

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

P2EA
Revision 9
Hartzell
HC-B3W
BHC-B3W
February 20, 2004

TYPE CERTIFICATE DATA SHEET NO. P2EA

Propellers of models described herein conforming with this data sheet (which is part of Type Certificate No. P2EA) 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 Civil Air Regulations/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 or flange (see NOTE 1)
Hub material Alloy Steel
Blade material Aluminum Alloy
Number of blades Three
Hub models HC-B3W20-2, -4; HC-B3W30-2, -4; HC-B3WF-2, -4; BHC-B3WF-2; HC-B3WN-2
(see NOTES 1 and 4)

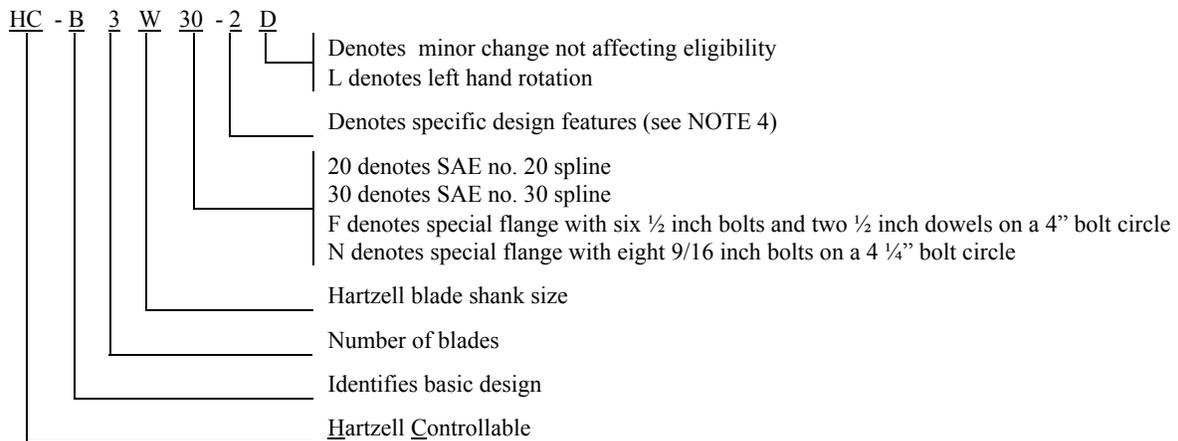
Blades (See NOTES 2 and 6)	Maximum Continuous		Takeoff		Diameter Limits (see NOTE 2)	Approx. Max. Wt. Complete (For Reference Only) (See NOTES 3 and 7)
	HP	RPM	HP	RPM		
<u>Hub Models HC-B3W20-2, -4; HC-B3W30-2, -4</u>						
W9349+ 1/2 to W9349-13	390	2330	420	2330	93 1/2" to 80" (+ 1/2 to -13)	105 lb.
W9350+ 1/2 to W9350-13	390	2330	420	2330	93 1/2" to 80" (+ 1/2 to -13)	105 lb.
W10151-0 to W10151-11	390	2180	400	2180	101" to 90" (-0 to -11)	108 lb.
W10152-5 1/2 to W10152-11	450	2300	450	2300	95 1/2" to 90" (-5 1/2 to -11)	120 lb.
W10160-0 to W10160-11	390	2180	400	2180	101" to 90" (-0 to -11)	121 lb.
W10160-6 to W10160-11	468	2400	468	2400	95" to 90" (-6 to -11)	121 lb.
<u>Hub Model HC-B3WF-2; BHC-B3WF-2</u>						
W9349+ 1/2 to W9349-13	375	2275	375	2275	93 1/2" to 80" (+ 1/2 to -13)	105 lb.
<u>Hub Model HC-B3WF-4; HC-B3W20-4</u>						
W10178-11 to W10178-15	375	2275	375	2275	90" to 86" (-11 to -15)	110 lb.
<u>Hub Model HC-B3WN-2</u>						
W10151-3 to W10151-11	450	2133	450	2133	98" to 90" (-3 to -11)	108 lb.

Diameter limits shown are nominal diameters of assembled propeller and do not include the + 1/4 inch to -1/8 inch manufacturing tolerance permissible.

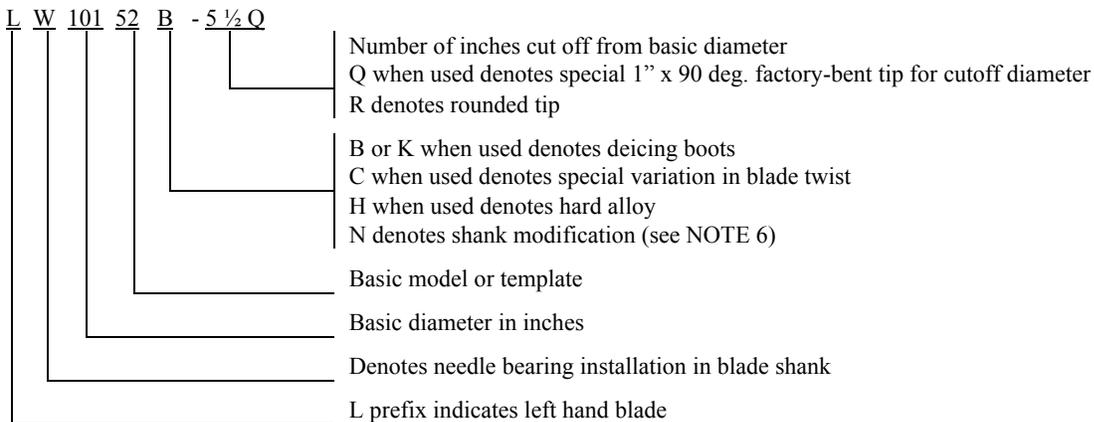
Certification Basis: Models HC-B3W30-2 and HC-B3W20-2:
 Civil Air Regulations Part 14 effective December 15, 1956.
 All other models:
 14 CFR Part 35 with amendments 35-1 and 35-2 thereto
 Type Certificate no. P2EA issued March 9, 1962
 Models HC-B3WF-2, BHC-B3WF-2, HC-B3WF-4, HC-B3WN-2, HC-B3W20-4 and HC-B3W30-4 approved under Delegation Option Authorization procedures of 14 CFR Part 21 Subpart J
 Models added, updated or revised in accordance with 14 CFR Part 35 effective April 3, 1967 with amendments 35-1 and 35-2 include the following:
 HC-B3W20-2, -4; HC-B3W30-2, -4; HC-B3WF-2, -4; BHC-B3WF-2; HC-B3WN-2
 Date of application for Type Certificate: February 14, 1962.

Production Basis: Production Certificate no. 10

NOTE 1. Hub Model Designation

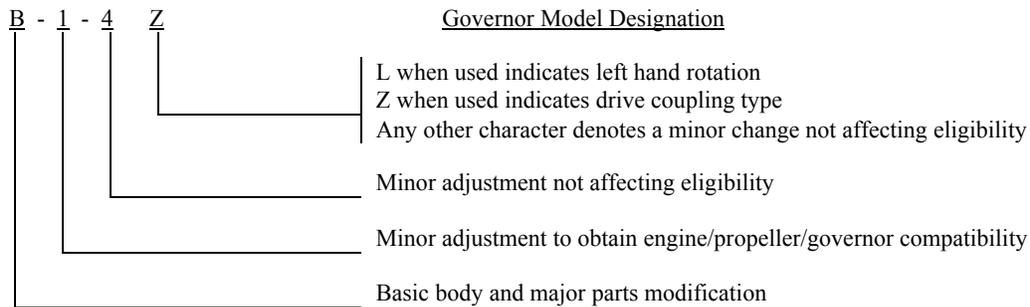


NOTE 2: Blade Model Designation



NOTE 3. Pitch Control

- (a) Approved with Hartzell governors per drawings C-4770 and C-4772. Wt.: 4.5 to 6 lb. (see NOTE 10)



- (b) Approved with Hoof model 1-000-007 series Wt.: 3.5 lb.
- (c) Approved with Woodward model X210XXX or X210X-XXX. Wt.: 3.5 lb.
- (d) Approved with Hamilton Standard models 1A4, 1M12, 1P12, and 1Q12 Wt.: 4.5 lb.

The Hartzell B-0 is the only model which is interchangeable with the Hamilton Standard 1M12 or 1Q12. Other Hartzell models are not interchangeable with any Hamilton Standard model without modification of the latter.

- NOTE 4. (a) Feathering The -2 models incorporate feathering and unfeathering features.
- (b) Reversing Not applicable
- (c) Non-feathering The -4 models are non-feathering with non-counterweighted blades.

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
- (1) Only blades listed in the same group of the following listed groups are sufficiently similar aerodynamically and vibrationwise to permit interchangeability in the same diameter without a flight test. Group (1): W9349, W9350.
 - (2) 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.
- (b) Propellers
- The HC-B3W() hub assembled with blades prefixed with the letter "W" is interchangeable with the corresponding HC-B3Z() hub assembled with blades not prefixed with the letter "W" as listed in Propeller Type Certificate Data Sheet no. P-907.
- (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.

NOTE 7. Accessories

- (a) Propeller anti-icing (weight of anti-icing equipment extra)
- (1) Approved with fluid feed boots listed on Hartzell approved type design data when installed in accordance with Hartzell specification 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 Goodrich electrical deicing kit 5EXXXX, 7EXXXX, 77-XXX, 67-XXX or 65-XXX when installed in accordance with Goodrich Report no. ATA 30-60-07.
 - (2) Approved with Goodyear Ice Guards (electrical propeller deicer) when installed in accordance with instructions outlined in Goodyear Report no. AP-147 dated October 23, 1961.
 - (3) Approved with ice protection equipment when listed on Hartzell type design data.
- (c) Propeller spinner (weight of spinner extra)
- Approved with Hartzell and other manufacturer's spinners when listed on Hartzell type design data.

NOTE 8. Shank Fairings Not applicableNOTE 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 turbnormalizer, 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-B3W30	W9349	Lycoming IGO-540-A1C, B1A, B1C Lycoming IGSO-540-B1A	93 ½	86	none
HC-B3W30	W9350	Lycoming IGO-540-B1A Lycoming IGSO-540-B1A	93 ½	93 ½	none
HC-B3W30	W10151	Lycoming IGSO-540-A1A, -A1E Lycoming TIGO-540-B1A	93 ½	90 ½	none
HC-B3W30	W10152	P&WA R-985 with one 4 ½ order and one 9 th order crankshaft dampers	95 ½	95 ½	none
HC-B3W30	W10152	P&WA R-985 with one 4 ½ order and one 9 th order crankshaft dampers	93 ½	93 ½	Avoid continuous operation between 1600 and 1850 RPM

<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-B3W30	W10160	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-B3W30	W10151C	Lycoming IGO-540-A1C	97 ½	96 ½	Avoid continuous operation between 2800 and 3000 RPM
HC-B3W20	W10160	Lycoming GSO-480-A1A6, -A1C6, -B1A6, B1B6, -B1C6, -B1E6, -B1F6, -B1G6, -B1J6	100	98	none
HC-B3WF	W10178	Continental GTSIO-520-G	90	88	none
HC-B3WF	W9349	Continental GTSIO-520-D	90	88	none
HC-B3WN	W10151	Lycoming TIGO-541-B1A, -D1A	98.4	98.4	Avoid continuous operation between 2750 and 3000 RPM

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 stated in Hartzell Manuals 108(), 114() or Service Letter 61().

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