

INSTALLATION INSTRUCTIONS and INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

Aircraft: PA-18Series

Replacement Suspension

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THIS MANUAL INCLUDES INFORMATION PROPRIETY TO AIRFRAMES ALASKA AND SHALL NOT BE USED TO MANUFACTURE OR REPRODUCE ANY PART OR ASSEMBLY WITHOUT THE PRIOR WRITTEN PERMISSION OF AIRFRAMES ALASKA.

These instructions are to be included in the aircraft Maintenance Material when the Airframes Alaska, LLC. replacement PA-18 suspension is installed on the aircraft.

The information contained in this manual supplements or supersedes the type design data only in those areas pertaining to this STC. For maintenance practices and procedures, not contained in this document, consult the maintenance material, or other information that was required by the applicable regulations under which this aircraft was type certified.

Record of Revisions

Rev Level	Date	Author	Explanation of Revisions
IR	9/27/2023	Keller	Initial Release
A	10/5/2023	Keller	Recommendations from Greg Horrell of the FAA

Distribution of Changes

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

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Description:

The OEM Piper PA-18 suspension utilizes bungees. The OEM suspension is not very well dampened and therefore has too much compression rebound. This excessive compression rebound tends to make the aircraft bounce back into the air unless the landing is greased on. Off airport operations make smooth landings impractical.

Airframes Alaska's new PA-18 suspension utilizes valved hydraulic dampening to help control both the rebound and compression stroke of the suspension. This new suspension allows the pilot to land on less forgiving terrain while not bouncing back into the air making for a much more controlled and safe landing.

**Airworthiness Limitations:**

“The Airworthiness Limitations section is FAA approved and specifies maintenance required under 14 CFR, Sections 43.16 and 91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved.”

Limitations:

None

Instructions to install the suspension:

1. The suspension system comes ready to install. The only adjustment required will be to level the wings after initial installation.
2. The suspension can be installed one side at a time or if able, both at the same time. For one at a time installation, jack up one wing at the wing lift strut junction to alleviate any load on the corresponding suspension. After installing one side, repeat the process for the other side. For both at the same time, lift the entire aircraft from lifting hooks so that the aircraft is fully suspended.
3. With the suspension unloaded and the aircraft stable, unbolt the existing corresponding suspension and remove it. Use extreme caution when removing and replacing the suspension so that in the unlikely event the aircraft was to fall off the jacks, the installer would not get pinched or harmed in any way.
4. If your aircraft has existing safety cables, they will have to be removed. The new suspension is not compatible with old existing landing gear safety cables. Airframes Alaska produces Titanium safety cables specifically designed for the suspension as an option. Landing gear safety cables are not required and are optional only.
5. After removing the old suspension, install the new suspension in its place. If using the optional landing gear safety cables, install them as well at this time. You can use the old hardware if serviceable. If desired, replace the hardware with the new suspension, replace the hardware with the exact same hardware.
6. With the new suspension properly installed and secured, lower the aircraft onto a level surface so that the suspension supports the entire weight of the aircraft.
7. The suspension length is adjustable. Adjust each suspension length as required to level the wings.
8. Using a piece of .025" - .040" safety wire, check to ensure that the wire **cannot** pass through the small witness hole on the lower shaft. If the wire can pass through the witness hole, shorten both sides equally until unable to pass the safety wire through the witness hole. With the suspension length properly set, tighten the jam nut at the lower end to ensure it cannot turn.
9. A logbook entry is needed to document the installation along with an FAA form 337 for the STC installation. The weight and balance may need to be updated depending on what suspension is being replaced.
10. The aircraft is now ready for flight. Rock the wings on the ground to ensure the suspension system travels as expected. The aircraft's suspension is now ready for safe for operation

Trouble Shooting

Suspension has excessive sag

The suspension may have a damaged internal compression spring. The suspension is not field serviceable, contact Airframes Alaska for shipping instructions.

Hydraulic external leaking

The suspension seals are leaking and are in need of replacement. The suspension is not field serviceable, contact Airframes Alaska for shipping instructions.

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

Engineering Changes and Amendments

If 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.

Instructions for Continued Airworthiness:

Instruction Criteria 100

Hour / Annual

(100 hour or Annual inspection interval, whichever comes first)

Examine- All attaching nuts and bolts for wear, distortion, and damaged threads. Replace damaged parts. Check for any presence of hydraulic fluid external to the suspension. In the unlikely event hydraulic fluid is present, a seal or seals need to be replaced prior to any further flight. The suspension is not field serviceable, contact Airframes Alaska for shipping instructions.

Inspect – The suspension for any signs for cracks or loosening of the end caps. If cracks are found, contact Airframes Alaska for return shipping instructions. In the very rare event that the end caps are found to be loosening, remove the suspension and tighten as necessary. Contact Airframes Alaska for specific questions.

Inspect – The suspension for any abnormal sag, In the unlikely event abnormal sag is present, the internal spring may need to be replaced prior to any further flights. The suspension is not field serviceable, contact Airframes Alaska for repairs.

Contact Airframes Alaska LLC. if any hydraulic fluid is found external to the suspension or if there is any abnormal or excessive sag in the suspension.



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