

ICA_032513

**INSTRUCTIONS FOR CONTINUED AIRWORTHINESS
FOR THE
HARTZELL HC-E5N-3C/NC8834K PROPELLERS
ON SOCATA TBM 700**

STC SA03291CH

LOG OF REVISIONS

Revision	Revised Page(s)	Description of Revision	Engineer	Date
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NOTE: All changes are indicated by a black vertical line along the left margin.

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INTRODUCTION

The Instructions for Continued Airworthiness below document the maintenance requirements and procedures associated with the new Hartzell HC-E5N-3C/NC8834K five-blade composite propellers installed on TBM 700 aircraft.

Chapter 4 – AIRWORTHINESS LIMITATIONS

NOTE: The Airworthiness Limitations section is FAA approved and specifies maintenance required under Secs. 43.16 and 91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved.

There are no new (or additional) airworthiness limitations associated with this equipment and/or installation.

Chapter 5 - TIME LIMITS / MAINTENANCE CHECKS

All required maintenance, inspections, time intervals and procedures for Hartzell Propellers are provided in Hartzell Manual 147 (Hartzell Propeller Owner's Manual) provided with each propeller. Recommended Time-Between-Overhaul (TBO) for the STC propeller is also provided in Hartzell Service Letter HC-SL-61-61Y. Propeller overhaul must be accomplished by a certified propeller repair station with the appropriate rating.

All propeller inspection requirements contained in Phase, Special, Biennial, Interim, Complete and Unscheduled inspections remain unchanged and should be complied with as provided in Chapter 5 of the applicable Socata TBM 700 Maintenance Manual.

Due to the composite construction of the propeller blade, in addition to the lightning strike inspection criteria provided in the Socata TBM 700 Maintenance Manual, refer to Hartzell Propeller Owner's Manual 147, Chapter 5, Special Inspections - Lightning Strike for detailed information on propeller lightning strike inspection and disposition.

Special Inspections – Propeller Overtorque or Overspeed

The HC-E5N-3C/NC8834K propeller is approved for transient overtorque events up to 2678 ft-lbs for twenty seconds without requiring special inspections. For all other levels and duration of overtorque events, consult Hartzell Manual 202A for special inspection requirements.

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Special Inspections – Propeller Overtorque or Overspeed (continued)

Consult Hartzell Manual 202A for propeller overspeed limits and special inspection requirements.

Chapter 30 ICE AND RAIN PROTECTION

Propeller Electric Deicers

Propeller Electric Deicers – Description and Operation

The Hartzell HC-E5N-3C/NC8834K propeller uses a dual heating element deicer boot that is functionally equivalent to the deicer installed on the Hartzell four-blade propeller deice system described in the Socata TBM 700 Maintenance Manual. The primary change made to the propeller deice system when installing the five-blade composite propeller is the addition of a Metal Oxide Varistor (MOV) module for lightning strike protection. The MOV module is a passive component that protects the airframe system from the adverse effects of a lightning strike. Another change is how the deice boots are heated. Instead of the whole boot of opposing blades being heated simultaneously, the five-blade propeller heats the inboard or outboard boot sectors of all five blades simultaneously, then alternates to the other sector every 90 seconds.

There is one operational warning/caution that must be observed to prevent damage to the composite blades when operating the propeller deice system without the engine running. If the propeller deice system is operated without the propeller turning, the deicer can heat the blades to temperatures that will damage the composite blade. The following caution is provided in the STC installation instructions and Airplane Flight Manual Supplement:

CAUTION: OPERATION OF THE PROPELLER DE-ICE SYSTEM WITHOUT THE ENGINE RUNNING IS LIMITED TO 10 SECONDS OR SEVERE DAMAGE TO THE COMPOSITE BLADES MAY RESULT. IF 10 SECONDS IS EXCEEDED, CONTACT HARTZELL PRODUCT SUPPORT AT:

**Phone: (937) 778-4379 or 1-800-942-7767
e-mail: techsupport@hartzellprop.com**

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Propeller Electric Deicers – Troubleshooting

For propeller deicer system description to aid in troubleshooting, refer to Hartzell Manuals 181 and 182 for propeller mounted components; refer to the Socata TBM 700 manual and the STC Installation Instructions for the airframe mounted (non-rotating) system components.

The propeller-mounted deicer system components are depicted in the Hartzell Manuals listed below.

Manual 180 – Propeller Ice Protection System Manual
Refer to “De-Ice Kits for Lightweight Turbine Propellers with Composite Blades” to see Illustrated Parts Lists for Propeller De-Ice Kit P/N 105551.

Manual 181 – Propeller Ice Protection System Component Maintenance Manual

Manual 182 – Propeller Electrical De-Ice Boot Removal and Installation Manual.

These manuals can be viewed and/or obtained via the internet on the Hartzell Propeller website (www.hartzellprop.com). The manuals are located in the “Service & Support” section under Services/Reference Library/Manuals/Ice Protection Manuals.

The MOV module does not require troubleshooting, because, much like a fuse, it is passive component that is only replaced in the event of a lightning strike.

Troubleshooting procedures of the propeller deice system are unchanged and the procedures provided in the Socata TBM 700 Maintenance Manual remain applicable.

For assistance with troubleshooting, please contact Hartzell Product Support at:
Phone: (937) 778-4379 or 1-800-942-7767 e-mail: techsupport@hartzellprop.com

Propeller Electric Deicers – Maintenance Practices

For maintenance of the propeller deicer system, refer to Hartzell Manuals 181 and 182 for propeller mounted components. Refer to the Socata TBM 700 manual and the STC Installation Instructions for the airframe mounted (non-rotating) system components.

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Metal Oxide Varistor (MOV) Module Replacement

Metal Oxide Varistor (MOV) module is installed on a new bracket near the brush block assembly for deicer system lightning protection. Hartzell recommends the MOV be replaced in the event of a lightning strike per Hartzell Manual 181. Refer to Hartzell airframe de-ice kit P/N 105068 (defined in Hartzell Manual 180) and STC installation instructions INST_032513 for MOV installation details.

Electrothermal Propeller Deicers

The airframe mounted components of the propeller de-ice system – except for the MOV – are unchanged; therefore, the system description and operation as provided in the Socata TBM 700 Maintenance Manual remains applicable.

Deicer Boot Removal and Installation

See latest revision of Hartzell Manual 182, Propeller Electrical De-ice Boot Removal and Installation Manual.

Chapter 61 - PROPELLERS

The STC propeller is a 91” diameter, five-blade, constant-speed, feathering and reversing propeller.

The STC propeller should be installed in accordance with STC Installation Instructions INST_032513. All required maintenance, inspections, time intervals and procedures are provided or referenced in Hartzell Manual 147 (Hartzell Propeller Owner’s Manual) provided with each propeller.

Recommended Time-Between-Overhaul (TBO) limits for the STC propeller are provided in Hartzell Service Letter HC-SL-61-61Y. Propeller overhaul must be accomplished by a certified propeller repair station with the appropriate rating.

Spinner Inspection

Refer to Hartzell Manual 127 for 105180(P) aluminum spinner assembly inspection and maintenance information.

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For Product Support contact:

Address: Hartzell Propeller Inc.
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