National Transportation Safety Board

Washington, D.C. 20594

Safety Recommendation

Date: November 29, 2001

In reply refer to: A-01-81 and -82

Honorable Stephen A. Perry
Administrator
General Services Administration
1800 F Street, N.W.
Washington, D.C. 20405

The National Transportation Safety Board is an independent Federal agency charged by Congress with investigating transportation accidents, determining their probable cause, and making recommendations to prevent similar accidents from occurring. We are providing the following information to urge your organization to take action on the safety recommendations in this letter. The Safety Board is vitally interested in these recommendations because they are designed to prevent accidents and save lives.

These recommendations address the collection of Federal public aircraft activity data. The recommendations are derived from a Safety Board study of public aircraft safety[1] and are consistent with the evidence we found and the findings of the study. As a result of this study, the Safety Board has issued 10 safety recommendations, 2 of which are addressed to the General Services Administration (GSA). Information supporting these recommendations is discussed below. The Safety Board would appreciate a response from you within 90 days addressing the actions you have taken or intend to take to implement our recommendations.

Background

Section 702 of Public Law 106-181, the Wendell H. Ford Aviation Investment and Reform Act for the 21st Century (Air-21), directed the National Transportation Safety Board to "conduct a study to compare the safety of public aircraft and civil aircraft," and to review safety statistics on aircraft operations since 1993.

The term "public aircraft" refers not to a specific population of aircraft, but to government-sponsored flights meeting specific criteria laid out in the *Code of Federal Regulations* (CFR). Essentially, public aircraft operations are a subset of government-sponsored aircraft operations. Public aircraft status means, among other things, that an aircraft will not be subject to some of the regulatory requirements applicable to "civil" (or civilian) aircraft.[2]

[1] National Transportation Safety Board, *Public Aircraft Safety*, Safety Study NTSB/SS-01/01 (Washington, DC: NTSB, 2001).

[2] Although all aircraft must follow certain sections of 14 CFR Part 91 of the Federal Aviation Regulations, public aircraft operators do not have to comply with safety regulations, including maintenance rules under 14 CFR Part 43 or pilot certification standards under 14 CFR Part 61.

Although the precise statutory definition has changed over the years, public aircraft operations generally include law enforcement, low-level observation, aerial application, firefighting, search and rescue, biological or geological resource management, and aeronautical research.[3]

Because public aircraft operators are exempted from certain aviation safety regulations, government organizations conducting public aircraft operations supervise their own flight operations without oversight from the Federal Aviation Administration FAA). Oversight policies are most clearly specified at the Federal level. A circular issued by the U.S. Office of Management and Budget (OMB) has guided aircraft management at executive agencies of the Federal government since 1983.[4] A 1989 revision of the circular directed the GSA to create and maintain a single office responsible for oversight of Federal aircraft management and to establish a single interagency committee for assisting the GSA in this role. This led to the creation of the Interagency Committee for Aviation Policy (ICAP).[5] A 1992 revision of the circular specified, among other things, requirements for aviation safety programs within Federal agencies, adding the responsibility for collecting accident and incident data. In addition, the revision recommended that Federal agencies adhere voluntarily to portions of the Federal Aviation Regulations from which they were exempted. Subsequent studies by a Senate committee chaired by Senator Jim Sasser[6] and by the President's Council on Integrity and Efficiency (PCIE) found numerous shortcomings in the Federal government's oversight of aircraft utilization and safety.[7]

In 1997, the Associate Administrator, Office of Governmentwide Policy, GSA, established an independent Aircraft Management Policy Advisory Board to examine all aspects of the management of federally sponsored aviation programs, including safety aspects. In June 1998, the advisory board reported that, although progress had been made on the issues raised in the Sasser and PCIE reports, fundamental problems remained, and these problems stemmed from a lack of independent safety oversight of Federal aircraft operations. In addition, the advisory board referred to "a continuing questioning of GSA's role in Federal public aircraft management," stating, "there is widespread uncertainty about who is in charge, and there is no clear enforcement authority." As a result of these findings, the advisory board recommended: (a) the revision of OMB Circular A-126 to better define GSA's authority to set aircraft management policy and safety guidelines, (b) the proposal of statutory language to Congress that would place the responsibility for regulation, oversight, and enforcement of all Federal government aircraft operations on the FAA, and (c) the allocation of resources to the FAA commensurate with this increase in responsibilities.[8] The advisory board also recommended that the GSA associate

[3] Aircraft used by the Department of Defense are also public aircraft, but the Safety Board's study considered only nonmilitary, nonintelligence aircraft.

[4] OMB Circular A-126 "Improving the Management and Use of Government Aircraft."

[5] The GSA established the ICAP in 1989 at the direction of the OMB. The GSA chairs the committee. About 17 Federal agencies are members, although this number varies from year to year. With advice from ICAP, the GSA makes policy for Federal aviation management.

[6] United States Senate Committee on Governmental Affairs, Subcommittee on General Services, Federalism, and the District of Columbia [Jim Sasser, Chairman], *Management of Federal Civilian Aircraft: Findings and Recommendations* (Washington, DC: U.S. Senate, April 2, 1993).

[7] President's Council on Integrity and Efficiency, *Combined Report on the Federal Civilian Agencies' Aircraft Management Programs*, Report No. A43006/O/W/F97011 (Washington, DC: PCIE, December 16, 1996).

[8] U.S. General Services Administration, *Report of the Aircraft Management Policy Advisory Board* (Washington, DC: GSA, 1998).

administrator be designated chair of the ICAP, and that ICAP member agencies appoint representatives of equivalent stature to ease GSA's dealings with the member agencies on matters involving aircraft management.

Since the release of the advisory board's recommendations, GSA has assisted the OMB in drafting a revision of Circular A-126. GSA also drafted a revision of its own regulations, to be contained in 41 CFR 102-33, to better define its authority for aircraft management. Both revisions are being reviewed by OMB and have yet to be formally approved. The GSA deputy associate administrator met with representatives of the FAA and congressional staff members in mid-1998 to discuss the advisory board's recommendation that GSA propose statutory language to Congress placing the responsibility for regulation, oversight, and enforcement of all Federal government aircraft operations on the FAA. According to a representative of the GSA's Aircraft Management Policy Division, neither the FAA nor congressional staff members present at that meeting were receptive to the recommendation. No further action has been taken. In other developments, the GSA has designated its associate administrator as the chair of ICAP, and some of ICAP's member agencies have appointed representatives of equivalent stature to ease GSA's dealings with those agencies.

The FAA performed an analysis of public aircraft safety in 1997.[9] This study, which explored the legislative history and the characteristics of government-owned or government-operated aircraft and examined available safety data, was never published. It was, however, used as the basis for a briefing of the U.S. General Accounting Office, which was examining the issue of public aircraft safety in response to the conclusions and recommendations published in the report of the GSA's Aircraft Management Policy Advisory Board. The number of aircraft engaged in government aircraft operations was estimated in the FAA study using preliminary data from the ICAP, which had begun to build a list of aircraft owned or operated at all levels of government,[10] and data from the FAA's National Vital Information Statistics (VIS) database.[11] The FAA compared accident characteristics for government versus general aviation (GA) operations, and across levels of government. The resulting FAA analyses were of limited value because the FAA lacked activity statistics for government aircraft operations.

Since that time, the FAA has begun publishing public aircraft flight hour estimates. The FAA first released estimates in 1997 for the 1996 calendar year. In its study, the Safety Board used these data to compare the safety of public and civil aircraft operations.[12] The Board calculated accident rates for the period 1996–1999 rather than 1993–present because FAA estimates of public aircraft activity were available only for these years.

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[9] Federal Aviation Administration Office of Accident Investigation, Safety Analysis Branch, "An Analysis of Public Aircraft Safety" (Washington, DC: FAA, 1997, unpublished document).

[10] This data collection effort, performed primarily by the Department of Energy, an ICAP member, has since been discontinued because of difficulties in maintaining the currency of the data set.

[11] The FAA uses the VIS database to track commercial and government certificates.

[12] Accident rates are calculated by dividing accidents by some measure of transportation activity, such as trips taken, miles traveled, or hours spent in transit. This adjustment is sometimes called "normalization." The rationale for normalization is as follows: travelers and system operators run the risk of experiencing a transportation accident primarily when they travel. The more people travel, the more they are exposed to risk, and the more likely they are to be involved in a transportation accident.

Accident and Exposure Data

The Independent Safety Board Act Amendments of 1994 required most public aircraft operators to report accidents to the Safety Board. The Board relies on its investigators to identify incoming reports of public aircraft accidents, and to distinguish these from civil aircraft accidents. Investigators code accident-involved public aircraft "public use" or "investigation of a government agency" as they enter accident data in the Board's Aviation Accident/Incident Database. Based on these codings, Board staff identified over 300 accidents that occurred between January 1993 and December 2000. Staff reviewed a brief report of each accident in the sample. The case-by-case review of the public aircraft accident sample could not ensure that every accident flight was operated in a manner consistent with the statutory definition of public aircraft in effect at the time the accident occurred. The statutory definition of public aircraft status takes many factors into account that are not documented in a typical aircraft accident record (for example, length of the lease agreement for State governments, presence of nonessential crewmembers, and so on). The purpose of the review was merely to look for cases where the information in the accident record was clearly inconsistent with classification of an aircraft operation as public. During the review, staff noticed one systematic error made by the Board's investigators: Civil Air Patrol (CAP) accidents were coded public use, despite the fact that CAP flights are not technically considered public aircraft. CAP aircraft were left in the accident sample because the FAA includes CAP flight hours in its estimate of public use flight activity.

The final sample consisted of 343 public aircraft involved in 341 accident events. These accidents resulted in 167 deaths and 220 injuries. Each record contained information on a variety of event-, aircraft-, and occupant-related variables. The majority of the missions (51 percent) were Federal. The rest were divided evenly between State and local governments.

The Safety Board gathered government aircraft flight hour data from two sources: the FAA Office of Aviation Policy and Plans, and the GSA Aircraft Management Policy Division. The FAA publishes activity estimates for "public use" aircraft operations, a category that is similar to but less restrictive than the statutory definition for public aircraft.[13] The GSA collects flight hour data from executive agencies of the Federal government that operate aircraft. The two sets of exposure data cover overlapping sets of operations, but they are collected independently. The FAA estimates activity for all levels of government; the GSA reports activity only for the Federal government.[14] Both sets of activity statistics describe populations of government aircraft operations that are broader than the population of operations qualifying for public aircraft status. However, they are the best data currently available.

The Safety Board could not find independent estimates of State or local public aircraft activity. The PCIE report in 1996 acknowledged the difficulty in finding such information, as did the FAA's unpublished analysis of public aircraft safety in 1997. During the search for data on State and local public aircraft operators, the Safety Board could not locate even a comprehensive list of State or local government aircraft operators.

[13] The FAA defines "public use" aircraft operations on its flight hour survey questionnaire as "Federal, state, or local government owner or leased aircraft used for the purpose of fulfilling a governmental function."

[14] These activities do not include military or intelligence aircraft operations.

After repeated efforts yielded no useful information, the Safety Board proceeded with the study using the best approximations of public aircraft activity available: flight hour estimates from the FAA and the GSA. A comparison of public and general aviation aircraft accident rates, based on imprecise FAA activity estimates, revealed that during the period 1996–1999, public aircraft experienced fewer accidents per flight hour than general aviation aircraft, but more than aircraft performing scheduled operations under 14 CFR Part 135 or Part 121.

FAA Activity Estimates

The FAA Office of Aviation Policy and Plans obtains its public use aircraft activity estimates from the FAA-sponsored General Aviation and Air Taxi Activity Survey (GA survey). The first GA survey took place in 1978,[15] collecting data on flight activity during the 1977 calendar year. Since 1978, the name of the survey has changed, but the FAA's overall approach to estimating nonairline flight activity has remained the same, with some minor changes in the design of the sampling process. Questionnaires for the 1999 survey were mailed to the registered owners of over 30,000 nonairline aircraft (about 12 percent of the fleet).[16] The FAA selected these aircraft from all aircraft records in the FAA's Civil Aviation Registry, using a stratification procedure based on 19 aircraft categories and 9 geographic regions. Combining these two dimensions yielded 172 different aircraft groups from which samples were drawn at random. In statistical terms, these groups are referred to as cells of the sample frame matrix. Within each cell, a predetermined number of aircraft were selected for inclusion in the survey. The number of aircraft selected were chosen to minimize sampling error and to ensure that individual aircraft owners were surveyed as infrequently as possible.

Each aircraft owner selected for inclusion in the 1999 survey received a standardized 19-question GA survey form. This form requested the following information: hours flown by the aircraft during the calendar year, lifetime airframe hours, percentage of flight hours that the aircraft operated while rented or leased, and proportion of flight hours under different flight plans and weather conditions. In addition, owners were asked to estimate the percentage of hours flown for each of 15 different purposes. "Public use" was included as a response category for 1996 and subsequent years. Beginning with the 1996 survey data, the FAA estimated public aircraft flight hours by multiplying an aircraft's total flight hours by the percentage of hours flown for "public use," weighting each product by an appropriate constant related to the sample design, and summing the results across aircraft.

While studying the FAA's public aircraft flight hour estimation process, the Safety Board identified important weaknesses. These were included in the Board's report because the comparison of public and civil aircraft safety depended on the reliability and validity of flight hour estimates.

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[15] Prior to 1978, the FAA used the Aircraft Registration Eligibility, Identification, and Activity Report, AC Form 8050, to collect data on GA activity and avionics. The form was sent to all owners of civil aircraft in the United States and served two purposes: Part 1 was a mandatory aircraft registration revalidation form, and Part 2 was voluntary and applied to GA aircraft only, asking questions on the owner-discretionary characteristics of the aircraft such as flight hours, avionics equipment, base location, and use. This information was used by the FAA to estimate aircraft activity.

[16] The FAA surveys aircraft owners, not pilots, because the GA survey is also used to acquire information on aftermarket avionics equipage and because pilots commonly fly multiple aircraft.

One weakness of the FAA's flight hour estimates has to do with the way in which aircraft owners are asked to break down flight hours according to purpose of flight. Purpose-of-flight categories provided on the GA survey form are a mixture of flying tasks and administrative purposes of flight. Therefore, the categories are not mutually exclusive. For example, a private contractor performing aerial application work must choose between "aerial application" and "business transportation." Similarly, a government aircraft operator performing public health sprayings for mosquito control faces a choice between "other aerial application" (which includes public health spraying) and "public use." No instructions are provided to help the respondent choose between categories. It is doubtful that all aircraft owners faced with the same choice would make the same classification.

GSA Activity Estimates

The Safety Board obtained Federal aircraft activity data from the GSA Aircraft Management Policy Division. The GSA has been responsible for collecting information on Federal aircraft ownership, utilization, and cost accounting since 1989, as directed by OMB Circular A-126. Rather than surveying by mail, the GSA collects complete records of activity from Federal agencies. Seventeen Federal agencies currently report these data to the GSA.[17] In recent years, these agencies have submitted total annual flight hours statistics, broken down according to whether the aircraft used were federally owned, leased, or chartered. However, the GSA began collecting more detailed Federal aircraft activity data using a new Internet-based reporting system called the Federal Aviation Interactive Reporting System (FAIRS) in April 2000. FAIRS will provide easily accessible quarterly reports of cost and utilization data, as well as flight hours coded according to aircraft class and mission characteristics. The first complete year of FAIRS activity data will be available after the end of calendar year 2001. The FAIRS system will also contain a complete census of Federal aircraft by the end of 2001. Eleven mission category codes are being used to categorize flight hours in the FAIRS system, with more detailed subcategories available within these categories.

Prior to the implementation of FAIRS, Federal agencies submitted brief annual activity reports to the GSA for the years 1998 and 1999. These reports categorized flight hours according to the type of financial arrangement (government-owned aircraft, contract, charter, or rental). However, these reports provided no categorization of flying activity by aircraft class or mission type. Prior to 1998, Federal agencies reported flight hours to the GSA using the Federal Aviation Management Information System (FAMIS). FAMIS records provided much of the same information that will now be reported through FAIRS, but the FAMIS information was stored in a way that made it very difficult to access and analyze. In addition, FAMIS data were generally inaccurate, incomplete, and late.[18]

For the purposes of its study, the Safety Board collected Federal public aircraft activity data for the years 1996-1997 from agency FAMIS submissions and for 1998-1999 from the annual flight hour summaries submitted to the GSA by Federal agencies after the FAMIS was shut down. The GSA collects activity data on all aircraft operations sponsored by Federal

[17] The number of reporting agencies can change from year to year depending on aircraft utilization.

[18] President's Council on Integrity and Efficiency, *Combined Report on the Federal Civilian Agencies' Aircraft Management Programs,* Report No. A43006/O/W/F97011 (Washington, DC: PCIE, December 16, 1996).

executive agencies without distinguishing which flight hours were accrued as part of qualifying public aircraft missions. Therefore, flight hours for Federal government aviation operations are an inflated substitute for the Federal public aircraft flight hours they include. The GSA flight hour data, however, are currently the closest available estimate of Federal public aircraft activity.

Conclusions

The Safety Board's *Public Aircraft Safety* study was hampered by a lack of available public aircraft activity estimates for years prior to 1996 and by the unreliability and lack of detail characterizing activity estimates published since that time. As a result, the Board could only offer tentative conclusions about the relative safety of public and civil aircraft.

With respect to Federal public aircraft activity data, the Safety Board applauds the steps the GSA has taken to improve collection of Federal aircraft activity data. Although Federal government operators have been reporting aircraft flight hours to the GSA in recent years, these data were reported by each agency only in an aggregate fashion. The GSA's new automated data entry and analysis system, FAIRS, should provide easily accessible activity and cost data at the level of specific aircraft with added ability to total flight hours according to mission characteristics and other factors. This system will provide a complete set of data describing Federal aircraft operations for 2001 and subsequent years. The FAIRS system, currently being deployed by the GSA, should enhance the GSA's ability to monitor Federal government aircraft activity and should allow the GSA to provide better information to other Federal agencies, including the Safety Board. The Safety Board encourages the GSA to finish the implementation of this system and take steps to ensure that it continues to function as intended. The Safety Board believes that the GSA should collect and maintain aircraft flight hour data from Federal agencies in such a way that it is possible to distinguish Federal public aircraft flight operations from other Federal government-sponsored flight operations.

A final concern involves the parallel development of activity data collection systems at the FAA and the GSA. It would be useful to compare the safety of Federal public aircraft versus other aircraft engaged in the same kinds of flying activities. However, the development of separate, independent activity data collection systems by the FAA and the GSA is leading to the collection of flight hour data in terms of incompatible categories of purpose of flight. This will make it difficult, if not impossible, to compare accident rates for Federal public aircraft versus other public aircraft for specific kinds of flying activities. The GSA, in cooperation with the FAA, should define purpose-of-flight categories in the FAIRS that correspond to purpose-of-flight categories in the GA survey.

Therefore, the National Transportation Safety Board recommends that the General Services Administration:

> Collect and maintain aircraft flight hour data from Federal agencies in such a way that it is possible to distinguish Federal public aircraft flight operations from other Federal government-sponsored flight operations. (A-01-81)

In cooperation with the Federal Aviation Administration, define purpose-of-flight categories in the Federal Aviation Interactive Reporting System that correspond to purpose-of-flight categories in the General Aviation and Air Taxi Activity Survey. (A-01-82)

The Safety Board also issued safety recommendations to the Federal Aviation Administration. In your response to the recommendation in this letter, please refer to Safety Recommendations A-01-81 and -82. If you need additional information, you may call (202) 314-6170.

Chairman BLAKEY, Vice Chairman CARMODY, and Members HAMMERSCHMIDT, GOGLIA, and BLACK concurred in these recommendations.

Original Signed

By: Marion C. Blakey
Chairman