

DEPARTMENT OF TRANSPORTATION  
FEDERAL AVIATION ADMINISTRATION

P-908  
Revision 13  
HARTZELL  
HC-A2X  
BHC-A2X  
  
March 6, 1981

TYPE CERTIFICATE DATA SHEET NO. P-908

Propellers of models described herein conforming with this data sheet (which is a part of type certificate no. P-908) 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, Ohio 45356
Type	Constant speed, hydraulic (see Notes 3 and 4)
Engine shaft	SAE #2 flange, modified, special flange, 4" B.C.; SAE No. 20 spline
Hub material	Alloy steel
Blade material	Aluminum alloy
No. of blades	Two
Hub models eligible	HA-A2XF-1, -2, -G; HC-A2XK-1, -2, -G; HC-A2XL-1, -2, -G; HC-A2X20-1, -2, -4, -5, -G; BHC-A2XF-1, -3, -G (see Notes 1, 3, and 4, and "Blades Eligible".)

Blades Eligible (See NOTE 2)	Continuous		Takeoff		Diameter Limits	Approx. Max. Wt. Complete (for reference only) (See NOTES 3 and 7)
	HP	RPM	HP	RPM		
<b>Hub Models HC-A2XF-1, -2, -G; HC-A2XK-1, -2, -G; HC-A2X20-1, -2, -4, -5, -G; BHC-A2XF-1, -3, -G</b>						
7636C-0 to 7636C-8	225	3000	225	3000	76" - 68" (-0 to -8)	64 lbs.
7636D-0 to 7636D-8	225	3000	225	3000	76" - 68" (-0 to -8)	64 lbs.
8433-0 to 8433-12	260	2625	260	2625	84" - 72" (-0 to -12)	67 lbs.
8433S-0 to 8433S-12	260	2625	260	2625	84" - 72" (-0 to -12)	67 lbs.
8433Z-0 to 8433Z-6	225	2600	225	2600	84" - 78" (-0 to -6)	67 lbs.
8833-0 to 8833-10	260	2600	260	2600	88" - 78" (-0 to -10)	68 lbs.
9333D-0 to 9333D-13	260	2400	280	2400	93" - 80" (-0 to -13)	72 lbs.
10133D-0 to 10133D-3	260	2180	260	2180	101" - 98" (-0 to -3)	77 lbs.
10133D-3 to 10133D-6	280	2180	280	2180	98" - 95" (-3 to -6)	77 lbs.

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Blades Eligible (See NOTE 2)	Continuous		Takeoff		Diameter Limits	Approx. Max. Wt. Complete (for reference only) (See NOTES 3 and 7)
	HP	RPM	HP	RPM		
Hub Models HC-A2XL, -1, -2, -G						
7636C-0 to 7636C-8	180	2700	180	2700	76" - 68" (-0 to -8)	64 lbs.
7636D-0 to 7636D-8	180	2700	180	2700	76" - 68" (-0 to -8)	64 lbs.
8433-0 to 8433-6	180	2600	180	2600	84" - 78" (-0 to -6)	67 lbs.
8433-8 to 8433-14	180	2700	180	2700	76" - 70" (-8 to -14)	67 lbs.
8433S-0 to 8433S-6	180	2600	180	2600	84" - 78" (-0 to -6)	67 lbs.
8433S-8 to 8433S-14	180	2700	180	2700	76" - 70" (-8 to -14)	67 lbs.
8433Z-0 to 8433Z-6	180	2600	180	2600	84" - 78" (-0 to -6)	67 lbs.
8833-0 to 8833-10	180	2600	180	2600	88" - 78" (-0 to -10)	68 lbs.
9333C-0 to 9333C-S	180	2330	180	2330	93" - 88" (-0 to -5)	72 lbs.
9333D-0 to 9333D-12	180	2400	180	2400	93" - 80" (-0 to -12)	72 lbs.
10133D-0 to 10133D-6	80	2180	180	2180	101" - 96" (-0 to -6)	77 lbs.

\*Weights apply to HC-A2XF, K, L, -2 hub models. Subtract 4 lbs. for -1 hubs. For HCA2X20: Subtract 5 lbs. for -1 hubs and -4 hubs; 1 lb. for -2 hubs. Add 4 lbs. for -5 hubs. Add 2 lbs. for -G hubs.

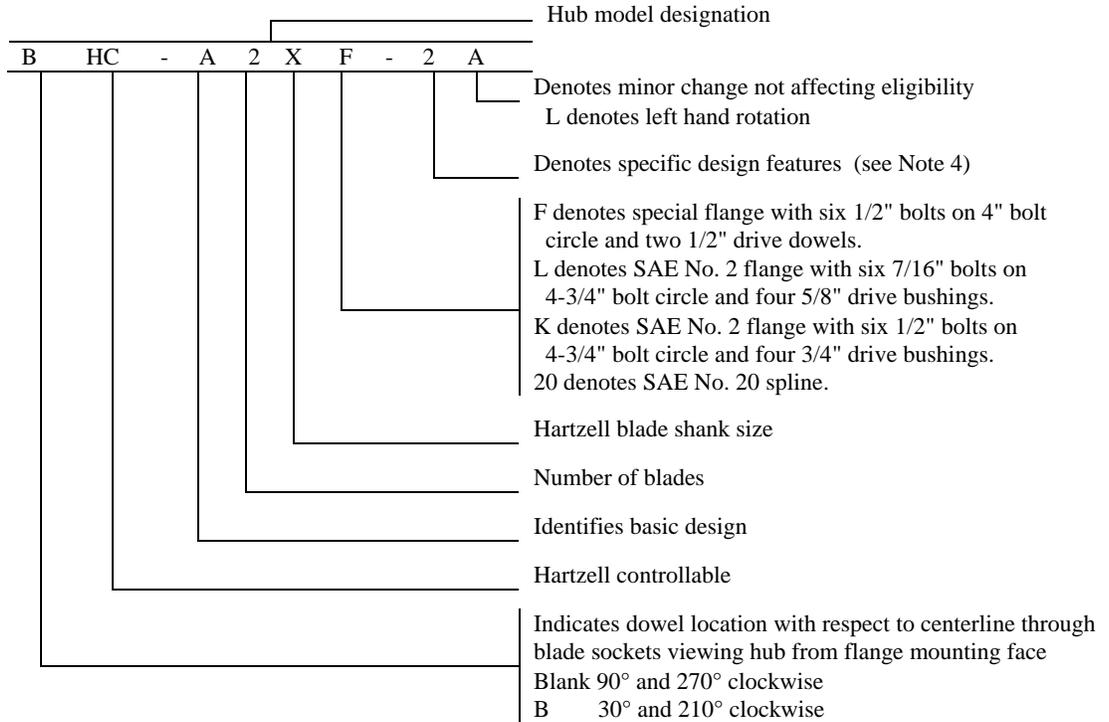
Certification basis

CAR 14 as amended to December 15, 1956.  
Type Certificate No. 908 issued October 7, 1958.  
Date of Application for Type Certificate May 26, 1958.

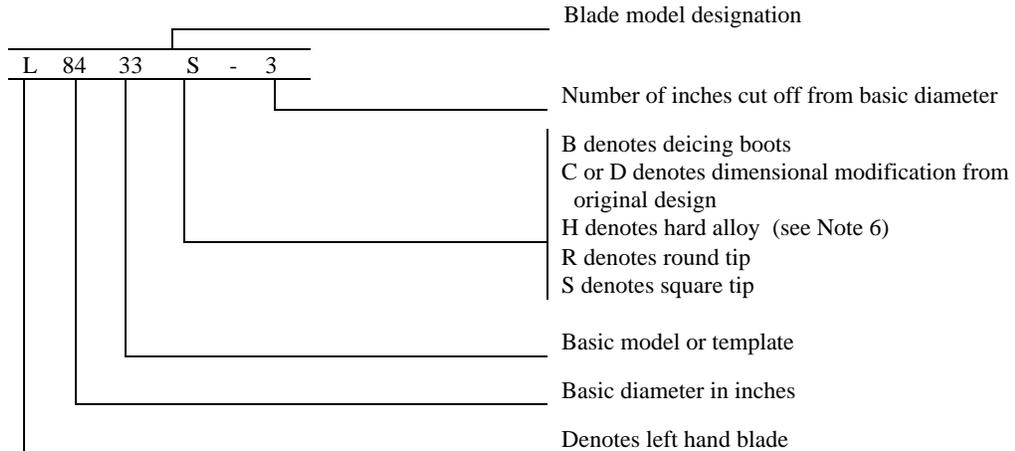
Production basis

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 "R" or an "S" in the blade model designation, i.e., 8433R-2 and 8433S-2 incorporate round and square tips, respectively, while 8433-2 may have either round or square tips.

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

- Hartzell Models D-(x)-(x); F-(x)-(x) Wt. 4.5 lbs.
- Hoof Model 1-000-007 series Wt. 3.5 lbs.
- Woodward Model X210XXX or X210-XXX
- Hamilton Standard Models 1A4, 1M12, 1P12 and 1Q12 Wt. 4.5 lbs.

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.

Hartzell Model A-1-(X) eligible for use with HC-A2X20-4 propeller only. This is for installation of Continental E Series engines in conjunction with C-137-1B T-drive.

- NOTE 4. (a) Feathering. The -2 model incorporates a feathering and unfeathering feature. The -1 and -4 models do not feather.
- (b) Reversing. The -5 incorporate reversing but not feathering.
- (c) Automatic. The -G model incorporates governor element mounted within the propeller to maintain constant speed.

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) 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. (1) 8433S, 8433
- (2) Hard alloy blades eligible only on seaplanes and amphibious aircraft.
- (b) Propellers
- Only propellers listed in this data sheet are eligible as replacements for corresponding propellers listed in Propeller Data Sheet No. P-878 in accordance with Note 6 of P-878. Propellers listed in P-878 are not eligible to replace propellers listed in this data sheet. Only propellers in this data sheet may be replaced by corresponding propellers listed in T.C. data sheet No. P24GL.

NOTE 7. Accessories.

- (a) Propeller Anti-Icing.
- (1) Eligible with fluid feed shoes or Iceex 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.
- (3) Eligible with Cessna 0850305 slinger ring installed only on Cessna spinner [see item (c) (2) below].
- (b) Propeller Deicing.
- (1) Eligible with Goodrich deicing kit 77-xxx or 65-xxx when installed according to instruction given in Goodrich Reort 59-728.
- (2) Eligible with Goodyear ice guards (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 spinners extra).
- (2) Eligible with Cessna spinner dome 0752006 and bulkhead 0850300.

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 diameter reduction allowable for repair purposes.

Hub Model	Blade Model	Engine Model	Max. Dia. (Inches)	Min. Dia. (Inches)	Placards
HC-A2XL	7636C	Lycoming O-290-D2A	74	72	Never exceed 2750 rpm
HC-A2XL	7636C	Lycoming O-320 series, 8.5 to 1 compression ratio or less, 160 hp @ 2700 rpm or less.			None
HC-A2XL	7636D	Lycoming O-290-D2A	76	72	None
HC-A2XL	7636D	Lycoming O-320 series, 8.5 to 1 compression ratio or less, 160 hp @ 2700 rpm or less.	76	70	None
HC-A2XL	7636D	Lycoming O-340 series, 8.5 to 1 compression ratio or less, 170 hp @ 2700 rpm or less	76	72	None
HC-A2XF	8433	Continental O-470-A, -J & -R	84	82	None

Hub Model	Blade Model	Engine Model	Max. Dia. (Inches)	Min. Dia. (Inches)	Placards
HC-A2XF	8433	Continental O-470-B & -M	84	80	None
HC-A2XF	8433	Continental O-470-K & -L	84	78	None
HC-A2X20	8433	Continental O-470-H	84	81	None
BHC-A2XF HC-A2XF	8433	Continental O-470-A, -E, -J, -R	84	82	None
BHC-A2XF HC-A2XF	8433	Continental O-470-B, -N	84	80	None
BHC-A2XF HC-A2XF	8433	Continental O-470-K & -L	84	78	None
HC-A2XF	8433	Continental IO-470-C & -A	84	80	None
HC-A2XF	8433	Continental IO-470 series, with four 6th order crankshaft campers, 8.6 to 1 compression ratio or less, 260 hp @ 2625 rpm or less.	84	78	None
HC-A2XF	8433	Continental IO-470 series, with two 6th, one 5th and one 4½ order crankshaft dampers, 8.6 to 1 compression ratio or less, 260 hp @ 2625 rpm or less.	80	78	None
HC-A2XF	8433	Continental TSIO-470-B, -C	80	78	None
BHC-A2XF	8433	Continental TSIO-470-B, -C	80	78	None
HC-A2X20	8433	Continental E-185 series, 7 to 1 compression ratio or less, 205, hp @ 2600 rpm or less. (Only serial numbers with suffix D)	84	76	None
HC-A2X20	8433	Continental E-225 series, 7 to 1 compression ratio or less, 225 hp @ 2625 rpm or less.	84	80	Not to exceed 2625 rpm at takeoff.
HC-A2X20	8433	Lycoming O-435-A & -C	78	75	None
HC-A2X20	8433	Lycoming O-435-A2 & -C1	78	76	None
HC-A2XL	8433	Lycoming O-320 & IO-320 series, 8.5 to 1 compression ratio or less, 160 hp @ 2700 rpm or less.	72	70	None
HC-A2XL	8433	Lycoming O-340 series, 8.5 to 1 compression ratio or less, 170 hp @ 2700 rpm or less.	72	70	None
HC-A2XK	8433	Lycoming O-540-A1A	82	80	None
HC-A2XK	8433	Lycoming O-540-A1A	77	76	Avoid continuous operation between 2225 and 2275 rpm
HC-A2XK	8433	Lycoming O-540-A2B	82	80	None
HC-A2XK	8433	Lycoming O-540 series, with one 5th and one 6th order crankshaft dampers, 8.5 to 1 compression ratio or less, 250 hp @ 2575 rpm or less.	77	73	None
HC-A2XK	8433	Lycoming IO-540-C1B5 & C1C5	77	73	None
HC-A2X20	8833	Continental E-185 series, with one 5th and one 6th order crankshaft dampers, 7 to 1 compression ratio or less, 205 hp @ 2600 rpm or less.	84	78	None

Hub Model	Blade Model	Engine Model	Max. Dia. (Inches)	Min. Dia. (Inches)	Placards
HC-A2X20	8833	Continental E-225-2, -4, -8 & -9	88	86	Avoid continuous operation on ground between 1400 and 1700 and also between 1900 and 2100 rpm. Avoid continuous operation on ground and flight between 2450 and 2550 rpm.
HC-A2X20	8833	Continental E-225 series with one 5th and one 6th order crankshaft dampers, 7 to 1 compression ratio or less, 225 hp @ 2650 rpm or less.	84	78	None
HC-A2XF	8833	Continental O-470-A, -E, -J, -K, -L	88	86	None
BHC-A2XF	8833	Continental O-470-R	84	78	None
HC-A2XK	8833	Lycoming O-540-A1A5	88	86	Avoid continuous operation between 1950 and 2200 rpm
HC-A2X20	9333C	Lycoming GO-435-C2B & C2B1, C2B2, C2E, D1	93	90	Avoid continuous operation between 1675 and 2160 rpm and between 2900 and 3200 rpm.
HC-A2X20	9333C	Lycoming GO-435-C2B & -C2B1, -C2B2, -C2E, -D1	90	88	None
HC-A2X20	9333C	Lycoming GO-480-A1A, -B & -B1C, -B1D	90	88	None
HC-A2X20	10133D	Lycoming GO-435-C2B & C2B1, -C2B2, -C2E, -D1	101	95	Avoid continuous operation between 2600 and 2975 rpm
HC-A2X20	10133D	Lycoming GO-480-B1A6	98	92	None
HC-A2X20	10133D	Lycoming GO-435-C2B2-6, C2B1-6, -C2B-6, -D1-6	101	95	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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