

HARTZELL PROPELLER INC.
SERVICE BULLETIN
TRANSMITTAL SHEET
HC-SB-61-304

Propeller - Introduction of an Improved Blade

August 1, 2012

This page transmits a revision to Service Bulletin HC-SB-61-304.

- Original Issue, dated Jul 18/08
- Revision 1, dated Aug 01/12

Propeller assemblies that have previously complied with the blade replacement instructions in a previous version of this Service Bulletin are not affected.

Propeller assemblies that have previously complied with only the blade inspection instructions in a previous version of this Service Bulletin are affected.

FAA approval has been obtained on technical data in this publication that affects type design.

Changes are shown by a change bar in the left margin of the revised pages.

This revision is issued to change the following in the Service Bulletin:

- Identifies the possibility of the occurrence of blade flutter with blades near manufacturing specifications
- Identifies the document as Instructions for Continuing Airworthiness
- Requires replacement of affected blades
- Adds an Appendix

This Service Bulletin is reissued in its entirety.

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1. Planning Information

A. Effectivity

- (1) Hawker Beechcraft King Air B100 aircraft with Hartzell steel hub propeller HC-B4TN-5(C,F)/T10173F(N)(B,K)-12.5 are affected by this Service Bulletin.
- (2) Applications that have complied with the blade replacement instructions in a previous version of this Service Bulletin are not affected by this revision.
- (3) T10173F(N)(B,K)-12.5 blades in stock/inventory are affected by this Service Bulletin.

CAUTION: DO NOT USE OBSOLETE OR OUTDATED INFORMATION. PERFORM ALL INSPECTIONS OR WORK IN ACCORDANCE WITH THE MOST RECENT REVISION OF THIS SERVICE BULLETIN. INFORMATION CONTAINED IN THIS SERVICE BULLETIN MAY BE SIGNIFICANTLY CHANGED FROM EARLIER REVISIONS. FAILURE TO COMPLY WITH THIS SERVICE BULLETIN OR THE USE OF OBSOLETE INFORMATION MAY CREATE AN UNSAFE CONDITION THAT MAY RESULT IN DEATH, SERIOUS BODILY INJURY, AND/OR SUBSTANTIAL PROPERTY DAMAGE. REFER TO THE SERVICE BULLETIN INDEX FOR THE MOST RECENT REVISION LEVEL OF THIS SERVICE BULLETIN.

B. Concurrent Requirements

- (1) Airworthiness Directives 72-08-04, 96-18-14, Hartzell Service Bulletins HC-SB-61-97A and HC-SB-61-261 must be performed in conjunction with this Service Bulletin.
- (2) Additional service documents may apply to the components/propellers affected by this Service Bulletin. Compliance with additional service documents may be necessary in conjunction with the completion of the Accomplishment Instructions in this Service Bulletin. Refer to the Hartzell Propeller website at www.hartzellprop.com for a cross-reference of service documents.

C. Reason

- (1) There have been sporadic reports of blade flutter during landing while using propeller reversing. An investigation identified a greater likelihood for this occurrence with blades nearing dimensional minimums.
 - (a) This same occurrence of blade flutter is also possible with blades near original manufacturing specifications.
 - (b) This condition can cause cracked and/or failed blades. Refer to Figure 1.

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WARNING: UNUSUAL OR ABNORMAL VIBRATION, WHERE THE CONDITION INITIATED SUDDENLY, CAN BE AN INDICATION OF A FAILING PROPELLER BLADE OR BLADE RETENTION COMPONENT. AN INFLIGHT BLADE SEPARATION MAY RESULT IN DEATH, SERIOUS BODILY INJURY, AND/OR SUBSTANTIAL PROPERTY DAMAGE. UNUSUAL OR ABNORMAL VIBRATION DEMANDS IMMEDIATE INSPECTION. PROPELLER BLADE SEPARATION MAY OR MAY NOT BE PRECEDED BY VIBRATION.

- (2) Blade Flutter can be identified by a large increase in sound level during application of reverse.
- (3) Blade replacement in accordance with the Compliance section of this Service Bulletin will minimize the tendency for flutter.
- (4) Replacement of all T10173F(N)(B,K)-12.5 blades with improved T10173AN(B,K)-12.5 blades is terminating action for this Service Bulletin.
- (5) Regulatory action is unknown.

D. Description

- (1) This document provides Instructions for Continuing Airworthiness (ICA).
- (2) This Service Bulletin introduces an improved, thicker blade model T10173AN(B,K)-12.5 as a replacement item for T10173F(N)(B,K)-12.5 blades installed on the King Air B100 aircraft with HC-B4TN-5(C,F) propellers.
- (3) This Service Bulletin provides the part numbers and instructions for installation of the T10173AN(B,K)-12.5 blades in accordance with Hartzell Propeller STC SA02539CH-D.
- (4) Revision 1 to this Service Bulletin identifies the possibility of the occurrence of blade flutter for blades near manufacturing specifications and requires replacement of affected blades.

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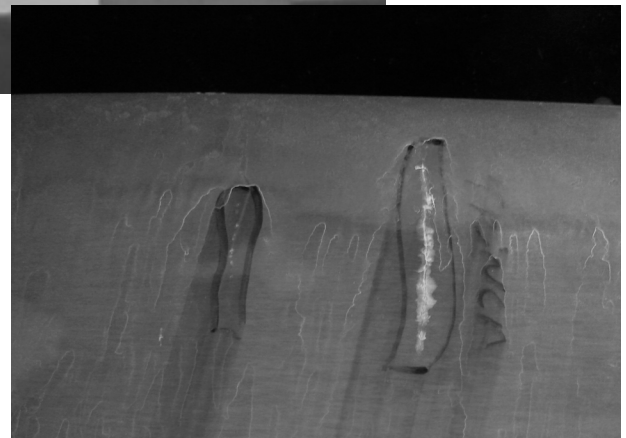
TI-SB304Example

Cracks are located between the markings on the blades shown.



Close-up View

Penetrant Inspection View



Examples of Cracked Blades Caused by this Condition

Figure 1

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E. Compliance

WARNING: CONTINUED OPERATION IN A FLUTTER CONDITION MAY LEAD TO CATASTROPHIC FAILURE OF THE PROPELLER WHICH CAN CAUSE SERIOUS INJURY, DEATH AND/OR SIGNIFICANT PROPERTY DAMAGE.

- (1) If there is evidence of blade flutter, avoid operations (reversing) that are likely to produce flutter and replace blades at first opportunity in accordance with this Service Bulletin and Hartzell Propeller STC SA02539CH-D.
 - (a) Replacement of any T10173F(N)(B,K)-12.5 blade with an improved T10173AN(B,K)-12.5 blade, requires replacement of all blades on both propellers in accordance with Hartzell Propeller STC SA02539CH-D.
 - (b) Replacement must be accomplished in accordance with Hartzell Steel Hub Turbine Propeller Maintenance Manual 118F (61-10-18).
 - (c) Replacing the blades with the improved blades T10173AN(B, K)-12.5 requires installation of a placard near the propeller tachometers in accordance with Hartzell Propeller STC SA02539CH-D.
- (2) Replace all affected blades, even those without evidence of blade flutter, with the improved T10173AN(B,K)-12.5 blades at next overhaul in accordance with Hartzell Service Letter HC-SL-61-61Y, or at next major disassembly, and no later than 3000 flight hours or 60 calendar months from August 1, 2012, whichever occurs first.

NOTE 1: Next overhaul is defined in accordance with Hartzell Service Letter HC-SL-61-61Y.

NOTE 2: Steel hub propeller major disassembly is defined as any repair that requires the blade clamp halves to be separated.

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WARNING: BLADES REMOVED FROM SERVICE IN COMPLIANCE WITH THIS SERVICE BULLETIN MAY NOT BE RETURNED TO SERVICE ON ANY AIRCRAFT.

- (3) Any affected blade removed from the propeller must be retired from service in accordance with the Part Retirement Procedures chapter of Hartzell Standard Practices Manual 202A (61-01-02).

NOTE: There are 3rd party STC modifiers with approved installations of the affected propeller model(s), with the improved blades, that may be applicable to your aircraft. Contact Hartzell Product Support at (001) 937.778.4379 or by email at techsupport@hartzellprop.com for details.

- (4) Stock/inventory of the affected blades must be replaced before installation and no later than September 30, 2013.
- (5) Installation of the improved T10173AN(B,K)-12.5 blades is terminating action for this Service Bulletin.

F. Approval

- (1) FAA approval has been obtained on technical data in this publication that affects type design.

G. Manpower

- (1) Additional man hours are not required when accomplished with any required blade replacement.
- (2) Additional man hours are not required when accomplished at overhaul or other required major disassembly.
- (3) Additional man hours required when performed outside normal inspections with disassembly:

Propeller Disassembly and Re-seal 6.0 man hours per propeller

H. Weight and Balance

- (1) With the installation of the T10173AN(B, K)-12.5 blades, there is a weight increase of 4.0 pounds (1.81 kg) per propeller. Refer to Hartzell Propeller STC SA02539CH-D for additional data.

I. Electrical Load Data

- (1) Not changed

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CAUTION: DO NOT USE OBSOLETE OR OUTDATED INFORMATION. PERFORM ALL INSPECTIONS OR WORK IN ACCORDANCE WITH THE MOST RECENT REVISION OF ALL DOCUMENTS.

J. References

- (1) Hartzell Steel Hub Turbine Propeller Maintenance Manual 118F (61-10-18)
- (2) Hartzell Propeller Owner's Manual 139 (61-00-39)
- (3) Hartzell Standard Practices Manual 202A (61-01-02)
- (4) FAA Airworthiness Directive 72-08-04
- (5) FAA Airworthiness Directive 96-18-14
- (6) Hartzell Service Bulletin HC-SB-61-97A
- (7) Hartzell Service Bulletin HC-SB-61-261
- (8) Hartzell Propeller Supplemental Type Certificate SA02539CH-D

K. Other Publications Affected

- (1) Hartzell Aluminum Blade Overhaul Manual 133C (61-13-33)
- (2) Hartzell Application Guide Manual 159 (61-02-59)

2. Material Information

A. Material Necessary for Each Propeller/Component

<u>Part Number (Improved Blade)</u>	<u>Replaces (Current Blade)</u>
T10173AN-12.5	T10173F(N)-12.5
T10173ANB-12.5	T10173F(N)B-12.5
T10173ANK-12.5	T10173F(N)K-12.5

B. Additional parts and consumables may be required in accordance with Hartzell Steel Hub Turbine Propeller Maintenance Manual 118F (61-10-18).

3. Accomplishment Instructions

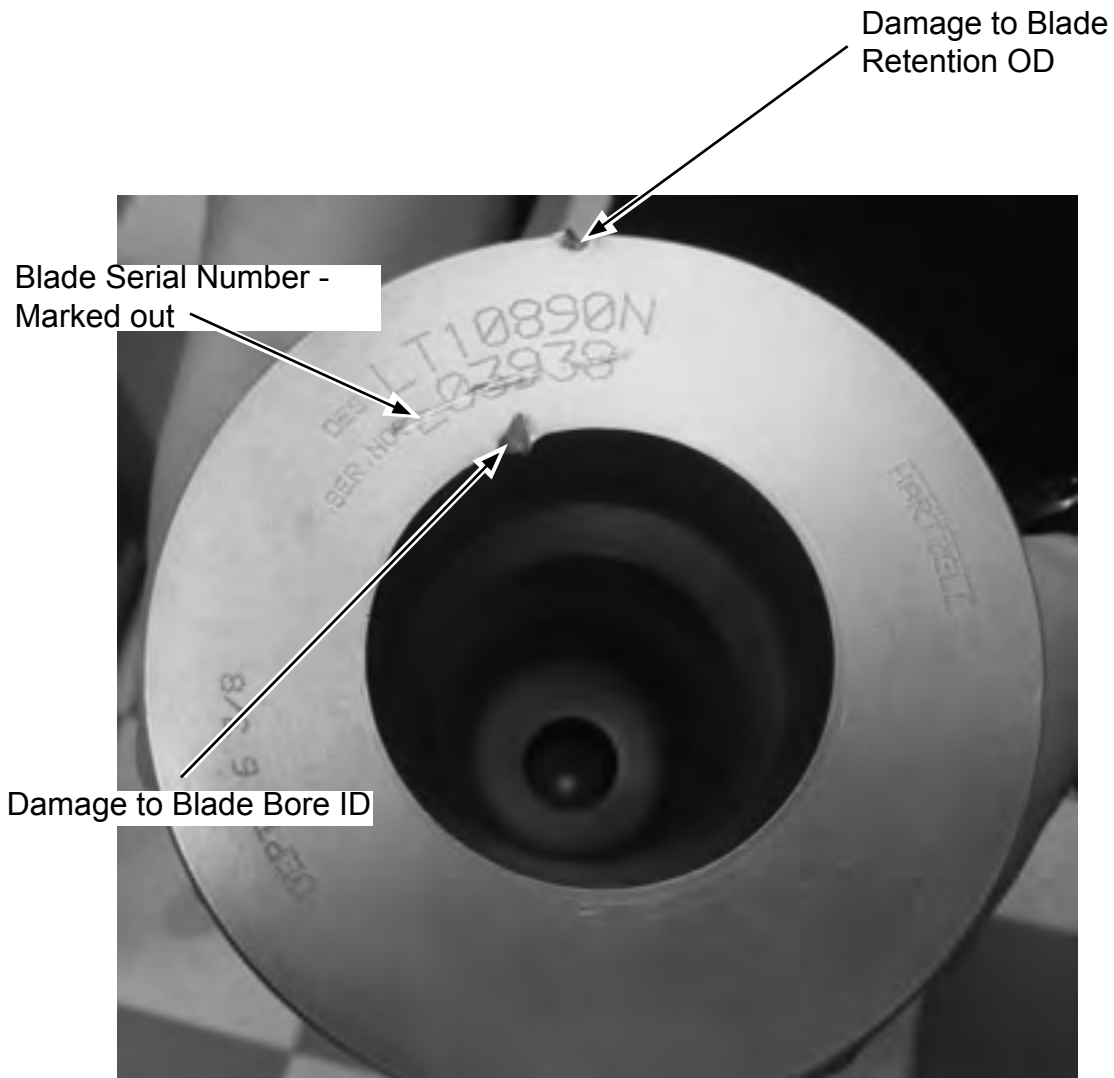
- A. Order replacement blades for all affected blades as soon as an overhaul is scheduled in order to allow for manufacturing lead time. Refer to the Appendix in this Service Bulletin for additional details.**
- B. Disassembly, inspection, and assembly of the propeller and components must be performed by a propeller service facility licensed by a governmental regulatory agency, e.g., FAA, EASA, CAA.**

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TI-RetiredTBlade



Note: The blade shown is not an affected blade. This blade is shown as an example only of the damage that should be made to retire the blade.

Blade Butt Showing Damage to Prevent Further Use of the Blade
Figure 2

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- C. Remove the propeller in accordance with Hartzell Propeller Owner's Manual 139 (61-00-39).
- D. Disassemble the propeller in accordance with Hartzell Steel Hub Turbine Propeller Maintenance Manual 118F (61-10-18).
 - (1) Remove affected blades.

CAUTION: **AFFECTED BLADES MUST BE RETIRED FROM SERVICE AND CANNOT BE INSTALLED FOR USE IN ANY APPLICATION, INCLUDING EXPERIMENTAL APPLICATIONS.**

- (a) Retire the affected blade(s) from service in accordance with the Part Retirement Procedures chapter in Hartzell Standard Practices Manual 202A (61-01-02), except:

NOTE: The Parts Retirement Form is available at www.hartzellprop.com.

- 1 The retired blades cannot be modified or returned to service for use in any application, including experimental applications.
- 2 Each blade must be damaged in such a way that prevents further use of the blade.
 - 1 Using a tool, damage the ID of the blade bore and the OD of the blade retention surface. Damage must be sufficient to prevent installation of the blade bearing and the blade clamp. Refer to Figure 2.
 - 2 Mark out the blade serial number, so that the number is still legible.
 - 3 Take a photograph of the blade butt to show the damage, the blade model number, and the blade serial number. Refer to Figure 2.
 - 4 Send the photo via email to techsupport@hartzellprop.com in accordance with the Appendix to this Service Bulletin. **DO NOT RETURN THE BLADE.**

E. Assembly

- (1) Using improved blades, T10173AN(B, K)-12.5, assemble the propeller in accordance with Hartzell Steel Hub Turbine Propeller Maintenance Manual 118F (61-10-18) and Instructions For Installation from STC SA02539CH-D.
 - (a) Contact Hartzell Product Support to request a free-of-charge copy of Hartzell Propeller STC SA02539CH-D and all related documents (Instructions For Installation, Flight Manual Supplement, and Instructions For Continuing Airworthiness).

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- F. If a completed Compliance/Order Form from the Appendix in this Service Bulletin was not already sent in section 3.A., complete and send the Compliance/Order Form to Hartzell Product Support.
 - (1) The form must be sent even if blades are not ordered from Hartzell Propeller.
 - (2) Propellers/blades are not in compliance with this Service Bulletin if a completed Compliance/Order Form is not received by Hartzell Product Support.
- G. Make a logbook entry indicating compliance with the blade replacement instruction as terminating action for this Service Bulletin.
- H. Recommended Service Facilities
 - (1) Hartzell Propeller has a worldwide network of Recommended Service Facilities that are recommended by Hartzell Propeller for overhaul and repair of our products.
 - (2) Each service facility must meet standard FAA requirements and additional Hartzell Propeller requirements before being recommended by Hartzell Propeller. Each service facility is audited by Hartzell Propeller to verify the continuation of the standards.
 - (3) Hartzell Propeller recommends that you use one of these service facilities when having your propeller overhauled or repaired.
 - (4) For a current list of Hartzell Propeller Recommended Service Facilities, contact Hartzell Product Support or refer to the Hartzell Propeller website at www.hartzellprop.com.
- I. Contact Information

Hartzell Propeller Inc.
Attn.: Hartzell Product Support
One Propeller Place
Piqua, Ohio 45356-2634 USA
Phone: (001) 937.778.4379
Fax: (001) 937.778.4391
E-mail: techsupport@hartzellprop.com

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1. Eligibility

- A. Hawker Beechcraft King Air B100 aircraft with Hartzell steel hub propeller HC-B4TN-5(C,F)/T10173F(N)(B,K)-12.5 are eligible for this warranty program.
 - (1) Assembled propellers that are not within the overhaul limitations specified in accordance with Hartzell Service Letter HC-SL-61-61Y are not eligible for this warranty program.
 - (2) This warranty program will expire on September 30, 2017.
- B. Stock/inventory of T10173F(N)(B,K)-12.5 blades that are in new condition with 0.0 hours time since new are eligible for this warranty program.
 - (1) This warranty program will expire on September 30, 2013.

2. Recommended Service Facilities

- A. Hartzell Propeller has a worldwide network of Recommended Service Facilities that are recommended by Hartzell Propeller for overhaul and repair of our products.
- B. Each service facility must meet standard FAA requirements and additional Hartzell Propeller requirements before being recommended by Hartzell Propeller. Each service facility is audited by Hartzell Propeller to verify the continuation of the standards.
- C. Hartzell Propeller recommends that you use one of these service facilities when having your propeller overhauled or repaired.
- D. For a current list of Hartzell Propeller Recommended Service Facilities, contact Hartzell Product Support or refer to the Hartzell Propeller website at www.hartzellprop.com.

3. Special Pricing Program

- A. Replacement blades must be procured from Hartzell Propeller in accordance with this Appendix in order to qualify for the Special Pricing Program replacement of eligible blades. Allow for manufacturing lead time.
 - (1) Only non-booted blades, T10173AN-12.5, will be provided under this Special Pricing Program as replacement for eligible blades.
 - (2) Only replacement blades will be provided. Hartzell Propeller will not reimburse the cost of replacement blades purchased/ordered through means outside of this Service Bulletin.

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B. For affected assembled propellers that are within the overhaul limitations specified in accordance with Hartzell Service Letter HC-SL-61-61Y:

- (1) This special pricing program expires at the next recommended overhaul interval in accordance with Hartzell Service Letter HC-SL-61-61Y or September 30, 2017, whichever occurs first.
- (2) Hartzell Propeller will allow purchase of replacement blade(s), T10173AN-12.5, at a discount off of list price based on blade time since new (TSN)/time in service (in accordance with Hartzell Service Letter HC-SL-61-61Y) as follows:

NOTE: Replacement blades will only be shipped to a certified propeller repair facility. Replacement blades will NOT be shipped directly to end users.

<u>Time In Service</u>	<u>Discount off of List Price</u>
Before 1st overhaul	75%
At 1st overhaul up to but not including 2nd overhaul	50%
At 2nd overhaul up to but not including 3rd overhaul	25%
At 3rd overhaul or later	No Discount

- (3) The following documentation must be provided to Hartzell Product Support in order to qualify for this warranty program:
 - (a) A completed and signed Service Bulletin Compliance/Order Form.
 - (b) The propeller service facility completing the blade replacement must retire the affected blade(s) from service in accordance with Service Bulletin HC-SB-61-304.
 - (c) If the propeller has been previously overhauled, provide a copy of the maintenance release tag, FAA Form 8130-3 or JAA Form 1, indicating current/latest propeller overhaul, and/or a copy of applicable log book pages that must include overhaul date, TSN at overhaul, and current TSO.
 - (d) If an overhaul is not yet due in accordance with Hartzell Service Letter HC-SL-61-61Y, provide a copy of applicable log book pages that must include propeller installation date, and current TSN.
 - (e) If time in service of the blades does not match time in service of the propeller, provide logbook pages verifying installation date and TSN of the blades.

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- (4) The photo of each retired blade must be received by Hartzell Propeller Product Support in accordance with the Accomplishment Instructions in this Service Bulletin. Refer to Figure 2 in this Service Bulletin.
 - (a) **The required photo(s) must be received by Hartzell Propeller Product Support within six (6) calendar months from receipt of the replacement blades at the service facility.**
 - (b) **Failure to provide the required blade photo(s) in accordance with this Service Bulletin and Appendix will result in a charge to the propeller service facility for the full list price of the replacement blades.**

- C. For stock/inventory T10173F(N)(B,K)-12.5 blades that are in new condition with 0.0 hours time since new:
 - (1) This special pricing program expires September 30, 2013.
 - (2) Hartzell Propeller will provide free of charge a replacement blade of the improved model for each affected blade.
 - (3) A completed and signed Service Bulletin Compliance/Order Form must be provided to Hartzell Product Support in order to qualify for this warranty program.
 - (4) The photo of each retired blade must be received by Hartzell Propeller Product Support in accordance with the Accomplishment Instructions in this Service Bulletin. Refer to Figure 2 in this Service Bulletin.
 - (a) **The required photo(s) must be received by Hartzell Propeller Product Support within six (6) calendar months from receipt of the replacement blades at the service facility.**
 - (b) **Failure to provide the required blade photo(s) in accordance with this Service Bulletin and Appendix will result in a charge to the propeller service facility for the full list price of the replacement blades.**

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D. Replacement Blade Order Administration

- (1) Replacement blade orders will be administered as follows:
- (a) Upon receipt of the completed Service Bulletin Compliance/Order Form and required documentation, Hartzell Product Support will enter an order for the replacement blade(s).
 - 1 Replacement blades will be shipped as soon as available. Allow for manufacturing lead time.
 - 2 This information is applicable only to those affected blades which meet the terms and conditions detailed in section 3.B. or 3.C of this Appendix.
 - (b) The photo of each retired blade must be sent to / received at Hartzell Propeller Product Support in accordance with the Accomplishment Instructions in this Service Bulletin. Refer to Figure 2 in this Service Bulletin.
 - 1 **The required photo(s) must be received by Hartzell Propeller Product Support within six (6) calendar months from receipt of the replacement blades at the service facility.**
 - 2 **Failure to provide the required blade photo(s) in accordance with this Service Bulletin and Appendix will result in a charge to the propeller service facility for the full list price of the replacement blades.**

E. Contact Information and Shipping Address for retired blade pieces.

Hartzell Propeller Inc.
Attn: Hartzell Product Support - SB304
One Propeller Place
Piqua, Ohio 45356-2634 USA
Phone: (001) 937.778.4379
Fax: (001) 937.778.4391
E-mail: techsupport@hartzellprop.com

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Compliance/Order Form**

Replacement blades are offered at a discount for eligible propellers only. Required documentation must accompany this Compliance/Order Form to verify eligibility. Failure to provide the required blade photo(s) in accordance with this Appendix will result in a charge for the full list price of the replacement blade(s). A PO number must be provided with this order, for use only in the event the blade photo(s) are not received as required.

Owner Information: (Replacement blades will ONLY be shipped to a Service Facility.)

Name: _____ Phone: _____
Address: _____ Fax: _____
_____ E-Mail: _____
City: _____ Zip/Postal Code: _____
State: _____ Country: _____

Service Facility/Shipping Location: (Replacement blades will ONLY be shipped to a Service Facility.)

Company: _____ Phone: _____
Contact Name: _____ Fax: _____
Address: _____ E-Mail: _____
_____ City: _____ Zip/Postal Code: _____
State: _____ Country: _____

PO# is required: _____

I understand that affected blades must be permanently retired from service and a photo sent to Hartzell Propeller in accordance with this Appendix. My signature indicates my understanding of these requirements and agreement to follow these requirements.

Signature: _____

TSN = time since new TSO = time since overhaul
If propeller/blade times are not equal, additional documentation must be provided.

If blades are from open stock/inventory, propeller information may be left blank:

Propeller Model: _____ Propeller S/N: _____
Propeller/Blade TSN: _____ Propeller/Blade TSO: _____
Date of Last Propeller/Blade Overhaul: _____
If not overhauled, provide Date of Propeller/Blade Installation: _____

List each affected/retired blade by serial number and model:

Blade S/N	Blade Model

Send this Compliance/Order Form to: (Propellers/blades are not in compliance if this completed form is not received.)

Hartzell Product Support
Fax: (001) 937.778.4391
E-Mail: warranty@hartzellprop.com

NOTE: This form is available electronically on our website at www.hartzellprop.com

Hartzell use only - do not write below this line

Warranty #: _____ Authorized By: _____

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