

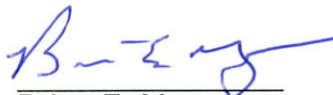
INSTALLATION INSTRUCTIONS SUPPLEMENTAL TYPE CERTIFICATE SA03078CH

INSTALLATION OF HARTZELL PROPELLERS MODELS

**HC-(C, I, F)3YR-1(A)RF/F7693F(B,K)+2
OR
HC-(C, I, F)3YR-1(A)RF/F8068(B,K)**

ON

**CESSNA MODEL's
R182, TR182, T182, T182T, 182S, 182T, FR182,
SERIES AIRCRAFT**



Brian E. Meyer
STC ODA administrator
Hartzell ODA-100082-CE

FEB 26, 2013
Date

LOG OF REVISIONS

Rev	Rev Date	Pages	Description of Revision	Hartzell Approved	FAA Approved
IR	02/09/12	11	Initial Release	<i>Bob Minnis</i>	
1	10/26/12	All pages re-issued	Added prop de-ice models incorporating "B" type boots, Add spinner model 105012(P), add kit reference page 10.	<i>Mike Trudeau</i>	<i>BEM</i> <i>2/26/13</i>

Note: Changes made on latest revision are denoted by a bar in the left margin.

PROPRIETARY INFORMATION

THE INFORMATION CONTAINED IN OR DISCLOSED BY THIS DOCUMENT IS CONSIDERED PROPRIETARY BY HARTZELL PROPELLER, INC. THIS DOCUMENT AND THE ITEMS AND INFORMATION CONTAINED OR DISCLOSED HEREIN SHALL NOT BE USED, COPIED OR REPRODUCED IN WHOLE OR IN PART, NOR SHALL THE CONTENTS BE REVEALED IN ANY MANNER TO ANY PERSON UNLESS WRITTEN PERMISSION IS OBTAINED FROM HARTZELL PROPELLER, INC.

WARNING.....USE OF THIS STC IS SUBJECT TO FEDERAL LAW 104-264 110 STAT. 3256, SECTION 403. FEDERAL LAW PROHIBITS USE OF THE CONTENTS OF THIS STC WITHOUT PERMISSION OR LICENSE FROM THE OWNER, Hartzell Propeller, Inc.

1.0 INTRODUCTION

The modification replaces the existing McCauley Propeller with one of the Hartzell-Propeller, model number HC-(C, I, F)3YR-1(A)RF/F8068(B,K) or HC-(C, I, F)3YR-1(A)RF/F7693F(B,K)+2 constant speed propeller.

2.0 INSTALLATION INSTRUCTIONS

COMPATIBILITY OF THE INSTALLATION CHANGE WITH PREVIOUSLY APPROVED MODIFICATION MUST BE DETERMIND BY THE INSTALLER

2.1 Applicable Manuals:

- Hartzell Propeller Owner's Manual, 115N (Metal blade)
- Cessna Aircraft Company Maintenance Manual, Model 182
- FAA approved Airplane Flight Manual Supplement No. H1010-5
- **Cessna Service Kit SK182-72A or later approved, Three-Bladed Propeller Installation (Optional – balance weight only)**

- Models Affected:

- TR182 S/N R18200584 thru R18201313

- **Cessna Service Kit SK182-71E or later approved, Three-Bladed Propeller Installation (Optional – balance weight only).**

- Models Affected:

- R182 S/N R18201314 thru R18201628
 - FR182 S/N FR18200046 thru FR18200070
 - TR182 S/N R18201314 thru R18201628
 - R182 S/N R18201629 thru R18202041 (Per TCDS 3A13, rev. 69)
 - TR182 S/N R18201315, R18201629 and later (Per TCDS 3A13, rev. 69)

WARNING

Disconnect the ignition harness to the spark plugs before removing the existing propeller & spinner. Reconnect after the installation of the replacement propeller and spinner is completed.

Failure to comply can result in bodily injury when the propeller is rotated during removal or re-installation.

CAUTION

Wrap the blade shanks in several layers of masking or duct tape before removing the spinner dome to prevent damaging the blade and blade paint.

2.2 Removal and Installation

Removal / installation of the propeller spinner and propeller are to be accomplished in accordance with Hartzell Propeller Owner's Manual 115N rev. 12 or later approved revisions and Cessna Aircraft Company Maintenance Manual, Model 182

Note: If the propeller is equipped with an anti-ice or a de-ice system, follow the manufacturer's instructions for removing the components necessary for propeller removal. See Appendix A or C for Ice Protection Installation drawing depending on aircraft model.

2.3 Tooling requirements

- Safety wire pliers
- Torque wrench (1/2 inch drive)
- Torque wrench adapter (Hartzell P/N BST-2860)
- 3/4 inch open end wrench

2.4 Consumables

- Quick Dry Stoddard Solvent or Methyl-Ethyl-Ketone (MEK)

2.5 Expendables

- 0.032 Stainless Steel Aircraft Safety Wire
- "O" ring – propeller to engine seal (C-3317-228) or other approved P/N

2.6 Pre-Installation

- Inspection of shipping package
 - Examine the exterior of the shipping container for signs of shipping damage, especially at the box ends around each blade. A hole, tear or crushed appearance at the end of the box (at the propeller tips) may indicate the propeller was dropped during shipment, possibly damaging the blades.

2.7 Uncrating

- Place the propeller on a firm support
- Remove the banding and any external wood bracing from the cardboard shipping container.
- Remove the cardboard from around the hub and blades. Place the propeller on a padded surface that supports the propeller over a large area. Never stand the propeller on a blade tip.
- Remove the plastic dust cover cup from the propeller-mounting flange (if installed).

2.8 Inspection after shipping

- After removing the propeller from the shipping container, examine the propeller components for shipping damage.

2.9 Placard and marking:

- Placard concerning other propellers are obsolete.

2.10 Perform static test, check for function and oil leakage.

- Perform full power static RPM check. Adjust low pitch stop per Section 4 of Hartzell Propeller Owner's Manual 115N.
- Check for proper governor control cable cushion, adjust as required.
- Adjust fuel flow in accordance with Cessna Service Instruction, Setup Procedures or in accordance with STC's that may be installed.
- After adjustment is complete, final safety checks are made, safety wire installation as required, perform flight test and make all required log book entries.

2.11 Change weight and balance record and equipment list:

Installation

Hartzell-Propeller HC-(C, I, F)3YR-1RF/F7693F(B,K)+2 propeller with spinner:

C3YR Weight = 78 Lb

I3YR Weight = 81 Lb

F3YR Weight = 82 Lb

Hartzell-Propeller HC-(C, I, F)3YR-1RF/F8068(B,K) propeller with spinner:

C3YR Weight = 82 Lb

I3YR Weight = 85 Lb

F3YR Weight = 86 Lb

2.12 Post-installation dynamic balance of the propeller / engine combination is recommended per Section 61-00-15 Page 6-22 of the Hartzell Owner's Manual 115N.

2.13 Make the appropriate logbook entries and return aircraft to service with FAA Form 337 referencing STC.

NOTE:

External configuration, mechanical and electrical interfaces, and limitations of the modified engine model remain identical to the currently approved aircraft models.

Note: All Hartzell Propeller manuals and service information can be ordered through your Hartzell Propeller distributor or (if prepaid) directly from:

Hartzell Propeller Inc.
One Propeller Place
Piqua, Ohio 45356

Email
techsupport@hartzellprop.com
Telephone
(937) 778-4379
8am - 5pm US Eastern Time
(937) 778-4376
after hours AOG support
Or web site <http://www.hartzellprop.com>

Cessna 182 Series

CESSNA MODEL	ENGINE		PROP MODEL	DIAMETER INCHES		SPINNER
	ENG MODEL	BHP/RPM		MAX	MIN	
R182	O-540- J3C5D	235 / 2400	HC-C3YR-1RF/F7693F+2 HC-C3YR-1RF/F8068 HC-I3YR-1RF/F7693F(B,K)+2 HC-I3YR-1RF/F8068(B,K)	80	78	A-2295-3(P)
				82	80	D-6750(P) Non de-ice only, 105012(P)
T182	O-540- L3C5D	235 / 2400	HC-I3YR-1RF/F7693F(B,K)+2 HC-I3YR-1RF/F8068(B,K)	80 82	78 80	D-6750(P) Non de-ice only, 105012(P)
TR182	O-540- L3C5D	235 / 2400	HC-C3YR-1RF/F7693F(B,K)+2 HC-C3YR-1RF/F8068(B,K) HC-I3YR-1RF/F7693F(B,K)+2 HC-I3YR-1RF/F8068(K)	80 82	78 80	A-2295-3(P)
				80 82	78 80	D-6750(P) Non de-ice only, 105012(P)
T182T	TIO-540 AK1A	235 / 2400	HC-F3YR-1ARF/F7693F(B,K)+2 HC-F3YR-1ARF/F8068(B,K)	80 82	78 80	A2295-3(P) Non de-ice only, A-2295-14(P)
FR182	O-540- J3C5D	235 / 2400	HC-C3YR-1RF/F7693F+2 HC-C3YR-1RF/F8068 HC-I3YR-1RF/F7693F(B,K)+2 HC-I3YR-1RF/F8068(B,K)	80 82	78 80	A-2295-3(P)
				80 82	78 80	D-6750(P) Non de-ice only, 105012(P)
182S	IO-540- AB1A5	230 / 2400	HC-F3YR-1ARF/F7693F(B,K)+2 HC-F3YR-1ARF/F8068(B,K)	80 82	78 80	A2295-3(P) Non de-ice only, A-2295-14(P)
182T	IO-540- AB1A5	230 /2400	HC-F3YR-1ARF/F7693F(B,K)+2 HC-F3YR-1ARF/F8068(B,K)	80 82	78 80	A2295-3(P) Non de-ice only, A-2295-14(P)

APPENDIX A

Propeller de-ice kits (28 volt) are eligible on the following models:

Cessna 182S, 182T, T182T

NOTES:

1. *For electric de-ice equipped propeller installation, refer to Hartzell drawing 104523, Rev. IR, or later FAA approved revision and below listed instructions.*
2. *Installation with de-iced propeller limited to aircraft that had a 3-blade propeller previously installed.*

De-ice installation for HC-F3YR-1ARF/F7693FK+2 and /F8068K propellers on Cessna 182S, 182T, T182T aircraft:

NOTE: Installation limited to aircraft with a previously installed 3-blade propeller equipped with existing electro-thermal de-ice system.

1. After removal of the original propeller and spinner, remove the starter ring gear/slip ring assembly. This de-ice installation requires removal of the existing D-40498 slip ring and replacement of the slip ring wire harness leads. All other serviceable airframe and cabin-mounted de-ice equipment may be retained and used with this STC (i.e. brush block, bracket, timer, indicating system). Refer to latest Cessna wiring diagrams and maintenance manuals for existing propeller de-ice system information.
2. Remove the D-40498 slip ring from the starter ring gear in accordance with Cessna aircraft maintenance manual(s). Remove the B-40705 slip ring wire harness leads and replace with Hartzell P/N 104511 slip ring wire harness per Cessna maintenance manuals and Figure 1.

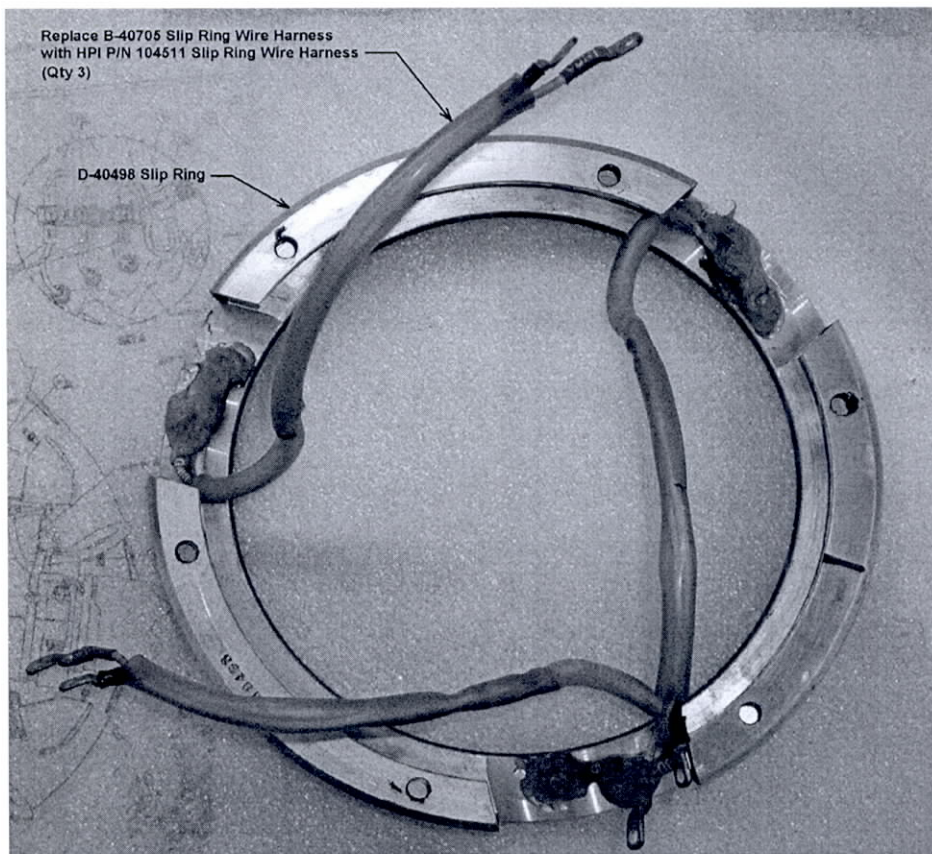


FIGURE 1

3. Verify P/N 104511 inboard (outer diameter terminal) and ground (inner diameter terminal) leads are connected per Figure 2. Torque nuts 8-10 in-lbs. Completely cover nuts, studs and uninsulated ends of terminals with GE RTV 123 (HPI P/N A-6741-93-1) or GE RTV 6703.

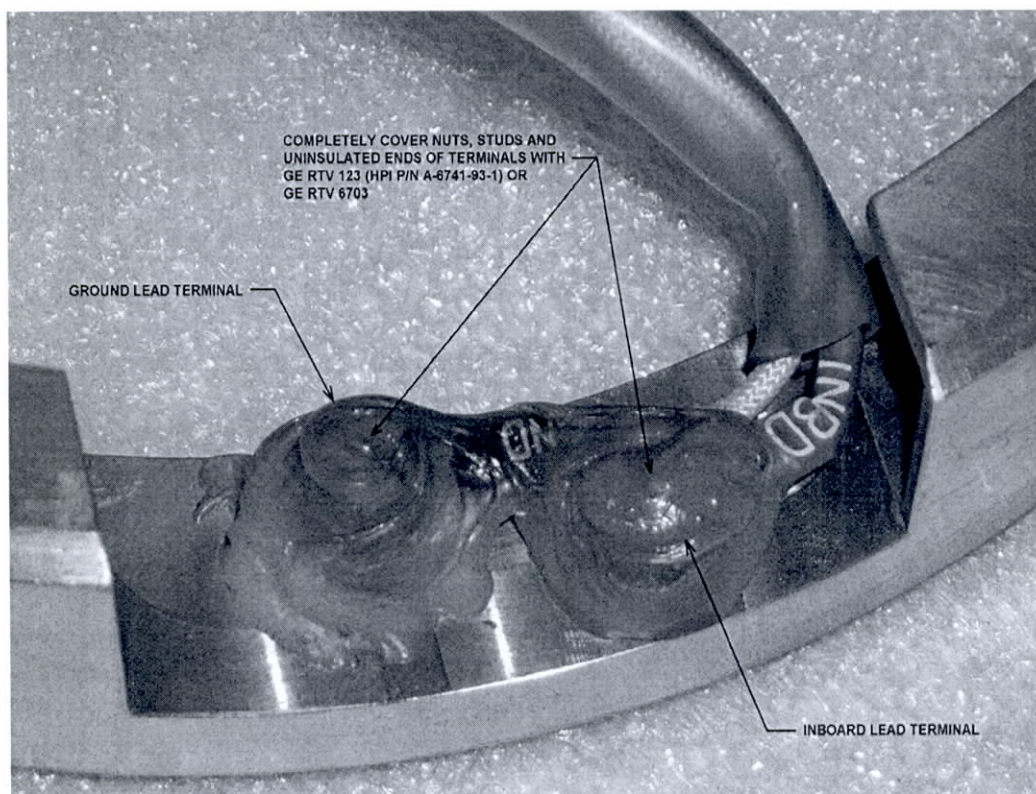


FIGURE 2

4. Route the newly installed wire harness leads through the starter ring gear holes and re-install the slip ring to the starter ring gear in accordance with Cessna aircraft maintenance manual(s). Install the starter ring gear onto the aircraft engine and verify proper alignment of slip ring/brush block per Cessna maintenance manual(s).
5. Install STC propeller – refer to Section 2.2.
6. Attach slip ring lead wires to spinner bulkhead and install remaining de-ice parts in accordance with Hartzell drawing 104523 and propeller de-ice kit 104522..
7. Verify proper function of the propeller de-ice system per latest Cessna service manual.

APPENDIX B

Pitch Stop Settings: Degrees measured at 30" station

Blade Design	Horsepower	RPM	Low	High
F7693F+2	230-235	2400	14.0 +/- .2	32.0 +/- 1.0
F8068	230-235	2400	14.0 +/- .2	32.0 +/- 1.0

If necessary, adjust low pitch stops per Section 4 of Hartzell Propeller Owner's Manual No. 115N. Should low pitch stop need to be adjusted more than 1 degree (3/4 turn), this may be an indication that your engine is not making rated horsepower.

The above data represent **SEA LEVEL** standard day conditions.

CAUTION

Special attention should be made when checking the stop setting for a turbocharged engine. The ability of these engines to maintain rated power to well above 12,000 ft MSL, where the air density is much less, will allow the RPM's to be much higher than that of the sea level propeller setting. It is recommended that propeller adjustment be made at sea level. If this is not practicable, setting the propeller at greater than 3000 ft. density altitudes may affect the engine fuel metering especially in the mid-range.

APPENDIX C

Propeller de-ice kits (28 volt) are eligible on the following models removing three blade McCauley propellers:

Applicable Aircraft: Cessna R182, TR182 and T182

NOTES:

- 1. For electric de-ice equipped propeller installation, refer to Hartzell drawing 104995, Rev. IR, or later FAA approved revision and below listed instructions.*
- 2. Installation with de-iced propeller limited to aircraft that had a 3-blade propeller previously installed.*

De-ice installation for HC-I3YR-1RF/F7693FB+2 and /F8068B propellers on Cessna R182, TR182 and T182 aircraft:

NOTE: Installation limited to aircraft with a previously installed 3-blade propeller equipped with existing electro-thermal de-ice system.

1. After removal of the original propeller and spinner, remove the starter ring gear/slip ring assembly. This de-ice installation requires removal of the existing D-40158 slip ring and replacement of the slip ring wire harness leads. All other serviceable airframe and cabin-mounted de-ice equipment may be retained and used with this STC (i.e. brush block, bracket, timer, indicating system). Refer to latest Cessna wiring diagrams and maintenance manuals for existing propeller de-ice system information.
2. Remove the D-40158 slip ring from the starter ring gear in accordance with Cessna aircraft maintenance manual(s). Remove (3) B-40178 slip ring wire harness leads and replace with (3) Hartzell P/N 103762 slip ring wire harness leads per Cessna maintenance manuals and Figures 1 through 3.
3. Hartzell P/N 103762 is an unfinished wire harness "kit" since a finished 3-wire harness with terminals is unable to route through the small hole in the starter ring gear. Refer to Table 1 for wire harness kit parts list.

Table 1

<i>Item</i>	<i>Qty</i>	<i>Description</i>
1	3	Labeled Wires (INBD/OUTBD/GND)
2	1	Clear Tubing
3	3	AMP Terminals (Size 16-14)

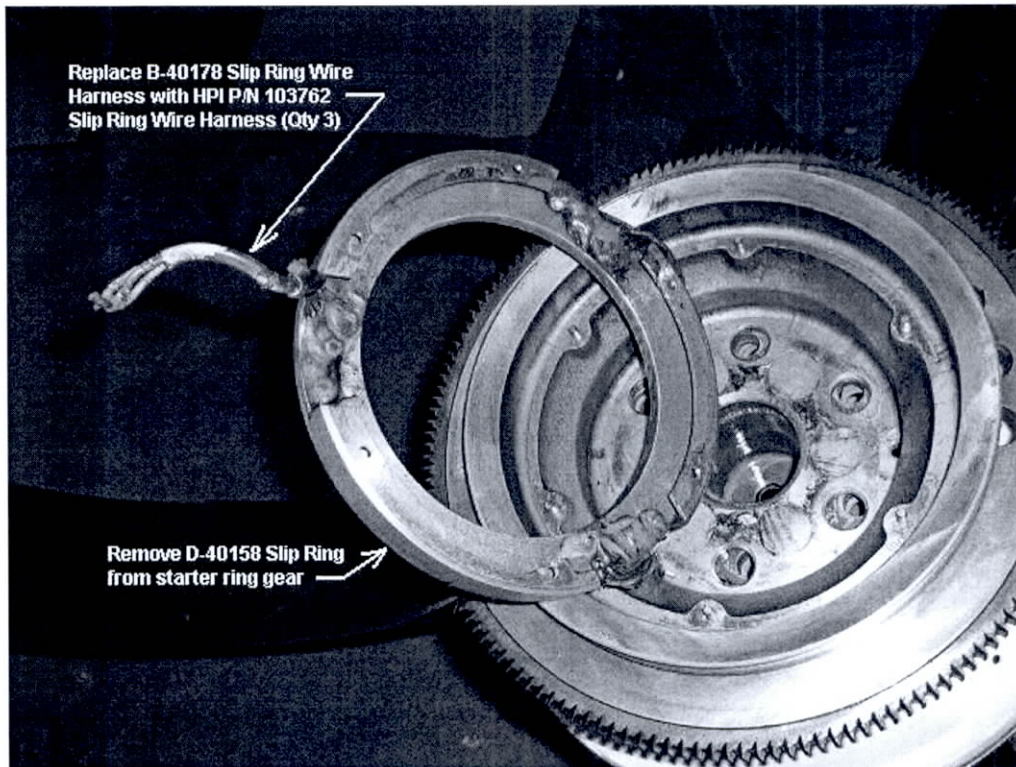


FIGURE 1

4. Connect finished terminal end of Hartzell P/N 103762 outboard (outer diameter terminal), inboard (middle diameter terminal) and ground (inner diameter terminal) labeled wires (Item 1) to slip ring studs in accordance with Figure 2. Torque nuts 8-10 in-lbs. Completely cover nuts, studs and un-insulated ends of terminals with GE RTV 123 (HPI P/N A-6741-93-1) or GE RTV 6703.
5. Place the clear tubing (Item 2) over the newly installed wire leads and position to approximate location shown in Figure 3. Route the new Hartzell P/N 103762 wires/tubing identical to the Cessna/McCauley B-40178 wires through the starter ring gear holes. Re-install the slip ring to the starter ring gear in accordance with Cessna aircraft maintenance manual(s). Install the starter ring gear onto the aircraft engine and verify proper alignment of slip ring/brush block per Cessna maintenance manual(s).
6. Install STC propeller – refer to Section 2.2.

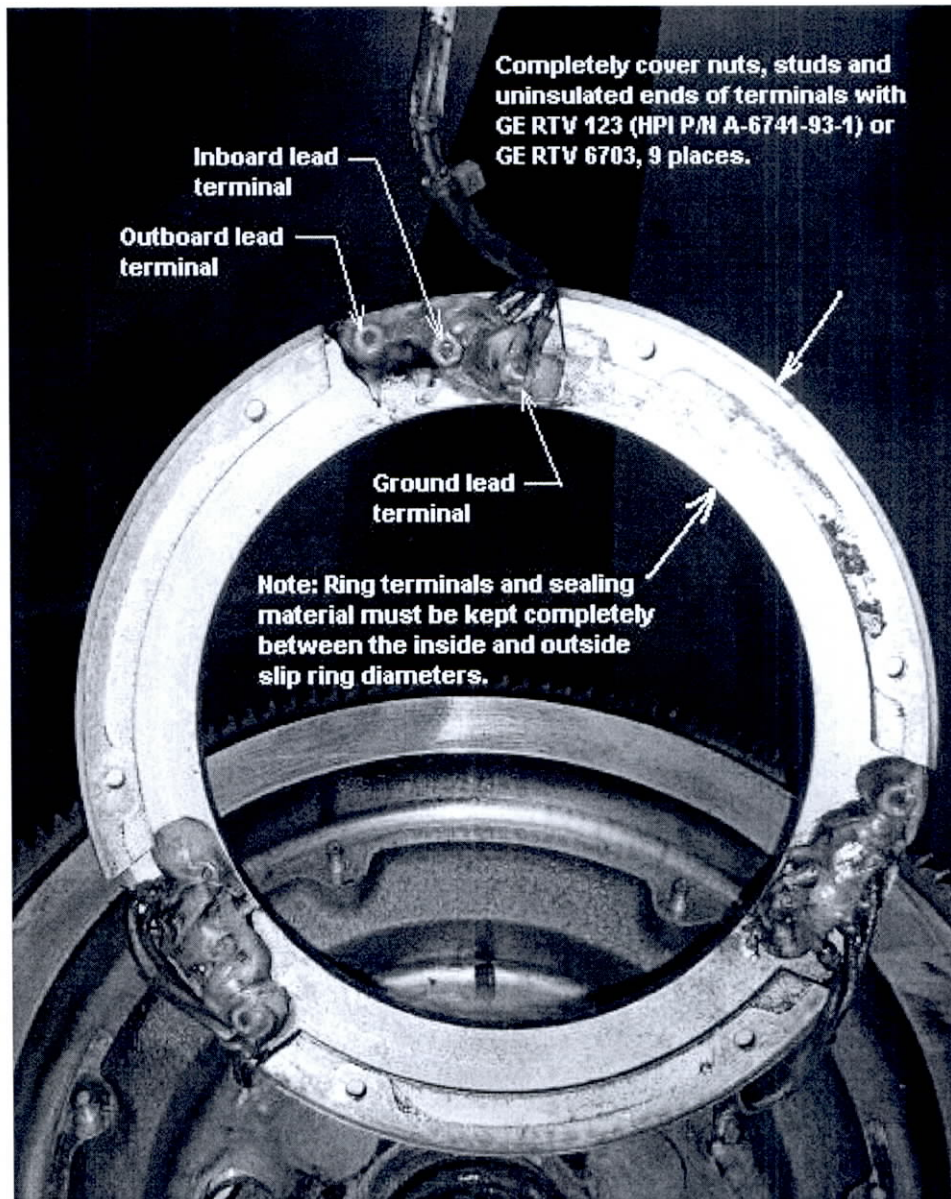


FIGURE 2

7. Referring to Hartzell drawings 104995 and 104996, pre-fit unfinished ends of P/N 103762 labeled wires (Item 1) along hub to reach bulkhead attachment location. Cut tubing to length, ensuring tubing extends to a maximum of 2" from bulkhead terminal connection. Using AMP Application Specification 114-2157 or equivalent manufacturer's instructions, cut and strip wire, then crimp terminals (Item 3) to wires, 9 places.

8. Attach slip ring lead wires to spinner bulkhead and install remaining de-ice parts in accordance with Hartzell drawing 104995 and prop de-ice kit 104996.
9. Verify proper function of the propeller de-ice system per latest Cessna service manual.



FIGURE 3