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**SERVICE MANUAL**




**and**

**INSTRUCTIONS FOR CONTINUED  
AIRWORTHINESS**

**for**

**HARTZELL THREE BLADE 102 INCH  
HC-B3TN-3D(Y)/T10282NS  
PROPELLER ON  
QUEST KODIAK 100 AIRCRAFT**

### LOG OF REVISIONS

REVISION	PAGES AFFECTED	DESCRIPTION	DATE	FAA ACCEPTANCE
N/C	ALL	INITIAL RELEASE	7/6/11	
A	3-6		5/16/12	
B	ALL	REFORMATTED DOCUMENT, ADDED DAMAGE TOLERANCE INFORMATION	2/1/18	

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# **CHAPTER 1**

## **INTRODUCTION AND**

## **GENERAL INFORMATION**

### **1.0 INTRODUCTION**

The purpose of this service manual is to provide details on servicing a Hartzell 102 inch three blade propeller HC-B3TN-3D(Y)/T10282NS which replaces the originally installed 96 inch four blade propeller on the Quest Kodiak 100 airplane.

#### **Department:**

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**When a part of this installation is significantly changed or an additional inspection is recommended or required, often a service letter and/or kit is issued. If a warranty is issued, most commonly it is for an 18 month time period, so it is crucial to check for service letters at each periodic inspection to be eligible.**

**Service Manuals and the installation documents included are also revised periodically and also to be kept updated. Service letters, Service Kits and Service Manuals are available on our web site at no charge, [www.wipaire.com](http://www.wipaire.com).**

#### **NOTE:**

**IT IS CRITICAL TO CHECK FOR MANUAL UPDATES EACH TIME AN INSPECTION IS EXECUTED.**

## **1.1 DESCRIPTION**

The installed propeller is a constant speed, full feathering, reversible, hydraulically actuated propeller. The propeller and blade model is HC-B3TN-3D(Y)/T10282NS. This propeller has shot peened blades between stations 7.0 and 24.0. See Maintenance Practices section of this service manual for additional information. Upon installation, the propeller governor is adjusted to regulate maximum propeller speed to 2150 RPM.

This propeller has been shown to achieve equal or better performance in takeoff and climb compared to the standard four blade propeller.

## **1.2 OPERATION**

Propeller operation is unchanged from the original aircraft except as noted below.

Maximum propeller speed is limited to 2150 RPM.

The three blade propeller has no RPM limitation between 450 and 1050 RPM.

Note: no gauge re-marking is associated with the change in maximum propeller speed or removal of the 450-1050 RPM caution range, therefore there are no software changes for the G1000, and G1000 markings will retain a

yellow arc from 450-1050 RPM and redline at 2200 RPM. Placards are installed to denote limitations for the three blade propeller.

## **1.3 REFERENCE DOCUMENTS**

The following Wipaire, Inc. documents must be attached to this ICAW document, and are provided for both the operator and maintenance technician. Document revision levels are current, and hardcopy attached, at the time of installation:

1. Drawing number 1005338, Installation, 3-blade 102” propeller on Kodiak landplane

The following reference documents are required, and are available from the respective companies:

1. Kodiak 100 Maintenance Manual, Part No. 490770, specifically Chapter 61, revision 1 or later
2. Hartzell Propeller Owner’s Manual, Manual No. 139, revision 10 or later
3. Pratt & Whitney Maintenance Manual Part No. 3021242

## **1.4 MAINTENANCE PRACTICES**

For general maintenance practices, installation and removal, maintenance schedule, testing, troubleshooting, and inspection reference Kodiak 100 Maintenance Manual 490770 and/or Hartzell Propeller Owner's Manual No. 139. For installation of this propeller on the Kodiak 100, the propeller governor must be limited to 2150 RPM. For governor adjustment reference Pratt & Whitney Maintenance Manual P/N 3021242.

Blade angle settings can be found on drawing 1005338 and are:

Feathered:  $87.0^{\circ} \pm 1.0^{\circ}$

Low Pitch:  $17.0^{\circ} \pm 0.1^{\circ}$

Reverse:  $-15.0^{\circ} \pm 0.5^{\circ}$

Start Lock (if equipped):  $1.0^{\circ} \pm 1.0^{\circ}$

Blade angles should be adjusted per Hartzell Manual 139.

This propeller has shot peened blades between stations 7.0 and 24.0 on both the face and camber sides of the blade. Blades having damage to the shot peened areas exceeding 0.015 inch depth (including material removal necessary to blend out such damage) must be removed from service and the reworked area shot peened per Hartzell service instructions before further flight. For leading and trailing

edge damage, a 0.25 inch deep rework limit applies before shot peening is required.

The standard diameter of this propeller is 102 inches. A blade cutoff allowance of 1 inch is allowed up to a minimum diameter of 100 inches. Any blade modifications or repairs must be completed in accordance with Hartzell service instructions.

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**CHAPTER 2**  
**AIRWORTHINESS LIMITATIONS**

### AIRWORTHINESS LIMITATIONS

This Airworthiness Limitations section is FAA approved and specifies maintenance required under paragraphs 43.16 and 91.403(c) of the Federal Aviation Regulations unless an alternative program has been FAA approved.

There are no changes to the airworthiness limitations of the aircraft as a result of installation of the Hartzell 102” three blade propeller.

FAA APPROVED \_\_\_\_\_



DATE \_\_\_\_\_

7/6/11

**END**