Dia. (inches)</u>	<u>Placards</u>
HC-B3R30-2 HC-B3R30-4		P&WA R-985 with one 4 ½ order and one 9 th order crankshaft dampers	95 1/2	95 1/2	none
HC-B3R30-2 HC-B3R30-4		P&WA R-985 with one 4 ½ order and one 9 th order crankshaft dampers	95	95	Avoid continuous operation between 1600 and 1800 RPM
HC-B3R30-4		LYC GSO-480-B1B3, -B1B6	100	98	none
HC-B3R20-2		Jacobs-Page L4MB, R-755A2, R-755B2, *R-7555, R-755-9, R-755S	89	89	none
		*T.O. 33.3" Hg at 2200 RPM, Max Cont. 30.3" Hg at 2030 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.

NOTE 11: Retirement Time

(a) Life Limits and Mandatory Inspections

(1) Airworthiness limitations, if any, are stated in Hartzell Manuals 108(), 114() or Service Letter 61().

NOTE 12: Special Notes

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

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