

Safety Update

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Tires, Tubes and Wheels Oh My!

Should any of these components be improperly maintained or completely neglected, the results can be catastrophic.

Aircraft tires are often the most overlooked items on many pre-flight inspections. Major aviation tire manufacturers such as Dunlap, Goodyear and Michelin provide extensive product documentation and recommended safe operating practices. In this Safety Update, we'll briefly touch on the dangers of under-inflated aircraft tires.



Aircraft tires on many light, propeller-driven aircraft are of bias-ply construction. Most of these aircraft tires use inner tubes which are permeable and can lose several pounds of pressure in just a week. So, unless the tire is significantly under-inflated or the aircraft is loaded to ramp gross weight, you will likely not see the sidewall bulge like the radial tires on your family car. Many of us own or rent aircraft that sport wheel pants. In order to inspect each tire, our preflight should include rolling the aircraft forward or backward on the ramp to allow a visual inspection of each tire. Some wheel pants feature inspection doors, but often these ports are far too small to allow for a thorough examination of each tire. Check tire pressures at least every five days.

Accident Case Study:

In 2008, a Learjet 60 crashed on takeoff at Columbia Metropolitan Airport resulting in fatalities (NTSB# DCA08MA098). One of the contributing factors was: (3) inadequate industry training standards for flight crews in tire failure scenarios.



Under inflated aircraft tire upon landing resulted in tube failure at the valve stem base.

The safety issues discussed in the NTSB report focus on criticality of proper aircraft tire inflation, maintenance requirements and manual revisions for tire pressure check intervals and tire pressure monitoring systems.

<https://www.nts.gov/investigations/Pages/DCA08MA098.aspx>

<https://data.nts.gov/Docket?ProjectID=68960>

Here's recent feedback from several local A&Ps and IAs on aircraft tire and tube issues:

A&P and IA's Pet Peeves

"I see many failures from pinched tire tubes."

"I see far too many tubes that are way past their prime."

"Under-inflated tires cause beat-up valve stems that most always result in a tube tear at the valve stem base."

"One of my biggest frustrations is aircraft owners who don't opt for a new tube at tire change, especially when they don't change tires but once every 7-10 years. The next thing you know, the tube is 25-plus years old and nobody can fathom why the tire 'just went flat.'"

Michelin Pocket Tire Guide for General Aviation

https://aircraft.michelin.com/wp-content/uploads/sites/15/2018/01/2015_Tire_Care_Pocket_Guide.pdf

Online course for FAA Wings Credit

https://www.faasafety.gov/gslac/ALC/course_content.aspx?cID=269&sID=567&crID=3249757

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