

**HARTZELL PROPELLER INC.**  
**ALERT SERVICE BULLETIN**  
**TRANSMITTAL SHEET**  
**HC-ASB-61-396**  
**Raptor Hub Units - Shot Peening**

March 09, 2022

This page transmits a revision to Alert Service Bulletin HC-ASB-61-396.

- Original Issue, dated Jan 13/22
- Revision 1, dated Mar 09/22

Propeller assemblies that have previously complied with an earlier version of this Alert Service Bulletin are affected.

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

Revision 1 is issued to change the following in the Alert Service Bulletin:

- Revise the instructions for impression stamping the shot peened hub in the "Accomplishment Instructions" section

This Alert Service Bulletin is reissued in its entirety.

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# **ALERT SERVICE BULLETIN**

**TRANSMITTAL SHEET**

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**Raptor Hub Units - Shot Peening**

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**HARTZELL PROPELLER INC.**  
**ALERT SERVICE BULLETIN**  
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**Raptor Hub Units - Shot Peening**

1. Planning Information

A. Effectivity

- (1) Hartzell Propeller Inc. Raptor-series reciprocating propeller models (3,4)C(1,2)-( ) ( ) with serial numbers listed in Table 1 are affected by this Alert Service Bulletin.
- (2) Hartzell Propeller Inc. Raptor-series turbine propeller models 5D3-N338A( ) with serial numbers listed in Table 2 are affected by this Alert Service Bulletin.

**WARNING: DO NOT USE OBSOLETE OR OUTDATED INFORMATION. PERFORM ALL INSPECTIONS OR WORK IN ACCORDANCE WITH THE MOST RECENT REVISION OF THIS ALERT SERVICE BULLETIN. INFORMATION CONTAINED IN THIS ALERT SERVICE BULLETIN MAY BE SIGNIFICANTLY CHANGED FROM EARLIER REVISIONS. FAILURE TO COMPLY WITH THIS ALERT 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 ALERT SERVICE BULLETIN INDEX FOR THE MOST RECENT REVISION LEVEL OF THIS ALERT SERVICE BULLETIN.**

B. Concurrent Requirements

- (1) Additional service documents may apply to the components/propellers affected by this Alert Service Bulletin. Compliance with additional service documents may be necessary in conjunction with the completion of the Accomplishment Instructions in this Alert Service Bulletin. Refer to the Hartzell Propeller Inc. website at [www.hartzellprop.com](http://www.hartzellprop.com) for a cross-reference of service documents.

C. Reason

- (1) Hartzell Propeller Inc. has received reports of insufficient shot peen coverage in the bearing race seating area of the hub unit on affected propellers. Refer to Figure 2.

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## Raptor Hub Units - Shot Peening

### D. Description

- (1) This Alert Service Bulletin provides Instructions for Continued Airworthiness (ICA).
- (2) This Alert Service Bulletin provides instructions for shot peening the bearing race seating area of affected hub units.
- (3) Hartzell Propeller Inc. will warrant the shipping and labor costs associated with shot peening the affected hub units.
  - (a) Refer to the Appendix section of this Alert Service Bulletin for additional information about the warranty program.

### E. Compliance

NOTE: Compliance time in this Alert Service Bulletin refers to Time Since New (TSN) on the affected propellers.

- (1) Affected (3,4)C(1,2)-( ) ( ) Raptor-series Reciprocating Propellers:
  - (a) Within 72 months or 2400 flight hours (TSN), whichever occurs first, shot peen the bearing race seating area of the hub unit in accordance with the Accomplishment Instructions in this Alert Service Bulletin.
    - 1 If the Time Since New (TSN) on the affected propeller is beyond 72 months/2400 flight hours, shot peen the bearing race seating area of the hub unit in accordance with the Accomplishment Instructions in this Alert Service Bulletin within 3 months or 100 flight hours from the release date of this Alert Service Bulletin, whichever occurs first.
- (2) Affected 5D3-N338A( ) Raptor-series Turbine Propellers:
  - (a) Within 72 months or 4000 flight hours (TSN), whichever occurs first, shot peen the bearing race seating area of the hub unit in accordance with the Accomplishment Instructions in this Alert Service Bulletin.
    - 1 If the Time Since New (TSN) on the affected propeller is beyond 72 months/4000 flight hours, shot peen the bearing race seating area of the hub unit in accordance with the Accomplishment Instructions in this Alert Service Bulletin within 3 months or 100 flight hours from the release date of this Alert Service Bulletin, whichever occurs first.

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F. Approval

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

G. Manpower

- (1) Shot Peening:

Procedure	Allowable Man-hours
Shot Peening	provide vendor invoice

- (2) Additional procedures required when shot peen compliance is performed after the propeller's first overhaul:

Procedure	Allowable Man-hours		
	3-Blade	4-Blade	5-Blade
Propeller Reseal w/De-ice	6.0	7.0	11.0
Propeller Reseal w/o De-ice	5.0	6.0	9.0
Hub Unit Overhaul	4.0	5.0	6.0

H. Weight and Balance

- (1) Not changed

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 A DOCUMENT.

**J. References**

- (1) Hartzell Propeller Inc. Standard Practices Manual 202A (61-01-02)
- (2) Hartzell Propeller Inc. Raptor Reciprocating Propeller Owners Manual 480 (61-10-80) - Available on the Hartzell Propeller Inc. website at [www.hartzellprop.com](http://www.hartzellprop.com)
- (3) Hartzell Propeller Inc. Raptor Turbine Propeller Owners Manual 486 (61-00-86) - Available on the Hartzell Propeller Inc. website at [www.hartzellprop.com](http://www.hartzellprop.com)
- (4) Hartzell Propeller Inc. Raptor Series Reciprocating Propeller Overhaul Manual 490 (61-10-90)
- (5) Hartzell Propeller Inc. Three Blade Raptor Series Reciprocating Propeller Overhaul Manual 491 (61-10-91)
- (6) Hartzell Propeller Inc. Raptor Series Turbine Propeller Overhaul Manual 496 (61-10-96)

**K. Other Publications Affected**

- (1) Hartzell Propeller Inc. Standard Practices Manual 202A (61-01-02)

**2. Material Information**

**A. If shot peen compliance is performed at first propeller overhaul:**

- (1) No additional components are required/provided when compliance is performed at the first overhaul of the affected propeller.

**B. If shot peen compliance is performed after the propeller's first overhaul:**

- (1) Contact Hartzell Propeller Inc. Product Support Department to identify and order the required parts.

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3. Accomplishment Instructions

A. Shot Peen Compliance Procedure

**CAUTION:** THIS PROCEDURE MUST BE PERFORMED BY A CERTIFIED PROPELLER REPAIR STATION WITH THE APPROPRIATE RATING.

- (1) Disassemble and inspect the affected propeller in accordance with the applicable Hartzell Propeller Inc. propeller overhaul manual.
- (2) Disassemble, clean/strip, inspect, and overhaul the affected hub unit in accordance with the Aluminum Hub Overhaul chapter of Hartzell Propeller Inc. Standard Practices Manual 202A (61-01-02), up to and including penetrant inspection.
- (3) After penetrant inspection, examine all shot peened surfaces of the hub (internal and external) for wear and/or damage that exceeds the depth of the shot peen pebble grain.
  - (a) Make a record of any area(s) where there is damage and/or wear that exceeds the depth of the shot peen pebble grain.
    - 1 The damaged/worn area(s) must be re-shot peened.
- (4) The internal bearing race seating area of the hub, and any damaged/worn shot peened areas identified must be re-shot peened by a Hartzell-approved repair facility in accordance with the "Hub Unit Shot Peen Procedure" in this Alert Service Bulletin.
  - (a) For a list of repair facilities that have been evaluated and approved by Hartzell Propeller Inc. to shot peen Hartzell propeller components, refer to the "Sample Program Approvals" page on the Hartzell website at [www.hartzellprop.com](http://www.hartzellprop.com).
- (5) After the hub has been shot peened by a Hartzell-approved repair facility, complete the overhaul of the hub unit in accordance with the Aluminum Hub Overhaul chapter of Hartzell Propeller Inc. Standard Practices Manual 202A (61-01-02).

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## Raptor Hub Units - Shot Peening

CAUTION: IN THE FOLLOWING STEP, IMPRESSION STAMP THE HUB ABOVE/BELOW THE HUB SERIAL NUMBER, NOT THE PROPELLER SERIAL NUMBER.

- (a) Impression stamp "SP" above or below the hub serial number on the cylinder-side hub half as shown in Figure 1.

NOTE: The "SP" stamp indicates the hub unit was shot peened in accordance with this Alert Service Bulletin.

- (6) Complete the assembly of the affected propeller in accordance with the applicable Hartzell Propeller Inc. overhaul manual.
- (7) Make an entry in the propeller logbook indicating the bearing race seating area of the hub was shot peened in accordance with this Alert Service Bulletin.
  - (a) Shot peening the bearing race seating area of the affected hub is terminating action for this Alert Service Bulletin.
- (8) Complete and sign the Shot Peen Compliance Form in the Appendix section of this Alert Service Bulletin.
  - (a) Send the applicable invoice and the completed form to Hartzell Propeller Inc. for processing.



**Stamping the Hub**  
**Figure 1**

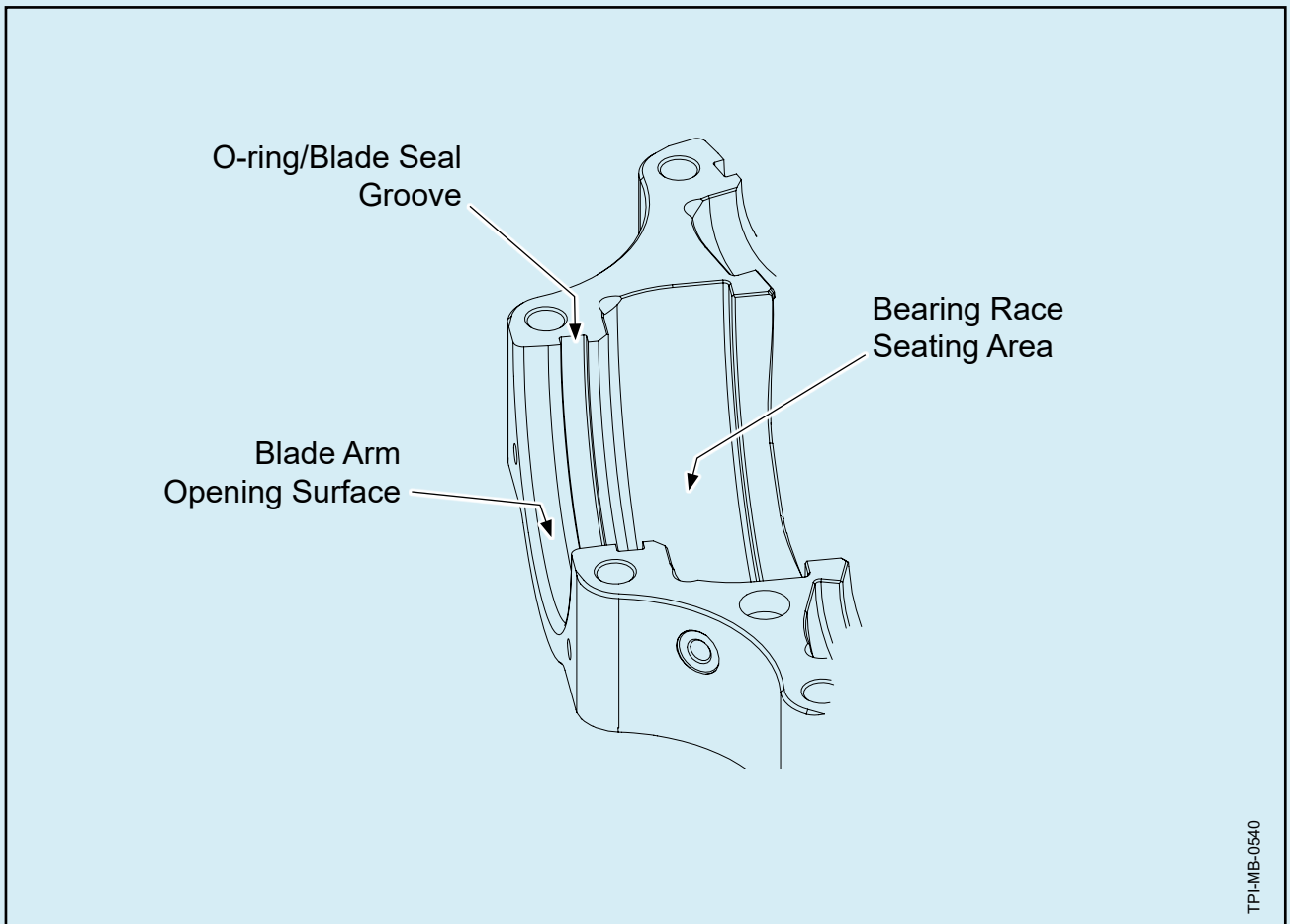


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C. Hub Unit Shot Peen Procedure

**CAUTION:** THIS PROCEDURE MUST BE PERFORMED BY A REPAIR FACILITY THAT HAS BEEN EVALUATED AND APPROVED BY HARTZELL PROPELLER INC. TO SHOT PEEN HARTZELL PROPELLER COMPONENTS.

- (1) Mask the internal surfaces of the hub in accordance with the Aluminum Hub Overhaul chapter of Hartzell Propeller Inc. Standard Practices Manual 202A (61-01-02).
  - (a) Additionally, mask the blade arm opening surface outboard of the O-ring/blade seal groove. Refer to Figure 2.

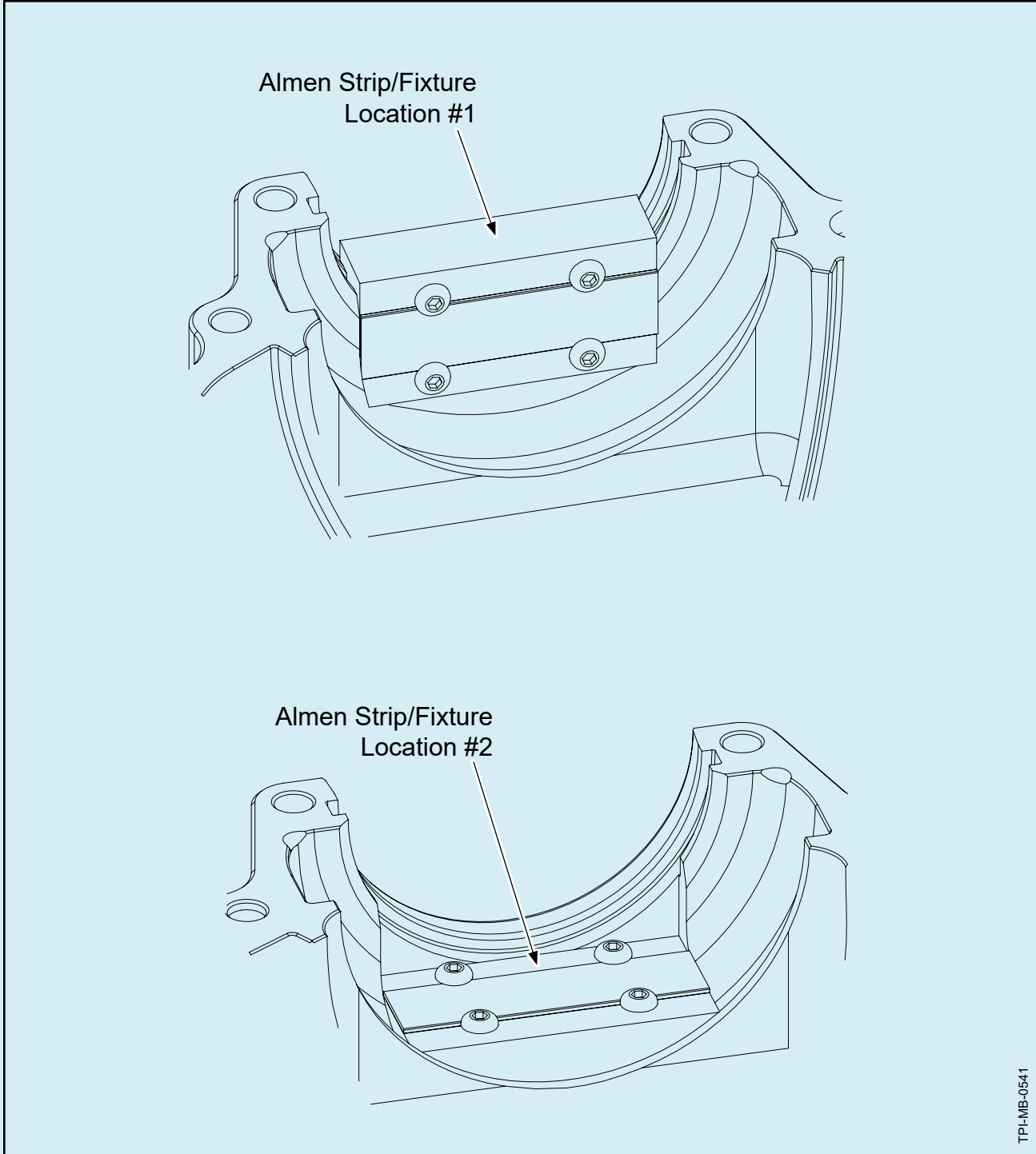


**Bearing Arm Opening Surface**  
**Figure 2**

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Raptor Hub Units - Shot Peening



**Almen Strip Locations: Bearing Race Seating Area**  
**Figure 3**

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### Raptor Hub Units - Shot Peening

- (2) Using a scrap hub or simulative fixture, position new Type "A" Almen strips in Location #1 and Location #2 as shown in Figure 3 of this Alert Service Bulletin.
- (3) Shot peen and process Type "A" Almen strips in accordance with the Shot Peening chapter of Hartzell Propeller Inc. Standard Practices Manual 202A (61-01-02), **except:**
  - (a) Shot peen intensity range
    - 1 Position #1: 0.008 - 0.014
    - 2 Position #2: 0.010 - 0.014
- (4) Shot peen the bearing race seating area of the hub in accordance with the Aluminum Hub Overhaul chapter and the Shot Peening chapter of Hartzell Propeller Inc. Standard Practices Manual 202A (61-01-02), **except:**
  - (a) Shot peen intensity range
    - 1 Position #1: 0.008 - 0.014
    - 2 Position #2: 0.010 - 0.014
- (5) If additional surfaces require re-shot peening, mask and shot peen the applicable area(s) in accordance with the Aluminum Hub Overhaul chapter and the Shot Peening chapter of Hartzell Propeller Inc. Standard Practices Manual 202A (61-01-02).

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D. Recommended Service Facilities

- (1) Hartzell Propeller Inc. has a worldwide network of Recommended Service Facilities 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 Inc. Each service facility is audited by Hartzell Propeller Inc. to verify the continuation of the standards.
- (3) Hartzell Propeller Inc. recommends that you use one of these service facilities when having your propeller overhauled or repaired.
- (4) For a current list of Hartzell Propeller Inc. Recommended Service Facilities, contact Hartzell Propeller Inc. Product Support or refer to the Hartzell Propeller Inc. website at [www.hartzellprop.com](http://www.hartzellprop.com).
- (5) For a list of repair facilities that have been evaluated and approved by Hartzell Propeller Inc. to shotpeen Hartzell propeller components, refer to the "Sample Program Approvals" page on the Hartzell website at [www.hartzellprop.com](http://www.hartzellprop.com).

E. Contact Information

- (1) Email, fax, or mail the compliance form to:  
Hartzell Propeller Inc.  
Attn: Hartzell Propeller Inc. Product Support  
One Propeller Place  
Piqua, OH 45356 USA  
Phone: 937.778.4379  
Fax: 937.778.4215 (Intl. 001.937.778.4215)  
Email: [techsupport@hartzellprop.com](mailto:techsupport@hartzellprop.com)

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Propeller Model	Propeller s/n	Hub p/n
3C1-FP919A1X1	B20967	105971-3X
3C1-L675A1( )	B19497	106153X
	B21490	106153X
	B21491	106153X
	B22634	106153X
	SL1 thru SL21	106153
3C1-R430A1( )	B16536	105726-1X
	B28833	105726-1
	B28834	105726-1
	B28835	105726-1
	B28836	105726-1
	B34395	105726-1
	B34815	105726-1
	B34816	105726-1
	B34817	105726-1
	B34818	105726-1
	B34819	105726-1
	B35173	105726-1
	B35174	105726-1
	B35175	105726-1
	B35176	105726-1
	B35624	105726-1
	B35625	105726-1
	B35764	105726-1
	B36244	105726-1
	B36245	105726-1
	B37281	105726-1
	B37283	105726-1
	B37284	105726-1
	B37494	105726-1
B37496	105726-1	
B37497	105726-1	
B38042	105726-1	
B38044	105726-1	

**Affected Propeller Serial Numbers: Raptor-series Reciprocating  
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Propeller Model	Propeller s/n	Hub p/n
3C1-R430A1( )	B39275	105726-1
	B39276	105726-1
	SM15	105726-1
	SM18	105726-1
	SM20 thru SM22	105726-1
	SM25 thru SM27	105726-1
	SM29	105726-1
	SM33	105726-1
	SM36 and SM37	105726-1
	SM39	105726-1
	SM41 thru SM43	105726-1
3C1-R619A1( )	B17875	105726-2X
	B22635	105726-2X
	B22636	105726-2X
	B25501	105726-2
	SP1 thru SP3	105726-2
3C1-R675A1X2	B35634	105726-3X
	B35635	105726-3X
3C1-R919A1( )	B19516	105726X
	B19517	105726X
	B25506	105726
	SR1 thru SR57	105726
3C2-FP650A1X	B26954	107007X
	B28521	107007X
	B28523	107007X
4C1-F375A1X	B32771	107402-2X
4C1-F650A1( )	B31210	107402-1X
	B31211	107402-1X
	B32283	107402-1X
	B34361	107402-1
	TM1 thru TM116	107402-1
4C2-R450A1X	B35637	108186X
	B35639	108186X

**Affected Propeller Serial Numbers: Raptor-series Reciprocating  
Table 1, page 2 of 2**

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Propeller Model	Propeller s/n	Hub p/n
5D3-N338A(1,2)( )	B19428	105916
	B19429	105916
	B19431	105916
	B20995	105916
	B26939	105916
	B26940	105916
	B28943	105916
	B28944	105916
	B28945	105916
	B28953	105916
	B28958	105916
	SF1 thru SF334	105916

**Affected Propeller Serial Numbers: Raptor-series Turbine  
Table 2**

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**HARTZELL PROPELLER INC.**  
**ALERT SERVICE BULLETIN APPENDIX**  
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**Raptor Hub Units - Shot Peening**

1. Warranty Program Information

A. Eligibility

- (1) Hartzell Propeller Inc. Raptor-series reciprocating propeller models (3,4)C(1,2)-( ) ( ) with serial numbers listed in Table 1 are eligible for this warranty program.
- (2) Hartzell Propeller Inc. Raptor-series turbine propeller models 5D3-N338A( ) with serial numbers listed in Table 2 are eligible for this warranty program.

B. Parts

- (1) If shot peen compliance is performed after the propeller's first overhaul, Hartzell will provide the parts required for compliance with this Alert Service Bulletin free of charge.
  - (a) Contact Hartzell Propeller Inc. Product Support Department to identify and order the required parts.
- (2) Complete and sign the Shot Peen Compliance Form in this Appendix section, then send the completed form to Hartzell Propeller Inc. for processing.

C. Labor

- (1) Hartzell Propeller Inc. will authorize payment for the shot peening charges when the shot peen compliance is performed in accordance with the Accomplishment Instructions in this Alert Service Bulletin.
  - (a) Send the invoice for the shot peening charges to Hartzell Propeller Inc. for processing.
- (2) If shot peen compliance is performed after the propeller's first overhaul, Hartzell Propeller Inc. will authorize payment for the additional labor charges required for compliance with this Alert Service Bulletin.
  - (a) Refer to the Manpower section of this Alert Service Bulletin for warranted procedures and allowable man-hours.
  - (b) Labor charges will be reimbursed at the service facility's CURRENT POSTED SHOP LABOR RATE, pending Hartzell Propeller Inc. approval.
  - (c) Send the invoice for labor charges to Hartzell Propeller Inc. for processing.
    - 1 Reference the same warranty claim number issued by Hartzell for the replacement parts.

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**Shot Peen Compliance Form**

<b>Warranty Claim Number:</b>		
<b>Propeller Information:</b>		
Propeller Model:	Propeller S/N:	
TSN (Time Since New):	TSO (Time Since Overhaul):	
Was shot peen compliance performed at the <u>first</u> propeller overhaul? <input type="checkbox"/> YES <input type="checkbox"/> NO		
<b>Aircraft Information</b>		
Aircraft Model:	Aircraft Registration #:	
<b>Hartzell-approved Shot Peen Facility:</b>		
Name:		
City:	State:	
Zip/Postal Code:	Country:	
E-mail:	Phone:	
<b>Repair Facility/Shipping Information:</b>		
Company:	Contact Name:	
Address:		
City:	State:	
Zip/Postal Code:	Country:	
E-mail:	Phone:	Fax:
<b>Replacement Parts (if shot peen compliance performed <u>after</u> first propeller overhaul):</b>		
Refer to the Material Information section of this Alert Service Bulletin for details.		
<b>Signature:</b>		
Repair Technician's Signature:	Date:	
Send this completed <b>and signed</b> form to Hartzell Propeller Inc. Product Support Department: Fax - (001) 937.778.4215 or E-mail - techsupport@hartzellprop.com		

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Authorized By:
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