SERVICE BULLETIN

HC-SB-30-362

De-ice - Wire Harness and De-ice Kit for Korean Aerospace KT-1(C,P,T)

1. Planning Information

A. Effectivity

(1) Hartzell Propeller Inc. lightweight turbine propellers HC-E4N-2(B,C,D) with E9512(C,D,G)B-1() blades installed on Korean Aerospace KT-1(C,P,T) aircraft are affected by this Service Bulletin.

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DO NOT USE OBSOLETE OR OUTDATED INFORMATION.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.

C. Reason

- (1) Hartzell Propeller Inc. has received reports of the 4H2369-5 de-ice wire harness breaking prematurely on the affected propellers.
- (2) Hartzell Propeller Inc. has designed the 106129 de-ice wire harness to replace the 4H2369-5 wire harness on the affected propellers.
 - (a) In tests performed by Hartzell Propeller Inc., the 106129 wire harness has demonstrated greater durability than the 4H2369-5 wire harness.
 - (b) The 106129 wire harness requires a different routing and additional mounting hardware for installation.
- (3) Regulatory action is not expected.

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D. Description

- (1) This Service Bulletin provides Instructions for Continued Airworthiness (ICA).
- (2) This Service Bulletin introduces the 106129 de-ice wire harness for use on the affected propellers.
 - (a) This Service Bulletin provides instructions for routing and installing the 106129 wire harness as part of the 106143 de-ice replacement kit.
 - (b) Affected propellers manufactured by Hartzell Propeller Inc. after the release of this Service Bulletin will incorporate the 106129 wire harness.
- This Service Bulletin introduces two new de-ice kits (with the 106129 wire harness) as supersedures for the de-ice kits (with the 4H2369-5 wire harness) previously used on the affected propellers.
 - (a) De-ice kits are provided for reference only and cannot be ordered from Hartzell Propeller Inc.
 - This Service Bulletin introduces the 106138 de-ice kit as a 1 supersedure for the 7931-67-870-4 de-ice kit on affected propellers with a slip ring-mounted pulley assembly.
 - 2 This Service Bulletin introduces the 106146 de-ice kit as a supersedure for the 7931-67-870-1 de-ice kit on affected propellers without a slip ring-mounted pulley assembly.
- (4) The installation of 106129 and 4H2369-5 wire harnesses on the same propeller is not permitted.
 - (a) Existing stock of the 4H2369-5 wire harness may be used until, but not beyond, December 31, 2015.
- Hartzell Propeller Inc. will warrant the cost of parts and labor associated with replacing the de-ice wire harnesses.
 - The Appendix section of this Service Bulletin provides instructions for ordering replacement parts and reimbursement of associated labor charges.

E. Compliance

- (1) At the operator's convenience, replace all four 4H2369-5 wire harnesses on the affected propeller using the 106143 de-ice replacement kit.
 - (a) Installation of the 106143 de-ice replacement kit in accordance with the Accomplishment Instructions is terminating action for this Service Bulletin.

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F. Approval

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

G. Manpower

Procedure	Man-hours	
Spinner Removal and Installation	0.5 hour	
Wire Harness Replacement	2 hours	

H. Weight and Balance

- (1) Not changed
- I. Electrical Load Data
 - (1) 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. Propeller Owner's and Logbook Manual 149 (61-00-49)
 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 Ice Protection System Manual 180 (30-61-80)
 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

K. Other Publications Affected

(1) Hartzell Propeller Inc. Propeller Ice Protection System Manual 180 (30-61-80)
- 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.

106143 De-ice Kit, Replacement (One Prop)		
Part Number	<u>Description</u>	Qty.
102691	Bolt, 3/8-24, Hex Head	4
106129	Wire Harness	4
B-3834-0632	Washer	8
B-3834-0663	Washer	4
B-3852-1-0	Strap, Tiedown, Plastic	4
B-3852-2-0	Strap, Tiedown, Plastic	16
B-3852-5-0	Strap, Tiedown, Plastic	8
B-6265	Bracket, Wire Harness	4

B. Propeller De-ice Kits (For reference only)

106138 De-ice Kit (One Prop)		
(for affected propellers with a slip ring mounted pulley assembly)		
Part Number	<u>Description</u>	<u>Qty.</u>
102691	Bolt, 3/8-24, Hex Head	4
106129	Wire Harness	4
1H1150-2	Terminal Strip	4
2H1365	Tapped Eyelet	8
4H2661-4	Slip Ring Assembly	1
B-3384-9H	Bolt, 1/4-28, Hex Head	8
B-3834-0632	Washer	4
B-3834-0663	Washer	4
B-3851-0432	Washer	8
B-3852-2-0	Strap, Tiedown, Plastic	16
B-3852-5-0	Strap, Tiedown, Plastic	8
B-3854-41	Washer, Lock	16
B-6265	Bracket, Wire Harness	4
B-6637-34	Screw, Pan Head, Cres	8
B-3852-1-0	Strap, Tiedown, Plastic	4

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B. Propeller De-ice Kits (For reference only) - continued

106146 De-ice Kit (One Prop)		
(for affected propellers without a slip ring mounted pulley assembly)		
Part Number	<u>Description</u>	<u>Qty.</u>
102691	Bolt, 3/8-24, Hex Head	4
106129	Wire Harness	4
1H1150-2	Terminal Strip	4
2H1365	Tapped Eyelet	8
4H2661-1	Slip Ring Assembly	1
A-2070-7	Screw, 1/4-28, Button Head	8
B-3834-0632	Washer	4
B-3834-0663	Washer	4
B-3852-1-0	Strap, Tiedown, Plastic	4
B-3852-2-0	Strap, Tiedown, Plastic	16
B-3852-5-0	Strap, Tiedown, Plastic	8
B-3854-41	Washer, Lock	16
B-6265	Bracket, Wire Harness	4
B-6637-34	Screw, Pan Head, Cres	8

C. Special Tooling

TE Number	Part Number	<u>Description</u>
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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3. Accomplishment Instructions

- A. Spinner Assembly Removal/Installation
 - (1) This procedure may be performed on-wing by a certified aircraft mechanic with the appropriate rating or certified propeller repair station with the appropriate rating.
 - (2) Remove/install the spinner assembly in accordance with Hartzell Propeller Inc. Propeller Owner's and Logbook Manual 149 (61-00-49).

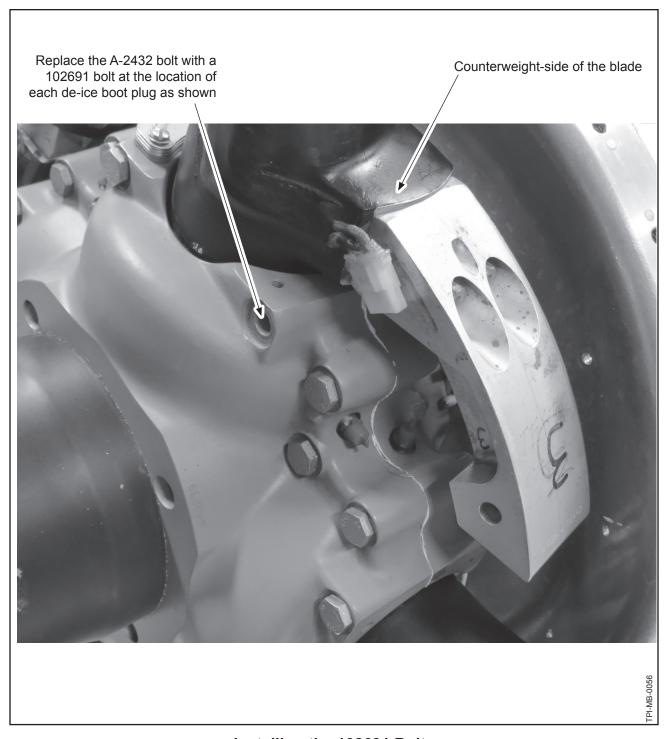
B. 4H2369-5 Wire Harness Removal

- (1) This procedure may be performed on-wing by a certified aircraft mechanic with the appropriate rating or certified propeller repair station with the appropriate rating.
- (2) Remove all of the tie straps that secure the 4H2369-5 wire harness.
- (3) Remove and discard the B-3857-WDG4 loop clamp and the attaching hardware that secures the 4H2369-5 wire harness to the bulkhead.
- (4) Separate the plug connection between the 4H2369-5 wire harness and the de-ice boot.
- (5) Disconnect the 4H2369-5 wire harness leads from the terminal strip.
 - (a) Keep the terminal strip screws and washers for reuse.
- (6) Remove and discard the 4H2369-5 wire harness.
- (7) Repeat steps 3.B.(1) thru 3.B.(6) for each 4H2369-5 wire harness on the affected propeller.

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Installing the 102691 Bolts Figure 1

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- C. 106143 De-ice Replacement Kit Installation
 - (1) This procedure may be performed on-wing by a certified aircraft mechanic with the appropriate rating or certified propeller repair station with the appropriate rating.
 - (2) Replace the hub clamping bolt on the counterweight-side of all four blades.
 - (a) Remove the A-2043-1 nut, B-3834-0632 washer, and A-2432 bolt from the hub on the counterweight-side of all four blades. Refer to Figure 1.
 - 1 Keep the four A-2043-1 nuts and B-3834-0632 washers for reuse.
 - 2 The A-2432 bolts may be discarded.
 - (b) Install 102691 bolts thru the hub on the counterweight-side of all four blades.
 - (3) Move the propeller to low pitch. (Refer to NOTE)
 - NOTE: Moving the propeller to low pitch will permit better access to complete the wire harness installation.
 - (a) The wire harness installation <u>can</u> be accomplished with the propeller in feather. If not using the unfeathering tool, proceed to step 3.C.(4).

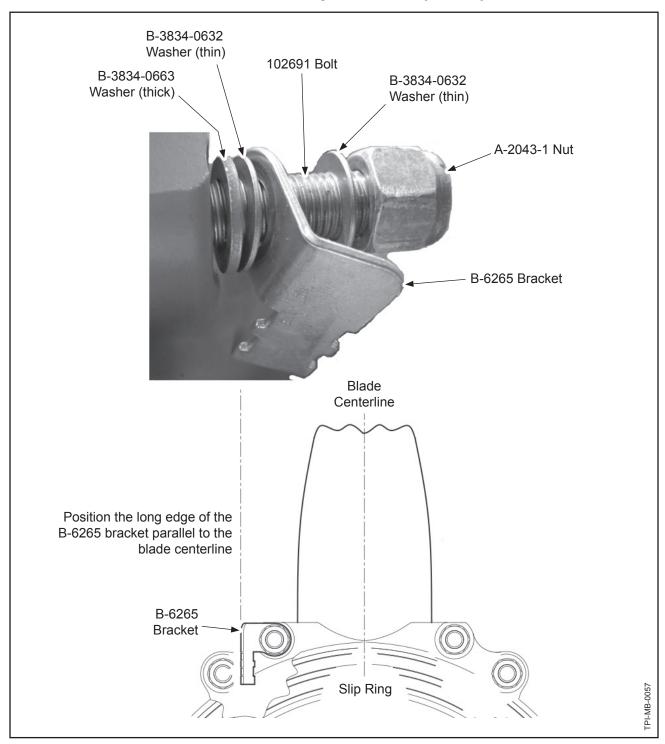
<u>CAUTION</u>: DO NOT ATTEMPT TO MOVE THE PROPELLER BLADES BEYOND THE LOW PITCH MECHANICAL STOPS.

- (b) Install the propeller unfeathering tool TE316 or equivalent.
 - Screw the threaded rod of the unfeathering tool TE316 onto the end of the pitch change rod as far as possible. Hand tighten.
 - 2 Slide the cylindrical portion of the unfeathering tool TE316 over the threaded rod and against the propeller cylinder.
 - Install the 1-1/2 inch nut onto the threaded rod of the unfeathering tool TE316.
 - $\underline{4}$ Turn the 1-1/2 inch nut until it contacts the thrust bearing.
 - 5 Continue turning the nut until the blades move to low pitch.

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Installing the B-6265 Wire Harness Bracket Figure 2

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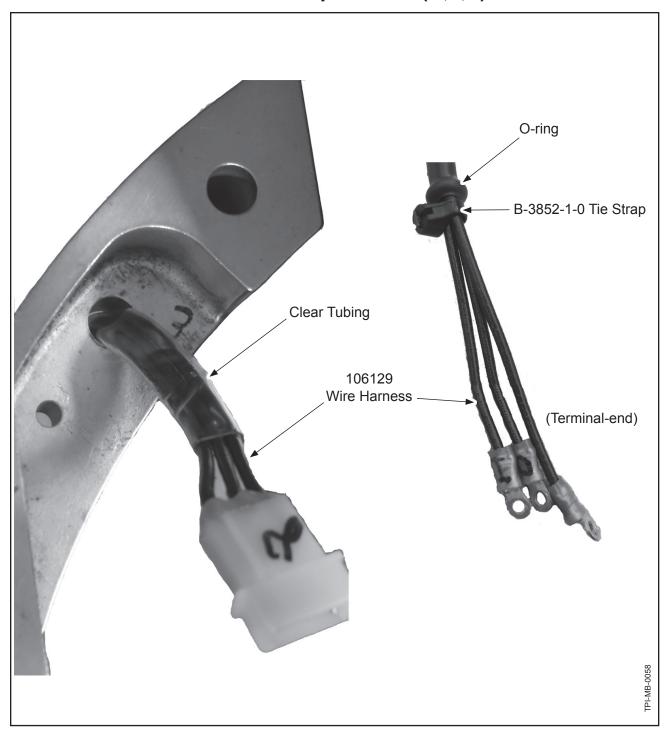
De-ice - Wire Harness and De-ice Kit for Korean Aerospace KT-1(C,P,T)

- (4) Install the B-6265 wire harness bracket as shown in Figure 2.
 - (a) Install one B-3834-0663 washer (thick), one B-3834-0632 washer (thin), one B-6265 wire harness bracket, one B-3834-0632 washer (thin), and one A-2043-1 nut onto the 102691 bolt.
 - (b) Position the B-6265 wire harness bracket so that the long edge of the bracket is parallel with the blade centerline as shown in Figure 2.
 - (c) Torque the A-2043-1 nut (dry) to 20 24 Ft-Lbs. (27 33 N•m).
- (5) Route the 106129 wire harness.
 - (a) Route the terminal-end of the 106129 wire harness through the hole in the counterweight as shown in Figure 3.
 - 1 Position the wire harness so that equal lengths of the clear tubing are on each side of the counterweight.
- (6) Install one B-3852-1-0 tie strap around the 106129 wire harness below the O-ring at the terminal-end of the harness as shown in Figure 3.

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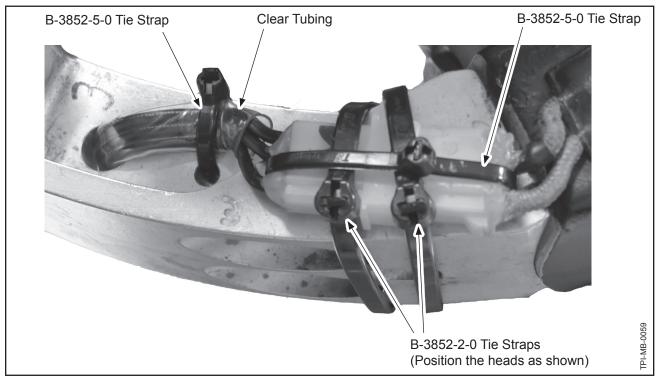


Routing the 106129 Wire Harness Figure 3

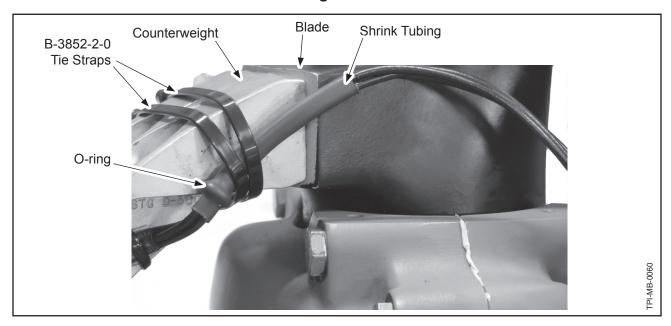
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106129 Wire Harness/De-ice Boot Plug Connection Figure 4



106129 Wire Harness Routing Figure 5

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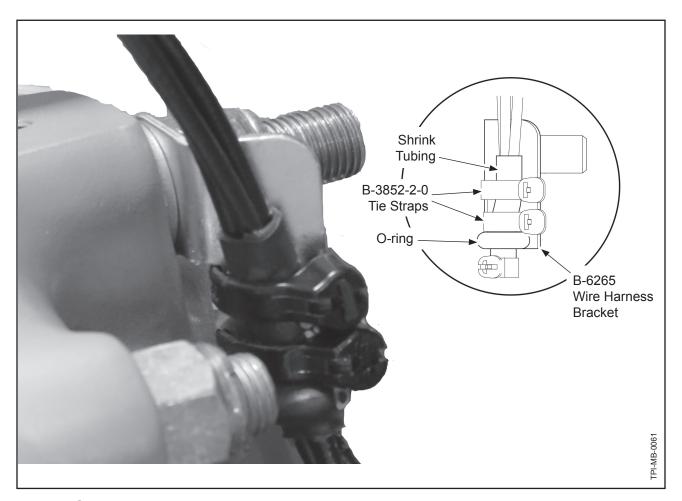
- (7) Assemble the plug connection between the 106129 wire harness and the de-ice boot.
 - (a) Install one B-3852-5-0 tie strap around the wire harness/de-ice boot plug connection as shown in Figure 4. Do not tighten the tie strap.
- Secure the 106129 wire harness/de-ice boot connection to the counterweight.
 - (a) Route the 106129 wire harness so that the O-ring is positioned at the edge of the counterweight and the shrink tubing extends over the counterweight/blade mating surface as shown in Figure 5.
 - (b) Install two B-3852-2-0 tie straps under the B-3852-5-0 tie strap securing the plug connection, and around the counterweight/wire harness as shown in Figure 4 and Figure 5. Do not tighten the tie straps.
 - Position the two B-3852-2-0 tie straps on the blade-side of the O-ring 1 as shown in Figure 5.
 - 2 Position the heads of the two B-3852-2-0 tie straps as shown in Figure 4.
 - Install one B-3852-5-0 tie strap through the small hole in the counterweight, under the counterweight, and around the clear tubing on the 106129 wire harness as shown in Figure 4. Do not tighten the tie strap.
 - Make sure the B-3852-5-0 tie strap is over the clear tubing of the 106129 wire harness on both sides of the counterweight.
- (9) Make sure the wire harness/tie straps are positioned properly, then tighten all of the tie straps in the following order:
 - (a) The B-3852-5-0 tie strap going through the small hole in the counterweight
 - (b) The two B-3852-2-0 tie straps around the wire harness/counterweight
 - (c) The B-3852-5-0 tie strap securing the wire harness/de-ice boot plug connection

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- (10) Secure the 106129 wire harness to the B-6265 wire harness bracket.
 - (a) Position the O-ring/shrink tubing on the terminal end of the 106129 wire harness so that the O-ring is at the bottom of the B-6265 wire harness bracket as shown in Figure 6.
 - <u>1</u> Be sure the lead wires are not twisted or bent sharply.
 - (b) Install and tighten two B-3852-2-0 tie straps around the bracket and the shrink tubing on the wire harness as shown in Figure 6.
 - <u>1</u> Position the tie straps in the grooves on the wire harness bracket.
 - 2 Position the heads of the tie straps as shown in Figure 6.

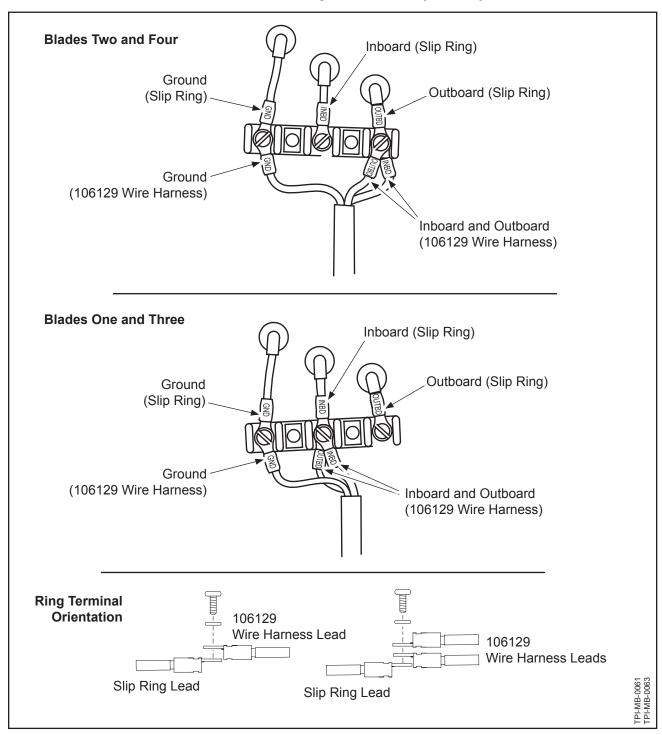


Securing the 106129 Wire Harness to the B-6265 Wire Harness Bracket Figure 6

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Terminal Strip Wire Connections Figure 7

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- (11) Install the slip ring lead wires and the 106129 wire harness leads to the terminal strip in accordance with Figure 7.
 - (a) Position the ring terminals as shown in Figure 7.
 - (b) Install the terminal screws and washers.
 - (c) Tighten the terminal screws until snug.
- (12) Repeat steps 3.C.(4) thru 3.C.(11) for each blade.
- (13) If applicable, move the propeller to feather position and remove the unfeathering tool TE316 or equivalent.
- (14) Install the spinner assembly in accordance with section 3.A. in this Service Bulletin.
- (15) Perform the "Propeller De-ice Operational Check" 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 106143 de-ice replacement kit 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) 937.778.4391

E-mail: techsupport@hartzellprop.com

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1. Eligibility

A. Hartzell Propeller Inc. lightweight turbine propellers HC-E4N-2(B,C,D) with E9512(C,D,G)B-1() blades installed on Korean Aerospace KT-1(C,P,T) aircraft are eligible for this warranty program.

2. Warranty Expiration

A. This warranty program expires on April 1, 2016.

3. 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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4. Warranty Program

- A. Wire Harness Replacement (Terminating Action)
 - (1) Parts
 - (a) Hartzell Propeller Inc. will provide one 106143 de-ice replacement kit 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) When wire harness replacement is required due to failure of the 4H2369-5 wire harness, Hartzell Propeller Inc. will authorize payment for the allowable labor charges when 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 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> Hartzell Propeller Inc. will authorize payment for warranty labor charges up to, but not to exceed \$100.00 USD per hour.

B. Contact Information

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

Hartzell Propeller Inc.

Attn: Service Bulletin 362 Coordinator

One Propeller Place Piqua, OH 45356 USA Phone: 937.778.4379

Fax: 937.778.4391 (Intl. 001.937.778.4391) E-mail: techsupport@hartzellprop.com

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Parts Order/Compliance Form

Warranty Claim Number:			
Propeller Information:			
Propeller Model:	Propeller S/N:		
Aircraft Model:	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:			
Hartzell Propeller Inc. will provide one 106143 KAI KT-1 De-ice Wire Harness Replacement Kit free of charge for each affected propeller. 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) 937.778.4391 or E-mail - techsupport@hartzellprop.com			
DO NOT WRITE BELOW THIS LINE - FOR HARTZELL PROPELLER INC. USE ONLY			
Authorized By:			
Document No. HC-SB-30-362 Date of Issue: Mar 17	//15 Revision: N/A	Rev. Date: N/A	

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