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# AVIATION SAFETY

# Commuter Airline Safety Would Be Enhanced With Better FAA Oversight

Statement for the Record by
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Mr. Chairman and Members of the Subcommittee:

We appreciate the opportunity to submit this statement for the record concerning commuter airline safety and the rise in commuter accidents in 1991. Commuter airlines operate aircraft having 30 or fewer seats, provide scheduled passenger service of at least 5 round-trips per week, and carried about 20 million passengers in 1991. We recently issued three reports concerning problems with the Federal Aviation Administration's (FAA) overall inspection program, FAA's actions leading to the emergency revocation of airline operating certificates, and FAA's oversight of air taxis.[1] This testimony is based primarily on our findings from these reports as they apply to FAA's commuter airline oversight. The number of commuter accidents increased about 50 percent from 1990 to 1991. Appendix II provides a list of relevant GAO products.

In summary, we found the following:

-- FAA has taken clear and positive steps to improve its inspection program, such as increasing the number of inspectors and defining annual inspection requirements for each airline. However, key shortcomings remain, including the fact that FAA lacks a system to target its limited inspection resources on the basis of airline safety performance. FAA allocates its inspection resources primarily on the basis of an airline's fleet size. GAO recommended that FAA give priority to developing a performance-based risk-assessment system and FAA is now developing such a system.

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[1]Aviation Safety: Problems Persist in FAA's Inspection Program (GAO/RCED-92-14, Nov. 20, 1991), Aviation Safety: Emergency Revocation Orders of Air Carrier Certificates (GAO/RCED-92-10, Oct. 17, 1991), and Aviation Safety: Air Taxis--The Most Accident-Prone Airlines--Need Better Oversight (GAO/RCED-92-60, Jan. 21, 1992).

-- Although FAA is developing a performance-based risk-assessment system, certain other problems remain concerning FAA's surveillance of airlines, including commuters. In fiscal year 1990, FAA did not perform at least one required avionics, maintenance, or operations inspection on 28 of about 165 commuter airlines. Also, in some instances, FAA's routine inspections were not effective in discovering safety violations that led to emergency orders revoking commuters' operating certificates. In these cases, FAA inspectors became aware of the safety violations as the result of tips or an investigation initiated following accidents. Heavy work load demands affected some inspectors' ability to perform inspections. Also, some violations, such as falsifying records, are difficult to detect.

## BACKGROUND

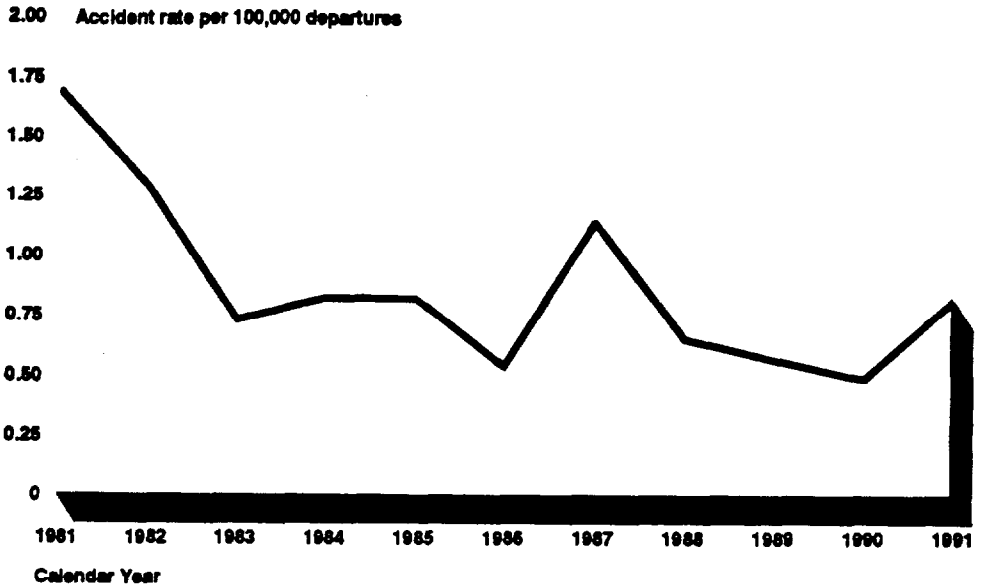
FAA issues operating certificates to airlines, including commuter airlines. These are the basic permission to engage in commercial air transportation. Initially, FAA certifies that an airline's equipment, facilities, personnel, and manuals meet safety requirements. Subsequently, FAA is required to inspect the airlines to ensure that they comply with aviation regulations and operate safely. FAA conducts both routine and special inspections. Generally, routine inspections are spot checks performed by individual inspectors. Special inspections are usually performed by a team of inspectors and provide a more comprehensive review. As of September 30, 1991, FAA had about 2,600 field inspectors in 90 district offices located throughout the United States to oversee more than 6,500 scheduled commercial aircraft, 4,439 repair stations, 547 pilot training schools, 177 maintenance schools, 641,477 active pilots, and 274,834 general aviation aircraft.

When FAA finds violations, it can take enforcement actions, including revoking, suspending, or amending operating certificates on a nonemergency basis; imposing civil (financial) penalties; seizing aircraft; and issuing an emergency order revoking an airline's certificate. FAA issues an emergency revocation order--the most severe action that FAA can take against a domestic airline--when it determines that an immediate safety need exists to prevent an airline from conducting flight operations. An emergency revocation order takes effect immediately on issuance.

## ALTHOUGH INCREASING SIGNIFICANTLY IN 1991, COMMUTER AIRLINE ACCIDENTS ARE NOT THE ONLY SAFETY MEASURE

The number of commuter airline accidents increased by almost 50 percent, and the accident rate per 100,000 departures was about 67 percent higher between 1990 to 1991. In 1991, 22 accidents involving commuters occurred; 8 were fatal--the highest totals since 1987. Also, the 77 people killed in 1991 accidents was the highest number of deaths ever recorded for the commuter airline industry in a single calendar year. According to an NTSB official, the causes of the 1991 accidents varied and included deficiencies in pilot training and equipment failure. Figure 1 shows commuter accident rates from 1981 through 1991. Appendix I shows airline accident statistics for air carriers, commuters, and air taxis.

Figure 1: Commuter Airline Accident Rates From 1981 Through 1991




Note: 1991 accident rate is preliminary.

Source: NTSB.

Even though commuter accidents increased in 1991, accidents are not the best indicator of the margin of safety. Usually, many different things have to go wrong before an accident occurs. Furthermore, focusing on accidents represents after-the-fact reactions to events rather than prevention. FAA can analyze other airline performance indicators, such as safety violations, and use this information to target its limited inspection resources. This would help FAA discover problems before an accident occurs, providing a proactive approach to safety.

## A SAFETY PERFORMANCE ANALYSIS SYSTEM WOULD HELP FAA TARGET ITS LIMITED INSPECTION RESOURCES

As we recently reported to this Subcommittee, FAA does not have a system to target its limited inspection resources to

airlines, including commuters, on the basis of safety performance.[2] In our November 1991 report, we recommended that FAA give priority to develop a risk-assessment system. FAA assigns its inspection resources largely on the basis of an airline's fleet size. In 1987 we reported that FAA could develop criteria for targeting inspections at high-risk conditions and noted that targeting is important because FAA may never have enough resources to inspect all airlines all the time.[3] Also, as a result of its investigation of a 1991 commuter accident, NTSB stated that FAA should develop a system to identify systemic safety problems.

The Department of Defense (DOD) has developed a system that, although it may not be totally applicable for FAA's needs, offers a conceptual framework that FAA could use to make resource allocation decisions and target inspections on the basis of airline safety performance. DOD uses its system--the Air Carrier Analysis Support system--to assess the performance of about 130 airlines with which it contracts. We examined the hours that FAA spent inspecting 97 airlines in fiscal year 1990 and compared them with DOD's performance rating. We placed the airlines into four groups using the Department of Transportation's criteria and compared the airlines within each group. Our analysis showed that 34 airlines--including 7 commuters--did not receive inspection coverage that was consistent with DOD's performance rating relative to other airlines within their group. FAA has recently begun developing a Safety Performance Analysis Subsystem that would assess all airlines' safety risk and help it better target its inspection resources. FAA plans to evaluate a prototype system by fiscal year 1993.

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[2]Aviation Safety: Problems Persist in FAA's Inspection Program (GAO/RCED-92-14, Nov. 20, 1991) and Aviation Safety: FAA Needs to More Aggressively Manage Its Inspection Program (GAO/T-RCED-92-25, Feb. 6, 1992).

[3]Department of Transportation: Enhancing Policy and Program Effectiveness Through Improved Management (GAO/RCED-87-3, Apr. 13, 1987).

## DESPITE IMPROVEMENTS, INADEQUATE INSPECTIONS IMPAIR FAA'S COMMUTER AIRLINE OVERSIGHT

To its credit, FAA has taken positive steps to improve its inspection program. FAA increased its inspector work force from 1,300 in fiscal year 1983 to 2,600 today; developed and is now updating a staffing standard to determine the number of inspectors needed; improved hiring and training processes; instituted a program for in-depth inspections of selected airlines; and defined annual inspection requirements for each airline. Clearly, these are positive and significant accomplishments critical to providing an effective inspection program. Despite these improvements, problems, such as not performing required inspections, continue to affect FAA's oversight of airlines, including commuters.

According to FAA, surveillance (inspection) is the most important function inspectors perform. FAA headquarters develops annual program requirements to ensure that inspectors give priority to surveillance. FAA requires district offices to perform annual routine inspections for all airlines, including commuters, in each of three categories--avionics, maintenance, and operations. On the basis of our analysis of FAA inspection data for fiscal year 1990, 28 (17 percent) of about 165 commuter airlines did not receive at least one of the required avionics, maintenance, or operations inspections.[4] Some inspectors told us that a heavy work load affected their ability to perform inspections.

Our analysis also found instances when FAA's routine inspections were not effective in discovering commuter operators' safety violations that led to emergency revocations. From January 1987 through May 1991, FAA issued 52 emergency revocation orders

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[4]Because of inaccurate FAA data, the number of FAA's accomplished required inspections may be lower or higher than our analysis found. FAA recognizes its inspection data base problems and is examining the reliability of the information.

against airlines--14 (27 percent) were against commuter operators. In 5 (36 percent) of the 14 cases, FAA became aware of the safety violations that led to the revocations either as the result of tips or an investigation initiated as a result of two accidents, rather than by inspections. Despite periodic inspections, in four cases (29 percent) the violations occurred a year or more before FAA inspectors discovered them. Inspectors told us that some violations, such as falsifying records and using unauthorized aircraft and pilots, are difficult to detect. Table 1 shows the most common violations in the commuter emergency revocation cases.

Table 1: Most Common Violations for Commuter Emergency Revocation Cases

| Violations | Number of cases cited |
|---|---|
| Falsifying compliance records | 9 |
| Operating unairworthy aircraft | 8 |
| Operating aircraft without FAA approval | 6 |
| Using crew who had not completed training | 6 |
| Using pilots who had not passed competency tests | 5 |

Adequate FAA routine inspection oversight is critical to ensuring commuter airline safety. For example, NTSB's investigation of a September 1991 commuter airline crash that killed 14 people found inadequate FAA surveillance. Specifically, FAA did not detect that the airline was not performing maintenance in accordance with its FAA-approved maintenance procedures. NTSB found that (1) the FAA-approved maintenance procedures, if followed, could have prevented the accident and (2) the FAA inspector could not provide adequate inspection oversight because of an excessive work load. NTSB had previously noted the problem of inadequate inspector oversight in accident investigations, including two fatal commuter accidents that occurred in 1988 and 1989, and had recommended that FAA study the adequacy of inspector staffing. NTSB reiterated its recommendation to perform this study

as a result of the accident investigation of the September 1991 commuter crash. FAA plans to complete this study in May 1992.

## The Scope of FAA's National Special Inspection Program Has Been Reduced

According to FAA, special inspections are more likely to identify and resolve long-standing safety problems sooner than routine inspections. FAA's special inspection program, the National Aviation Safety Inspection Program (NASIP), includes commuter airlines. According to FAA, NASIP complements routine inspections by providing FAA with the flexibility to focus inspection efforts where they are most needed, including circumstances that indicate a need for immediate additional surveillance.

Since NASIP started in 1986, FAA has performed special inspections on 62 commuters. FAA has reported the results for 49 of these inspections and found serious problems.[5] In the 49 inspections, FAA found 2,250 safety problems of which 760 (34 percent) were regulatory violations that resulted in enforcement actions being initiated. These safety violations included inadequate maintenance programs and pilots exceeding flying time limitations. In addition to NASIP inspections, FAA also conducts special inspections of commuter airlines through its Regional Aviation Safety Inspection Program (RASIP). FAA information shows that six RASIP commuter inspections were conducted in fiscal year 1990. Although FAA reports the NASIP results, it does not do so for RASIP inspection findings. Therefore, information was not readily available to analyze the results of RASIP inspections.

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[5]FAA plans to report the results of special inspections performed on 11 commuters in mid-1992 and 2 in mid-1993.

Although special inspections have been more effective than routine inspections in discovering safety problems, FAA reduced the scope and number of NASIP inspections beginning in early fiscal year 1990. These changes were due to constraints on funding and inspector resources caused by competing priorities within FAA. FAA did not perform NASIP inspections during the second and third quarters of fiscal year 1990. In the fourth quarter, FAA performed 12 NASIP inspections--2 on commuters. However these inspections--called focused inspections--were limited in scope, used fewer inspectors, and had fewer days on-site at the airline compared with in-depth NASIP inspections. According to FAA officials, NASIP inspections continued to be limited in scope and number during fiscal year 1991 because of resource constraints.

NTSB had expressed concern about the effectiveness of NASIP inspections of airline maintenance following an April 1988 airline accident in which the aircraft lost the upper portion of its cabin while in flight. NTSB's investigation of the 1988 accident identified deficiencies in FAA surveillance of the airline's maintenance practices. As a result of this investigation, NTSB recommended that FAA revise the NASIP objectives to require that inspectors evaluate not only paperwork, but also the actual condition of a company's airplanes. In a May 1991 letter to NTSB, the FAA Administrator indicated that FAA had revised the NASIP program to emphasize hands-on inspections and to stress the importance of quality inspections. However, NTSB expressed concern that the limited scope of a NASIP inspection performed on a commuter airline, following its September 1991 fatal crash, may have failed to observe if the airline had corrected the inappropriate maintenance practices that had contributed to the accident. As a result, NTSB stated that the NASIP inspection procedures may not be adequate to detect when an airline's actual maintenance practices deviate from its FAA-approved written procedures.

## CONCLUSIONS

Millions of people fly on commuter airlines and expect the highest level of safety. Although FAA has made notable improvements in its inspection program, problems remain that impair effective oversight of airlines, including commuters. FAA's routine surveillance, in some cases, has not been effective in discovering serious safety violations. Also, although FAA uses its NASIP special inspections to complement its routine surveillance, NTSB found that NASIP inspection procedures may not be adequate to detect safety problems. By strengthening its routine and special inspections, FAA will have better assurance that safety problems will be identified and corrected.

Moreover, FAA does not have a system to help target its limited inspection resources to airlines that have the poorest safety performance--an issue we first identified in 1987. Targeting is important because FAA may never have enough resources to inspect all airlines all the time. We are encouraged that FAA is developing a system that will provide this capability. In our recent reports, we have recommended that FAA take actions to improve its inspection program including giving priority to the development of a risk-assessment system. The benefits of such a system include providing an additional tool for deciding (1) how often individual airlines are to be inspected, and (2) how to target and use limited inspection resources. We believe that our recommendations will help FAA in its oversight of commuter airlines and contribute to airline safety.

This concludes our statement.

APPENDIX I

## AIRLINE ACCIDENT STATISTICS

| | Calendar year | | | |
|---|---|---|---|---|
| | 1988 | 1989 | 1990[a] | 1991[b] |
| Total accidents | | | | |
| Carrier | 29 | 29 | 27 | 27 |
| Commuter | 19 | 16 | 15 | 22 |
| Taxi | 97 | 107 | 107 | 84 |
| Accident rate[c] | | | | |
| Carrier | .25 | .26 | .22 | .23 |
| Commuter | .91 | .71 | .60 | 1.05 |
| Taxi | 3.41 | 3.27 | 3.38 | 2.57 |
| Fatal accidents | | | | |
| Carrier | 3 | 11 | 6 | 4 |
| Commuter | 2 | 5 | 2 | 8 |
| Taxi | 27 | 25 | 29 | 26 |
| Fatal accident rate[c] | | | | |
| Carrier | .02 | .10 | .05 | .03 |
| Commuter | .10 | .22 | .08 | .38 |
| Taxi | .95 | .76 | .91 | .80 |
| Fatalities | | | | |
| Carrier | 285 | 278 | 39 | 50 |
| Commuter | 21 | 31 | 4 | 77 |
| Taxi | 58 | 83 | 50 | 69 |

[a]All 1990 taxi data are preliminary.

[b]All 1991 data are preliminary.

[c]Based on 100,000 hours flown.

Source: NTSB.

APPENDIX II

## RELATED GAO PRODUCTS

Aviation Safety: Better Oversight Would Reduce the Risk of Air Taxi Accidents (GAO/T-RCED-92-27, Feb. 25, 1992)

Aviation Safety: FAA Needs to More Aggressively Manage Its Inspection Program (GAO/T-RCED-92-25, Feb. 6, 1992)

Aviation Safety: Air Taxis--The Most Accident-Prone Airlines--Need Better Oversight (GAO/RCED-92-60, Jan. 21, 1992)

Aviation Safety: Problems Persist in FAA's Inspection Program (GAO/RCED-92-14, Nov. 20, 1991)

Aviation Safety: Emergency Revocation Orders of Air Carrier Certificates (GAO/RCED-92-10, Oct. 17, 1991)

FAA Information Resources: Agency Needs to Correct Widespread Deficiencies (GAO/IMTEC-91-43, June 18, 1991)

Aircraft Maintenance: Additional FAA Oversight Needed of Aging Aircraft Repairs (Volumes I and II) (GAO/RCED-91-91A and B, May 24, 1991)

Aviation Safety: Limited Success Rebuilding Staff and Finalizing Aging Aircraft Plan (GAO/RCED-91-119, Apr. 15, 1991)

Aviation Safety: Changes Needed in FAA's Service Difficulty Reporting Program (GAO/RCED-91-24, Mar. 21, 1991)

Aviation Safety: Management Improvement Needed in FAA's Airworthiness Directive Program (GAO/RCED-90-94, Feb. 16, 1990)

Aging Aircraft: FAA Needs Comprehensive Plan to Coordinate Government and Industry Actions (GAO/RCED-90-75, Dec. 22, 1989)

Aviation Safety: FAA's Safety Inspection Management System Lacks Adequate Oversight (GAO/RCED-90-36, Nov. 13, 1989)

Aviation Training: FAA Aviation Safety Inspectors Are Not Receiving Needed Training (GAO/RCED-89-168, Sept. 14, 1989)

Aviation Safety: FAA Has Improved Its Removal Procedures for Pilot Examiners (GAO/RCED-89-199, Sept. 8, 1989)

FAA Staffing: Recruitment, Hiring, and Initial Training of Safety-Related Personnel (GAO/RCED-88-189, Sept. 2, 1988)

APPENDIX II

Aviation Safety: Measuring How Safely Individual Airlines Operate (GAO/RCED-88-61, Mar. 18, 1988)

Aviation Safety: Needed Improvements in FAA's Airline Inspection Program Are Underway (GAO/RCED-87-62, May 19, 1987)

Department of Transportation: Enhancing Policy and Program Effectiveness Through Improved Management (GAO/RCED-87-3, Apr. 13, 1987)

Compilation and Analysis of the Federal Aviation Administration's Inspection of a Sample of Commercial Air Carriers (GAO/RCED-85-157, Aug. 2, 1985)

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