SERVICE BULLETIN

TRANSMITTAL SHEET HC-SB-30-375

De-ice - Wire Harness Replacement

April 27, 2017

This page transmits a revision to Service Bulletin HC-SB-30-375.

- Original Issue, dated Dec 01/16
- Revision 1, dated Apr 27/17

Propeller assemblies that have previously complied with the terminating action in a previous revision of this Service Bulletin are not 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 Service Bulletin:

- Removed the section, "Other Publications Affected" (This Service Bulletin was incorporated into Manual 180, Rev. 23)
- Revised the instructions for using the unfeathering tool TE316 in the Accomplishment Instructions section

This Service Bulletin is reissued in its entirety.

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1. Planning Information

A. Effectivity

- (1) Hartzell Propeller Inc. aluminum hub Raptor series 5D3-N338()/78D01B() turbine propellers with serial numbers listed in Table 1 are affected by this Service Bulletin.
 - (a) The affected propellers are installed on the following aircraft:
 - 1 Piper PA-46-500TP, Meridian/M500
 - 2 Lancair Evolution

SF1	SF7	SF13	SF30
SF2	SF8	SF14	SF31
SF3	SF9	SF15	SF33
SF4	SF10	SF16	SF34
SF5	SF11	SF17	SF35
SF6	SF12	SF19	SF37

Serial Numbers of Affected Propellers Table 1

WARNING:

DO NOT USE OBSOLETE OR OUTDATED INFORMATION.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) 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 Inc. website at www.hartzellprop.com for a cross-reference of service documents.

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C. Reason

- (1) The 105066 wire harnesses used in the ice protection system of the affected propellers can rub against the filler plates on the spinner bulkhead during operation causing damage to the wire harnesses.
 - (a) Damaged wire harnesses can affect the operation of the ice protection system.
- (2) Hartzell Propeller Inc. is introducing the 105555 wire harness as a replacement for the 105066 wire harness on the affected propellers.
 - (a) The 105555 wire harness has a different installation routing to prevent it from rubbing against the filler plates.
- (3) Regulatory action is not expected.

D. Description

- (1) This Service Bulletin provides Instructions for Continued Airworthiness (ICA).
- (2) This Service Bulletin introduces the 105555 wire harness as a replacement for the 105066 wire harness used on the affected propellers.
 - (a) Affected propellers manufactured by Hartzell Propeller Inc. after the release of this Service Bulletin will incorporate the 105555 wire harness.
 - (b) The 105066 wire harness is used in other Hartzell Propeller Inc. de-ice applications. Existing inventory/stock of the 105066 wire harness can be used for de-ice applications that are <u>not</u> affected by this Service Bulletin.
- (3) This Service Bulletin provides instructions for a visual inspection of the 105066 wire harnesses on affected propellers.
- (4) This Service Bulletin provides instructions for installing the 105555 wire harnesses on affected propellers.
- (5) The installation of 105555 and 105066 wire harnesses on the same propeller is not permitted.
- (6) Hartzell Propeller Inc. will send the required parts free of charge and warrant the labor costs related to wire harness inspection/replacement on the affected propellers when inspection/replacement is done in accordance with this Service Bulletin.
 - (a) Refer to the Material Information section in this Service Bulletin for a list of parts that are required for wire harness replacement.

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E. Compliance

- (1) Visual Inspection
 - (a) Affected propellers with less than 50 hours TSN (Time Since New):
 - Before the TSN on the affected propeller reaches 60 hours, complete a visual inspection of the 105066 wire harnesses in accordance with the Accomplishment Instructions in this Service Bulletin.
 - (b) Affected propellers with 50 hours TSN (Time Since New) or more:
 - Within 10 flight hours from the release of this Service Bulletin, complete a visual inspection of the 105066 wire harnesses in accordance with the Accomplishment Instructions in this Service Bulletin.
- (2) Wire Harness Replacement (Terminating Action)
 - (a) The number of allowable flight hours before wire harness replacement depends on the condition of the 105066 wire harnesses at the visual inspection.
 - <u>1</u> Refer to the "Visual Inspection" section of this Service Bulletin for the allowable flight hours based on the condition of the wire harnesses.
 - (b) Replace all five 105066 wire harnesses with five 105555 wire harnesses in accordance with the Accomplishment Instructions in this Service Bulletin.

F. Approval

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

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G. Manpower

Procedure	Man-hours	
Spinner Dome Removal and Installation	0.5 hour	
Wire Harness Replacement	2.5 hours	

- H. Weight and Balance
 - (1) Not changed
- I. Electrical Load Data
 - Not changed

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), Volume 7, Consumable Materials and Packaging and Storage
 - Available on the Hartzell Propeller Inc. website at www.hartzellprop.com
- (2) Hartzell Propeller Inc. Illustrated Tool and Equipment Manual 165A (61-00-65) Available on the Hartzell Propeller Inc. website at www.hartzellprop.com
- (3) Hartzell Propeller Inc. Propeller Owner's Manual 486 (61-00-86)
 - Available on the Hartzell Propeller Inc. website at www.hartzellprop.com
- (4) Hartzell Propeller Inc. Propeller Ice Protection System Component Maintenance Manual 181 (30-60-81)
 - Available on the Hartzell Propeller Inc. website at www.hartzellprop.com

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2. Material Information

A. Parts Supplied by Hartzell Propeller Inc.:

Part Number	<u>Description</u>	<u>Qty.</u>
105555	Wire Harness	5
B-3837-0332	Washer, Corrosion Resistant	5
B-3855-32	Washer, Lock, External Tooth	5
B-3840-7	Screw, 10-32, Fillister Head	5
B-3852-1-0	Strap, Tiedown, Plastic	10
B-3852-2-0	Strap, Tiedown, Plastic	5
B-3852-5-0	Strap, Tiedown, Plastic	10
B-3854-40	Washer, Lock	15
B-6637-13	Screw, Pan Head, Cres.	15

B. Consumables

CM Number Description

CM116 Threadlocker, Removable, 50cc

NOTE: All CM numbers or materials in this Service Bulletin refer to

Hartzell Propeller Inc. Standard Practices Manual 202A (61-01-02) (Volume 7, Consumable Materials and Packaging and Storage).

C. Special Tooling

TE Number	Part Number	Description
TE316	9943HART-001	Unfeathering Tool

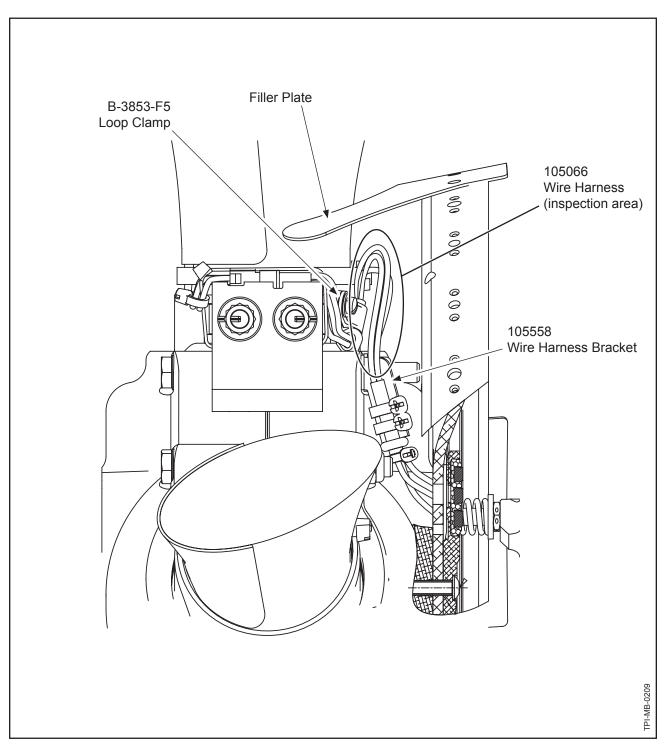
NOTE 1: All TE numbers in this Service Bulletin refer to Hartzell Propeller Inc. Illustrated Tool and Equipment Manual 165A (61-00-65).

NOTE 2: Hartzell Propeller Inc. has a limited supply of special tools available for loan. Contact the Hartzell Propeller Inc. Product Support Department for availability.

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Visual Inspection Figure 1

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3. Accomplishment Instructions

A. Visual Inspection

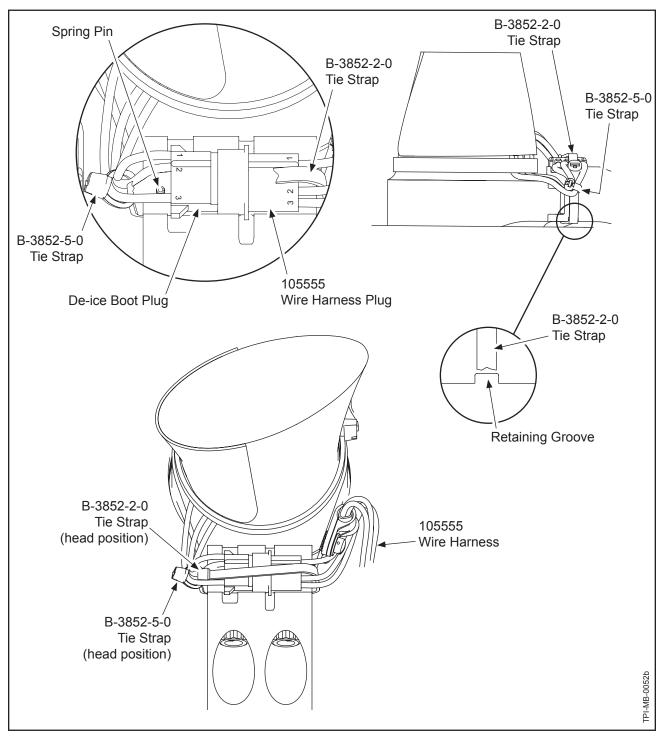
- (1) Remove the spinner dome in accordance with Hartzell Propeller Inc. Propeller Owner's Manual 486 (61-00-86).
- (2) Visually examine all five of the 105066 wire harnesses on the affected propeller.
 - (a) Examine all three wires on each 105066 wire harness for cuts or damage to the insulation between the B-3853-F5 loop clamp and the 105558 wire harness bracket. Refer to Figure 1.
 - If there is no damage to any of the 105066 wire harnesses, replace all five 105066 wire harnesses with five 105555 wire harnesses in accordance with the Accomplishment Instructions in this Service Bulletin within 50 flight hours from the visual inspection.
 - If the first layer of insulation (black) on any of the 105066 wire harnesses is damaged but the copper wire is <u>not</u> exposed, replace all five 105066 wire harnesses with five 105555 wire harnesses in accordance with the Accomplishment Instructions in this Service Bulletin within 25 flight hours from the visual inspection.
 - If the copper wire on any of the 105066 wire harnesses is exposed, replace all five 105066 wire harnesses with five 105555 wire harnesses in accordance with the Accomplishment Instructions in this Service Bulletin before further flight.

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Wire Harness to Blade Shank/Counterweight Figure 2

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- B. 105066 Wire Harness Removal
 - (1) This procedure can be done on-wing or on a propeller bench by a certified aircraft mechanic with the appropriate rating or certified propeller repair station with the appropriate rating.
 - (2) Remove the spinner dome in accordance with Hartzell Propeller Inc. Propeller Owner's Manual 486 (61-00-86).
 - (3) Move the propeller blades to reverse angle.

<u>CAUTION 1</u>: DO NOT ATTEMPT TO MOVE THE PROPELLER BLADES BEYOND THE REVERSE ANGLE MECHANICAL STOPS.

CAUTION 2: DO NOT USE BLADE PADDLES TO TURN BLADES.

- (a) To move the propeller blades to reverse angle while on-wing, install the propeller unfeathering tool TE316 or equivalent.
 - Turn the threaded rod of the unfeathering tool TE316 onto the end of the pitch change rod as far as possible.

WARNING: TIGHTEN THE THREADED ROD UNTIL IT IS SNUG. THE FEATHERING SPRING IS PRELOADED WITH APPROXIMATELY 600 LBS. (271.8 KG) OF FORCE. FAILURE TO TIGHTEN THE THREADED ROD ONTO THE PITCH CHANGE ROD CAN CAUSE THE FEATHERING SPRING TO RELEASE WHEN MOVING THE BLADES BACK TO FEATHER. THIS CAN CAUSE PROPELLER DAMAGE, SERIOUS INJURY AND/OR DEATH.

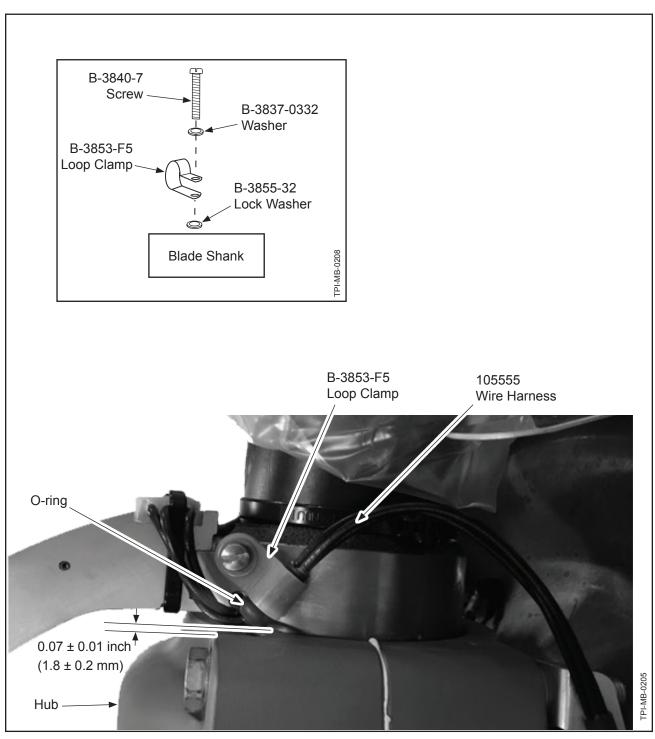
- a Tighten the threaded rod until it is snug.
- 2 Put the cylindrical part of the unfeathering tool TE316 over the threaded rod and put it on top of the cylinder.
 - Put the notch in the bottom of the unfeathering tool TE316
 over the B-3841-5 screw on the top of the cylinder.
- Install the 1-1/2 inch nut onto the threaded rod of the unfeathering tool TE316.
 - a Turn the 1-1/2 inch nut until it touches the thrust bearing.
 - <u>b</u> Continue turning the nut until the blades move to reverse angle.
- (4) Remove all of the tie straps that attach the 105066 wire harness to the de-ice boot plug, counterweight, and wire harness bracket. Refer to Figure 2.

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B-3853-F5 Loop Clamp Installation Figure 3

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- (5) Remove the B-3840-7 screw, B-3855-32 lock washer, B-3837-0332 washer, and the B-3853-F5 loop clamp that attaches the 105066 wire harness to the blade shank. Refer to Figure 3.
- (6) Disconnect the plug connection between the 105066 wire harness and the de-ice boot plug.
- (7) Disconnect the 105066 wire harness leads from the bulkhead terminal strip.
- (8) Remove and discard the 105066 wire harness.
- (9) Repeat steps 3.B.(4) thru 3.B.(8) for each 105066 wire harness on the affected propeller.
- (10) Keep the propeller blades at reverse angle to install the 105555 wire harnesses.

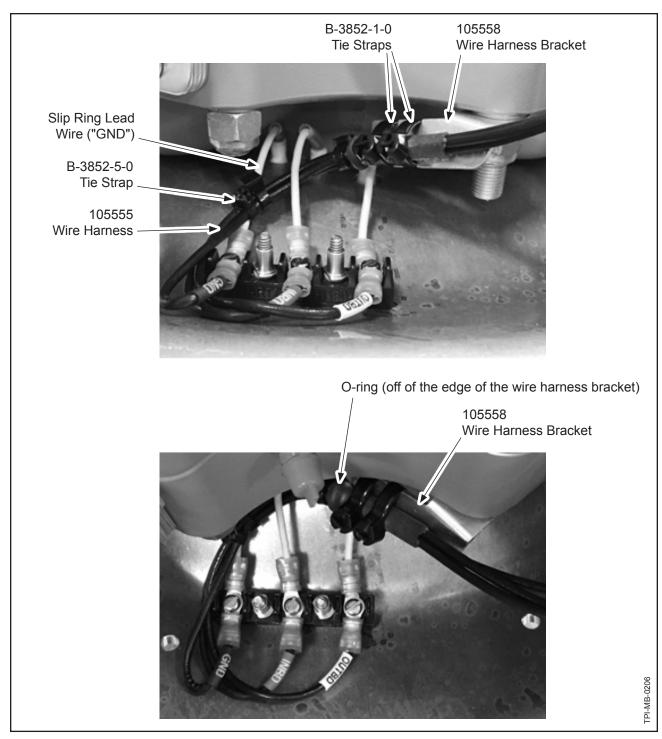
C. 105555 Wire Harness Installation

- (1) This procedure can be done on-wing or on a propeller bench by a certified aircraft mechanic with the appropriate rating or certified propeller repair station with the appropriate rating.
- (2) Assemble the plug connection between the 105555 wire harness and the de-ice boot plug.
- (3) Install the wire harness/de-ice boot plug connections in the counterweight groove against the spring pin as shown in Figure 2.
- (4) Install the B-3852-2-0 tie strap in the retaining grooves of the counterweight, around the counterweight, and between the wires of the wire harness/de-ice boot plug connection.
 - (a) On the de-ice boot-side of the plug connection, install the B-3852-2-0 tie strap between wire 2 and wire 3 as shown in Figure 2.
 - (b) On the wire harness-side of the plug connection, install the B-3852-2-0 tie strap between wire 1 and wire 2 as shown in Figure 2.
 - (c) Put the head of the B-3852-2-0 tie strap in the approximate location shown in Figure 2.
- (5) Using the B-3852-5-0 tie strap, secure the de-ice boot lead wires to the B-3852-2-0 tie strap as shown in Figure 2.
- (6) Install the B-3853-F5 loop clamp around the 105555 wire harness and put it against the O-ring as shown in Figure 3.
- (7) Apply threadlocker CM116 to the threads of the B-3840-7 screw.

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105555 Wire Harness Routing Figure 4

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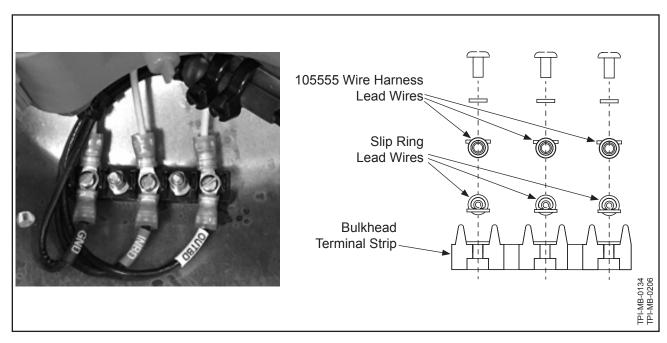
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- (8) Using the B-3840-7 screw, B-3837-0332 washer, and the B-3855-32 lock washer, attach the B-3853-F5 loop clamp to the blade shank in accordance with Figure 3.
 - (a) Align the B-3853-F5 loop clamp so that there is 0.07 ± 0.01 inch $(1.8 \pm 0.2 \text{ mm})$ clearance between the O-ring and the hub as shown in Figure 3.
 - (b) Torque the B-3840-7 screw to 15-18 In-Lb (1.7-2.0 N•m).
- (9) Put the 105555 wire harness on the 105558 wire harness bracket with the O-ring off of the edge of the wire harness bracket as shown in Figure 4.

CAUTION: TWISTING OF THE LEAD WIRES BETWEEN THE B-3853-F5 LOOP CLAMP AND THE 105558 WIRE HARNESS BRACKET IS NOT PERMITTED.

- (a) Attach the 105555 wire harness to the 105558 wire harness bracket with two B-3852-1-0 tie straps.
- (10) Route the 105555 wire harness under the inboard ("INBD") slip ring lead wire and over the outboard ("OUTBD") and ground ("GND") slip ring lead wires as shown in Figure 4.



Terminal Strip Connections Figure 5

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- (11) Attach the slip ring lead wires and the lead wires from the 105555 wire harness to the bulkhead terminal strip in accordance with Figure 5.
 - (a) Using one B-3852-5-0 tie strap, attach the lead wires from the 105555 wire harness to the ground ("GND") slip ring lead wire as shown in Figure 4.
 - (b) Tighten the terminal strip screws until snug.
- (12) Repeat steps 3.C.(3) through 3.C.(11)(b) for each blade.

<u>CAUTION</u>: DO NOT USE BLADE PADDLES TO TURN BLADES.

(13) Move the propeller blades back to feather position.

WARNING:

MAKE SURE THE THREADED ROD OF THE UNFEATHERING TOOL TE316 DOES NOT ROTATE WHEN LOOSENING THE 1-1/2 INCH NUT. THE FEATHERING SPRING IS PRELOADED WITH APPROXIMATELY 600 LBS. (271.8 KG) OF FORCE. IF THE THREADED ROD OF THE UNFEATHERING TOOL TE316 ROTATES WHEN TURNING THE 1-1/2 INCH NUT, THE FEATHERING SPRING CAN RELEASE CAUSING THE 1-1/2 INCH NUT TO BECOME A DANGEROUS PROJECTILE. THIS CAN CAUSE PROPELLER DAMAGE, SERIOUS INJURY AND/OR DEATH.

- (a) If the procedure was done on-wing, loosen the 1-1/2 inch nut of the unfeathering tool TE316 until the blades move to feather position.
 - 1 Make sure the threaded rod of the unfeathering tool TE316 does <u>not</u> rotate when loosening the 1-1/2 inch nut.
 - <u>a</u> If the threaded rod rotates, immediately stop turning the 1-1/2 inch nut.
 - <u>b</u> Tighten the threaded rod of the unfeathering tool TE316.
 - (1) It may be necessary to tighten the 1-1/2 nut to access the top of the threaded rod.
 - c Repeat step 3.C.(13)(a).
 - 2 Remove the threaded rod and the cylindrical part of the unfeathering tool TE316 or equivalent.
- (b) If the procedure was done on a propeller bench, cycle the propeller blades from reverse to feather position.

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- (14) Install the spinner dome in accordance with Hartzell Propeller Inc. Propeller Owner's Manual 486 (61-00-86).
- (15) Complete the "De-ice Circuit Resistance Inspection" in accordance with the Check chapter of Hartzell Propeller Inc. Propeller Ice Protection System Component Maintenance Manual 181 (30-60-81).
- (16) Make an entry in the propeller logbook indicating installation of the 105555 wire harnesses as terminating action for this Service Bulletin.

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.

E. Contact Information

Hartzell Propeller Inc.

Attn.: Hartzell Propeller Inc. Product Support

One Propeller Place

Piqua, Ohio 45356-2634 USA Phone: (001) 937.778.4379 Fax: (001) 937.778.4215

E-mail: techsupport@hartzellprop.com

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1. Eligibility

- A. Hartzell Propeller Inc. aluminum hub Raptor series 5D3-N338()/78D01B() turbine propellers with serial numbers listed in Table 1 are eligible for this warranty program.
 - (1) The eligible propellers are installed on the following aircraft:
 - (a) Piper PA-46-500TP, Meridian/M500
 - (b) Lancair Evolution

2. Recommended Service Facilities

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

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3. Warranty Program

- A. Wire Harness Replacement (Terminating Action)
 - (1) Parts
 - (a) Hartzell Propeller Inc. will provide all of the parts listed in the Material Information section of this Service Bulletin free of charge for each affected propeller.
 - (b) Complete and sign the Parts Order/Compliance Form in this Service Bulletin Appendix and send it to Hartzell Propeller Inc. for processing.
 - <u>1</u> Hartzell Propeller Inc. will review the completed form and assign a warranty claim number to approved applicants.
 - 2 Refer to the Material Information section of this Service Bulletin for a list of the parts that will be supplied by Hartzell Propeller Inc.

(2) Labor

- (a) Hartzell Propeller Inc. will authorize payment for the allowable labor charges when wire harness inspection/replacement is performed in accordance with the Accomplishment Instructions in this Service Bulletin.
- (b) Send the invoice for labor charges associated with the wire harness inspection/replacement to Hartzell Propeller Inc. for processing.
 - 1 Reference the same warranty claim number issued by Hartzell Propeller Inc. for the replacement parts order when submitting the associated labor invoice for payment.
 - Refer to the Manpower section of this Service Bulletin for warranted procedures and allowable man-hours.
 - <u>a</u> Labor charges will be reimbursed at the service facility's CURRENT POSTED SHOP LABOR RATE, pending Hartzell Propeller Inc. approval.

B. Contact Information

(1) Fax, E-mail, or mail the Parts Order/Compliance Form to:

Hartzell Propeller Inc.

Attn: Service Bulletin 375 Coordinator

One Propeller Place Piqua, OH 45356 USA Phone: 937.778.4379

Fax: 937.778.4215 (Intl. 001.937.778.4391) E-mail: techsupport@hartzellprop.com

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Parts Order/Compliance Form

Tarto oraginos rom						
Warranty Claim Number:						
Propeller/Aircraft Information:						
ropeller Model: Propeller S/N:						
Aircraft Model:	TSN (Time Since New):					
Aircraft Registration #:						
Owner Information:						
Name:						
City:	State:					
Zip/Postal Code:	Country:					
E-mail:	Phone:					
Repair Facility/Shipping Information:						
Company:	Contact Name:					
Address:						
City:	State:					
Zip/Postal Code:	Country:					
E-mail:	Phone:	Fax:				
Replacement Parts:						
Refer to the Material Information section of this Service Bulletin for a list of parts that will be provided.						
Signature:						
Repair Technician's Signature:	Date:					
Send this completed and signed form to Hartzell Propeller Inc. Product Support Department: Fax - (001) 937.778.4215 or E-mail - techsupport@hartzellprop.com						
DO NOT WRITE BELOW THIS LINE - FOR HARTZELL PROPELLER INC. USE ONLY						
Authorized By:						

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