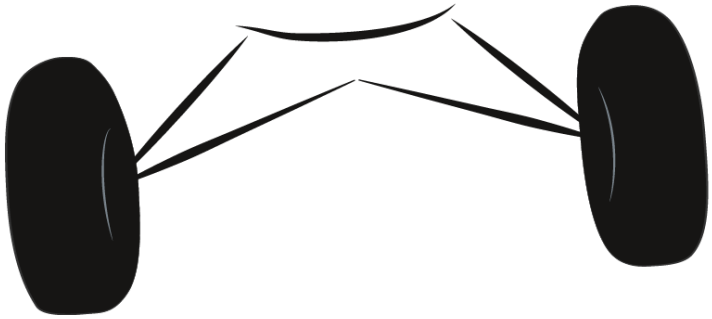
ALASKAN BUSHWHEELS



3200 Series Tailwheel

Shimmy Reduction and Prevention

Record of Revisions

Revision	Changes	Date	Approved
A	Original Issue	3/18/2016	A. Harman

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Introduction

Tailwheel shimmy is a complicated and sometimes contentious subject. There are many possible causes of shimmy in aircraft with conventional gear, and even newer tri-gear airplanes with castering nose-wheels experience shimmy issues.

As a company that provides replacement tailwheel assemblies, we have often had the issue of tailwheel shimmy come up through communication with customers and pilots, as well as internally with our engineers. We have compiled this list in an effort to help provide our customers some common factors that are discussed when people experience tailwheel shimmy. Please be aware that due to the complexity of the subject, this document is not intended to be a comprehensive or overly technical manual on tailwheel shimmy. It is rather intended to be a helpful reference, and we hope that it can give you and/or your mechanic a jumping off point for identifying some of the usual suspects when it comes to shimmy.

Ultimately it is up to you and your mechanic's judgement as to what changes or adjustments to your equipment makes sense given the conditions you are experiencing. **It is also very important to note that proper and regular preventive maintenance and inspection is critical to the continued function of the tailwheel over time.**

It is also worth noting, especially in the case of the Baby Bushwheel, that some of our products are designed for maximum performance during off-field and STOL use. These tailwheels can be more susceptible to shimmy when operated on pavement or at high speeds due to increased size, larger contact patch, and changes to your aircraft's stock deck angle and tailspring geometry. It is important to take the environment in which you predominately fly into consideration when choosing a replacement tailwheel.

DISCLAIMER: It is the responsibility of the pilot in command and qualified A&P to ensure that any adjustments made to your 3200 series tailwheel are done in a manner that does not negatively affect its airworthiness.

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Common causes of shimmy (Not listed in any order)

1. Uneven tire wear
2. Incorrect tire pressure (see manufacturer recommended pressure)
3. Chain tension too slack or too tight (should have as little slack as possible while still ensuring no tension on the spring in the neutral position)
4. Incorrectly sized tension springs or incorrect configuration for aircraft
5. Headbolt castle nut over-torqued (internal binding) or under-torqued (internal slop)
6. Tailspring of incorrect size, type, or number of leaves
7. Incorrect size tailspring mounting bolt (should be an AN7)
8. Tailspring to fuselage mounting bolt is loose (should have no play)
9. Excess wear on brass bushing within the fork
10. Steering arm bent or at improper angle
11. Connector spring connected straight to rudder horn and not eye-bolts (if eyebolts are applicable on your aircraft)
12. Worn internal compression springs in the tailwheel head
13. Internal flat spring worn or improperly shimmed
14. Tailwheel head to tailspring bolt loose (especially for single hole 3200's)
15. Rudder and tailwheel not in alignment with one another
16. Wheel damaged, out of round, or imbalanced
17. Excessive ground speed at touchdown or during 3-point roll
18. Lack of internal lubrication (zerks located on head and axle bolt for lubrication)
19. Tailwheel is incomplete or has been reassembled incorrectly
20. Too much negative castor angle (not enough tailspring arch, see Figure 1)
21. Overloaded or far aft CG (excessive weight on tailwheel flattens tailspring)
22. Grease packed into pocket between wheel halves unevenly causing imbalance

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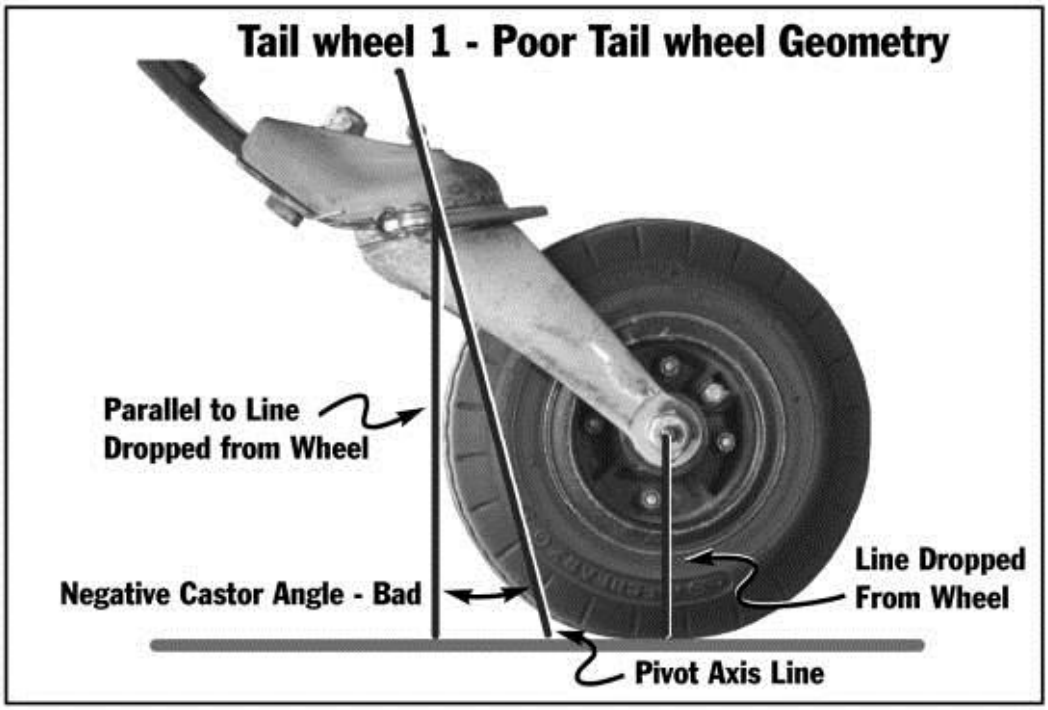

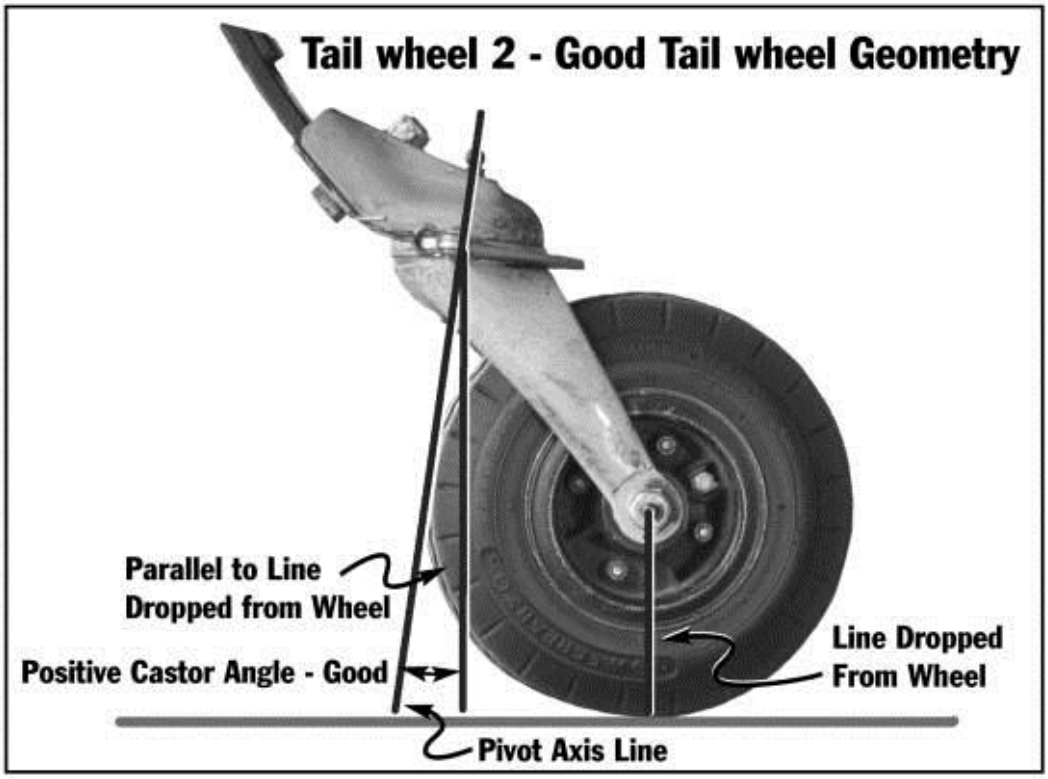

Figure 1: Examples of Tailwheel Castor Angles *(Photo Credit: Gilbert Pierce – Pierce Aero, who wrote a great article on the subject which has been featured in several publications)*