DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

P24EA
Revision 7
Hartzell
HC-A2V, HC-A2MV
BHC-A2V, BHC-A2MV
November 19, 1998

TYPE CERTIFICATE DATA SHEET NO. P24EA

Propellers of models described herein conforming with this data sheet (which is part of Type Certificate No. P24EA) 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	Spline shaft, special flange (see NOTE 1)
Hub material	Alloy steel
Blade material	Aluminum alloy
Number of blades	Two
Hub models	(B)HC-A2(M)VF-(1,2,3), HC-A2(M)VF-6, HC-A2(M)VK-(1,2,3) HC-A2(M)VL-(1,2,6), HC-A2(M)V20-(1,2,3,4,5) (see NOTES 1 and 4)

Blades (see NOTE 2)	Maximum Continuous HP	Maximum Continuous RPM	Takeoff HP	Takeoff RPM	Diameter Limits (see NOTE 2)	Approx. Max. Wt. Complete (For Reference Only) (See NOTES 3 and 7)
HUB MODELS (B)HC-A2(M)VF-(1,2,3), HC-A2(M)VF-6, HC-A2(M)VK-(1,2,3), HC-A2(M)V20-(1,2,3,4,5)						
V7636C-0 to V7636C-8	225	3000	225	3000	76" to 68" (-0 to -8)	64.0 lb.
V7636D-0 to V7636D-8	225	3000	225	3000	76" to 68" (-0 to -8)	64.0 lb.
V8433-0 to V8433-12	260	2625	260	2625	84" to 72" (-0 to -12)	67.0 lb.
V8433S-0 to V8433S-12	260	2625	260	2625	84" to 72" (-0 to -12)	67.0 lb.
V8833-0 to V8833-10	260	2600	260	2600	88" to 78" (-0 to -10)	68.0 lb.
V9333D-0 to V9333D-13	260	2400	280	2400	93" to 80" (-0 to -13)	72.0 lb.
V10133D-0 to V10133D-3	260	2180	260	2180	101" to 98" (-0 to -3)	77.0 lb.
V10133D-3 to V10133D-6	280	2180	280	2180	98" to 95" (-3 to -6)	77.0 lb.

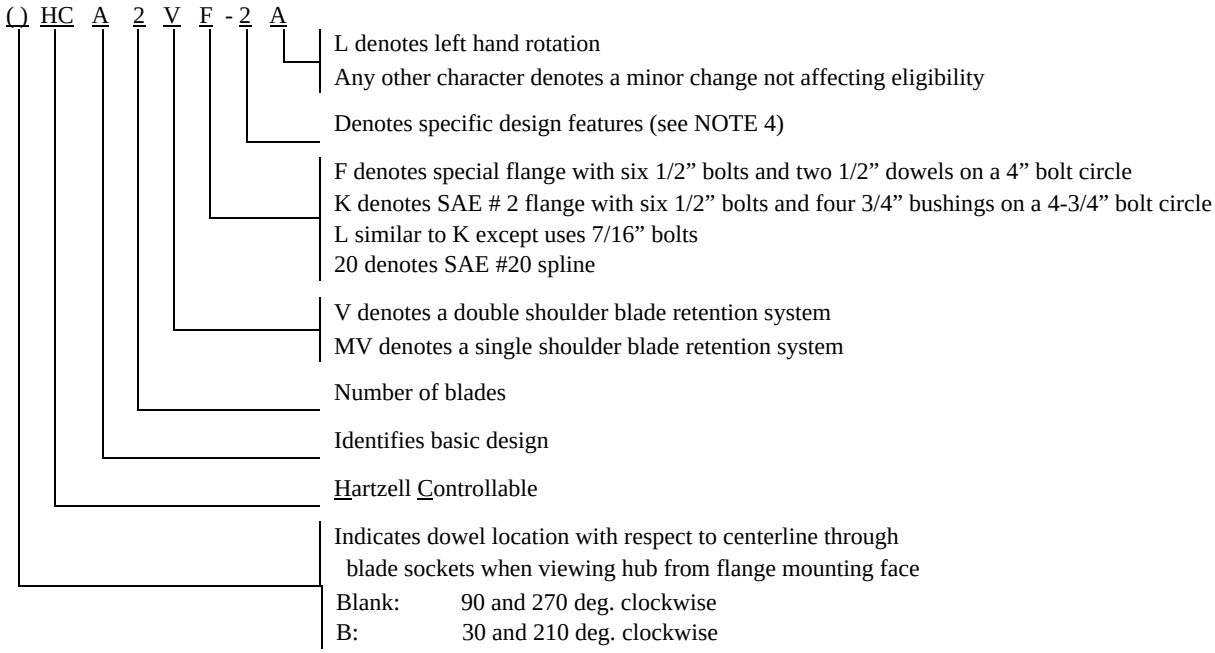
Weights apply to ( )HC-A2(M)V(F,K)-2 hub models. Subtract 4 lb. for -1 hubs, 2 lb. for -3 hubs and 9 lb. for -6 hubs. For HC-A2(M)V20 hub models, subtract 5 lb. for -1 and -4 hubs and 1 lb. for -2 and -3 hubs. Add 4 lb. for -5 hubs.

Blades (see NOTE 2)	Maximum Continuous HP	RPM	Takeoff HP	RPM	Diameter Limits (see NOTE 2)	Approx. Max. Wt. Complete (For Reference Only) (See NOTES 3 and 7)
			HUB MODELS HC-A2(M)VL-(1,2,6)			
V7636C-0 to V7636C-8	180	2700	180	2700	76” to 68” (-0 to -8)	64.0 lb.
V7636D-0 to V7636D-8	180	2700	180	2700	76” to 68” (-0 to -8)	64.0 lb.
V8433-0 to V8433-6	180	2600	180	2600	84” to 78” (-0 to -6)	67.0 lb.
V8433-8 to V8433-14	180	2700	180	2700	76” to 70” (-8 to -14)	67.0 lb.
V8433S-0 to V8433S-6	180	2600	180	2600	84” to 78” (-0 to -6)	67.0 lb.
V8433S-8 to V8433S-14	180	2700	180	2700	76” to 70” (-8 to -14)	67.0 lb.
V8833-0 to V8833-10	180	2600	180	2600	88” to 78” (-0 to -10)	68.0 lb.

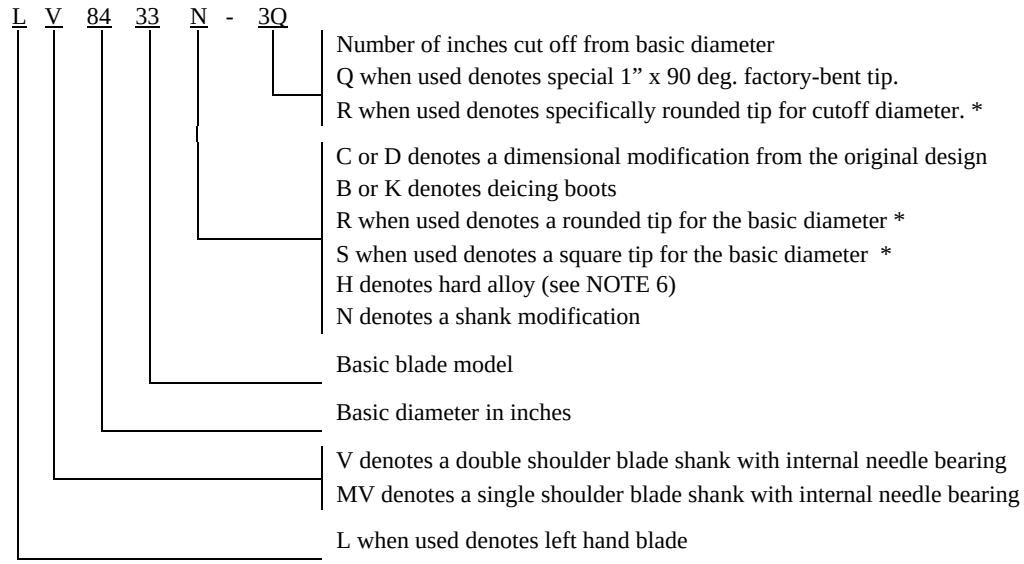
Weights apply to HC-A2(M)VL-2 hub models. Subtract 4 lb. for -1 hubs and 9 lb. for -6 hubs.

Certification Basis:	( )A2V( ) models: FAR Part 35 with amendments 35-1 and 35-2 effective Feb. 1, 1965 ( )A2MV( ) models: FAR Part 35 with amendments 35-1 through 35-6 effective Aug. 18, 1990 Type Certificate No. P24EA issued April 1, 1966 Date of application for Type Certificate: December 1, 1965
Production Basis:	Production Certificate no. 10

NOTE 1. Hub Model Designation



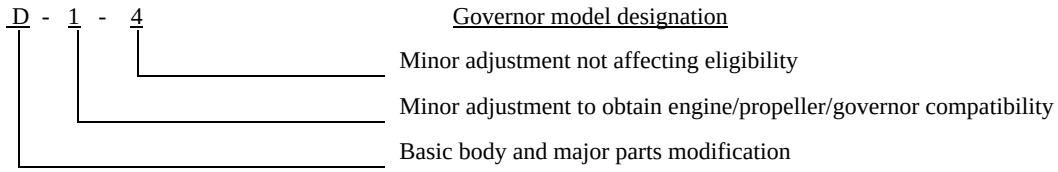
NOTE 2: Blade Model Designation



* Some blades which use square or round tip shapes may not contain the letters "S" or "R" in their model designation. These characters are used to distinguish blades when two or more tip shapes are available at the same diameter.

NOTE 3. Pitch Control

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



(b) Approved with Hoof model 1-000-007 series Wt.: 3.5 lb.

(c) Approved with Hamilton Standard models 1A4, 1M12, 1P12, and 1Q12 Wt.: 4.5 lb.

(d) Approved with Woodward model X210XXX or X210X-XXX. Wt.: 3.5 lb

The Hartzell B-0 is the only model which is interchangeable with the Hamilton Standard 1M12 and 1Q12. Other Hartzell models are not 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 The -3 and -5 models incorporate reversing when used with the appropriate controls.

NOTE 5. Left-Hand Models

The left-hand version of an approved propeller model 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) Blade models 8433 and 8433S are interchangeable.

(2) Hard alloy blades may be substituted for the corresponding blade model on seaplanes and amphibious aircraft only.

(3) Blades with an “N” suffix, such as (M)V8433N, are interchangeable with corresponding blades without the “N” suffix, provided that all blades in the same propeller are identical.

(4) Blades with “M” prefix, such as MV8433N, can be substituted for corresponding blades without the “M” prefix provided that all blades in the same propeller are identical and that the hub model also contains the characters “MV”. Blades without the “M” prefix cannot be substituted for those with the “M” prefix.

(b) Propellers

(1) Propellers listed in this data sheet may replace corresponding propellers listed in Type Certificate Data Sheets P23EA, P-878 and P-908.

(2) Propellers listed in T.C.D.S. nos. P23EA, P-878 and P-908 may not replace propellers listed in this data sheet.

(3) In the model designation HC-A2(V,MV)( ), the “A” may be substituted for propeller models with “8” in the same location and “V” or “MV” may be substituted for propeller models with “X” in the same location.

(4) In the model designation HC-A2(V,MV)( ), the “MV” may be substituted for “V”, however “V” may not replace “MV”.

NOTE 7. Accessories

(a) Propeller anti-icing

(1) Approved with fluid feed shoes or Icex boots installed in accordance with Hartzell Special Instruction no. 59A.

(2) Approved with Hartzell fluid feed equipment on propeller models for which equipment is available.

(3) Approved with Cessna 0850305 slinger ring installed only on Cessna spinner (see item (c)(2) below.

(b) Propeller deicing

(1) Approved with Goodrich electrical deicing kit 77-XXX or 65-XXX when installed in accordance with BF 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.

(c) Propeller spinner

(1) Approved with Hartzell spinners. (weight of spinner extra)

(2) Approved with Cessna spinner dome 0752006 and bulkhead 0850300

NOTE 8. Shank Fairings

Not applicable

NOTE 9. Special Limits

Table of Propeller - Engine Combinations
Approved Vibrationwise foe 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-A2V	V7636C	LYC O-290-D2A	74	72	Never exceed 2750 RPM
HC-A2V	V7636C	LYC O-320	76	72	none
HC-A2V	V7636D	LYC O-290-D2A	76	72	none
HC-A2V	V7636D	LYC O-320	76	70	none
HC-A2V	V7636D	LYC O-320-B1A	72	70	none
HC-A2V	V7636D	LYC O-340	76	72	none
HC-A2V	V8433( )-9Q	LYC O-540-A1A5, -A1B5, -A1C5, -A1D5	75	75	none
HC-A2V BHC-A2V	V8433	TCM O-470-A, -J	84	82	none

Hub Model	Blade Model	Engine Model	Max. Dia. (inches)	Min. Dia. (inches)	Placards
HC-A2V BHC-A2V	V8433	TCM O-470-B	84	80	none
HC-A2V	V8433	TCM O-470-H	84	81	none
HC-A2V BHC-A2V	V8433	TCM O-470-K, -L	84	78	none
HC-A2V	V8433	TCM O-470-M	84	78	none
HC-A2V	V8433	TCM IO-470-D, -E, -F, -S	84	78	none
HC-A2V	V8433	TCM IO-470-C	84	80	none
HC-A2V BHC-A2V	V8433	TCM TSIO-470-B	80	78	none
HC-A2V	V8433	TCM E-185	84	76	Dampened engine only. Do not exceed 2600 RPM at takeoff
HC-A2V	V8433	TCM E-225	84	80	Do not exceed 2600 RPM at takeoff
HC-A2V	V8433	LYC O-435-A, -C	78	75	none
HC-A2V	V8433	LYC O-435-A2, -C1	78	76	none
HC-A2V	V8433	LYC O-320	72	70	none
HC-A2V	V8433	LYC O-340, O-340-A1A	72	70	none
HC-A2V	V8433	LYC O-540-A1A, -A2B	82	80	none
HC-A2V	V8433	LYC O-540-A1A	77	76	Avoid continuous operation between 2225 and 2275 RPM
HC-A2V	V8433	LYC O-540-A1A5, -A1B5, -B1A5, -B1B5, -C1A5	77	73	none
HC-A2V	V8833	TCM E-185 series with one 5th and one 6th order dampers, 7 to 1 compression ratio or less, 225 HP at 2650 RPM or less	84	78	none
HC-A2V	V8833	TCM E-225	88	86	Avoid continuous operation on the ground between 1400 and 1700 RPM and between 1900 and 2100 RPM. Avoid continuous operation on the ground and in flight between 2450 and 2550 RPM
HC-A2V	V8833	TCM E-225 series with one 5th and one 6th order dampers, 7 to 1 compression ratio or less, 225 HP at 2650 RPM or less	84	78	none
HC-A2V BHC-A2V	V8833	TCM O-470-A, -J	88	86	none

Hub Model	Blade Model	Engine Model	Max. Dia. (inches)	Min. Dia. (inches)	Placards
HC-A2V	V8833	TCM O-470-E, -K, -L	88	86	none
HC-A2V	V8833	LYC O-540-A1A5	88	86	Avoid continuous operation between 1950 and 2200 RPM
BHC-A2V	V8833	TCM O-470-K, -L	88	88	none
BHC-A2V	V8833	TCM O-470-R	84	78	none

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 specified in Hartzell Manuals 100( ), 109( ) and 114( ).

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