



**Document Number: AFI-II-TCSTRUT**

**Type: Installation Instructions**

**Aircraft: TaylorCraft**

**Project: Sealed Replacement Wing Strut**

**Release Number: B**

**Release Date: 04/13/2011**

*Prepared for:*

Northern Airframes, LLC  
d/b/a Airframes Alaska, LLC  
PO Box 670989  
20130 Birchwood Loop Spur  
Chugiak, AK 99567

LOG OF REVISIONS

Rev Level	Date	Change Description	Approved
IR	October 3, 2007	Initial Release	
A	October 8, 2007	Update after Installation Conformity	
B	April, 13, 2011	Added AF-MA-A815A	

For current revision of this manual, please contact the manufacturer.

Northern Airframes, LLC  
d/b/a Airframes Alaska, LLC  
PO Box 670989  
20130 Birchwood Loop Spur  
Chugiak, AK 99567  
(907)-688-0530  
[info@airframesalaska.com](mailto:info@airframesalaska.com)  
[www.airframesalaska.com](http://www.airframesalaska.com)

REFERENCE

Taylorcraft maintenance manuals, parts catalogs as applicable to aircraft listed in section 1.

**1.0 INTRODUCTION**

This document presents installation instructions as required for Supplemental Type Certificate. Installation of this STC should be accomplished by an A&P or equivalent. Workmanship should be of the aircraft industry standard using AC 43.13-1B as a reference and guide.

STC SA02300AK covers the following Taylorcraft model Aircraft.

Data Sheet	Taylorcraft Models
A-643	A
A-696	BC, BCS12-D, BCS BC12-D1, BC-65, BC12D-85, BC12-65, BCS12D-85, BCS12-65, BC12D-4-85, BC12-D, BCS12D-4-85
A-699	BF, BFS, BF-60, BFS-60, BF-65, BFS-65, BF 12-65, BFS-65
A-700	BL, BLS, BL-65, BLS-65, BL12-65, BLS12-65
IA9	19, F19, F21, F21A, F21B

These wing struts are a direct replacement for the following Taylorcraft parts. Once installed these struts satisfy AD2007-16-14, action 4, Replacement, by offering an FAA approved equivalent sealed strut as shown below.

Identity	Original Taylorcraft Sealed Lift Strut, P/N	Replacement Sealed Lift Strut, Northern Airframes, Inc P/N
Sealed Front Lift Strut	MA-A815	AF-MA-A815 OR AF-MAA815A
Sealed Rear Lift Strut	MA-A854	AF-MA-A854

FAA Approved Equivalent Strut Table

### 1.1 Materials Required

Verify the identification and quantities of parts received with this kit.

Note

It is recommended that the front lift strut attach angle be re-verified before installation.

Verifying wing attach point angle on front strut

1. Measure attach angle of the front strut removed from your aircraft. Use the center line of the strut and the center line of the attach end to get the angle.
2. If the measurement is 2 degrees then part # AF-MA-A815 is used.
3. If the measurement is 8 degrees then part # AF-MA-A815A is used.

Identity	Part No.	Qty
Sealed Front Lift Strut	AF-MA-A815 OR AF-MA-A815A	2
Sealed Rear Lift Strut	AF-MA-A854	2
Clamp, Front Jury Strut	AF 892	2

Additional materials needed but not shipped with this kit.

Identity	Part No.	Qty
30" minimum length level, Bubble or Digital	-N/A-	1
Tape Measure, 1/16"th graduations minimum	-N/A-	2
Bolts	AN3-15A AN5-13A AN5-27A	2 4 2
Washers	AN960-10 AN960-516	4 As required
Nuts	AN365-10 AN365-524	2 5
Thread Sealant**	Mastinox 6856K	As required

\*\* Mastinox 6856k is a recommend thread sealant. If used take necessary precautions while handling material.

## 2.0 INSTALLATION

Please read all instructions prior to beginning work.

The replacement struts do not come painted to your specific desire. Prior to installing the struts they should be painted with adequate time to allow a full cure of the paint. Installation prior to a full cure could result in damage to the finish or the struts.

Note

The aircraft must be leveled, longitudinally and laterally, in order to conduct the change out installation of the struts.

Longitudinal Aircraft Leveling:

- Place level on the horizontal stabilizer top surface.
- Raise the tail in to the air and adjust so that the level bubble is centered or the level reads zero. (The tail wheel will need to rise approximately 36" above the ground).
- Support the tail wheel in a stand and secure. The level may now be removed from the elevator.

Note

Since the elevator rigging may vary check both sides of the elevator, left and right and average the readings.

Lateral Aircraft Leveling

- Place level on the top of the fuselage or seat cross tube.
- Place shims, or deflate tire, as required to level the aircraft
- Secure the aircraft in this configuration. The level may now be removed from the cross tube.

Measurements:

Note

Wing dihedral is measured by placing the level along the bottom front spar cap. A digital level should be used for a direct measurement.

If no digital level is available then a string can be placed between the wing tips. A vertical dimension from the wing root to the string will tell you the dihedral angle. (3 3/8" is approximately 1 degree of dihedral).

Note

Wing washout is measured by using the first outboard rib (26" from tip) using the method described in figure 2.1.

Prior to removing the original struts take the following measurements.

<u>Rigging:</u> Dihedral Left Wing: _____degrees	Dihedral Right Wing: _____degrees
<u>Rigging:</u> Washout Left Wing: _____inches	Washout Right Wing: _____inches
<u>Weight:</u> Weight Left Front Strut: _____lbs Weight Left Rear Strut: _____lbs	<u>Weight:</u> Weight Right Front Strut: _____lbs Weight Right Rear Strut: _____lbs

**Original Aircraft Wing, prior to installation of replacement struts.**

Caution

**Do not remove more than one strut at a time.**

Removal of any two aircraft struts may cause the aircraft to become unstable and result in damage of the aircraft or property and persons working on or around the aircraft.  
Prior to beginning work the aircraft should be level and secure.

Instructions are the same for the left and right side struts.

Step	Instructions	Comments
1	Remove front and rear jury strut clamps from struts, swing up out of the way. Inspect hardware, retain if in airworthy condition.	Localized heat may be required to remove the jury strut clamps. Care must be taken in removing these items. Discard front jury strut clamp. Retain rear jury strut clamp for re-installation.
2	Remove the front strut. Inspect hardware, retain if in airworthy condition.	
3	Install replace front wing strut using hardware retained. Use punch pin to secure bottom strut clevis.	Install P/N AD-MA-A815 Top Hardware: AN5-13A, AN960-516, AN365-524, Qty as required.
4	Remove rear strut noting amount of adjustment thread exposed. Inspect hardware, retain if in airworthy condition.	
5	Install rear wing strut matching the exposed threads to that in step 4 above.	It is recommended to use a thread corrosion protection substance on the rear strut top threads. See introduction for details. Place AN960-516 washers in AN5 bolt at bottom fitting to assure correct thread grip.
6	Adjust the rear strut adjustment threads such that the wing washout is 1 5/16"	Increase the length of the exposed threads will decrease the washout angle. See figure 2.1
7	Install Front Jury Strut Clamp such that the jury struts are plumb. The installer is responsible in making the proper bends to the jury strut clamp.	P/N AF 892 This clamp must be bent such that the jury strut vertical tube is aligned and centered on the front strut thickest portion. It is possible to make fine height adjustments to the jury struts at the threaded bots on the underside of the wing. Utilize airframe adjustments in jury strut to align with new strut so there is no binding.
8	Repeat steps 1-7 for other side.	
9	Make Appropriate notations in aircraft logs.	

Dihedral Left Wing: _____degrees	Dihedral Right Wing: _____degrees
Washout Left Wing: _____in	Washout Right Wing: _____in

Aircraft Wing after installation of replacement struts.

Weight and Balance

Change in the weight and balance information will vary with aircraft.

The weights of the replacement struts are:

Front Strut: 10 lbs 8 oz.

Rear Strut: 9 lbs 12 oz.

Front Jury Strut Clamp: 2 oz.

Any net change after replacement is obtained by subtracting the removed weight from the installed weight.

All centers of gravities for components will be unaltered.

Datum is the leading edge of the wing.

Make appropriate changes in aircraft logs.



The following figures are aids in determining the correct dihedral and washout angles.

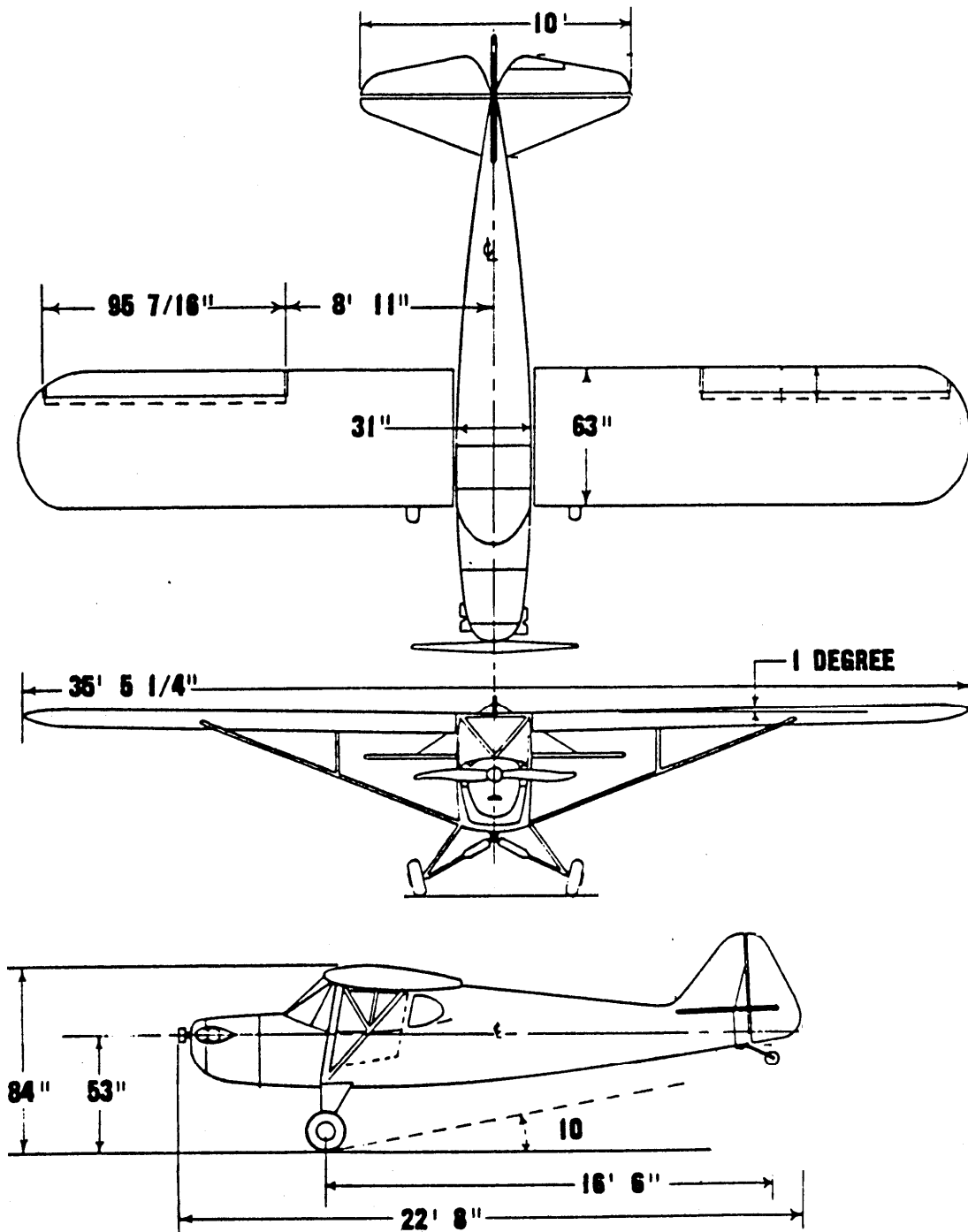
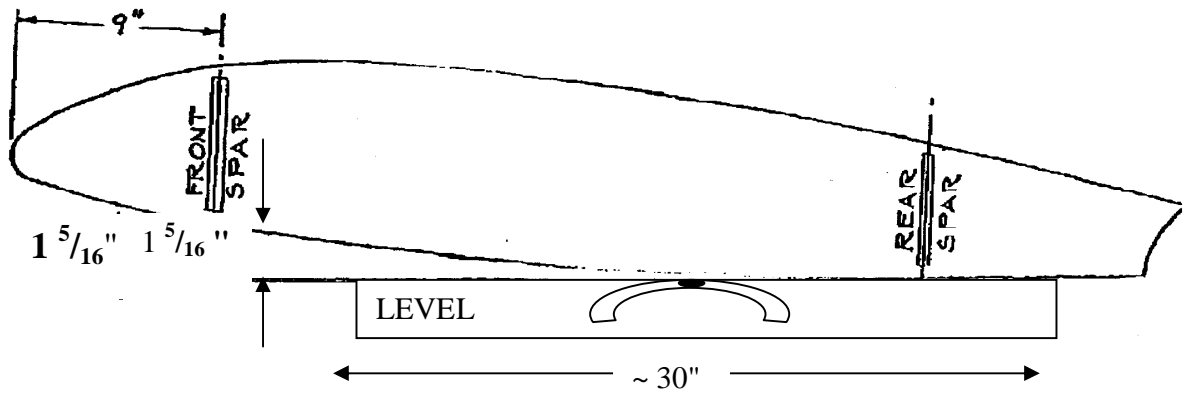


Figure 2.1: Three-view of Taylorcraft Aircraft

- Aircraft shown in longitudinal and lateral level attitude.
- Surface of stabilizers are parallel to thrust line of aircraft.
- Datum is leading edge of wing.



If offset is used to space level below wing add the offset dimension to  $1 \frac{5}{16}$ ".  
Vertical distance between bottoms of wing, from the rear to front spar, should be for the correct wash out of the wing.

**Figure 2.2: Wing section at rib approximately 26" from tip.**

\*\*\*\*\*END\*\*\*\*\*