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Subject: **Memorandum for Record – October 31, 2023 GA Survey Stakeholder Meeting**

The Federal Aviation Administration (FAA) hosted a stakeholder meeting on October 31, 2023 about the General Aviation and On-Demand Part 135 survey. The survey stakeholder meeting is hosted every few years to provide feedback about the survey and awareness across government and industry stakeholders about the survey and its process.

The participants in the 2023 meeting included the Aircraft Owners and Pilots Association, Civil Air Patrol, Flight School Association of North America, National Association of Flight Instructors, National Air Transportation Association, and National Business Aviation Association as well as representatives from the National Transportation Safety Board and several FAA lines of business. The invited stakeholders include members from across the General Aviation Joint Safety Committee and U.S. Helicopter Safety Team.

The discussion in 2023 built on prior stakeholder dialogues. As an example, the GAJSC sponsored work in 2002 under the General Aviation Data Improvement Team (GADIT) that helped establish the current survey methodology. Additionally, stakeholder meetings in 2016 focused on modernizing the survey and its role in informing the FAA general aviation safety goal and metric. Finally, the development of the FAA safety metric was subject to a separate set of meetings with stakeholders in 2017-2018.

Summary memos from the prior meetings and the GADIT report can be accessed on the GAJSC.org website and address opportunities for the FAA to further improve the survey.

Summary of 2023 Meeting

<u>GA Survey 101</u>

The primary objective of the 2023 stakeholder meeting was to provide an overview and education of government and industry stakeholders about the survey methodology in recognition of significant turnover across stakeholders, especially during the prior four years.

The FAA contractor, Tetra Tech, provided an overview of the survey methodology used since 2003 and discussed the important support provided by stakeholders in promoting aircraft owners responding to the survey. Tetra Tech also reviewed the objectives of the different refinements to the survey methodology implemented over the past two decades such as the large fleet survey, 100% sampling of certain aircraft types and operators, and the increased use of online surveys.

Meeting Agenda Discussion Topics

Topic 1: Aviation Gasoline.

The survey asks aircraft owners about the fuel used during the prior calendar year (*e.g.*, Aviation Gasoline, Jet-A). The FAA recently expanded the survey to include 91/94UL because these types of fuels are increasingly becoming available.

The FAA jointly with industry in 2022 established the Eliminate Aviation Gasoline Lead Emission (EAGLE) program. The EAGLE program builds on several decades of collaboration between FAA and industry in developing unleaded fuels. The commitment by EAGLE is to transition to unleaded fuel in 2030.

The FAA recently issued a Supplemental Type Certificate (STC) for 100UL ("G100UL") and additional fuels are undergoing comprehensive testing under the Piston Aviation Fuels Initiative (PAFI) including Swift 100R, Afton Chemical / Philipps 66, and Lyondell Basel / VP Racing.

The expectation is that additional types of fuel will soon become commercially available.

Recommendation 1: The FAA should add a new answer option to the GA survey for "100UL" fuel.

Additionally, stakeholders noted that a number of electric aircraft are currently undergoing flight testing; are being operated under experimental certificates; and that the agency is expected to issue type certificates to electrically powered aircraft in the next few years.

Owners of electric aircraft do not have an answer option to the fuel question other than "other" currently.

Recommendation 2: The FAA should add a new answer option to the GA survey for "electrically powered" as the fuel source.

Topic 2: 100% Sampling.

FAA in 2005 directed 100 percent sampling of certain types of aircraft and operations. Currently the annual survey samples 100 percent of aircraft owners that own turbine airplanes, helicopters, aircraft based in Alaska, and on-demand Part 135 aircraft. The agency's decision to sample these aircraft at 100% was based on a specific safety focus of the AVS Management Team in 2005.

The indirect effect of the 100% sampling of the above aircraft annually is the risk of lower sampling rates of other aircraft types.

The stakeholders discussed the 100 percent sampling methodology, including the GA Survey Methodology responses rates across different types of aircraft and as a percentage of the registered fleet. The stakeholders did not identify a specific reason to change the current approach to 100 percent sampling.

Topic 3: Validation Opportunities.

Prior survey stakeholder meetings have included dialogues about opportunities for the FAA to validate survey results against known actual flying in the National Airspace System. These validation exercises are in addition to Tetra Tech's review[1] of the GA survey statical methodology.

As an example, the FAA in 2020 was asked to review turbine airplane flying against the TFMS-C data and rotorcraft flying. Tetra Tech summarized the results in a memo[2] provided to the Office of Accident Investigation and Prevention.

Validation Topic 1: Flight Training and Flight Schools

The GA survey indicates that there are approximately 15,000 aircraft conducting 5-6 million hours of flight training each year. The Flight School Association of North America (FSANA), however, estimates that approximately 12,000 to 14,000 aircraft conduct 10 million hours of light training each year.

The stakeholders discussed potential factors in the difference in the data, including:

- FSANA stated that some flight schools believe that responding to the survey may expose their business sensitive information to the U.S. government directly or their competitors.
- Flight schools are likely fleet operators (*i.e.*, subject to the large fleet survey) and may not be the registered owner of the aircraft because the aircraft is on a lease-back from the aircraft owner or in other manner not owned by the flight school.

The stakeholders discussed opportunities to improve the results and responses from flight schools based on the feedback provided during the meeting.

The assumption by some flight schools that the survey is not anonymous is not correct and opportunities exist to further reinforce with flight schools that their responses are anonymous. The survey responses are only available to the FAA contractor (*i.e.*, currently Tetra Tech). FAA and other government agencies cannot access the individual survey results, only the aggregate information.

Recommendation 3: Industry associations should reinforce with flight schools that the survey responses are anonymous and not available to the FAA or other government agencies.

The use of the large fleet survey has significantly increased responses rates. Tetra Tech, however, is only able to identify affiliated aircraft for the large fleet survey if the aircraft are owned by the same entity which means that aircraft on lease-back are especially difficult to aggregate. Additionally, the owner of the aircraft is the recipient of the survey which means that

[1] Tetra Tech Memo, December 9, 2013: Assessing Quality of Survey Results

[2] Tetra Tech Memo, November 12, 2020: 2019 General Aviation and Part 135 Activity Survey: Responses to FAA review of activity estimates.

aircraft that area leased to a flight school may not receive the large fleet survey, but no survey sent to the operator or multiple surveys to an entity that is unlikely to respond to the survey (i.e., aircraft owner versus flight school operating the aircraft).

The FAA contractor does work with operators to facilitate responses, including for the large fleet survey, if the contractor is able to identify the operators.

Recommendation 4: Industry associations should promote the 'white glove' process for responding to the GA survey to fleet operators, especially flight schools and those operating leased aircraft.

Additionally, stakeholders discussed whether there are opportunities for the FAA to facilitate increased response rates to the GA survey by flight schools or collect hours from flight schools as part of regular oversight of Part 141 Pilot Schools.

Recommendation 5: The FAA should investigate if there are opportunities to collect hours flown by flight schools as part of oversight of flight schools (*e.g.*, Part 141) or promote with flight schools the importance of responding to the annual survey, including through the use of the large fleet survey.

Validation Topic 2: Understanding the "Accuracy" of the Survey Results

Stakeholders at times inquire about the accuracy of the survey results (*e.g.*, whether the total hours reported through the survey results matches the actual number of hours flown by general aviation and on-demand Part 135). Examples of these questions include why a survey is used as opposed to mandatory reporting and whether the survey results have sufficient confidence[3] as presented.

The question of "accuracy" includes two areas:

- (1) Do the year-over-year change in flying presented in the survey accurately reflect the change in flying?

- (2) Do the total hours reported accurately present the actual flying?

Prior validation exercises have confirmed an acceptable level of confidence that the survey accurately reflects the ***change in flying*** based on correlation to other data and the use of a consistent methodology in deploying the survey year-to-year (*i.e.*, the results are not biased by changes in survey methodology). The confidence in the ability of the survey to measure changes is especially important because the primary purpose of the survey is to measure safety improvements (or reductions) in general aviation and on-demand safety over time.

The question whether the ***hours reported*** represent the actual number of hours flown remains open to dialogue. Stakeholders participating in the October 2023 meeting discussed new opportunities to validate that the hours presented are accurate.

[3] GAO GENERAL AVIATION SAFETY, Additional FAA Efforts Could Help Identify and Mitigate Safety Risks, October 2012, https://www.gao.gov/assets/d1336.pdf

First, FSANA communicated the results of its member survey and that the hours presented from the FSANA survey are significantly different while the aircraft fleet is similar in size to the fleet reported by the GA Survey. The FAA has an opportunity to work with FSANA to validate the training results of the survey against the FSANA survey.

Additionally, it was noted that the FAA does have complete data of the number of airmen certificates and ratings issues each year. An assumption can be made that there may be a degree of correlation between the number of FAA certificates and ratings issues in any one year with the total number of training hours reported during the same year.

Second, the FAA previously undertook a validation exercise of the turbine airplane flying results against TFMS-C operational counts. The TFMS-S operational counts are assumed to capture near 100 percent of the flying conducted by turbine airplanes which is why the survey's turbine hours could be validated against TFMC-S.

A new opportunity exists for other aircraft types in the ever-increasing ADS-B equipage across the GA fleet. At the time of the stakeholder meeting, 165,321 aircraft, the vast majority general aviation and on-demand Part 135, were equipped with ADS-B enabled transponders or other ADS-B equipment according to the FAA public data. The total registered fleet in 2023 was approximately 260,000 aircraft of which approximately 220,000 aircraft were identified as 'active' in the survey results.

The ADS-B ground stations cover large areas of the United States at altitudes above 1,500 feet in most locations. Additionally, over 80 percent of the aircraft equipage is on the 1090 MHz Mode S link which means each individual aircraft can be matched to its ICAO 24-bit address code and associated registration numbers. It can be assumed that a large, but undetermined amount of the general aviation and on-demand flying is with aircraft equipped with ADS-B and continuously tracked by the FAA.

The stakeholders concluded that the FAA has a new opportunity to validate the results of the GA survey using ADS-B.

Recommendation 6: The FAA should investigate and determine whether the high-rate of ADS-B equipage across certain segments of the GA and on-demand Part 135 fleet can be used to validate the results of the survey.

Topic 4: Current Mandatory Reporting.

Historically, airlines and some Part 135 operators have been subject to mandatory reporting requirements (*e.g.*, BTS Form 298C). Recently, new segments operators have been directed to provide mandatory reports to the FAA about the hours flown.

The current mandatory reporting structure provides opportunities and challenges in understanding the hours flown by general aviation and Part 135 operators. The stakeholders discussed several implications.

As an example, some operators both conduct flying that is subject to mandatory reporting and other flying that is not subject to mandatory reporting. An example segment is the HEMS/HAA

reporting directed by Congress in the 2018 FAA Reauthorization. The results of the HEMS/HAA reporting is available online[4] for review.

Stakeholders discussed the impact of this new mandatory reporting. Stakeholders inquired whether the FAA survey contractor has access to the results of the mandatory reporting and if those results can inform the survey results. The FAA responded that Tetra Tech is able to review the HEMS/HAA public results and use that information to inform the survey process in a manner similar to the contractor accessing the public listing of holders of Part 135 air carrier authority from the FAA.

Additionally, to inform the October 31 meeting, stakeholders had inquired whether the hours reported through the mandatory process to FAA Office of Flight Standards matched the hours reported through the voluntary process.

Tetra Tech presented the results of this review at the meeting and slides are available to the FAA and stakeholders. The conclusion of Tetra Tech's review is that there is a significant difference between the results from the mandatory reports versus the GA survey results with respect to on-demand aeromedical flying.

Stakeholders discussed possible factors including:

- The operator may prioritize responding to a mandatory reporting requirement from the FAA over a voluntary survey request sent to them by an FAA contractor;
- The GA survey applies a "weighting methodology" of responses against the fleet to determine overall flying by a category which may introduce bias based on the methodology for weighting the responses across the registered fleet;
- The GA survey responses about the "type of flying" is contextual (*i.e.*, see review of "contextual secondary data from the 2016 meeting summary) which is known to bring higher variability of the results.

The difference between the mandatory versus voluntary provided data results is of sufficient concern to stakeholders that the FAA is encouraged to continue to work with Tetra Tech to review the HAA/HEMS datasets.

Recommendation 7: The FAA should continue to identify opportunities for survey result validation, especially for the contextualized data (*i.e.*, type of flying), including for the HAA/HEMS flying against mandatorily reported data.

Topic 5: Incorporation of Uncrewed Aircraft Systems.

The FAA informed the stakeholders that there is a dialogue underway to expand the survey to also include uncrewed aircraft systems (UAS) within the scope of the GA survey. The stakeholders discussed the possible implications.

Stakeholders noted that expanding the survey to include UAS likely will reduce the number of responses provided by each segment which would have negative impact on the results of the survey.

[4] https://www.faa.gov/sites/faa.gov/PL_115-254_Sec_314_Helicopter_Air_Ambulance_Operations.pdf

The group, however, noted that there are different types of UAS including the sUAS that are not registered (*i.e.*, do not have an assigned N-number) and also type certificated UAS that are registered and / or have a certificate of airworthiness assigned.

While there are stakeholder concerns about expanding the survey to all UAS, the FAA may want to explore inclusion of those UAS that hold certificates of airworthiness and hold registration certificates within the survey scope. Alternatively, the agency may want to explore other mechanisms for obtaining hours flown by UAS by working directly with UAS stakeholders, including as part of the upcoming Part 108 rulemaking process.

The FAA was encouraged to provide an update at a future GAJSC or Safety Analysis Team meeting about the planned approach to UAS.