TYPE-CERTIFICATE DATA SHEET

No. IM.P.124

for
3A1 series propellers

Type Certificate Holder

Hartzell Propeller Inc.
One Propeller Place
Piqua, OH 45356-2634
USA

For Models:
3A1-TP
3A1-QP
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I. General

1. Type/ Model

3A1 / 3A1-TP, 3A1-QP

2. Type Certificate Holder

Hartzell Propeller Inc.
One Propeller Place
Piqua, OH 45356-2634
USA

3. Manufacturer

Hartzell Propeller Inc.

4. Date of Application

3A1-TP: 09 January 2014
3A1-QP: 23 May 2023

5. EASA Type Certification Date

3A1-TP: 11 November 2016
3A1-QP: 13 July 2023

II. Certification Basis

1. State of Design Authority Certification Basis

Refer to FAA TCDS no. P00013CH.

2. Reference Date for determining the applicable airworthiness requirements

3A1-TP: 19 March 2013
3A1-QP: 30 August 2017

3. EASA Certification Basis

3.1. Airworthiness Standards

3A1-TP, 3A1-QP:
CS-P Amendment 1 dated 16 November 2006 as issued by EASA Decision No 2006/09/R, except the requirements of Subpart D as allowed by CS-P 10(b) (see Note 10a).

3.2. Special Conditions

None.
3.3. Equivalent Safety Findings

None.

3.4. Deviations

None.

III. Technical Characteristics

1. Type Design Definition

The propeller type is defined by a propeller assembly drawing including a parts list (or later approved revisions).

<table>
<thead>
<tr>
<th>3A1-TP:</th>
<th>Drawing 104728, rev -, 07 December 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>3A1-QP:</td>
<td>Drawing 103873, rev B, 13 October 2022</td>
</tr>
</tbody>
</table>

2. Description

The propeller is a 3-blade variable pitch propeller with a hydraulically operated blade pitch change mechanism providing the operation mode “Constant Speed”. The constant speed propeller has neither feathering nor reverse capability. (See Note 4).

The hub is a two piece aluminium hub. Each blade is supported in the hub with a ball thrust bearing. Optional equipment includes spinner and ice protection system. (See Note 7).

3. Equipment

- Spinner: See Note 7.
- Governor: See Note 3.
- Ice Protection: See Note 7.

4. Dimensions

Diameters from 172,7 cm to 198,1 cm. (See Table of Section IV)

5. Weight

Depending on Propeller-Design Configuration. (See Table of Section IV)

6. Hub/Blade Combinations

Details are mentioned within Table of Section IV.

7. Control System

Propeller governors. (See Note 3)
8. Adaptation to Engine

Special flange. (See Note 1)

9. Direction of Rotation

Direction of rotation (viewed in flight direction) as identified by a letter-code in the propeller designation. (see Note 5)

IV. Operating Limitations

<table>
<thead>
<tr>
<th>Blades (See Note 2)</th>
<th>Max. Continuous kW - rpm (min⁻¹)</th>
<th>Take Off kW - rpm (min⁻¹)</th>
<th>Diameter Limits (cm) (See Note 2)</th>
<th>Approx. Max. Wt. Complete (kg) (See Notes 3,7)</th>
<th>Blade Construction (See Note 10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Counterweighted Propellers 3A1-TP(375 through 724) (See Note 1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>75A01+2 to 75A01-8</td>
<td>115,6 2309</td>
<td>115,6 2309</td>
<td>198,1 to 172,7 (+5,1 to -20,3)</td>
<td>13,9</td>
<td>Composite</td>
</tr>
<tr>
<td>Non-Counterweighted Propellers 3A1-QP(375 through 724) (See Note 1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>75A01+2 to 75A01-8</td>
<td>134,2 2309</td>
<td>134,2 2309</td>
<td>198,1 to 172,7 (+5,1 to -20,3)</td>
<td>13,9</td>
<td>Composite</td>
</tr>
</tbody>
</table>

1. Approved Installations

The propellers are initially intended for use on a Cessna 172 aircraft with a Technify TAE 125 series engine. (See Note 10)

1. Maximum Take Off Power and Speed

134,2 kW at 2309 rpm. (See Table of Section IV)

2. Maximum Continuous Power and Speed

134,2 kW at 2309 rpm. (See Table of Section IV)

3. Propeller Pitch Angle

The propeller has variable pitch capability. Pitch control is provided by a governor. (See Note 3)
### V. Operating and Service Instructions

<table>
<thead>
<tr>
<th>Manual</th>
<th>Revision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integration Manual</td>
<td>Hartzell Manual 191*</td>
</tr>
<tr>
<td>Propeller Composite Blade Overhaul Manual</td>
<td>Hartzell Manual 135F*</td>
</tr>
<tr>
<td>Propeller Overhaul/Maintenance Manual</td>
<td>Hartzell Manual 401*</td>
</tr>
<tr>
<td>Propeller Owner’s Manual and Logbook</td>
<td>Hartzell Manual 411*</td>
</tr>
<tr>
<td>Metal Spinner Maintenance Manual</td>
<td>Hartzell Manual 127*</td>
</tr>
<tr>
<td>Composite Spinner Maintenance Manual</td>
<td>Hartzell Manual 148*</td>
</tr>
<tr>
<td>Service Bulletins</td>
<td></td>
</tr>
</tbody>
</table>

*: or later approved revision
### VI. Notes

#### 1. Hub Model Designation:

<table>
<thead>
<tr>
<th>Character(s)</th>
<th>Description</th>
</tr>
</thead>
</table>
| 3 A 1 - T P 724 A1 | Two character alphanumeric hub descriptor (first character must be alpha)
| L when used indicates left hand rotation |
| Any other alpha character indicates a minor change not affecting eligibility |
| Numeric character indicates a minor configuration change not affecting eligibility |
| Distance in inches from mounting flange to blade centerline (implied decimal after first digit) |
| Mounting flange bolt pattern for engine compatibility (Q, T) |
| Second character when used indicates flange index with respect to blade centerline (P) |
| Pitch control system: (See Notes 3 and 4) |
| 1: Oil to increase pitch, non-counterweighted blades |
| Basic hub series |
| Number of blades |

#### 2. Blade Model Designation:

<table>
<thead>
<tr>
<th>Character(s)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>H 76 AW 06 B - 3R</td>
<td>Number when used indicates inches cut off from (or added to if +) basic diameter</td>
</tr>
<tr>
<td>R when used denotes specifically rounded tip for cutoff diameter</td>
<td></td>
</tr>
<tr>
<td>Any other character in this location denotes tip shape</td>
<td></td>
</tr>
<tr>
<td>B or K when used indicates deicing boots</td>
<td></td>
</tr>
<tr>
<td>R when used denotes a rounded tip for the basic diameter</td>
<td></td>
</tr>
<tr>
<td>Any other character denotes a minor modification not affecting eligibility</td>
<td></td>
</tr>
<tr>
<td>Basic blade model</td>
<td></td>
</tr>
<tr>
<td>One or two alpha characters:</td>
<td></td>
</tr>
<tr>
<td>First character is basic blade series. Must match hub series. (See Note 1)</td>
<td></td>
</tr>
<tr>
<td>Second character when used indicates a major blade characteristic</td>
<td></td>
</tr>
<tr>
<td>Basic diameter minus 2,54 cm (one inch). *</td>
<td></td>
</tr>
<tr>
<td>Denotes blade configuration: blank indicates right-hand tractor</td>
<td></td>
</tr>
<tr>
<td>H denotes right-hand pusher</td>
<td></td>
</tr>
<tr>
<td>J denotes left-hand tractor</td>
<td></td>
</tr>
<tr>
<td>L denotes left-hand pusher</td>
<td></td>
</tr>
</tbody>
</table>

*: Diameter limits are nominal diameters of the assembled propeller. They do not include the manufacturing tolerance allows for propellers with basic diameter less than 4,27 m (14 feet).
3. Pitch Control:
   (a) Approved with Hartzell governors per drawings C-4770. Wt.: 2,04 kg (4.5 lb). (See Note 10)

   **Governor Model Designation**
   - L when used indicates left hand rotation
   - Z when used indicates drive coupling type
   - Any other character denotes a minor change not affecting eligibility
   - Minor adjustment not affecting eligibility
   - Minor adjustment to obtain engine/propeller/governor compatibility
   - Basic body and major parts modification

   (b) The 3A1 models use oil to increase pitch and do not have counterweighted blades. (See Note 4)

   (c) Maximum governor output pressure: 2413,16 kPa (350 psi) for all propeller models

   (d) Propeller model 3A1 complies with the propeller airworthiness requirements when used with the Technify (formerly Thielert) Model TAE-125 series engine with an integrated propeller control. If the engine or its control system is changed, it must be shown that the propeller – as integrated with the changed engine and its control system – still complies with the propeller certification basis. Also, if a change to the propeller changes the engine, it must be shown that the engine remains in compliance with its certification basis.

   (e) All governors must be approved as part of the aircraft installation regardless of manufacturer. (See Note 10)

4. Feathering: Not applicable.
   Reversing: Not applicable.

5. Left-Hand Models:
   The left-hand version of an approved propeller model is approved at the same rating and diameter as listed for the right-hand model. (See Notes 1 and 2)

6. Interchangeability:
   (a) Propellers
      Not applicable
   (b) Governors
      Hartzell governors with a “Z” suffix in their model designation may be used interchangeably with corresponding governors without the “Z”. For example, the F-6-24Z is a replacement for the F-6-24 and the F-6-24 is a replacement for the F-6-24Z.
   (c) Blades
      Not applicable
   (d) Ice Protection Systems
      Refer to Hartzell Service Letter HC-SL-30-260 for ice protection system component interchangeability.
7. **Accessories:** (See Note 10)

   (a) Propeller ice protection system (weight of ice protection equipment extra)

      (1) Propeller models listed in this data sheet are approved for use with propeller ice protection equipment listed in Hartzell Manual 159( ) or in other Hartzell type design data.

      (2) All propeller ice protection equipment must be approved as part of the aircraft installation regardless of manufacturer. (See Note 10)

   (b) Propeller spinner (weight of spinner extra)

      (1) Approved with Hartzell and other manufacturers’ spinners when listed on Hartzell type design data.

      (2) All propeller spinners must be approved as part of the aircraft installation regardless of manufacturer. (See Note 10)

8. **Shank Fairings:** Not applicable

9. **Special Limits:** Not applicable

10. Propeller installation must be approved as part of the aircraft Type Certificate and demonstrate compliance with the applicable aircraft airworthiness requirements.

    Propeller models listed herein consist of basic hub and blade models. Most propeller models include additional characters to denote minor changes and specific features as explained in Notes 1 and 2.

10a. This propeller has been certificated in accordance with CS-P subparts A, B and C. Compliance with the requirements of Subpart D, which is specific to each aircraft installation, has not yet been demonstrated.

11. **Special Limits:**

    (a) Life Limits and Mandatory Inspections

       (1) Airworthiness limitations, if any, are specified in Hartzell Manual 411.

12. **Special Notes:**

    (a) Refer to Hartzell Manual no. 202( ) for overspeed and overtorque limits.

    (b) Refer to Hartzell Service Letter HC-SL-61-61( ) for recommended overhaul periods.

13. The EASA approved Airworthiness Limitations Section of the Instructions for Continued Airworthiness is published in the applicable Propeller Owner’s Manual, chapter 5 "Airworthiness Limitations".

----------------------------------------------
SECTION: ADMINISTRATIVE

I. Acronyms and Abbreviations
N/A

II. Type Certificate Holder Record
N/A

III. Change Record

<table>
<thead>
<tr>
<th>Issue</th>
<th>Date</th>
<th>Changes</th>
<th>TC issue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Issue 01</td>
<td>11 November 2016</td>
<td>Initial Issue</td>
<td>11 November 2016</td>
</tr>
<tr>
<td>Issue 02</td>
<td>13 July 2023</td>
<td>Add new propeller model 3A1-QP (EASA major change approval 10082349)</td>
<td>13 July 2023</td>
</tr>
</tbody>
</table>

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