



SAVVY MAINTENANCE / OPINION

Personal aviation's multifaceted crisis

Fixing our acute mechanic shortage

BY MIKE BUSCH

PERSONAL AVIATION IS facing an existential crisis. I don't use that phrase lightly. After decades spent managing maintenance, troubleshooting squawks, advising owners, analyzing failure data, and working with hundreds of maintenance shops and thousands of mechanics across the country, I can say with confidence that what we are facing today is not just another cyclical downturn. It is a systemic failure of the infrastructure that keeps personal

aviation flying. If we do not act decisively—and soon—we risk grounding a substantial portion of the fleet, not because airplanes are unsafe to fly, but because we no longer have the capacity to maintain them.

This crisis is real, it is growing, and it is largely of our own making.

Personal aviation

When I speak of personal aviation, I am referring to that subset of general aviation

consisting of piston-powered and single-engine turbine airplanes under 12,500 pounds gross weight—the aircraft that the FAA requires to undergo an annual inspection every 12 calendar months under FAR 91.409(a). These airplanes are typically owner-flown and used for personal and business travel, training, and recreation.

Personal aviation accounts for roughly 70 percent of the active general aviation fleet in the United States, on the order of 140,000 aircraft. These airplanes form the backbone of non-airline aviation in this country, and nearly all of them depend on the same overstressed maintenance ecosystem.

Maintenance bottleneck

The fundamental problem can be stated simply: We have far more airplanes than we have mechanics to maintain them.

Anyone who has tried to schedule an annual inspection in the past few years already knows this. Reputable maintenance shops across the country are booked solid six, nine, even 12 months in advance. Getting an inspection slot often requires moving the airplane long distances or accepting long periods of downtime. Worse yet, the situation is not static—it is deteriorating.

We are losing experienced mechanics at an accelerating pace. The most seasoned technicians, the ones with decades of accumulated tribal knowledge, are retiring or flying west. Mid-career A&Ps are increasingly leaving personal aviation for better-paying, more predictable work in the airlines, automotive service, heavy equipment maintenance, or other industrial trades. These industries offer higher wages, better benefits, climate-controlled workplaces, and far less regulatory friction.

At the same time, the pipeline of new mechanics entering personal aviation is dangerously thin. Every personal aviation maintenance shop I know is trying desperately to hire additional A&Ps—and usually failing. Qualified candidates are simply not available in sufficient numbers.

This is not a temporary labor shortage driven by a momentary surge in demand. It is a fundamental structural imbalance

of supply and demand that will worsen year after year unless we intervene.

A roadmap back

Anyone promising a quick fix to this problem is selling false hope. Rebuilding maintenance capacity will take time, investment, and cultural change.

That said, the path forward is clear. The crisis must be attacked from two directions at once. We must work to increase the supply of qualified personal aviation mechanics, while at the same time dramatically improving how efficiently we use the mechanics we already have. Focusing on only one side of the problem will not work. We must address both simultaneously.

A viable career?

The starting point on the supply side is an uncomfortable truth: Personal aviation mechanics are seriously underpaid relative to their skill, responsibility, and liability exposure.

In many parts of the country, an experienced A&P working on certificated aircraft earns less than an automotive technician working at a dealership. Compared to airline maintenance, the disparity is even more striking. The airlines—which are suffering their own mechanic shortage—are hiring aggressively and offering substantially higher wages, comprehensive

benefits, predictable schedules, and even signing bonuses. A young mechanic burdened with student loans does not need a spreadsheet to see which path makes more economic sense.

If personal aviation wants to compete for talent, mechanic compensation must rise to genuinely competitive levels. There is no way around this. And for that to happen, shop labor rates must rise as well.

Aircraft owners might understandably resist this idea. Maintenance is already expensive, and insurance premiums and fuel costs are climbing. But the alternative is far worse: owning an airplane that cannot legally fly because no mechanic is available to inspect or repair it.

Encouragingly, shops that have raised rates significantly report surprisingly little customer attrition. The refrain I hear repeatedly from shop owners who have done this is, "We only lost the customers we didn't mind losing." Higher rates allow shops to pay mechanics properly, reduce turnover, attract better talent, and deliver higher-quality work.

Pay alone, however, is not enough.

The pipeline

We also need to rebuild the pipeline of future mechanics. AOPA's high school aviation programs have done an outstanding job introducing young people to flying. We need an equally robust

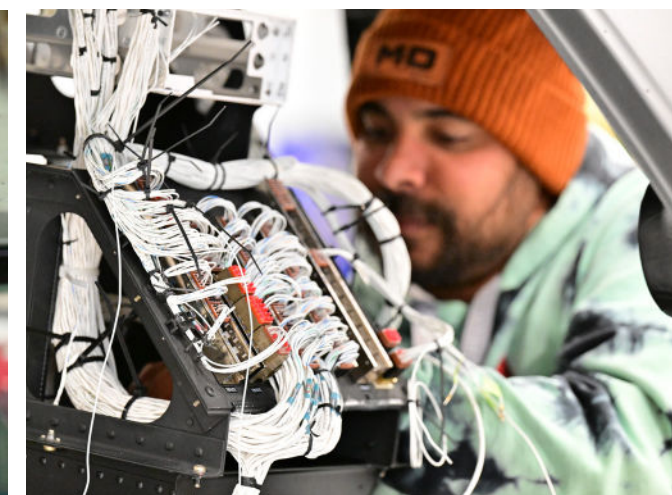
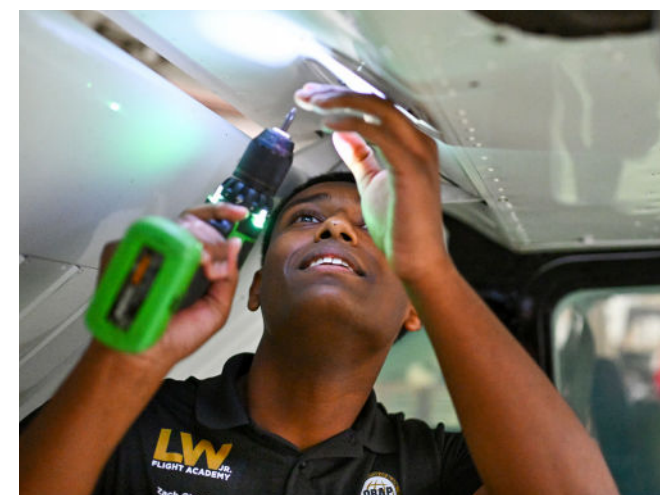
effort aimed at aviation maintenance, particularly in the personal aviation segment. Students need exposure to piston engines, troubleshooting, and the intellectual satisfaction of diagnosing and fixing complex systems. They need to see that this is not dirty, mindless work, but a technically demanding profession requiring judgment, discipline, and problem-solving skills.

The FAA could help meaningfully by creating a streamlined certification pathway focused specifically on personal aviation aircraft—lowering barriers to entry without compromising safety standards. Not every mechanic needs to work on transport-category jets, and our certification structure should reflect that reality.

It is also important to recognize that most personal aviation maintenance shops are small, owner-operated businesses. Many are run by superb technicians who were never trained to be business managers. Providing better business education, mentoring, and support would make these shops more profitable, more stable, and better employers—strengthening the entire ecosystem.

Maximalist maintenance

Even if we were somehow able to double the number of personal aviation mechanics overnight, we would still face a serious problem: We waste an enormous



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amount of mechanic time on unnecessary maintenance.

Most personal aviation aircraft are grossly over-maintained. From day one, mechanics are taught—implicitly and explicitly—that maintenance is good and that more maintenance must therefore be better. Manufacturers reinforce this mindset with rigid preventive maintenance schedules, fixed times between overhauls, and times between replacements, regardless of actual condition.

These numbers are necessarily based on worst-case assumptions: aircraft flown infrequently, operated harshly, and exposed to corrosive environments. As a result, they are wildly pessimistic for the vast majority of the fleet.

Unlike automotive maintenance, which is largely performed on a fixed-price basis, aircraft maintenance is almost universally billed time-and-materials. This creates a powerful financial incentive for maintenance maximalism. The more work that gets done, the more revenue is generated.

Reducing maintenance risk

Excessive maintenance is not merely inefficient—it is hazardous, because it increases the risk of maintenance-induced failure.

Every time a mechanic takes a wrench to an airplane, risk is introduced. The more extensive and invasive the work, the greater the risk. Fuel and oil hoses left finger-tight, through-bolts under torqued, controls mis-rigged, forgotten cotter pins and safety wire—these are not theoretical possibilities. They happen more frequently than mechanics are willing to admit, and measurably contribute to increased accidents and incidents, particularly in the first hours after the aircraft comes out of the shop.

Maintenance needs to be thought of like surgery: an intervention with both benefits and risks. No surgeon operates unless the expected benefit clearly outweighs the risk. Yet in aviation, we routinely perform invasive maintenance simply because a calendar says it is time, with no risk-versus-benefit analysis. This approach clogs shops, wastes

scarce labor, and increases the likelihood of maintenance-induced failures.

On-condition maintenance

Modern diagnostic tools have rendered calendar-based maintenance increasingly obsolete. Engine monitors, borescopes, oil analysis, vibration monitoring, and trend analysis allow us to determine when maintenance is actually necessary.

On-condition maintenance means that overhaul and replacement decisions are driven by observed condition, not arbitrary time limits. Maintenance becomes individualized to each aircraft's operating environment, utilization, and history.

The benefits are profound. Scarce mechanic time is conserved. Costs are reduced. Safety is improved by minimizing unnecessary invasiveness. Ironically, doing less maintenance—by eliminating work that is not truly necessary—demonstrably results in safer, more reliable airplanes.

A change in the prevailing maintenance business model could accelerate this cultural shift. When mechanics are paid primarily through time-and-materials billing, the system rewards doing more work. When they are paid to achieve good outcomes and to keep airplanes in the air instead of in the maintenance hangar, incentives align with efficiency, data-driven diagnoses, minimally invasive inspection and repair methods, and an attitude of restraint. Fixed-fee or subscription-style maintenance models offer a promising alternative.

The FAA could help

Perhaps the single most impactful reform would be modernization of FAR 91.409(a).

Mandating a full nose-to-tail inspection every 12 months for all personal aviation aircraft is an anachronism calibrated to worst-case assumptions. Do we really need to remove all the seats, carpets, floorboards, cowlings, fairings, and inspection plates every year? NTSB accident data and other available evidence strongly suggest that extending the inspection interval to 24 months would not degrade safety and would likely improve it by reducing maintenance-induced failures.

Even better would be allowing manufacturers to develop more nuanced phased inspection programs for personal aviation aircraft, as is permitted and universally done for larger airplanes. Different aircraft systems and components could then be inspected at intervals appropriate to their actual reliability and failure risk.

Under the FAA's own Safety Continuum philosophy, it makes no sense whatsoever that small, privately operated aircraft are subject to more restrictive inspection rules than business and transport jets. Yet that is exactly the regulatory situation today. If the FAA is unwilling to fix this, perhaps we should ask Congress to get involved.

A call to action

This crisis is not theoretical. It is happening now. We all feel it. We need to fix it.

Aircraft owners must vote with their wallets by supporting shops that pay mechanics fairly and embrace on-condition maintenance. Mechanics must push back on unnecessary work and adopt modern diagnostic tools and minimally invasive repair techniques. Industry organizations must invest in recruiting more young mechanics to personal aviation and press for regulatory reform. And the FAA must modernize outdated rules that waste scarce resources.

If we all act now, personal aviation can emerge stronger, safer, and more sustainable. If we delay, more airplanes will quietly become hangar queens—not because they are unsafe, but because no one is available to keep them legal.

The clock is ticking. The solution is multifaceted, well understood, and within reach. What remains is the will to act.

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