

# INSTALLATION INSTRUCTIONS

Aircraft: Aviat A-1, A-1A, A-1B, A-1C-180, A-1C-200

## ALUMINUM LIFT STRUTS

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## Record of Revisions

Rev Level	Date	Page	Author	Explanation of Revisions
IR	7/5/2022	-	Jon Earl	Initial Release
A	3/1/2023	6	Jon Earl	Aileron cable tension updated to 30 lb. +15 lb. -0 lb.

## 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 the fuselage body panels covering the aileron pulleys and aileron cable attachment to the torque tube.
2. Remove the two aileron pulleys and then disconnect the aileron cables from the torque tube.
3. Pull the aileron cables through the top of the strut fairleads and secure them away from the struts.
4. Remove the 6 front strut fairlead phenolics and C clips. They will be able to be reused on the replacement aluminum struts if they are in good condition.
5. Remove the jury struts from the aircraft, they will be reused with the new aluminum struts so do not damage them and mark which one goes on the front strut, and which one go on the rear strut.
6. Remove the front and rear strut fasteners from the fuselage by removing the bolts, washers, and nuts at the lower end of each strut.
7. 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.
8. Pull the rear strut off the fuselage and place it out of the way in a safe location.
9. While one person is still holding the wing tip up, disconnect the front lift strut from the wing panel by removing the bolt, washer, nut, spacer, and pulley housing.
10. Pull the front strut off the fuselage and place it out of the way in a safe location.
11. 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, washer, spacer, and pulley housing 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 split 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, install the fuselage strut bolt, washer, and nut 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. Reinstall using the same bolts, nuts, and washers removed from the steel strut. 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.
7. Install the old jury struts using the new front and rear jury strut clamps.
8. Install and secure three cable fairlead assemblies to each of the front struts.
9. Route the free aileron cable through the front strut cable fairleads, through the pulley at the lower front strut, and through the belly to the torque tube.
10. Reinstall and secure the fuselage aileron pulleys using new cotter pins. Reinstall the aileron cable to the torque tube using new cotter pins.
11. Reinstall all fuselage body panels.
12. Ensure proper aileron cable tension (30 lb. +15 lb, -0 lb).
13. Check for proper aileron movement. Move the control stick to the left, the left aileron should raise, and the right aileron should lower. Move the control stick to the right, the right aileron should raise, and the left aileron should lower. Check cables for interference or chafing.

### 3 Weight and Balance

The replacement Aviat Husky aluminum lift strut exchange weight is significant and will require changes to the aircraft Weight and Balance after installing this STC.

If replacing OEM Aviat Husky Struts, the aircraft weight is reduced by: 7.2 Lbs.

OEM Aviat Husky Front Strut Weight: 11.15 lbs.

OEM Aviat Husky Rear Strut Weight: 6.88 lbs.

Airframes Alaska Replacement Aluminum Front Strut Weight: 8.85 lbs.

Airframes Alaska Replacement Aluminum Rear Strut Weight: 5.56 lbs.

The struts are located 23" aft of the wing leading edge datum

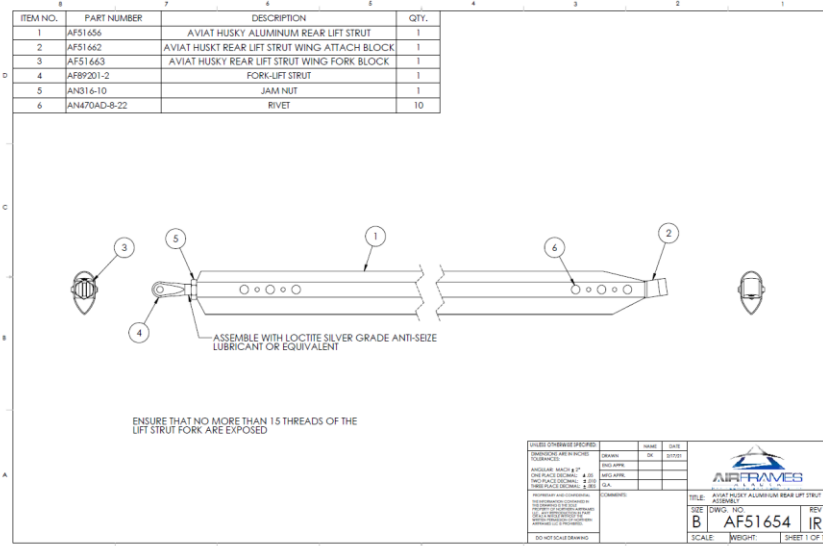
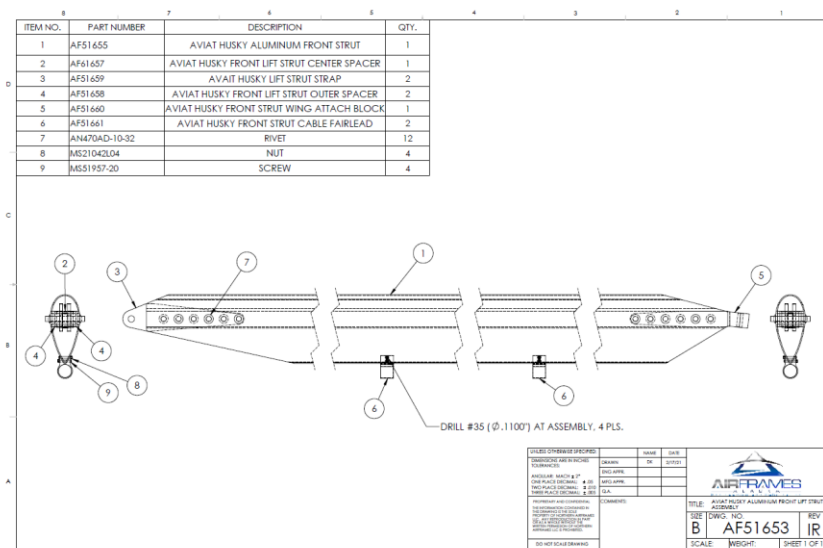
### 4 Trouble Shooting

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	-		6/17/2022
Aviat Husky Aluminum Front Lift Strut Assembly	Drawing AF51653	-		2/17/2021
Aviat Husky Aluminum Rear Lift Strut Assembly	Drawing AF51654	-		2/17/2021



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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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