DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

P-913
Revision 14
HARTZELL
HC-A3X
PHC-A3X

May 31, 1984

TYPE CERTIFICATE DATA SHEET NO. P-913

Propellers of models described herein conforming with this data sheet (which is a part of type certificate no. P-913) 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 mauals and other approved instructions.

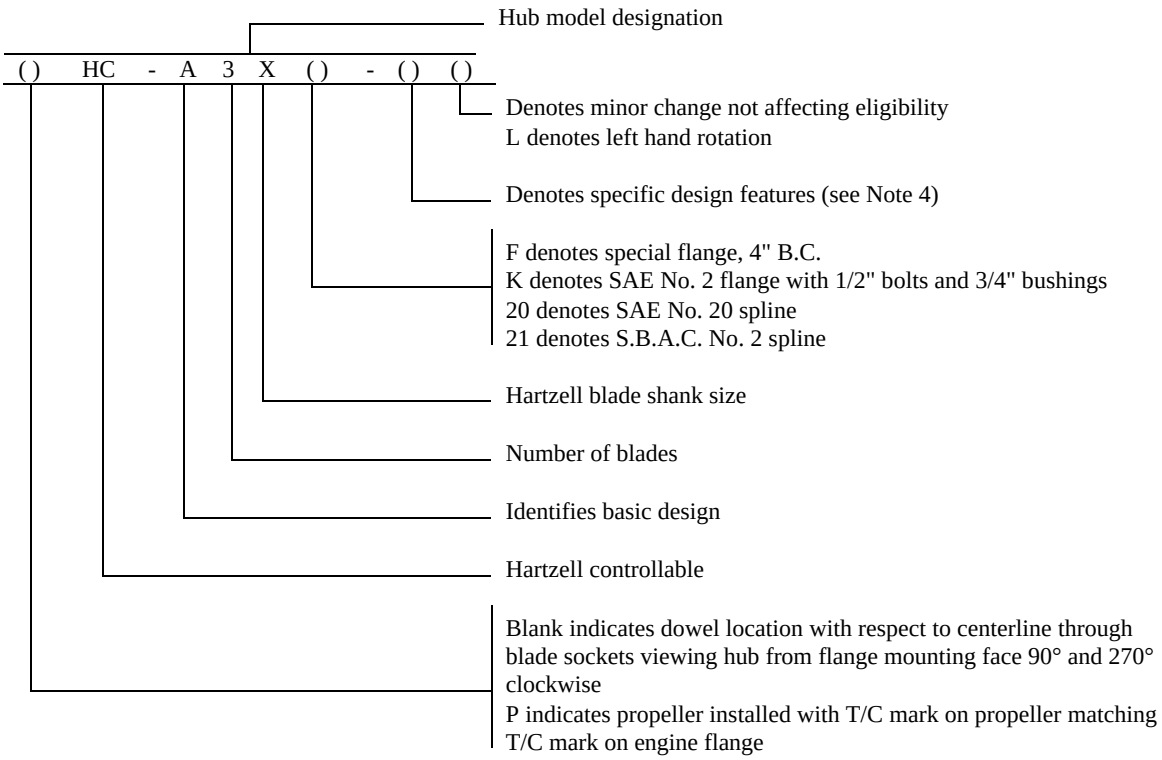
Type Certificate Holder	Hartzell Propeller Products Piqua, Ohio 45356
Type	Constant speed; hydraulic (see Notes 3 and 4)
Engine shaft	SAE #2 flange modified, SAE #20 spline Special flange 4" B.C., British S.B.A.C. No. 2
Hub material	Alloy steel
Blade material	Aluminum alloy
No. of blades	Three
Hub models eligible	HC-A3XF-2, -4; PHC-A3XF-2; HC-A3XK-2, -4; HC-A3X20-1, -2, -5; HC-A3X21-2 (see Notes 1 and 4.)

Blades Eligible (See NOTE 2)	Maximum Continuous HP	Maximum Continuous RPM	Takeoff HP	Takeoff RPM	Diameter Limits	*Approx. Max. Wt. Complete with grease, mounting bolts, etc. (for reference only) (See NOTES 3 and 7)
7636D-0 to 7636D-6	336	2800	336	2800	76" - 70" (-0 to -6)	90 lbs.
8433-0 to 8433-10	380	2700	380	2700	84" - 72" (-0 to -12)	94 lbs.
8433-4 to 8433-10	400	2650	400	2650	80" - 74" (-4 to -10)	94 lbs.
8433S-0 to 8433S-12	380	2625	380	2625	84" - 72" (-0 to -12)	94 lbs.
8833-0 to 8833-10	380	2450	380	2450	88" - 78" (-0 to -10)	97 lbs.
9333C-0 to 9333C-13	340	2200	340	2200	93" - 80" (-0 to -13)	100 lbs.

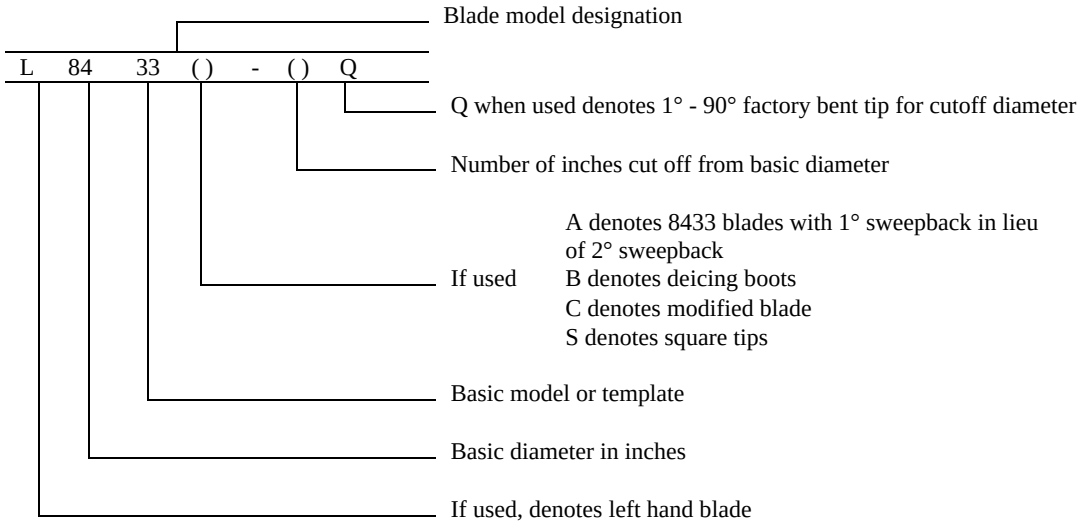
*Weights apply to -2 hub models with F or K flange. For SAE No. 20 spline shaft add 3 lbs. For HC-A3X20-5 add 5 lbs. For HC-A3XK-4 subtract 7 lbs.

Certification basis	CAR 14 effective December 15, 1956. Type Certificate No. P-913 issued February 15, 1960. Date of Application for Type Certificate January 20, 1960.
Production basis	Production Certificate No. 10.

NOTE 1. Hub Model Designation



NOTE 2. Blade Model Designation



Blade Model 8433-0 incorporates a round tip and blade Model 8433S-0 incorporates a square tip. Blades of reduced length, such as -2, -4, etc., incorporate both round tips and square tips and may or may not be marked with an "S" in the blade model designation, i.e., 8433S-2 incorporates square tips, while 8433-2 may have either round or square tips.

NOTE 3. Pitch Control. Eligible with the following governors:

Hartzell Models B-(x)-(x), D-(x)-(x) and F-(x)-(x)	Wt. 4.5 lb.
Hoff Model 1-000-007 Series	Wt. 3.5 lb.
Woodward Model X210XXX or X210X-XXX	
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 and 1Q12. Other Hartzell models are not interchangeble with any Hamilton Standard model without modification of the latter.

The HC-A3XK-4 propeller has no counterweights; hence requires a governor to supply oil to increase pitch. The D-(x)-(x) and F-(x)-(x) governors meet this requirement.

NOTE 4. (a) Feathering. The -2 model incorporates feathering and unfeathering features.
(b) Reversing. The -5 model incorporates reversing but not feathering.

NOTE 5. Left Hand Models. The left hand version of an approved model propeller is eligible at the same rating and diameter as listed for the right hand model. See NOTES 1 and 2.

NOTE 6. Interchangeability
(a) Propellers. Only propellers listed in this data sheet are eligible as replacements for corresponding propellers listed in Type Certificate Data Sheet P-884 in accordance with Note 6 of P-884. Propellers listed in P-884 are not eligible to replace propellers listed in this data sheet.
(b) Model 8433A blades are interchangeable with 8433 blades provided all blades in the same propeller are identical.

NOTE 7. Accessories
(a) Propeller Anti-Icing
(1) Eligible with fluid feed shoes or Icex boots installed in accordance with Hartzell Special Instructions No. 59.
(2) Eligible with Hartzell fluid feed equipment on propeller models for which the equipment is available.
(b) Propeller Deicer
(1) Eligible with Goodrich deicing kit 77-xxx or 65-xxx when installed according to instruction given in Goodrich Report 59-728.
(2) Eligible with Goodyear iceguards (electrical propeller deicer) when installed in accordance with instructions outlined in Goodyear Report No. AP-147 dated October 23, 1961.
(c) Propeller Spinner
(1) Eligible with Hartzell spinner. (Weight of spinner extra)

NOTE 8. Not applicable.

NOTE 9.

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 diamater reduction allowable for repair purposes.

Hub Model	Blade Model	Engine Model	Max. Dia. (Inches)	Min. Dia. (Inches)	Placards
HC-A3XF PHC-A3XF	7636D	Continental IO-470 series, two 5th order and two 6th order dampers, 8.6:1 compression ratio or less, 260 hp @ 2625 rpm or less.	76¼	76¼	None
HC-A3XK	7636D	Lycoming O-540 and IO-540 series, 8.7:1 compression ratio or less, one 6th order and one 5th order damper, 290 hp @ 2575 rpm or less; centerline of one blade in line with #1 crankthrow facing engine from propeller end.	72¼	70¼	None
HC-A3X21	L7636D	Bristol Siddeley Gypsy Queen 30 Mk. 2 series, 6.5:1 compression ratio or less, 250 hp @ 2500 rpm or less.	76¼	75	"Maintain manifold pressure above airspeeds above 140 mph"

Hub Model	Blade Model	Engine Model	Max. Dia. (Inches)	Min. Dia. (Inches)	Placards
HC-A3X20	8433	Lycoming GO-435, GO-435-C2B, GO-435-C2B1	84	84	None
HC-A3X20	8433	Lycoming GO-480-A1A, -B, -B1B, -B1C, -B1D, -D1A			
HC-A3X20	8433	Lycoming GO-480-B1A6	84	84	"Avoid continuous operation on ground between 1300 and 1650 and between 2100 and 2500 rpm."
HC-A3XK	8433	Lycoming O-540 and IO-540 series, 8.7:1 compression ratio or less, one 6th order and one 5th order damper, 290 hp @ 2775 rpm or less; centerline of one blade in line with #1 crankthrow facing engine from propeller end.	74¼	72¼	None
HC-A3XK	8433	Lycoming IO-540-B1A5	80	77	None
HC-A3XK	8433	Lycoming IO-720 series, six 4.0 order, one 3.5 order and one 5.1 order dampers, 8.7:1 compression ratio or less, 4000 hp @ 2650 rpm or less; centerline of one blade must be in line with #1 crankthrow facing engine from propeller end.	77¼	75¼	"Avoid continuous operation between 1800 and 2000 rpm."
PHC-A3XF	8433	Continental IO-470 series, one 5th and one 6th order damper, 7:1 compression ratio or less, 225 hp @ 2600 rpm or less	80.6	78.6	None
HC-A3XK PHC-A3XF	8433	Continental IO-470 series, four 6th order dampers, 8.6:1 compression ratio or less, 260 hp @ 2625 rpm or less.	84 5/8	80	None
PHC-A3XF	8433	Continental IO-520 series, two 6th order, one 5th order and one 4th order damper, 8.5:1 compression ratio or less, 285 hp @ 2700 rpm or less. T/C marks must be aligned.	84¼	84¼	None
HC-A3X20	8833	Lycoming GO-480-C1B6	86	82	"Avoid continuous operation in flight below 2400 rpm."
HC-A3XF	8833	Continental GIO-470, 8.6:1 compression ratio, .75:1 reduction gear, six heavy 3rd order dampers, 310 hp @ 2300 rpm or less	88¼	88¼	None
HC-A3X20	9333C	Lycoming GO-435-C2B	93	87	None
HC-A3X20	9333C	Lycoming GO-435-C2B1	90	90	None
HC-A3X20	9333C	Lycoming GO-480, C1D6, -C2C6, -C2D6, -G2D6, -G2F6	93	89	None
HC-A3X20	9333C	Lycoming GO-480-B1D	90	87	None
HC-A3X20	9333C	Lycoming GO-480-F2A6	93	87	None
HC-A3X20	9333C	Lycoming GSO-480-A1A6, GSO-480-B1A6, IGSO-480-A1C6	93	88	None
HC-A3X20	9333C	Lycoming GSO-480-B2D6	93	91	"Avoid continuous operation between 2800 and 3100 rpm."
HC-A3XF	9333C	Lycoming GO-480-F4A6, -F4B6	93	87	None

NOTE 10. The word "eligible" as used herein does not signify approval as part of this type certificate. "Eligible" accessories must be approved as part of the aircraft type certificate upon compliance with the applicable aircraft airworthiness requirements.

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