

# INSTALLATION INSTRUCTIONS

Aircraft: PA-20/22 Series

## ALUMINUM LIFT STRUTS

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### Record of Revisions

Rev Level	Date	Page	Author	Explanation of Revisions
IR	7/15/2022	-	Jon Earl	Initial Release

### Distribution of Changes

A current copy of this manual will be maintained on the Airframes Alaska, LLC.  
website.

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## 1 Background

This lightweight aluminum replacement lift strut utilizes an aluminum extrusion with open ends, corrosion will not be an issue as with the non-sealed OEM steel struts.

## 2 Installation Instructions (to accomplish lift strut removal and installation properly, two people will be required)

***If the aircraft has steel lift struts in place, they need to be removed as outlined below:***

1. Remove top and bottom wing strut fairings.
2. Remove the front and rear strut fasteners from the fuselage by removing the bolts, nuts, and cotter pins at the lower end of each strut.
3. With one person at the wing tip holding the wing tip up. Disconnect the rear lift strut from the wing panel by removing the bolt, washer, and nut.
4. Pull the rear strut off the fuselage and place it out of the way in a safe location.
5. While one person is still holding the wing tip up, disconnect the front lift strut from the wing panel by removing the bolt, washer, and nut.
6. Pull the front strut off the fuselage and place it out of the way in a safe location.
7. It may be necessary to prop the wing tip up with a stand if the new aluminum struts are not prepared and immediately ready for installation.

**Installation of the new aluminum lift struts** (if the aircraft flew straight and level and was properly rigged prior to removal of the steel struts, adjust the new aluminum forks exactly like the forks on the steel struts. Note: there must not be more than 15 threads showing external to the strut.)

**Caution: Powder coating of heat-treated Aluminum struts could alter their strength; therefore, powder coating is not acceptable. These aluminum struts must be finished with conventional liquid paint or left in their bare aluminum state only.**

1. With one person at the wing tip holding up the wing, install the new aluminum front strut to the wing panel. Note: The new aluminum front and rear lift struts are interchangeable so there is not a dedicated left-hand or right-hand strut. Use the same bolt, nut, and washer that was removed from the front steel strut. Secure the nut onto the bolt.
2. The person holding up the tip will need to raise the tip up so that the fork end of the front strut can be guided and aligned to the front strut hole on the fuselage strut fitting (be careful not to damage the strut during the installation process).
3. Once the new front strut is in place, replace the fork bolt, nut, and use a new cotter pin to secure it in place at the fuselage strut fitting. The wing will now be stable and the person holding up the tip can release it without fear of the wing panel dropping.
4. Mount the new aluminum rear strut to the rear hole on the fuselage strut fitting.
5. With one person holding the wing tip trailing edge, mount the rear strut to the wing panel. The person holding the wing tip trailing edge will likely have to either raise or lower the tip to mate the rear strut to the wing panel.
6. Using the same bolts, nuts, and washers removed from the steel strut, reinstall and secure with a new cotter pin. If the aircraft flew straight and level and was properly rigged prior to removal of the steel struts and the fork positions were replicated proceed to the next step. If not, the aircraft will need to be properly rigged, go to the rigging instruction below prior to proceeding any further.
7. Reinstall strut fairings if desired.  
Note: The aluminum struts have a slightly larger profile than the original factory part. If strut fairings are used, some trimming and adjustment of the fairings may be required to allow a proper fit with the strut.

***After the new aluminum struts are properly installed check for proper wing rigging as follows:***

1. Level the aircraft laterally and longitudinally.

For Piper PA-20: Refer to Piper Service Memo No. 20

For Piper PA-22: Refer to Piper Service Memo No. 20 and 21.

2. Dihedral Angle.

For Piper PA-20: Refer to Piper Service Memo No. 20

For Piper PA-22: Refer to Piper Service Memo No. 20 and 21.

3. Washout.

For Piper PA-20: Refer to Piper Service Memo No. 20

For Piper PA-22: Refer to Piper Service Memo No. 20 and 21.

### 3 Weight and Balance

The replacement Piper PA-20/22 aluminum lift strut exchange weight is significant and will require changes to the aircraft Weight and Balance after installing this STC.

If replacing Airframes sealed steel struts, the aircraft weight is reduced by: 8.4 lbs.

If replacing OEM PA-20/22 struts, the aircraft weight is reduced by: 7.2 lbs.

The Aluminum Front PA-20/22 Strut weighs: 7.2 lbs.

The Aluminum Rear PA-20/22 Strut weighs: 6.2 lbs.

The struts are located 18" aft of the wing leading edge datum

### 4 Trouble Shooting

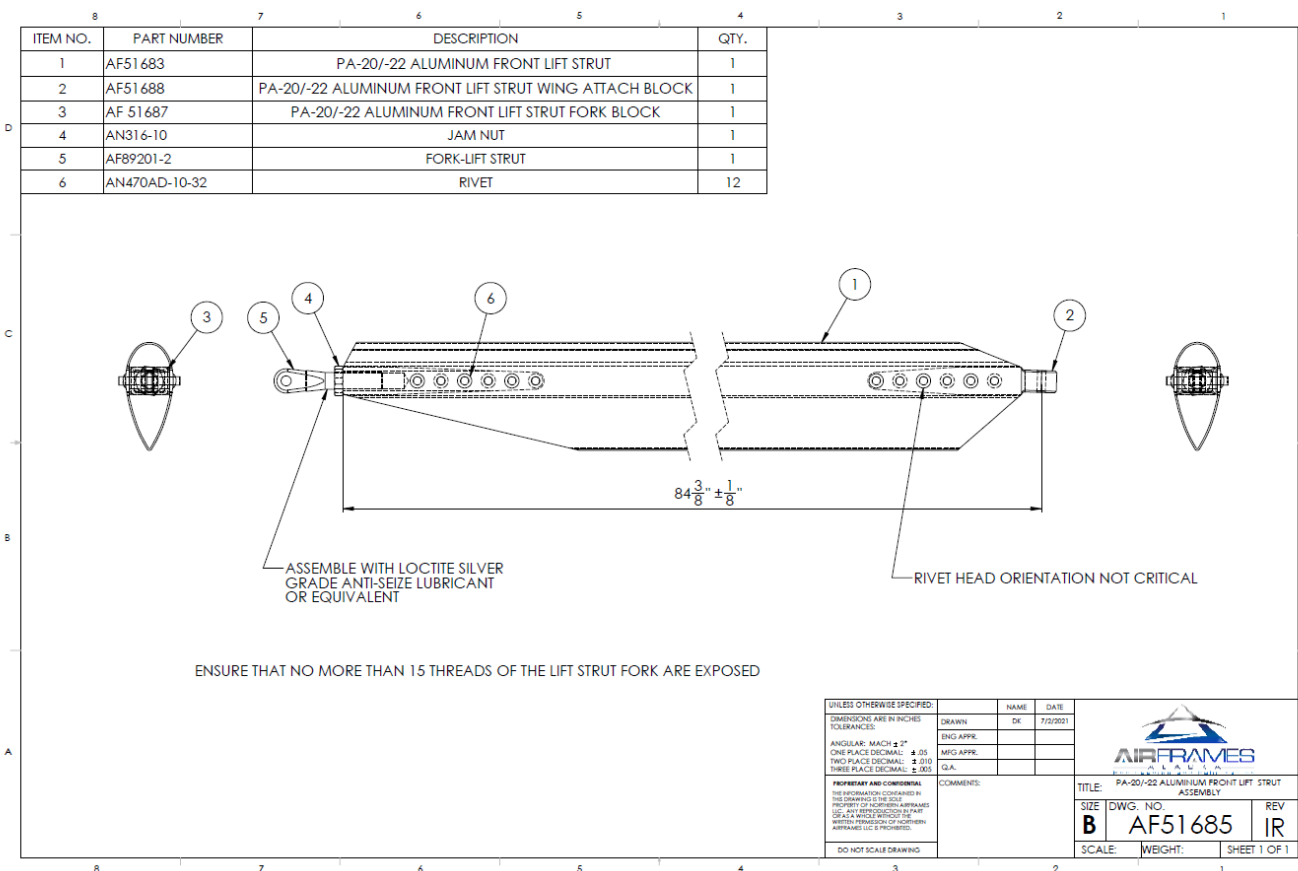
To be updated with common Problems and Corrections, if necessary, when and if they arise when more kits are installed in the field.

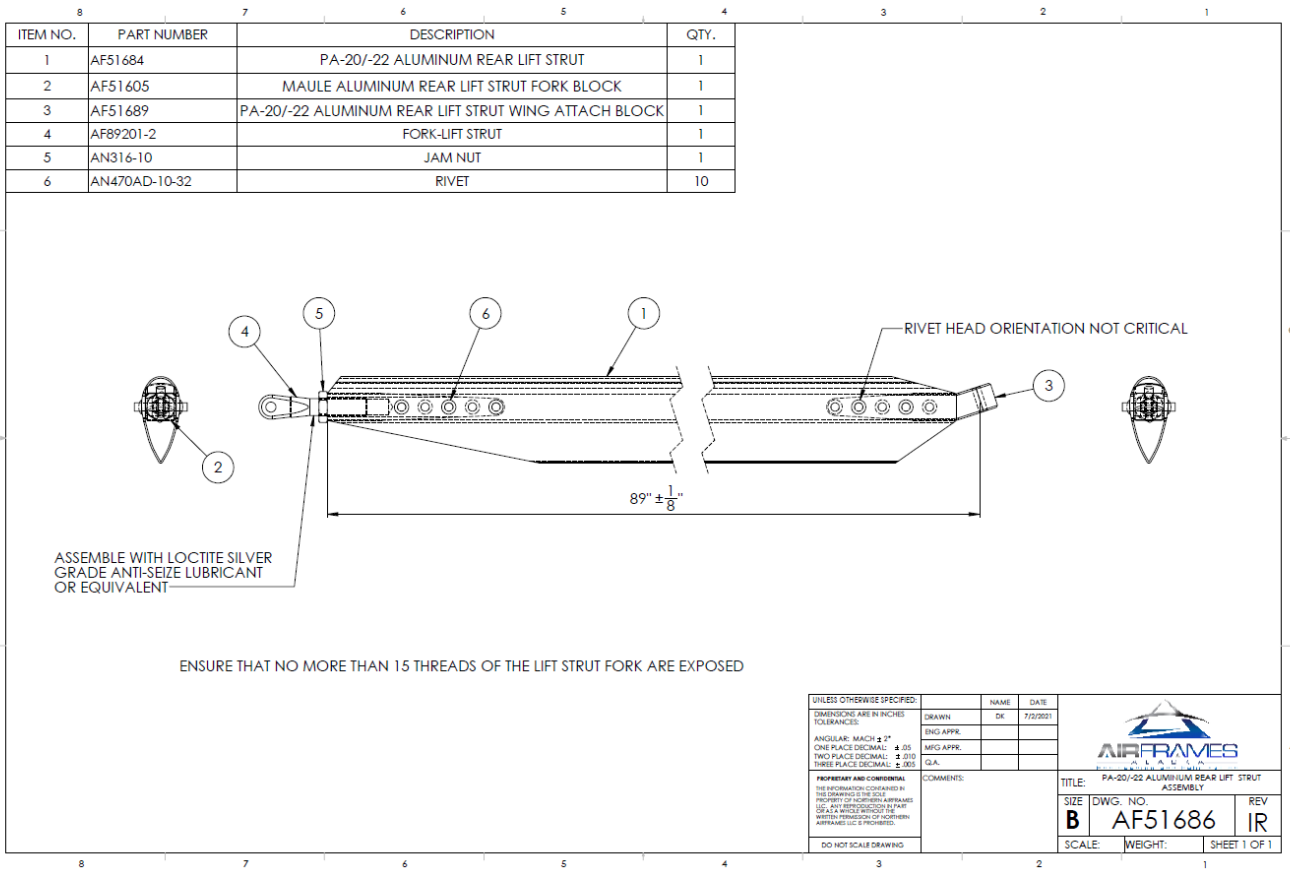


## 5 Documents and Drawings

### Descriptive Data List

Document Title	Document Number	Revision Level	Pages	Date
Instructions for Continued Airworthiness	ICA	IR		7/15/2022
PA-20/-22 Aluminum Front Lift Strut Assembly	Drawing AF51685	IR		7/2/2021
PA-20-22 Aluminum Rear Lift Strut Assembly	Drawing AF51686	IR		7/2/2021





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## 6 Engineering Changes and Amendments

In the event that a change or amendment is made to the design, components, or procedures contained within this manual or STC that affect airworthiness of the installation; Airframes Alaska, LLC. will notify the recorded owners in writing of the affected element(s) and provide the necessary data for compliance.



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