

ALERT SERVICE BULLETIN

HC-ASB-61-357

Propeller - Mounting Torque and Spacer Inspection

1. Planning Information

A. Effectivity

- (1) Hartzell Propeller Inc. steel hub turbine propellers HC-B4TW-3/T10282N, listed in Table 1, installed on Thrush Aircraft models S2R-H80 or S2RHG-H80 with an engine listed in GE Aviation Service Bulletin H80-100-72-0019 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WARNING: DO NOT USE OBSOLETE OR OUTDATED INFORMATION.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 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 for a cross-reference of service documents.
- (2) Compliance with GE Aviation Service Bulletin H80-100-72-0019 is required.

C. Reason

- (1) The engine/propeller shaft mounting flange dowel pins are longer than the industry standard. The additional length may prevent the propeller spacer from seating properly to the mounting flange.
- (2) Thrush Aircraft installed the affected propellers using lubricant on the threads of the studs, but used the torque value for a non-lubricated installation.
 - (a) Hartzell Propeller Inc.'s design standard is to not use lubrication on bolted interfaces that utilize a self-locking nut. Hartzell has no experience with the impact of lubrication on the running torque of a self-locking nut or its affect on the function of the self-locking feature as a second safety to nut torque.

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(b) The affected propeller model must be installed with a non-lubricated torque. Refer to Hartzell Propeller Inc. Propeller Owner's Manual 139 (61-00-39) for the correct torque values and torquing sequence.

(3) Regulatory action is not expected.

D. Description

- (1) This Alert Service Bulletin provides Instructions for Continued Airworthiness (ICA).
- (2) This Alert Service Bulletin provides instructions for performing an on-wing feeler gauge inspection between the spacer and engine flange.
- (3) This Alert Service Bulletin provides instructions for performing an on-wing torque inspection of the propeller mounting nuts.
- (4) This Alert Service Bulletin provides instruction for cleaning the stud, washer, and mounting nut.
- (5) This Alert Service Bulletin provides instructions for stud replacement.
- (6) This Alert Service Bulletin provides instructions for performing a dimensional inspection of the engine dowel pin at each propeller installation and compliance with GE Aviation Service Bulletin H80-100-72-0019.
- (7) Because the propeller was installed incorrectly, labor, and parts are not provided under Hartzell Propeller Inc. warranty.

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E. Compliance

- (1) For a new propeller that is installed on the original aircraft:
or
For a propeller that has been overhauled with stud replacement or has had the studs replaced and the propeller has been installed on a single aircraft after overhaul or stud replacement:
 - (a) Within 100 flight hours, 12 calendar months, or next annual inspection from the date of this Alert Service Bulletin, whichever occurs first, perform the Feeler Gauge Inspection, Paragraph 3.B., and the Mounting Nut Torque Inspection, Paragraph 3.C., in accordance with the Accomplishment Instructions in this Alert Service Bulletin.
 - 1 If the results of the Feeler Gauge Inspection, Paragraph 3.B., do not indicate a gap
and
the result of the Mounting Nut Torque Inspection, Paragraph 3.C., is greater than 90 Ft-Lbs (122 N•m):
 - a Perform the Nut, Washer, and Stud Cleaning Procedure, Paragraph 3.D., in accordance with the Accomplishment Instructions in this Alert Service Bulletin.
 - b Torque the propeller mounting nuts in accordance with the Propeller Installation, Paragraph 3.G., in the Accomplishment Instructions in this Alert Service Bulletin.
 - c The propeller may remain in service until overhaul as specified in Hartzell Propeller Inc. Service Letter HC-SL-61-61Y.
 - 2 If the results of the **Feeler Gauge Inspection, Paragraph 3.B., indicate a gap:**
 - a Call Hartzell Propeller Inc. Product Support.
 - 3 If the result of the **Mounting Nut Torque Inspection, Paragraph 3.C., is less than 90 Ft-Lbs (122 N•m):**
 - a Before further flight, remove the propeller from the aircraft, replace the studs in accordance with the Stud Replacement Procedure, Paragraph 3.E., and perform the Engine Dowel Pin Height Inspection, Paragraph 3.F., in accordance with the Accomplishment Instructions in this Alert Service Bulletin.

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- 4 For a propeller that has had the studs replaced in accordance with the Stud Replacement Procedure, Paragraph 3.E., and the Engine Dowel Pin Height Inspection, Paragraph 3.F. was performed before installation on an aircraft:
 - a If the propeller remains installed on the same aircraft, the propeller may remain in service until overhaul as specified in Hartzell Propeller Inc. Service Letter HC-SL-61-61Y.
- (2) For a propeller that has not been overhauled and has been installed on more than one aircraft since new:

or

For a propeller that has been overhauled and has been installed on more than one aircraft since overhaul:

 - (a) Within 20 flight hours, 12 calendar months, or next annual inspection from the date of this Alert Service Bulletin, whichever occurs first, perform the Feeler Gauge Inspection, Paragraph 3.B., and the Mounting Nut Torque Inspection, Paragraph 3.C., in accordance with the Accomplishment Instructions in this Alert Service Bulletin.
 - 1 If the results of the Feeler Gauge Inspection, Paragraph 3.B., do not indicate a gap
and
the result of the Mounting Nut Torque Inspection, Paragraph 3.C., is greater than 90 Ft-Lbs (122 N•m):
 - a Perform the Nut, Washer, and Stud Cleaning Procedure, Paragraph 3.D., in accordance with the Accomplishment Instructions in this Alert Service Bulletin.
 - b At intervals not to exceed 20 flight hours after the initial inspection, up to 100 flight hours after the initial inspection, perform the Feeler Gauge Inspection, Paragraph 3.B., and the Mounting Nut Torque Inspection, Paragraph 3.C., in accordance with the Accomplishment Instructions in this Alert Service Bulletin. When the Stud Replacement Procedure, Paragraph 3.E., in accordance with the Accomplishment Instructions in this Alert Service Bulletin is performed, repetitive Feeler Gauge Inspections and Mounting Nut Torque Inspections are not required.

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- (4) For all affected propeller models:
- (a) Before each installation on the aircraft, perform the Engine Dowel Pin Height Inspection, Paragraph 3.F., in the Accomplishment Instructions in this Alert Service Bulletin.

F. FAA acceptance has been obtained on the technical data in this publication that affects type design.

G. Manpower

- (1) The table below specifies the man-hours required to perform the required procedures in accordance with this Alert Service Bulletin.

Procedure	Man-hours
Feeler Gauge Inspection	0.75 hour
Mounting Nut Torque Inspection	0.75 hour
Nut, Washer, and Stud Cleaning Instructions	1.0 hour

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. Steel Hub Turbine Propeller Maintenance Manual 118F (61-10-18)
- (2) Hartzell Propeller Inc. Propeller Owner's Manual 139 (61-00-39) - Available on the Hartzell Propeller Inc. website at www.hartzellprop.com
- (3) Hartzell Propeller Inc. Illustrated Tool and Equipment Manual 165A (61-00-65) - Available on the Hartzell Propeller Inc. website at www.hartzellprop.com
- (4) Hartzell Propeller Inc. Standard Practices Manual 202A (61-01-02) - Volume 7, Consumable Materials is available on the Hartzell Propeller Inc. website at www.hartzellprop.com
- (5) GE Aviation Service Bulletin H80-100-72-0019

K. Other Publications Affected

- (1) None

2. Material Information

A. Material Necessary for Each Propeller

- (1) B-7458 mounting nut - quantity 8
- (2) A-3254 mounting stud - quantity 8
- (3) B-7624 washer - quantity 8

B. Special Tooling

- (1) 0.001 inch (0.025 mm) Metallic Feeler Gauge or Shim Stock (may be supplied by Thrush Aircraft or locally procured)
- (2) Torque wrench adapter, AST-3175
- (3) Beta system puller CST-2987

NOTE: All tooling numbers in this Alert Service Bulletin refer to the Hartzell Propeller Inc. Illustrated Tool and Equipment Manual 165A (61-00-65) - Available on the Hartzell Propeller Inc. website at www.hartzellprop.com.

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Propeller Serial Number
QVA 2
QVA 3
QVA 4
QVA 5
QVA6
QVA7
QVA8
QVA9
QVA 10
QVA 12
QVA 13
QVA 14
QVA 15
QVA 16
QVA 17
QVA 18
QVA 19
QVA 20
QVA 21
QVA 22
QVA 23
QVA 25
QVA 26
QVA 27
QVA 28
QVA 29
QVA 30
QVA 31
QVA 32

Propeller Serial Number
QVA 33
QVA 34
QVA 35
QVA 36
QVA 37
QVA 39
QVA 40
QVA 42
QVA 43
QVA 44
QVA 45
QVA 46
QVA 47
QVA 48
QVA 49
QVA 50
QVA51
QVA52
QVA 53
QVA 55
QVA 56
QVA 59
QVA 61
QVA 62
QVA63
QVA 64
QVA 65
QVA 66
QVA 67

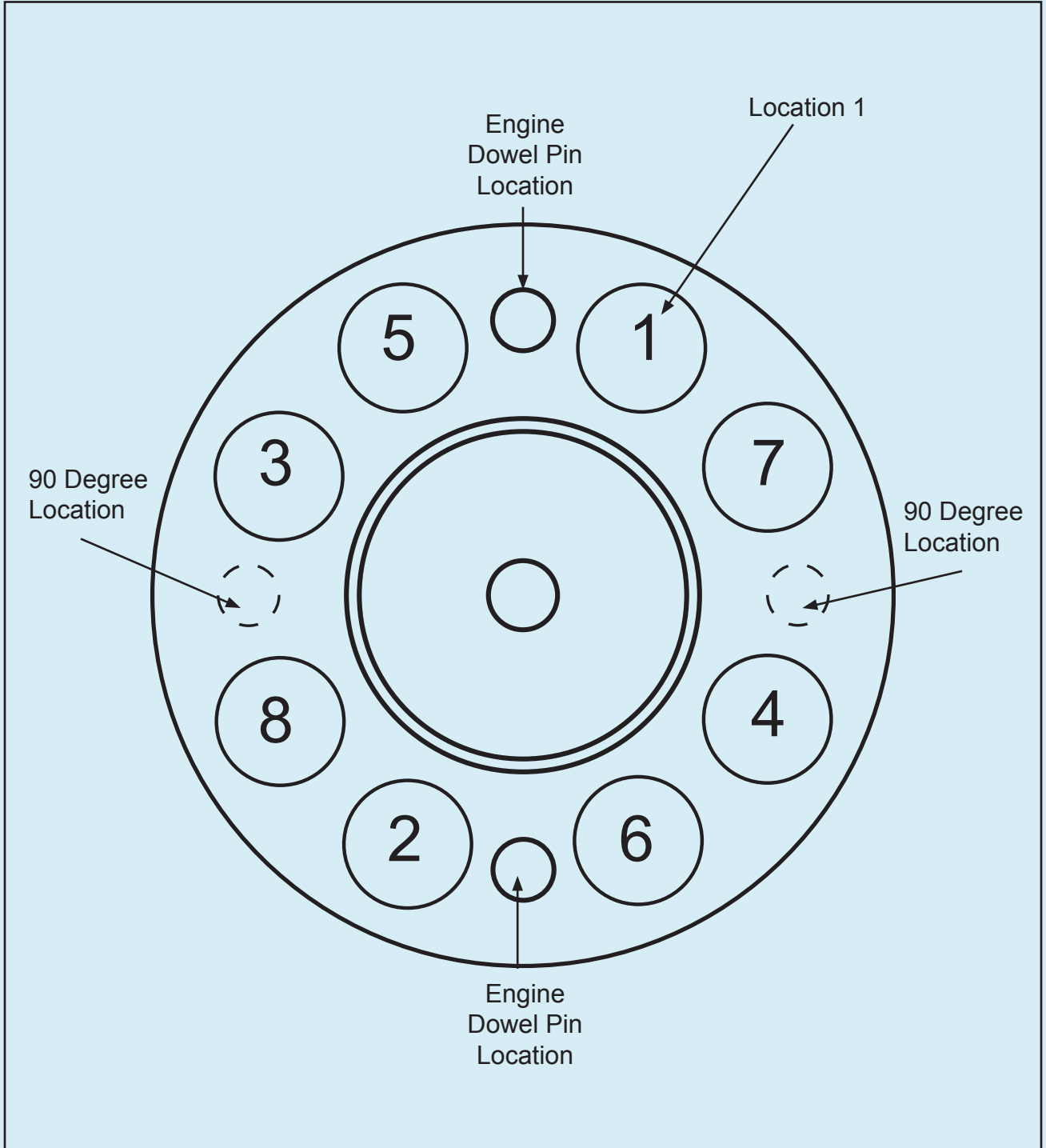
Propeller Serial Number
QVA 68
QVA 69
QVA 70
QVA 71
QVA72
QVA 73
QVA 74
QVA 79
QVA 80
QVA 81
QVA82
QVA83
QVA84
QVA85
QVA86
QVA87
QVA93
QVA94

**Propeller Serial Numbers Affected by Nut, Washer, and Stud Cleaning Procedure
Table 1**

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**Alternating Sequence for Inspections and Locations of Mounting Nuts
Figure 1**

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C. Consumables

- (1) Soft cloth
- (2) Non-metallic bristle brush
- (3) Approved Solvent
 - (a) Acetone CM11
 - (b) MEK CM106
 - (c) MPK CM219
 - (d) Stoddard Solvent CM23

NOTE: All CM numbers or materials in this Alert Service Bulletin refer to the Consumable Materials chapter of Hartzell Standard Practices Manual 202A (61-01-02) - Available on the Hartzell Propeller Inc. website at www.hartzellprop.com

3. Accomplishment Instructions

CAUTION: INSTRUCTIONS AND PROCEDURES IN THIS ALERT SERVICE BULLETIN MAY INVOLVE PROPELLER CRITICAL PARTS. REFER TO THE APPLICABLE PROPELLER OVERHAUL OR OWNER'S MANUAL FOR INFORMATION ABOUT PROPELLER CRITICAL PARTS.

A. General

- (1) The inspections specified in this Alert Service Bulletin may be performed by a certified aircraft mechanic with the appropriate rating or by a certified propeller repair station with the appropriate rating.
- (2) The Feeler Gauge Inspection, Paragraph 3.B., and the Mounting Nut Torque Inspection, Paragraph 3.C., must be performed on-wing.
- (3) Remove the spinner dome in accordance with Hartzell Propeller Inc. Owner's Manual 139 (61-00-39).
- (4) Remove and discard all safety wire from the mounting studs.

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B. Feeler Gauge Inspection - Refer to Figure 1.

- (1) At the location of the two engine dowels, use a 0.001 inch (0.025 mm) metallic feeler gauge or shim stock to inspect for a gap between the mounting spacer and the engine/propeller shaft mounting flange.
 - (a) If the metallic feeler gauge or shim stock can fit between the spacer and the engine flange to a depth that would indicate a gap:
 - 1 Before further flight, contact Hartzell Propeller Inc. Product Support.
 - (b) If the metallic feeler gauge or shim check does not indicate a gap:
 - 1 Perform the Mounting Nut Torque Inspection, Paragraph 3.C.

CAUTION: THE CORRECT INSTALLATION TORQUE IS 120-125 FT-LBS (163-170 N•M) DRY. IN ORDER TO AVOID POSSIBLE REPETITIVE OVER TORQUING, THIS ALERT SERVICE BULLETIN REQUIRES A TORQUE CHECK TO ONLY 90 FT-LBS (122 N•M). THE PURPOSE OF THE 90 FT-LBS (122 N•M) TORQUE CHECK IS TO VALIDATE THAT THE EXTRA PRELOAD HAS NOT COMPROMISED THE STUD/NUT AND HUB.

C. Mounting Nut Torque Inspection

- (1) Using a beta system puller CST-2987, compress the beta system and pull the beta ring forward to permit access to the propeller mounting flange.
- (2) Using a calibrated torque wrench and torque wrench adapter AST-3175, verify that the breakaway torque on each of the eight mounting nuts is equal to or greater than 90 Ft-Lbs (122 N•m) torque by loosening each nut and noting the breakaway torque.

NOTE: Refer to Hartzell Propeller Inc. Propeller Owner's Manual 139 (61-00-39) for the correct use of a torque wrench adapter.

- 1 If the breakaway torque on all of the mounting nuts is equal to or greater than 90 Ft-Lbs (122 N•m):
 - a Perform the Nut, Washer, and Stud Cleaning Procedure, Paragraph 3.D.
 - b Torque the propeller mounting nuts in accordance with the Propeller Installation Instructions, Paragraph 3.G.

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- 2 If the breakaway torque on any mounting nut is less than 90 Ft-Lbs (122 N•m):
 - a Remove the propeller from the aircraft.
 - b Before further flight, replace the mounting studs in accordance with the Stud Replacement Procedure, Paragraph 3.E.
 - c Compliance with GE Aviation Service Bulletin H80-100-72-0019 is required.
 - d Install the propeller in accordance with the Propeller Installation, Paragraph 3.G.

D. Nut, Washer, and Stud Cleaning Procedure

- (1) Remove the mounting nut and washer from the stud at location 1, identified in Figure 1.
- (2) Retain the mounting nut and washer.

WARNING: ADHESIVES AND SOLVENTS ARE FLAMMABLE AND TOXIC TO THE SKIN, EYES, AND RESPIRATORY TRACT. SKIN AND EYE PROTECTION ARE REQUIRED. AVOID PROLONGED CONTACT AND BREATHING OF VAPORS. USE SOLVENT RESISTANT GLOVES TO MINIMIZE SKIN CONTACT AND WEAR SAFETY GLASSES FOR EYE PROTECTION. USE IN A WELL VENTILATED AREA AWAY FROM SPARKS AND FLAME. READ AND OBSERVE ALL WARNING LABELS.

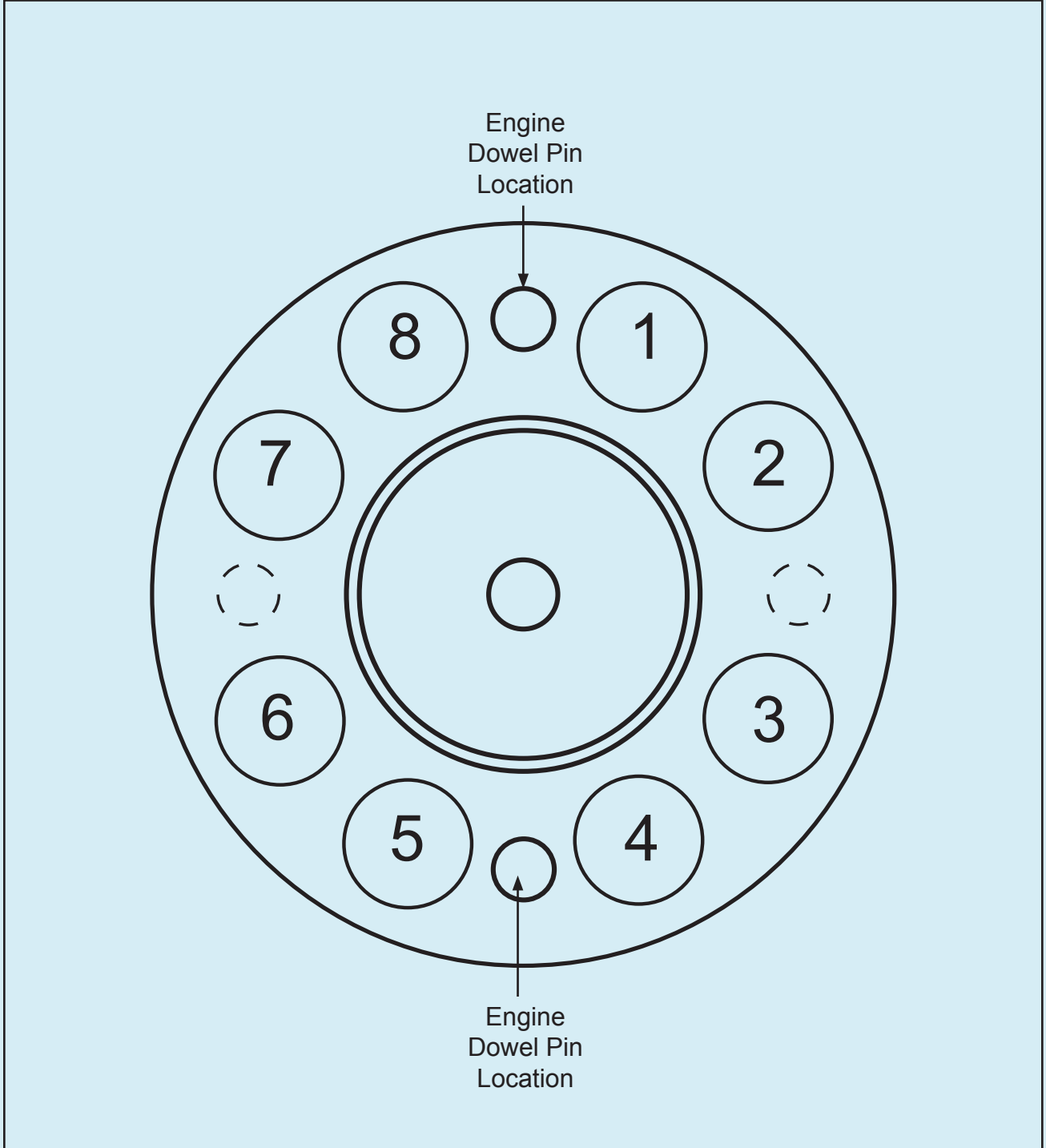
CAUTION: DO NOT USE A STIFF BRISTLE BRUSH OR ANY METALLIC TOOL THAT MAY DAMAGE THE THREADS OR THE PLATING ON THE MOUNTING STUD OR NUT. MAKE SURE TO REMOVE ALL TRACES OF THE LUBRICANT.

- (3) Using a soft cloth or non-metallic bristle brush and approved solvent, remove all lubricant from the exposed area of the stud, mounting nut, and the washer.
- (4) Permit to dry.
- (5) Visually examine the exposed area of the stud and mounting nut for damage or corrosion.
 - (a) If there is damage or corrosion on the threads of the stud or the mounting nut, contact Hartzell Propeller Inc. Product Support.

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**Final Torque Sequence
Figure 2**

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Propeller - Mounting Torque and Spacer Inspection

- (6) If there is no damage or corrosion on the threads of the stud or the mounting nut, torque the propeller mounting nuts in accordance with the Propeller Installation, Paragraph 3.G.

E. Stud Replacement Procedure

- (1) Stud replacement must be performed by a certified propeller repair station with the appropriate rating.

NOTE: Propeller disassembly is not required for stud replacement.

- (2) Replace the studs, washers, and mounting nuts with new studs, washers, and mounting nuts in accordance with the Hartzell Propeller Inc. Steel Hub Turbine Propeller Maintenance Manual 118F (61-10-18).
- (3) Discard studs, washers, and mounting nuts that were replaced.
- (4) If there is damaged studs, washers, mounting nuts, or the damage to the spacer, contact Hartzell Propeller Product Support department.

F. Engine Dowel Pin Height Inspection

- (1) Before next propeller installation, comply with GE Aviation Service Bulletin H80-100-72-0019.

G. Propeller Installation

CAUTION: THE THREADS OF THE STUD AND MOUNTING NUT MUST BE CLEAN AND FREE OF LUBRICANT.

- (1) Install the cleaned washer on the stud.
 - (a) The side of the washer with the OD chamfer must be installed against the engine flange.
- (2) After each mounting nut has been installed and dry torqued to an initial 40 Ft-Lbs (54 N•m), repeat the torquing sequence in Figure 1 and torque all mounting nuts to 80 Ft-Lbs (108 N•m).

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- (3) After each mounting nut has been torqued to 80 Ft-Lbs (108 N•m), torque all mounting nuts to a final torque of 120-125 Ft-Lbs (163-170 N•m) in the sequence shown in Figure 2.
 - (a) Propeller installation torque and instructions are specified in Hartzell Propeller Inc. Propeller Owner's Manual 139 (61-00-39).

NOTE: Refer to Hartzell Propeller Inc. Propeller Owner's Manual 139 (61-00-39) for the correct use of a torque wrench adapter.

- (4) If any one nut cannot be torqued to the final torque of 120-125 Ft-Lbs (163-170 N•m), contact Hartzell Propeller Inc. Product Support.
- (5) Safety all propeller mounting studs with 0.032 inch (0.81 mm) minimum diameter stainless steel wire. (Two studs per safety.)

H. Make a Propeller Logbook Entry

- (1) Make an entry in the propeller logbook indicating the compliance with the applicable inspections or procedures specified in this Alert Service Bulletin:
 - (a) Feeler Gauge Inspection, Paragraph 3.B.
 - (b) Mounting Nut Torque Inspection, Paragraph 3.C.
 - (c) Nut, Washer, and Stud Cleaning Procedure, Paragraph 3.D.
 - (d) Stud Replacement Procedure, Paragraph 3.E.
 - (e) Engine Dowel Pin Height Inspection, Paragraph 3.F.

I. 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.

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J. Contact Information

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