

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

P-845
Revision 18
Hartzell
HC-12X

January 1, 1977

TYPE CERTIFICATE DATA SHEET NO. P-845

Propellers of models described herein conforming with this data sheet (which is a part of type certificate no. 845) 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 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
Type	Constant speed; hydraulic (see NOTES 3 and 4)
Engine shaft	SAE #20 spline
Hub material	Alloy steel
Blade material	See below
No. of blades	Two
Hub models eligible	HC-12X20-1, -2, -3, -4, -5, -6, -7, -8, -9 (see NOTES 1, 4, and 9)

Blades Eligible (See Note 2)	Maximum <u>Continuous</u>		<u>Takeoff</u>		Diameter Limits	Approx. Max. Wt. Complete. (For ref only) (See Notes 3 & 7)	Blade Construction
	HP	RPM	HP	RPM			
8046-6 to 8046-14	145	2700	145	2700	74" - 66" (-6 to -14)	60 lb.	Special fabric base plastic; stainless steel or brass tipping.
8428+2 to 8428-9 or	225 240	2600 1920	225 260	2600 2180	86" - 75" (+2 to -9)	62 lb.	Special fabric base plastic; stainless steel or brass tipping.
8428C-0 to 8428C-9 or	215 240	2600 1920	215 260	2600 2180	84" - 75" (-0 to -9)	62, 65 lb.*	Special fabric base plastic; stainless steel or brass tipping.
8428CR to 8428R or	215 240	2600 1920	215 260	2600 2180	84"	62, 65 lb.* 62 lb.	Special fabric base plastic; stainless steel or brass tipping.
8427+2 to 8427-4	215	2600	215	2600	86" - 80" (+2 to -4)	65 lb.	Special fabric base plastic; stainless steel or brass tipping.
8433-0 to 8433-9	225	2600	225	2600	84" - 75"	67, 69 lb.* (-0 to -9)	Aluminum alloy.
8433Z-0 to 8433Z-6	225	2600	225	2600	84" - 78" (-0 to -6)	67, 69 lb.*	Aluminum alloy.
8833-0 to 8833-4 or	225 260	2600 2180	225 260	2600 2180	87-7/8" - 83-7.8" (-0 to -4)	70, 75 lb.***	Aluminum alloy.

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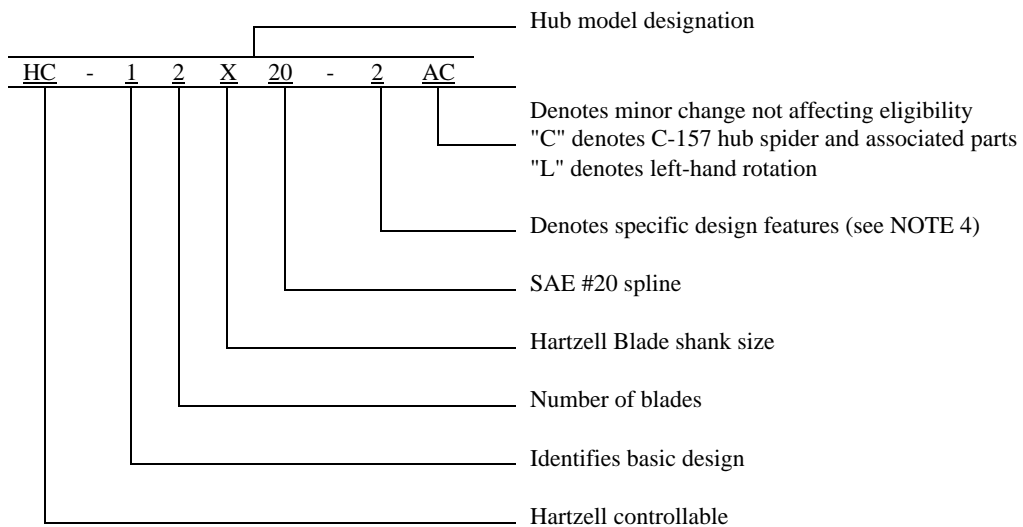
Blades Eligible (See Note 2)	Maximum Continuous		Takeoff		Diameter Limits	Approx. Max. Wt. Complete. (For ref only) (See Notes 3 & 7)	Blade Construction
	HP	RPM	HP	RPM			
9333C-0 to 9333C-7	260	2180	260	2180	93" - 86" (-0 to -7)	73, 79 lb.**	Aluminum alloy
10133D-0 to 10133D-6	260	2180	260	2180	101" - 95" (-0 to -6)	76 lb.	Aluminum alloy
10230-9 to 10230-14	240	1920	260	2180	93" - 88" (-9 to -14)	70 lb.	Special fabric base plastic; Stainless steel or brass tipping
10235-0 to 10235-14	240	1995	245	2055	102" - 88"	72 in.	Aluminum alloy

*Higher weights apply to hub models -7B, -7C, and -8C.
 **Higher weight applies to hub model -9C.
 ***70 lb. for -8C model, 75 lb. for -9C model.

Certification basis CAR 14 effective October 19, 1945, as amended by 14-1.
 Type Certificate No. 845 issued May 8, 1946.

Production basis Date of application for Type Certificate January 5, 1946.
 Production Certificate No. 10

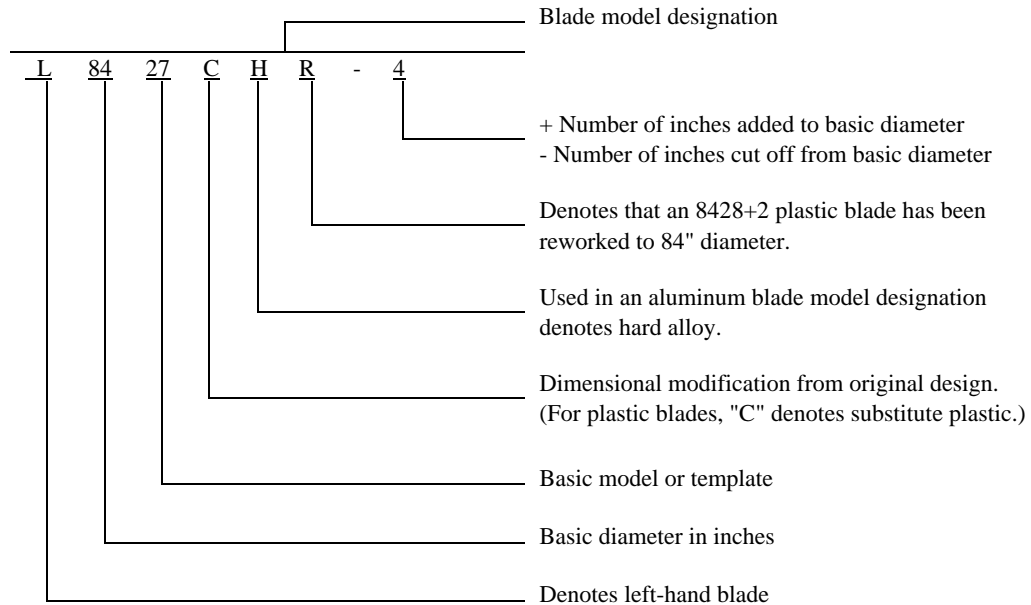
NOTE 1. Hub Model Designation



Type -1, -2, -4, -5, and -6 hubs can be used only on installations with powerplant oil pressure of 50 p.s.i. or above.

A -10 following the hub serial number identifies that oversize tubes are pressed into the spider in order to accommodate worn blade bushings.

NOTE 2.

Blade Model Designation

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

NOTE 3.

Pitch Control. Eligible with Hartzell manual or constant speed control. Constant speed control includes the Hartzell governor Model A-1. Additional weight of governor is 3.75 lb.

(NOTE: Some installations require a T-drive adapter for the governor. Additional weight of the Hartzell Model C-137 adapter is 2.5 lb., and of the Hartzell Model C-253 adapter is 2.7 lb.)

NOTE 4.

- (a) Feathering. The -9 model incorporates a snap action feathering feature, and cannot be unfeathered in flight.
- (b) Reversing. The -2, -3, and -5S models incorporate hydraulically controlled reversing.

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. 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 provided all blades in the propeller are the same model.

Group (1) 8428, 8428C

Group (2) 8428R, 8428CR

Group (3) 8433, 8433Z, 8433A

Blades 8428R and 8428CR have been balanced against master blades at the factory; therefore, when one 8428R or 8428CR blade is used in an assembly, the assembly must balance statically without the use of more than 8 balancing slugs (Hartzell Part NO. A-48) attached to either blade clamp. Hard and soft alloy aluminum blades of the same model designation are interchangeable but only on seaplanes and amphibious aircraft.

- (b) Propellers. Only propellers listed in this data sheet may be replaced by corresponding propellers listed in Type Certificate Data Sheet No. P-917, provided the propeller model designations are the same except that the identifying basic design digit "1" (see NOTE 1) is replaced by the letter "D".

NOTE 7.

Accessories.

(a) Propeller de-icing

- (1) Aluminum alloy blades eligible with Goodrich "Icex" shoes, when applied in accordance with Goodrich instructions. Hartzell recommends that the maximum length be limited to .7 x blade radius, measured from center of hub.

(b) Propeller spinners.

- (1) Eligible with Hartzell Model D-164 spinner. Additional weight 3 lb. The -9 model includes a spinner.

NOTE 8.

Not applicable.

NOTE 9.

Table of Propeller-Engine CombinationsApproved 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.

<u>Blade Model</u>	<u>Engine Model</u>	<u>Max. Diameter (in.)</u>	<u>Min. Diameter (in.)</u>	<u>Placards</u>
8427	Franklin 6A8-215-B8F	84	82	None
	Franklin 6A8-215-B9F	84	82	None
8428R	Continental E-185	84	82	None
8428	Continental E-185-3	84	82	None
	Warner Super Scarab 165	84	82	None
	Warner R-550-3	84	84	None
	Ranger 6-440-C2	84	82	None
	Ranger 6-440-C5	84	82	None
	Ranger 6-440-C2 and C5	84	82	None
	Lycoming O-435C and -A	84	76	None
8433	Continental E-185	84	76	Dampened engine only, not to exceed 2600 r.p.m. at takeoff.
	Franklin 6A8-215-B8F	84	84	None
	Franklin 6A8-215-B9F	84	84	None
	Continental E-225 (Two 6th order dampers	84	82	Not to exceed 2600 r.p.m. at takeoff
	Continental E-225 (One 5th and One 6th Order Damper	84	82	Not to exceed 2600 r.p.m. at takeoff
	Franklin 6A8-215-B8F & B9F	84	84	None
	Lycoming O-435-A and -C	78	75	None
	Lycoming O-435-A2	78	76	None
	Lycoming O-435-C1	78	76	None
8628	Ranger 6-440-C2	86	86	None
8833	Ranger 6-440-C5	88	88	Avoid continuous operation between 1250 and 1600 and between 1950 and 2200 r.p.m.
	Continental E-225	88	86	Avoid continuous operation on ground between 1400 and 1700 and also between 1900 and 2100 r.p.m. Avoid continuous operation on ground and flight between 2450 and 2550 r.p.m.

(cont'd)

<u>Blade Model</u>	<u>Engine Model</u>	<u>Max. Diameter (in.)</u>	<u>Min. Diameter (in.)</u>	<u>Placards</u>
9333C	Lycoming GO-435-C2	93	91	Avoid continuous ground operation between 1675 and 2150 engine r.p.m.
	Lycoming GO-435-C2	90	86	None
	Lycoming GO-435-2-M1	93	93	Avoid continuous ground operation between 1675 and 2150 engine r.p.m.
10133D	Lycoming GO-435-C2	101	101	Avoid continuous operation between 2600 & 2940 r.p.m.
	Lycoming GO-435-C2	98	95	None

NOTE 10. Special Notes. The word "eligible" as used herein does not signify approval. For approval, compliance with the applicable aircraft airworthiness requirements is necessary.

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