Ron Gunnarson
Vice President– Customer Support, Quality, Sales & Marketing

October 11, 2024

To whom it may concern,

Subject: FAA Notice of Proposed Rulemaking (NPRM) for PA-28/32 aircraft
(Docket No. FAA-2024-2142, Project Identifier AD-2024-00033-A)

Piper Aircraft is notifying several important constituent groups of an NPRM recently published by the FAA. The NPRM outlines potential flight hour limitations as well as a wide array of proposed inspections, reinforcement kits, wing spar and total wing replacements that would be needed to remedy some Piper Models. More specifically, if adopted as the FAA proposes, it will encompass an estimated 40,000 PA-28 and PA-32 models manufactured since the early 1960s, of which over 20,000 remain in reliable, dutiful service around the world.

As either the owner of a potentially impacted aircraft and/or a concerned General Aviation participant, we are asking you to express your opinion directly via the NPRM process on the FAA Docket. Procedures for doing so are outlined later in this letter and on our website.

It is important to note that **Piper Aircraft does not agree with many aspects of the FAA NPRM and proposed Airworthiness Directive (AD) affecting the PA-28/32 model aircraft**.

Background

For more than 85 years, Piper Aircraft, Inc.'s highest priority has been the operational safety of our products and the personal safety of the people who fly in them. Throughout its history, Piper has earned one of the safest records in the global General Aviation community, has one of the best Air Safety Investigation teams in the industry, and has consistently worked closely with the FAA and NTSB in determining the root cause of accidents and incidents involving any Piper produced aircraft.

Piper has manufactured the PA-28/32 wing spar since 1961 and installed it on more than 40,000 aircraft. As mentioned above, about 20,000 of those aircraft remain in safe, dependable, worldwide service today, fulfilling diverse needs across the entire GA landscape. In this letter, we share a condensed response to the NPRM. Our complete response is published in the docket and on our website: www.piper.com/nprm-2024/.

Previous Similar, Rescinded AD

In 1987, the FAA issued an AD mandating a one-time inspection of PA-28 and PA-32 series aircraft. This inspection involved removing both wings and conducting a visual and dye penetrant inspection of the lower spar cap. During this process, 559 aircraft were inspected, resulting in two (2) reports of cracks. The affected aircraft operated in severe environments and/or usage (per AC23-13A). On May 22, 1989, the FAA made the justified decision to rescind the AD, citing that performing the inspections could damage the wing spar bolt holes resulting in premature fatigue and failure of the wing spar, and therefore, the safety benefits did not justify the inspection costs.

Summary of Fleet Inspection Findings

Over the history of the aforementioned 40,000 aircraft produced, with an estimated 200 million flight hours in all forms of usage from personal to severe (per AC23-13A), **eleven aircraft have been confirmed by metallurgical exam to have cracks as outlined in the NPRM.** That includes three (3) aircraft cited from the late 1980s when the FAA rescinded the first proposed AD. Out of these eleven aircraft:

- Three (3) were operated at the same flight school
- Two had heavily modified landing gear
- One was operated in a different flight training environment than referenced above
- One was used in pipeline patrol, which is considered severe usage
- One had an improperly attached wing during maintenance
- One had known damage history
- One flew into severe weather
- One aircraft's history was not able to be determined

More details on these aircraft and Piper's position on the NPRM can be found in Piper's official comment which has been posted to the NPRM Docket, and linked on our website at www.piper.com/nprm-2024/.

Comparison of Inspection Findings

As previously stated, a total of 559 aircraft were inspected as of January 6, 1988, in response to the 1987 AD. Among these, two (2) aircraft were identified with crack indications during inspections, and a third was found in Marlin, TX after an accident investigation. This represents 0.537% of the fleet at the time.

The current inspection efforts (post-2018), including those related to AD 2020-26-16, yielded six (6) affected aircraft. This results in a confirmed percentage of 6 out of 3,100, equating to just 0.194%. The percentage of affected aircraft in the fleet is lower today - **less than half of the rate recorded in 1989 when the AD was rescinded.**

Costs

Within the NPRM the FAA states *"The agency has no way of determining the number of airplanes that might need these actions."* Due to the inability of the FAA to produce an estimate and because of the magnitude of this proposed action, logical assumptions must be made to aid in understanding the total fleet and operator impact. The labor rate used in the NPRM ($85 dollars per hour) is underestimating the total potential costs. Therefore, to provide a more accurate assessment, all cost calculations in this document will utilize the real-world maintenance labor rate of $141 per hour.

The following data shows the estimated economic impact to the fleet for the minimum and maximum scenarios. The total domestic fleet size is quoted as 10,665 aircraft. Looking at current data, Piper estimates approximately 2/3 of the domestic fleet is part of Group 1, with the remaining 1/3 included in Group 2.
The below table summarizes a range of estimated, domestic fleet impact / costs from inspections only to full wing replacements.

Action	Group	Estimated Domestic Fleet	Cost Per Aircraft	Cost per Group	Total Cost
Inspection	1	7146	16 inspections x $1184 = $18,944	$ 135,373,824	$ 214,537,248
	2	3519	19 inspections x $1184 = $22,496	$ 79,163,424	
Install modification kit (Group 1 only)	1	7146	$ 18,650	$ 133,272,900	$ 133,272,900
Replace main wing spars	1	7146	80 work-hours x $141 per hour + $21,966 part cost = $33,246	$ 237,575,916	$ 354,568,590
	2	3519	80 work-hours x $141 per hour + $21,966 part cost = $33,246	$ 116,992,674	
Replace both wings	1	7146	$ 140,214	$ 1,001,969,244	$1,495,382,310
	2	3519	$ 140,214	$ 493,413,066	

The estimated economic impact of performing the inspections on the entire fleet over the life of the airplane is, at minimum, the summation of the Inspection row and the Install Modification Kit row for a total of **$347.8 million**. Note these figures assume a best-case scenario, whereby there are no repairs needed for "holes with non-crack damage".

Given the potential to damage the bolt holes during the repeated inspection process and as complications arise during the removal and/or installation of parts, the cost will escalate with the complexity of the repair. If mistakes were made during the spar reinforcement or inspection process, replacing wing spars and/or wings may be required.

This analysis 'bookends' the estimated costs, with the actual cost expected to be between **$347.8 million** and **$1.5 billion**.

This proposed rule will also disproportionately affect the training fleet, imposing significant maintenance costs and requirements that will permanently burden future aviators. Lower-cost, preowned aircraft that are popular and needed in today's flight training environment, such as the PA-28-151, PA-28-161, and PA-28-181, will be significantly impacted. The installation time for the wing spar kit will ground many of these aircraft, straining flight schools and potentially forcing several to cease operations. The calculations presented do not quantify or consider the economic impact of ceasing these operations.

Conclusion and Recommendations

Piper Aircraft, Inc. reaffirms its longstanding commitment to operational safety and the reliability of our aircraft, particularly the PA-28/32 wing spar that has served the aviation community for decades. Piper has identified significant areas of disagreement with the proposed rulemaking, Docket No. FAA-2024-2142. In that response, we have provided detailed evidence and context that challenge assumptions made by the FAA and underscore our position.

1. The FAA rescinded prior rulemaking in 1989 for valid reasons that remain valid today.
2. The percentage of cracks in the fleet is less than half what it was in the past. The inspection data does not support the FAA's assumption and conclusions that resulted in an overly conservative inspection interval in the FAA's proposed AD.
3. Data clearly suggests the cracks result from an operational issue related to usage, not an issue with the design or materials.
4. Failures are not likely when operating aircraft within POH limitations.
5. Hole damage (particularly from inspection) significantly impacts wing spar fatigue life and can cause premature failure.
6. Acceptable analytic approaches for inspection have been rejected by the FAA.
7. The FAA chose to deviate from previous agreements on a path forward and mischaracterized the level of collaboration and agreement between Piper and the FAA.
8. The FAA's Calculated Service Hours approach is overly complex and unnecessary compared to the method provided in Piper SB No. 1372.
9. The FAA has rejected an easier-to-follow solution in favor of its more complicated approach.
10. The FAA has thus far been unwilling or unable to adequately substantiate its position and justification for issuance of this NPRM.

We will continue to support all PA-28/32 customers regardless of the outcome of the proposed rulemaking. **In 2023 Piper incorporated into new PA-28 production aircraft a spar assembly which will not require the inspections as defined in the subject NPRM.**

There is an immediate opportunity and defined process for your voice to be heard and we encourage you to comment on the NPRM prior to November 7th. Doing so ensures your rights as an aircraft owner and/or general aviation advocate are made known. More information and Piper's full response can be found at:

- *https://www.federalregister.gov/documents/2024/09/23/2024-21652/airworthiness-directives-piper-aircraft-inc-airplanes#addresses*
- *www.piper.com/nprm-2024/*

Sincerely,

Ron Gunnarson
Vice President – Customer Support, Quality, Sales and Marketing