

INST_102210

INSTRUCTIONS FOR INSTALLATION

OF HARTZELL PHC-C3YF-2UF/FC7391D(B) and PHC-J3YF-2UF/FC7391D(B)
PROPELLERS

ON HAWKER BEECHCRAFT 55 and 58 SERIES BARON AIRCRAFT

STC SA02561CH-D

LOG OF REVISIONS

Revision	Revised Page(s)	Description of Revision	Engineer	Date
IR	All	Initial Release	L. Doud	10/22/10
A	4, 5, 8, 9	Clarification of fluid anti-ice delivery tube and clamp positioning	L. Doud	6/3/11

RD BEM

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

Approved *B-E Meyer*

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

Date JUNE 7, 2011

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**INSTRUCTIONS FOR INSTALLATION
OF HARTZELL PHC-J3YF-2UF/FC7391DB and PHC-C3YF-2UF/FC7391D(B) PROPELLERS
ON HAWKER BEECHCRAFT 55 and 58 SERIES AIRCRAFT**

Please read these instructions and the Instructions for Continued Airworthiness before starting installation. If you have any questions regarding installation of this STC, please contact Hartzell Propeller at:

*Phone: (937) 778-4379 or
1-800-942-7767*

E-mail: techsupport@hartzellprop.com

1.0 INTRODUCTION

These STC installation instructions provide the necessary information to install PHC-C3YF-2UF/FC7391D(B) or PHC-J3YF-2UF/FC7391D(B) propellers with fluid anti-ice and C-3567-7(P), C-3567-8(P) or C-3567-9(P) spinners on the Hawker Beechcraft 55 and 58 series Baron aircraft models shown in the table in Section 3.0 below.

All propeller governor models listed in FAA Type Certificate 3A16 are compatible with the propellers in this STC.

It is responsibility of the installer to verify compatibility of this STC with previously approved modifications.

2.0 GENERAL NOTES

1. For removal and installation of the propellers, reference the latest revision of the applicable Hawker Beechcraft Parts and Service Manuals and Hartzell Propeller, Inc. Propeller Owners Manual no. 115N.
2. For propeller adjustment and operation, follow the procedures provided in the latest revision of Hartzell Propeller, Inc. Propeller Owners Manual no. 115N.
3. Instructions for Continued Airworthiness are provided in Hartzell document ICA_102210.
4. The anti-ice hardware in this STC may not be compatible with after-market air conditioning systems. The anti-ice hardware installation was designed for use with the factory-installed air conditioning system only.

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ON HAWKER BEECHCRAFT 55 and 58 SERIES AIRCRAFT**

3.0 APPLICABLE MODEL TABLE

Aircraft model	Aircraft Serial Numbers	TCM Engine Model	STC propeller model	Spinner Model	Anti-ice kit
<i>Detailed instructions for following models in Section 5.0</i>					
95-55	All ^A	IO-470-L	PHC-C3YF-2UF / FC7391D	C-3567-9(P)	103313
95-A55	All ^A	IO-470-L	PHC-C3YF-2UF / FC7391D	C-3567-9(P)	103313
95-B55	All ^A	IO-470-L	PHC-C3YF-2UF / FC7391D	C-3567-9(P)	103313
95-B55A	All ^A	IO-470-L	PHC-C3YF-2UF / FC7391D	C-3567-9(P)	103313
95-B55B	All ^A	IO-470-L	PHC-C3YF-2UF / FC7391D	C-3567-9(P)	103313
95-C55	All ^A	IO-520-C or IO-520-CB	PHC-C3YF-2UF / FC7391D(B)	C-3567-9(P)	103313 ^B
95-C55A	All ^A	IO-520-C or IO-520-CB	PHC-C3YF-2UF / FC7391D(B)	C-3567-9(P)	103313 ^B
D55	All ^A	IO-520-C or IO-520-CB	PHC-C3YF-2UF / FC7391D(B)	C-3567-9(P)	103313 ^B
D55A	All ^A	IO-520-C or IO-520-CB	PHC-C3YF-2UF / FC7391D(B)	C-3567-9(P)	103313 ^B
E55 ^B	All ^B	IO-520-C or IO-520-CB	PHC-C3YF-2UF / FC7391D(B)	C-3567-9(P)	103313 ^B
E55A ^B	All ^B	IO-520-C or IO-520-CB	PHC-C3YF-2UF / FC7391D(B)	C-3567-9(P)	103313 ^B
<i>Detailed instructions for following models in Section 6.0</i>					
E55 ^C	All ^C	IO-520-C or IO-520-CB	PHC-J3YF-2UF / FC7391D	C-3567-8(P)	N/A
E55A ^C	All ^C	IO-520-C or IO-520-CB	PHC-J3YF-2UF / FC7391D	C-3567-8(P)	N/A
58	See note D	See note D	PHC-J3YF-2UF / FC7391D	See note E	See note F
58A	See note D	See note D	PHC-J3YF-2UF / FC7391D	See note E	See note F

NOTES:

- A. All serial numbers are approved, but for the propeller fluid anti-ice systems to be approved, the aircraft must currently have a propeller fluid anti-ice system installed on the particular serial number aircraft.
- B. Propeller anti-ice kit 103313 is approved as an option on the 95-C55, 95-C55A, D55, D55A E55 and E55A model Baron aircraft without air conditioning.
- C. E55 and E55A aircraft with air conditioning use the extended hub "J3YF" propeller and are not approved with propeller anti-ice.
- D. Approved model 58 and 58A aircraft serial number and engine models:

Aircraft Serial Number	Engine Model
TH-1 through TH-1395 except TH-1389	IO-520-C or IO-520-CB
TH-1389, TH-1396 through TH-1471, TH-1476, TH-1487, TH-1489 and TH-1498	IO-550-C

- E. Approved spinners for model 58 and 58A aircraft:

SPINNER ASSY. P/N (NO AIR COND.)	C-3567-7(P)
SPINNER ASSY. P/N (WITH AIR COND.)	C-3567-8(P)

- F. Approved propeller anti-ice kits for model 58 and 58A aircraft:

ANTI-ICE KIT (NO AIR CONDITIONING)	102679-1
ANTI-ICE KIT (LEFT SIDE WITH AIR CONDITIONING)	102679-2

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ON HAWKER BEECHCRAFT 55 and 58 SERIES AIRCRAFT**

4.0 PREPARATION

1. Determine if aircraft is equipped with a factory-installed air conditioning system (compressor mounted on left engine).
2. Verify the propellers and spinners being installed conform to the propeller configuration shown in the table above in Section 3.0.

5.0 PROPELLER INSTALLATION: For models 95-55, 95-A55, 95-B55, 95-B55A, 95-B55B, 95-C55, 95-C55A, D55, D55A, E55 and E55A (all without air conditioning)

1. Remove the original propeller and spinner. Reference the latest revision of the applicable Hawker Beechcraft parts and service manuals for removal procedures.

NOTE: Some propeller anti-ice hardware must be installed concurrently with the spinner bulkhead. Reference Hartzell anti-ice installation drawing 103293 for anti-ice hardware installation details during installation of the propeller spinner bulkhead.
2. Reference the spinner pre-installation section of the Propeller Owner's Manual (Hartzell Manual 115N) using the "spinner bulkhead to propeller hub" procedures during the following steps.
 - a. Remove the nuts from the hub clamping bolts that are located on either side of the blade shank. The remaining hub clamping nuts and bolts should not be disturbed.
 - b. The fluid anti-ice travel tubes are mounted in cushioned clamps located on the hub clamping bolt on left side of each blade (forward, looking aft at propeller hub). Verify the proper travel tube, cushioned clamp and two washers are installed on the hub mounting bolt in these locations. If not installed, remove bolt and install the travel tube, clamp and washers as shown on drawing 103293.
 - c. With the propeller on the start locks, align the opening of the travel tubes with the rib of the anti-ice boot on the leading edge of each blade per drawing 103293. When adjusting travel tube near blades, do not permit the travel tube to rest against the spinner dome blade cutout.
 - d. Place the spinner bulkhead spacers on the hub clamping bolts between the hub and the spinner bulkhead as shown on drawing 103293 and the Propeller Owner's Manual (Figure 3-2).

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ON HAWKER BEECHCRAFT 55 and 58 SERIES AIRCRAFT**

NOTE: The C-3567-9(P) spinner assembly consists of 1 ea. C-3566-16(P) bulkhead and 1 ea. D-7811-2(P) dome.

- e. Install the spinner bulkhead over the spacers on the hub clamping bolts. Simultaneously feed the ends of the travel tubes through the corresponding holes in the spinner bulkhead.
 - f. Install one flat washer and the self-locking nut on each hub clamping bolt used to mount the spinner bulkhead.
 - g. Torque the nuts/hub clamping bolts per Table 3-1 in Propeller Owner's Manual. Because the travel tube may rotate during the torque process, check the alignment of the travel tube after torquing.
3. Install the slinger ring unit on the propeller per the following steps:
- a. Install a travel tube mounting hose (P/N A-1866-3) over the end of each travel tube protruding through spinner bulkhead as shown on drawing 103293.
 - b. Place slinger ring unit (P/N C-2371-3) on the aft side of the hub flange ring as shown on drawing 103293. Simultaneously feed the three slinger ring tubes into the three travel tube mounting hoses.
 - c. Fasten slinger ring to the propeller hub flange ring using the three mounting bolts as shown on drawing 103293. Torque the fasteners to 50-70 in-lbs. Safety-wire mounting bolts to small, adjacent holes in slinger ring using 0.032" safety wire.
 - d. Slide travel tube hose as required for adequate engagement to both the slinger ring tube and travel tube. Secure hose to tubes with 0.032" safety wire as shown on drawing 103293.
4. Install propeller and spinner on engine in accordance with Hartzell Owner's Manual number 115N (latest revision). Follow installation instructions for "Installation of "F" Flange Propellers" in Manual 115().
- NOTE:** PHC- propellers are installed with one blade aligned with the engine TC mark on the propeller-mounting flange. The engine TC mark is aligned with one dowel-pin hole and will be pointing up and aligned with the engine case split line when cylinder #6 is at TDC.
5. Relocate anti-ice fluid delivery tube clamp and bend tube as necessary to position end of tube/orifice in slinger ring as shown on drawing 103293.

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6. Attach Hartzell Propeller Inc. Airplane Flight Manual Supplement to the existing Airplane Flight Manual per the table below:

Aircraft model	Aircraft S/N	Airplane Flight Manual Supplement
95-55, 95-A55, 95-B55, 95B55A, 95-B55B	All	AFMS_102210-55-470
95-C55, 95-C55A, D55, D55A, E55, E55A	All	AFMS_102210-55-520

7. Revise weight and balance records to show:

Removal of previous propeller and spinner:

Use weights and arms provided in aircraft equipment list or that provided by previous propeller manufacturer.

Installation of Hartzell PHC-C3YF-2UF/FC7391D or PHC-C3YF-2UF/FC7391DB propellers and C-3567-9(P) spinners using the weights provided in the following table. Verify from the aircraft equipment list that the propeller and spinner moment arm is F.S. 15.0 and use that arm in the new weight and balance calculation.

ITEM	QTY.	WEIGHT (LBS.)
PROPELLER, HARTZELL PHC-C3YF-2UF/FC7391D (WITHOUT ANTI-ICE KIT 103313)	2	85.8 (EA.)
PROPELLER, HARTZELL PHC-C3YF-2UF/FC7391DB (WITH ANTI-ICE KIT 103313)	2	87.5 (EA.)
SPINNER, HARTZELL C-3567-9(P)	2	6.0 (EA.)

8. Perform ground engine run to functionally test and leak check the Hartzell propeller installation, including test of anti-ice fluid delivery to each propeller blade.
9. Make the appropriate logbook entries and return aircraft to service with FAA Form 337 referencing STC SA02561CH-D.
10. Fly a functional check-flight using normal procedures, note maximum RPM setting and readjust governor high-RPM stop if necessary.
11. Post-installation dynamic balance of the propeller/engine combination is recommended but not required, per Maintenance Practices section of Hartzell Owner's Manual 115N.

6.0 PROPELLER INSTALLATION for models E55, E55A (with air conditioning; without fluid propeller anti-ice), 58 and 58A (with and without air conditioning; with and without fluid propeller anti-ice)

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ON HAWKER BEECHCRAFT 55 and 58 SERIES AIRCRAFT**

1. Remove the original propeller and spinner. Reference the latest revision of the applicable Hawker Beechcraft parts and service manuals for removal procedures.

NOTE: Some propeller anti-ice hardware must be installed concurrently with the spinner bulkhead. Reference Hartzell anti-ice installation drawing 102679 for anti-ice hardware installation details during installation of the propeller spinner bulkhead.

NOTE: The left propeller anti-ice hardware installation on aircraft with air conditioning is different from aircraft without air conditioning. The anti-ice hardware kit for left-side installations with air conditioning is the 102679-2. The anti-ice installation on aircraft with air conditioning also requires some Beech-supplied hardware. If the aircraft is equipped with air conditioning, please read and see references to flag Note 11 on drawing 102679 before proceeding with installation.

NOTE: For Models E55 and E55A without fluid propeller anti-ice, skip to step 4.

2. Reference the spinner pre-installation section of the Propeller Owner's Manual (Hartzell Manual 115N) using the "spinner bulkhead to propeller hub" procedures during the following steps.

- a. Remove the nuts from the hub clamping bolts that are located on either side of the blade shank. The remaining hub clamping nuts and bolts should not be disturbed.
- b. The fluid anti-ice travel tubes are mounted in cushioned clamps located on the hub clamping bolt on left side of each blade (forward, looking aft at propeller hub). Verify the proper travel tube, cushioned clamp and two washers are installed on the hub mounting bolt in these locations. If not installed, remove bolt and install the travel tube, clamp and washers as shown on drawing 102679. The 102394-1 travel tube is used for the installation **with** air conditioning. The 102394 travel tube is used for the installation **without** air conditioning.
- c. Place the spinner bulkhead spacers on the hub clamping bolts between the hub and the spinner bulkhead as shown on drawing 102679 and the Propeller Owner's Manual (Figure 3-2).
- d. Install rubber grommets on the spinner bulkhead at three places coincident with the travel tube locations.

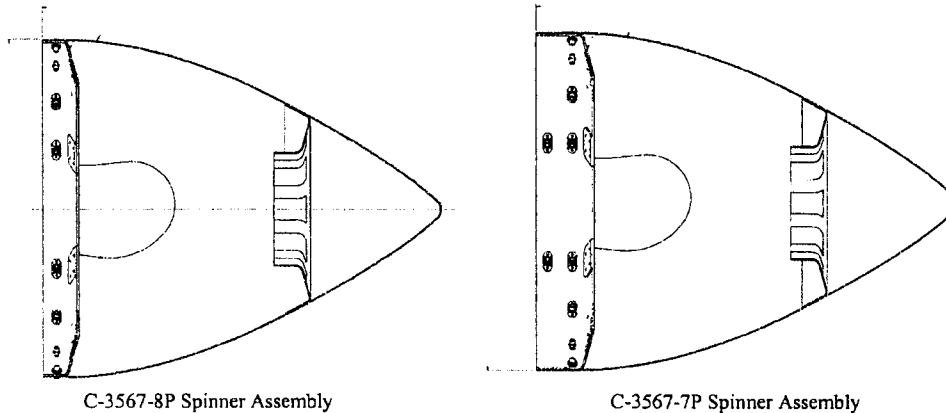
NOTE: Use appropriate spinner bulkhead if aircraft has air conditioning:

For propeller installations **without** air conditioning use C-3567-7(P) spinner that consists of 1 ea. C-3566-14(P) bulkhead and 1 ea. D-7811-2(P) dome.

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For left-side propeller installations with air conditioning use C-3567-8(P)
Spinner that consists of shorter C-3566-15(P) bulkhead and D-7811-7(P) dome
(see sketch below).



- e. Install the spinner bulkhead over the spacers on the hub clamping bolts. Simultaneously feed the ends of the travel tubes through the rubber grommets installed in the step 2.d.
 - f. Install one flat washer and the self-locking nut one each hub clamping bolt used to mount the spinner bulkhead.
 - g. Position the travel tube near the blade in the position defined by drawing 102679 and torque the nuts/hub clamping bolts per Table 3-1 in Propeller Owner's Manual. When adjusting travel tube near blades, do not permit the travel tube to rest against the spinner dome blade cutout.
3. Install the slinger ring unit on the propeller per the following steps.

For propeller installations **without** air conditioning:

- a. Install a travel tube mounting hose (P/N A-1866) over the end of each travel tube protruding through spinner bulkhead as shown on drawing 102679 and secure in position with 0.032" safety wire.
- b. Place slinger ring unit (P/N C-2371-2) on the aft side of the hub flange ring as shown on drawing 102679. Simultaneously feed the three slinger ring tubes into the three travel tube mounting hoses.

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- c. Fasten slinger ring to the propeller hub flange ring using the six mounting screws, washers and nuts as shown on drawing 102679. Torque fasteners to 30-40 in-lbs.
- d. Secure slinger ring tubes to travel tube mounting hose with 0.032" safety wire as shown on drawing 102679.

For propeller installations **with** air conditioning:

- a. Install a travel tube mounting hose (P/N A-1866-1) over the end of each travel tube protruding through spinner bulkhead as shown on drawing 102679 and secure in position with 0.032" safety wire.
 - b. Install Beech bracket assembly (Ref. P/N 96-960024-1) on the forward side of hub flange ring as shown on drawing 102679 and attach with Beech-supplied fasteners (Ref. P/N MS20004H4 bolts and MS20002C4 washers). Torque fasteners to 50-70 in-lbs.
 - c. Place slinger ring unit (P/N C-2385-1) on the Beech bracket assembly as shown on drawing 102679. Simultaneously feed the three slinger ring tubes into the three travel tube mounting hoses. Use AN960-416 washers as required (approximately 2) between slinger ring and Beech bracket assembly at each fastener location to ensure mounting fasteners do not hit propeller hub when tightened.
 - d. Fasten slinger ring to the Beech bracket assembly using the Beech-supplied mounting bolts (Ref. P/N MS20004H4) and washers (Ref. P/N MS20002C4 under head of bolt) as shown on drawing 102679. Torque fasteners 50-70 in-lbs.
 - e. Secure slinger ring tubes to travel tube mounting hose with 0.032" safety wire as shown on drawing 102679.
4. Install propeller and spinner on engine in accordance with Hartzell Owner's Manual number 115N (latest revision). Follow installation instructions for "spinner bulkhead to propeller hub" mounting and "Installation of "F" Flange Propellers" in Manual 115().

NOTE: PHC- propellers are installed with one blade aligned with the engine TC mark on the propeller-mounting flange. The engine TC mark is aligned with one dowel-pin hole and will be pointing up and aligned with the engine case split line when cylinder #6 at is TDC.

- 5. Relocate anti-ice fluid delivery tube clamp and bend tube as necessary to position end of tube/orifice in slinger ring as shown on drawing 102679 (not applicable to E55 and E55A with air conditioning, without anti-ice).

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6. Attach Hartzell Propeller Inc. Airplane Flight Manual Supplement to the existing Airplane Flight Manual per the table below:

Aircraft model	Aircraft S/N	Airplane Flight Manual Supplement
E55, E55A (WITH AIR CONDITIONING)	All	AFMS_102210-55-520
58, 58A	All	AFMS_031308

7. Revise weight and balance records to show:

Removal of previous propeller and spinner:

Use weights and arms provided in aircraft equipment list or that provided by previous propeller manufacturer.

Installation of Hartzell PHC-J3YF-2UF/FC7391DB propellers and C-3567-(7,8)(P) spinners using the weights provided in the following table. Verify from the aircraft equipment list that the propeller and spinner moment arm is F.S. 15.0 and use that arm in the new weight and balance calculation.

ITEM	QTY.	WEIGHT (LBS.)
PROPELLER, HARTZELL PHC-J3YF-2UF/FC7391DB (WITH ANTI-ICE KIT 102679-1)	2	90.0 (EA.)
or PROPELLER, HARTZELL PHC-J3YF-2UF/FC7391D (FOR E55 AND E55A WITHOUT ANTI-ICE)	2	88.3 (EA.)
SPINNER, HARTZELL C-3567-7(P)	2	6.0 (EA.)
SPINNER, HARTZELL C-3567-8(P) (FOR AIR COND.)	2	5.5 (EA.)

8. Perform ground engine run to functionally test and leak check the Hartzell propeller installation, including test of anti-ice fluid delivery to each propeller blade.
9. Make the appropriate logbook entries and return aircraft to service with FAA Form 337 referencing STC SA02561CH-D.
10. Fly a functional check-flight using normal procedures, note maximum RPM setting and readjust governor high-RPM stop if necessary.
11. Post-installation dynamic balance of the propeller/engine combination is recommended but not required, per Maintenance Practices section of Hartzell Owner's Manual 115N.