ICA_080808_98

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS FOR THE HARTZELL HC-I3YR-1N/N7605(K)+2 PROPELLER AND HC-I3Y1R-1N/N7605(K)+2 PROPELLER ON PIPER PA-46-350P (MALIBU MIRAGE) AIRCRAFT SERIAL NUMBER 4636132 AND UP and PA-46R-350T (MATRIX) AIRCRAFT SERIAL NUMBER 4692001 AND UP.

STC SA02677CH-D

LOG OF REVISIONS

Revision	Revised Page(s)	Description of Revision	Engineer	Date
New	All	Original Release	B. Meyer	8/8/08
A	1	Correct aircraft S/N typographical error	L. Doud	5/24/11

NOTE: All changes are indicated by a black vertical line along the left margin.

ICA_080808_98

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS
FOR THE
HARTZELL HC-I3YR-1N/N7605(K)+2 PROPELLER AND HC-I3Y1R-1N/N7605(K)+2 PROPELLER
ON PIPER PA-46-350P (MALIBU MIRAGE) and PA-46R-350T (MATRIX) AIRCRAFT

STC SA02677CH

INTRODUCTION

In 1998 Piper made the Hartzell HC-I3YR-1E/7890(K) three-blade composite propeller standard on aircraft serial number 4636132 and on. The Instructions for Continued Airworthiness below document the maintenance requirements and procedures associated with the new Hartzell HC-I3YR-1N/N7605(K)+2 and HC-I3Y1R-1N/N7605(K)+2 three-blade composite propellers installed on PA-46-350P aircraft S/N 4636132 and up and all serial numbers of PA-46R-350T 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.

Chapter 5 - TIME LIMITS / MAINTENANCE CHECKS

All required maintenance, inspections, time intervals and procedures are provided in Hartzell Manual 145 (Hartzell Propeller Owner's Manual) provided with each propeller. Recommended Time-Between-Overhaul (TBO) limits for the STC propeller are also provided in Hartzell Service Letter 61.

Chapter 30 - ICE AND RAIN PROTECTION

For aircraft with electric propeller de-ice systems, the propeller de-ice system service information is provided on the system installation drawing 102960 and in specific Hartzell service manuals. These manuals can be viewed and/or obtained via the internet on the Hartzell Propeller website (www.hartzellprop.com). The following applicable manuals are located in the "Product Support" section under "HPI Ice Protection System Manuals."

Manual 180 – Propeller Ice Protection System Manual
Refer to "De-Ice Kits for Non-Counterweighted Compact Propellers" to see illustrated parts lists for 102960-1 and 102960-2 de-ice kits.

Manual 181 – Propeller Ice Protection System Component Maintenance Manual

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

ICA_080808_98

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS
FOR THE
HARTZELL HC-I3YR-1N/N7605(K)+2 PROPELLER AND HC-I3Y1R-1N/N7605(K)+2 PROPELLER
ON PIPER PA-46-350P (MALIBU MIRAGE) and PA-46R-350T (MATRIX) AIRCRAFT

STC SA02677CH

Propeller Heat System Description and Operation

The Hartzell propeller de-ice boot used on this STC consists of a single multi-strand resistance wire heating element encapsulated within a fabric and neoprene rubber construction. The propeller de-ice timing cycle is controlled by the same timer originally type-certified on the aircraft. When the PROP HEAT switch is turned ON, the timer provides current to the de-ice boots in a 90-second ON, 90-second OFF cycle and powers all three blades simultaneously. This cycle will continue as long as the PROP HEAT switch is in the ON position.

The STC propeller de-ice system utilizes all existing non-rotating hardware such as the slip-ring, brush block assembly, cycle timer, and switches, etc. The system is depicted on Hartzell drawing 102960 (latest revision).

Propeller Heat System Troubleshooting

Use the troubleshooting routines provided in Piper maintenance manuals for each aircraft model but reference Hartzell drawing 102960 (latest revision) for system installation details and schematics for the propeller rotating system.

Brush Module Replacement

No Change.

New Brush Alignment

No Change.

Metal Oxide Varistor (MOV) Module Replacement

During installation of the STC, Metal Oxide Varistors (MOV) are installed to the brush block assembly for lightning protection. The MOV installation is shown on Hartzell drawing 102960. The MOV module must be replaced in the event of a lightning strike per Hartzell Manual 181. Reference Hartzell drawing 102960 (latest revision) for MOV removal and installation details.

ICA_080808_98

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS
FOR THE
HARTZELL HC-I3YR-1N/N7605(K)+2 PROPELLER AND HC-I3Y1R-1N/N7605(K)+2 PROPELLER
ON PIPER PA-46-350P (MALIBU MIRAGE) and PA-46R-350T (MATRIX) AIRCRAFT

STC SA02677CH

Slip Ring Assembly Replacement

No Change.

Slip Ring Assembly Alignment

No Change.

Heater Boots Electrical Check (reference Hartzell drawing 102960 (latest revision))

a) Check the electrical resistance of the element within each de-ice boot. Disconnect the heater lead wires to isolate the individual unit.
b) Check for intermittent open circuits by tensioning the heater wire harness slightly while measuring the resistance. Also, press lightly on the heater surface in the area adjacent to the harness. Resistance must not vary.
c) The acceptable de-ice boot circuit resistance range is 4.12 - 4.56 ohms. These values only apply to heaters that are not connected to terminal studs. If all three blade heaters are checked in parallel, the acceptable range is 1.37 –1.52 ohms.
d) If tests show the blade heater to have an open circuit, to be the wrong resistance or to be visibly damaged beyond repair as outlined in this section, replace the heater.

Heater Boot Removal and Installation

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

PROP HEAT Functional Check

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.

No Change.

Timer Test & Troubleshooting

No Change.

ICA_080808_98

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS
FOR THE
HARTZELL HC-I3YR-1N/N7605(K)+2 PROPELLER AND HC-I3Y1R-1N/N7605(K)+2 PROPELLER
ON PIPER PA-46-350P (MALIBU MIRAGE) and PA-46R-350T (MATRIX) AIRCRAFT

STC SA02677CH

Propeller Heater System Periodic Inspection

Reference Hartzell Manual 145 for propeller de-ice system inspection requirements and procedures.

Chapter 61 - PROPELLERS

The STC propeller is an 80" diameter, three-blade composite constant-speed propeller. The propeller is controlled by Hartzell V-5-2, V-11-1, or S-1-30 governors.

The STC propeller should be installed in accordance with STC Installation Instructions INST_080808_98FLD. All required maintenance, inspections, time intervals and procedures are provided in Hartzell Manual 145 (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 61. Propeller overhaul must be accomplished by an approved Propeller Repair Station.