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# **Type Acceptance Report**

**TAR 18/21B/31**

**HARTZELL HC-D3F**



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## Executive Summary

New Zealand Type Acceptance has been granted to the Hartzell Model HC-D3F propeller based on validation of FAA Type Certificate number P18NE. There are no special requirements for import.

Applicability is limited to the Models and/or serial numbers detailed in Appendix 1, which are now eligible for installation on a NZ-registered aircraft. Additional variants or serial numbers approved under the foreign 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.18/21B/31 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.

## 2. Product Certification Details

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

Manufacturer: Hartzell Propeller Inc.  
Type Certificate: P18NE  
Issued by: Federal Aviation Administration  
Production Approval: FAA Production Certificate 10

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

- (i) Model: HC-D3F

### **3. Application Details and Background Information**

The application for New Zealand type acceptance of the Hartzell Model HC-D3F was from the manufacturer, dated 20 November 2017. The Model HC-D3F is a three-blade constant speed propeller with a two-piece aluminium hub and reverse and feathering capabilities.

Type Acceptance Certificate Number 18/21B/31 was granted on 4 May 2018 to the Hartzell Model HC-D3F propeller based on validation of FAA Type Certificate P18NE. There are no special requirements for import into New Zealand.

The HC-D3F aluminium hub was developed for turbine engine applications. It is designed for takeoff and maximum continuous power ratings of 450 hp at 2030 RPM, with propeller diameter limits of 81 to 91 inches. D9511F are counterweighted aluminium blades. The first application for the HC-D3F-7/D7023 propeller was on the Goodyear GZ22 Blimp. The HC-D3F-7H/D9511F-11 variant was developed for use on the Mahindra GA-10 Airvan.

#### 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 P18NE

FAA Type Certificate Data Sheet No. P18NE at Revision 1 dated May 10, 2013

– Model HC-D3F approved August 21, 1989

– Model HC-D3F-7 approved May 10, 2013

(2) Airworthiness design requirements:

(i) *Airworthiness Design Standards:*

The certification basis of the HC-D3F is FAR Part 35, including Amendments 35-1 through 35-5. For the HC-D3F-7 this was upgraded to CAR Part 35, including Amendments 35-1 through 35-9.

This is an acceptable certification basis in accordance with NZCAR Part 21B Para §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 Manual 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.3742 – Type Certification Compliance Summary of the HC-D3F-7/D9511F-4 Propeller – Project No. TC-ODA-100082-CE-383

Hartzell Propeller TC ODA 100082-CE Certification Compliance Checklist – Add the D9511F-4 aluminium blade for use with HC-D3F-7 propeller to TCDS P18NE

(5) Flight Manual:

Not Applicable

(6) Operating Data for Propeller:

(i) *Maintenance Manual:*

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

Three-Blade Lightweight Turbine Propeller Maintenance Manual HC-D3F-7H Manual No.155

(ii) *Current Service Information:*

Service Bulletins

Service Letters

Service Instructions

(iii) *Illustrated Parts Catalogue:*

Aluminium Blade Overhaul Manual No.133C

(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

**Attachments**

The following documents form attachments to this report:

Copy of FAA Type Certificate Data Sheet Number P18NE

**Sign off**

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David Gill  
Team Leader Airworthiness

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Checked – Kavita van Mari  
Airworthiness Engineer

**Appendix 1**

**List of Type Accepted Variants:**

<i>Model:</i>	<i>Applicant:</i>	<i>CAA Work Request:</i>	<i>Date Granted:</i>
HC-D3F	Hartzell Propeller Inc.	18/21B/31	4 May 2018