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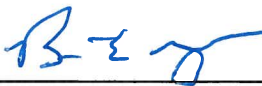
STC SA03300CH

INSTRUCTIONS FOR INSTALLATION
OF A
HARTZELL 3A1-TP724A1 / 75A01-2 PROPELLER
ON CESSNA 172 AIRCRAFT

LOG OF REVISIONS

Revision	Revised Page(s)	Description of Revision	Engineer	Date
New	All	Original Release	L. Doud	3/4/13
1	4-7	Addition of low pitch stop test and adjustment procedure	L. Doud	9/6/16

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

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

Date 2/21/17

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INSTRUCTIONS FOR INSTALLATION
OF
HARTZELL 3A1-TP724A1 / 75A01-2 PROPELLER
ON CESSNA 172 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

GENERAL

These STC installation instructions provide the necessary information to install a 3A1-TP724A1 / 75A01-2 propeller with the 104888() composite spinner on the Cessna 172 Skyhawk aircraft when modified by STC SA01303WI for installation of the Technify Motors diesel engine.

Installation of STC SA01303WI is required before installation of this STC (SA03300CH).

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

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APPLICABLE MODELS

Cessna 172 (Skyhawk) as listed below:

Aircraft Model	Aircraft Serial Number Range
172F	17251823 through 17253392
172G	17253393 through 17254892
172H	638, 17254893 through 17256512 (except 17256493)
172I	17256513 through 17257161
172K	17257162 through 17258486 (1969 model) 17258487 through 17259223 (1970 model)
172L	17259224 through 17259903 (1971 model) 17259904 through 17260758 (1972 model)
172M	17256493, 17260759 through 17261898 (1973 model)(except 17261445 and 17261578) 17261899 through 17263458 (1974 model) 17263459 through 17265684 (1975 model) 17265685 through 17267584 (1976 model)
172N	17261445, 17267585 through 17269309 (1977 model) 17261578, 17269310 through 17271034 (1978 model)(except 17270050) 17271035 through 17272884 (1979 model) 17270050, 17272885 through 17274009 (1980 model)
172P	17274010 through 17275034 (1981 model) 17275035 through 17275759 (1982 model) 17275760 through 17276079 (1983 model) 17276080 through 17276259 (1984 model) 17276260 through 17276516 (1985 model) 17276517 through 17276654 (1986 model)
172R	17280001 and Up
172S	172S8001 and Up
F172F	F172-0086 through F172-0179
F172G	F172-0180 through F172-0319
F172H	F172-0320 through F172-0654 F17200655 through F17200754
F172K	F17200755 through F17200804
F172L	F17200805 through F17200904
F172M	F17200905 through F17201514
F172N	F17201515 through F17202039
F172P	F17202040 through F17202254

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1. Remove the MT propeller and spinner per the applicable aircraft maintenance manual and STC SA01303WI maintenance procedures.
2. Perform pre-installation procedures per the "Installation and Removal" section of Hartzell Owner's Manual 411 prior to propeller installation.
3. Install the spinner bulkhead on the new propeller hub per Hartzell Owner's Manual 411 using the "spinner pre-installation" instructions.
4. Install new propeller and spinner dome on aircraft in accordance with Hartzell Owner's Manual number 411. Follow installation instructions for "Installation of "T" Flange Propellers" in Manual 411.
5. Attach Hartzell Propeller Inc. Airplane Flight Manual Supplement AFMS_030413 to the existing Pilot's Operating Handbook and FAA Approved Airplane Flight Manual.
6. Revise weight and balance records to show:

Removal of the original propellers and spinners

Check equipment list, STC SA01303WI installation instructions, and the Pilot's Operating Handbook/FAA Approved Airplane Flight Manual for appropriate propeller weight and moment arm.

Example:

Weight of propeller = 35.0 lbs (Weight of MT propeller and spinner)
Moment arm = 38.3 in. (Verify arm for specific aircraft model in Equip. List)

NOTE: It is recommended the installer weigh the removed propeller and spinner to confirm this weight in order to accurately calculate the new weight and balance.

Installation of Hartzell 3A1-TP724A1 / 75A01-2 propeller and Hartzell 104888() spinner:

Weight of propeller = 35.3 lbs
Moment arm = 38.3 inches (Verify arm for specific aircraft model in Equip. List)

7. Perform ground engine run for a functional and leak check of the Hartzell propeller installation. Confirm minimum static RPM at maximum engine load is 2250 RPM.

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If the aircraft will not make 2250 RPM, adjustment of the propeller low pitch setting is required per the following steps. The FADEC Service Tool is required and must be connected and used to monitor engine parameters during all engine runs.

- 7.1 Disconnect the pigtail connector for the Propeller Pressure Relief Valve (PPRV), located on the front of the gearbox, see Figure 1. Temporarily secure the connector.
- 7.2 Perform two max power static runs. One in each direction 90° to the wind. In order for the run to be valid, Manifold Air Temperature (TAir) must be monitored on the FADEC Service Tool and must be less than 60°C. If TAir exceeds 60°C, only the portion of the run where TAir < 60°C may be considered.

For each run, record:

Run #		
Wind Speed		
Wind Direction		
Aircraft Direction		
Outside Air Temperature		
Propeller RPM		
Displayed Load, %		
Manifold Air Temperature (TAir), °C		

- 7.3 Verify the following criteria are satisfied:
 - 7.3.1 The averaged Propeller RPM is greater than or equal to 2250RPM and less than 2300 RPM ($2250 \text{ RPM} \leq \text{Recorded Propeller RPM} < 2300$)
 - 7.3.2 The averaged Displayed Load is greater than or equal to 95% and less than or equal to 100%. ($95\% \leq \text{Displayed Load} \leq 100\%$)
 - i. 100% Load equates to 135HP at 2300 RPM
 - 7.3.3 TAir is less than 60°C ($\text{TAir} < 60^\circ\text{C}$)
- 7.4 If the RPM does not meet the criteria of 7.3, follow the procedure in the Hartzell Propeller Owner's Manual, number 411 to adjust the propeller low pitch stop. Adjust the low pitch stop lower (screw out) to increase RPM or higher (screw in) to decrease RPM. It is recommended to make the adjustments in ½ turn increments of the low pitch stop screw.
- 7.5 Return to Step 7.2 to record the effects of adjustment and confirm the criteria of 7.3 are met. Repeats steps 7.2 through 7.4 until the criteria of 7.3 is met.
- 7.6 Reconnect the PPRV.

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7.7 Perform two max power static runs with the PPRV reconnected. One in each direction 90° to the wind. In order for the run to be valid, T_{Air} must be less than 60°C. If T_{Air} exceeds 60°C, only the portion of the run where T_{Air}<60°C may be considered.

For each run, record:

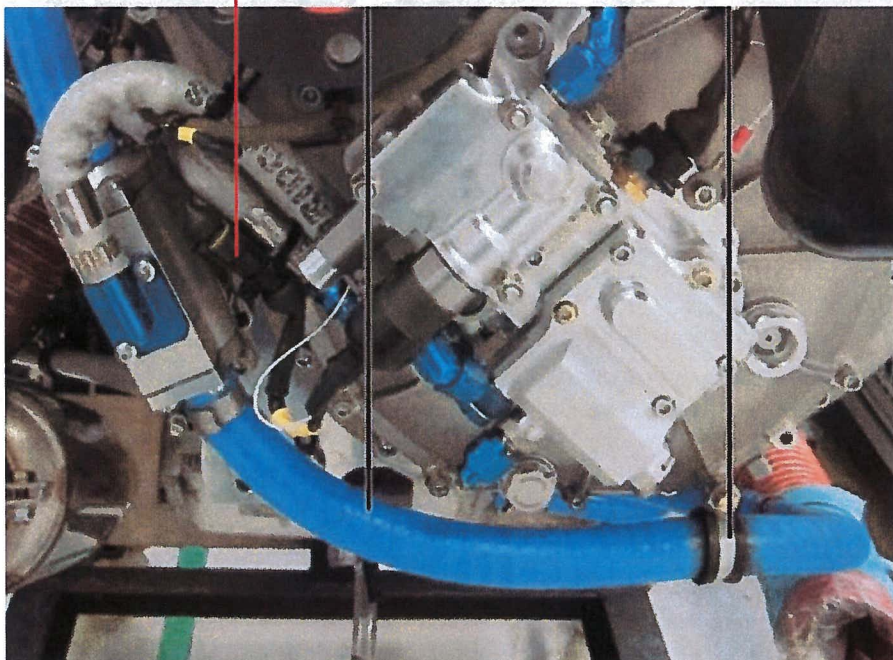
Run #		
Wind Speed		
Wind Direction		
Aircraft Direction		
Outside Air Temperature		
Propeller RPM		
Displayed Load, %		
Manifold Air Temperature (T _{Air}), °C		

7.8 Confirm the following

- 7.8.1 Propeller RPM \geq 2250 RPM
- 7.8.2 Displayed Load \geq 94%
- 7.8.3 T_{Air} < 60°C

7.9 If Step 7.8 is satisfied, the procedure is complete. Otherwise, return to Step 7.1 and readjust the propeller.

PPRV Connector



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Figure 1. PPRV Connector

The Technify Motors engine uses an electrically actuated governor and RPM control system, therefore the standard governor adjustment procedures do not apply. Do not perform Static RPM Check as specified in Manual 411.

8. Make the appropriate logbook entries and return aircraft to service with FAA Form 337 referencing STC.
9. Fly a functional check-flight using normal procedures, confirm maximum in-flight RPM of 2300 +/- 10.
10. Post-installation dynamic balance of the propeller/engine combination is recommended, but not required, per Section 61-00-11 of Hartzell Owner's Manual 411.
11. Refer to Instructions for Continued Airworthiness ICA_030413 for future propeller maintenance information.

END