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# **Type Acceptance Report**

**TAR 20/21B/10**

**HARTZELL HC-D4/E4 Series**



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## Executive Summary

New Zealand Type Acceptance has been granted to the Hartzell Model HC-D4/E4 Series propeller based on validation of FAA Type Certificate number P10NE. There are no special requirements for import.

Because the continuing airworthiness documentation for the Series is essentially common this type acceptance covers all Models and/or serial numbers currently covered by FAA type certificate number P10NE, which are now eligible for installation on a NZ-registered aircraft. Additional new propeller variants approved under the FAA type certificate can become type accepted after supply of the applicable documentation, in accordance with the provisions of NZCAR §21.43(c).

NOTE: The information in this report was correct as at the date of issue. The report is generally only updated when an application is received to revise the Type Acceptance Certificate. For details on the current type certificate holder and any specific technical data, refer to the latest revision of the State-of-Design Type Certificate Data Sheet referenced herein.

## 1. Introduction

This report details the basis on which Type Acceptance Certificate No. 20/21B/10 was granted in the Standard Category in accordance with NZCAR Part 21 Subpart B.

Specifically the report aims to:

- (a) Specify the foreign type certificate and associated airworthiness design standard used for type acceptance of the product in New Zealand; and
- (b) Identify any special conditions for import applicable to any model(s) covered by the Type Acceptance Certificate.

The report notes the status of all models included under the State-of-Design type certificate which have been granted type acceptance in New Zealand, which are listed in Section 2. The history of the Hartzell HC-D4/E4 propeller model type acceptance in New Zealand under type certificate P10NE is listed in Appendix 1.

## 2. Product Certification Details

### (a) State-of-Design Type and Production Certificates:

Manufacturer: Hartzell Propeller Inc.  
Type Certificate: P10NE  
Issued by: Federal Aviation Administration  
Production Approval: FAA Production Certificate 10

### (b) Models Covered by the Part 21B Type Acceptance Certificate:

- (i) Models: HC-D4N-(2,3,5),  
HC-D4P-5  
HC-E4A-(2,3)  
HC-E4N-(2,3,5)  
HC-E4P-(3,5)  
HC-E4W-(3,5)

### 3. Application Details and Background Information

There have been examples of the HC-E4 propeller in New Zealand prior to Part 21B at Amendment 6, when there was no provision for separate type acceptance of products and they were included with the aircraft validation. The first application for separate New Zealand type acceptance under Part 21B was for the Model HC-E4N-3/E10703 propeller, from the manufacturer, dated 19 September 2019. The Hartzell HC-D4/E4 Series is a four-blade constant speed propeller with a two-piece aluminium hub and reverse and feathering capabilities, intended for turbine engine applications.

Type Acceptance Certificate Number 20/21B/10 was granted on 10 February 2020 to all current Hartzell Model HC-D4/E4 Series propellers based on validation of FAA Type Certificate P10NE. There are no special requirements for import into New Zealand.

The HC-E4N-3/E10703 combination adds a new blade design to the existing propeller hub, and is intended for use on the Pacific Aerospace 750XL “SuperPac” project using the PT6A-140 engine.

#### 4. NZCAR §21.43 Data Requirements

The type data requirements of NZCAR Part 21B Para §21.43 have been satisfied by supply of the following documents, or were already held by the CAA:

(1) State-of-Design Type certificate:

FAA Type Certificate Number P10NE

FAA Type Certificate Data Sheet No. P10NE at Revision 35 dated Jan 14, 2020

- HC-D4N-(2,3,5); HC-D4P-5; HC-E4N-3; HC-E4P-5 approved Jan 18, 1985
- HC-E4A-(2,3); HC-E4N-(2,3,5); HC-E4W-(3,5) approved August 18, 1990
- HC-E4P-3 approved March 19, 2013

(2) Airworthiness design requirements:

(i) *Airworthiness Design Standards:*

The initial certification basis of the HC-D4/E4 Series is FAR Part 35, effective October 14, 1980, including Amendments 35-1 through 35-5. For later models and updates or revisions to existing models, the certification basis was updated to include Amendments up to 35-10, as detailed on the TCDS.

This is an acceptable certification basis in accordance with Civil Aviation Rules Part 21B paragraph §21.41 and Advisory Circular 21-1A, because FAR 35 is the basic standard for Aircraft Propellers called up under Part 21 Appendix C There are no non-compliances and no additional special conditions have been prescribed by the Director under §21.23.

(ii) *Special Conditions:*

Nil

(iii) *Equivalent Level of Safety Findings:*

Nil

(iv) *Airworthiness Limitations:*

See Propeller Owner's Manuals 147 and 149 Airworthiness Limitations section

HC-SL-61-61Y – Overhaul Periods and Service Life Limits for Hartzell Propeller Inc. Aviation Components – Propellers, Governors, Accumulators, and Propeller Damper Assemblies

(3) Environmental Certification:

Not Applicable

(4) Certification Compliance Listing:

Hartzell Engineering Report No.4087 – Type Certification Compliance Summary for Propeller Model HC-E4N-3/ E10703– Project No. TC-ODA-100082-CE-444

Hartzell Propeller TC ODA 100082-CE Certification Compliance Checklist – Addition of new blade model E10703 on to TCDS P10NE for use with existing propeller HC-E4N-3 – dated 02/20/2019



(5) Flight Manual:

Not Applicable

(6) Operating Data for Propeller:

(i) *Maintenance Manual:*

Propeller Owner's Manual and Logbook – No. 147 – Models: HC-E(4,5)( )-3( ); HC-E(4,5)( )-5( ); HC-E5A-2( ) – Lightweight Turbine Propellers with Composite Blades

Propeller Owner's Manual and Logbook – No.149 – Models: HC-(D,E)4( )-2( ); HC-(D,E)4( )-3( ); HC-(D,E)4( )-5( ); HC-D3F-7( ); HC-E5N-3( ) – Lightweight Turbine Propellers with Aluminium Blades

Hartzell Propeller Standard Practices Manual No.202A

Hartzell Propeller – Four Blade Lightweight Turbine Propeller Maintenance Manual – No.143A – HC-D4N-3( ); HC-E4A-3( ); HC-E4N-3( )(); HC-E4P-3( ); HC-E4W-3( )

Hartzell Aluminium Blade Overhaul Manual No.133C

(ii) *Current Service Information:*

Service Bulletins

Service Letters

Service Instructions

(iii) *Illustrated Parts Catalogue:*

See Illustrated Parts List in Overhaul Manual 143A

(7) Agreement from manufacturer to supply updates of data in (5), and (6):

Hartzell Technical Documents Library – CD-ROM Subscription service confirmed by letter dated November 20, 2018

(8) Other information:

Hartzell Drawing 10703 – Blade Unit, Aluminium

Hartzell Drawing 107225 Revision A – Propeller Assembly HC-E4A,N,P,W-3KA

## Attachments

The following documents form attachments to this report:

Copy of FAA Type Certificate Data Sheet Number P10NE

## Sign off

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David Gill  
Team Leader Airworthiness

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Checked – Greg Baum  
Acting Team Leader Product Certification

## Appendix 1

### List of Type Accepted Variants:

<i>Model:</i>	<i>Applicant:</i>	<i>CAA Work Request:</i>	<i>Date Granted:</i>
HC-E4N-3G/D9390SK-1R	Aeromotive Holdings Ltd	98/21B/18	6 July 1998
HC-E4N-3N/D8990SK	Hawker Beechcraft Corp	10/21B/22	9 July 2010
HC-E4N-3P/D9900	Pacific Aerospace	11/MOD/10	3 November 2010
HC-E4N-3Q/E8501B-3.5	S Lusk	11/21B/8	7 February 2011
HC-E4A-3D/E10477K/SK	Pilatus Aircraft Ltd	13/21B/28	20 September 2013
All other models on TCDS	Hartzell Propeller Inc.	20/21B/10	10 February 2020