



Memorandum

**U.S. Department of
Transportation**

Office of the Secretary
Of Transportation

Office of Inspector
General

Subject: ACTION: Review of Near Miss Incidents
Caused by Language and Phraseology
Miscommunications Between Pilots and Air
Traffic Controllers

Date: October 27, 2000

From: Kenneth M. Mead 
Inspector General

Reply to
Attn of: JA-1

To: Federal Aviation Administrator

In an April 12, 2000 letter, Congressman Bob Franks raised safety concerns about near miss incidents caused by language or phraseology miscommunications between pilots and air traffic controllers. The letter stated that there is a disturbingly high incidence of international pilots flying in U.S. airspace who are unable to communicate with air traffic controllers due to inadequate knowledge of the English language. The Congressman was also concerned that the Federal Aviation Administration (FAA) never took action to ground aircraft piloted by these individuals when a near miss incident occurred.

To respond to this request, we reviewed FAA data on near midair collisions and pilot deviations that either led to or could have led to near miss incidents. We also determined what actions FAA takes in the event of a near miss incident involving a foreign pilot. In addition, we identified actions FAA has taken or plans to take to address language and phraseology miscommunications. We have provided the results of our review to Congressman Franks (attachment).

FAA has taken positive steps to address language and phraseology miscommunications. For example, FAA has initiated international efforts to develop standard aviation phraseology and English proficiency tests for pilots and controllers, but more needs to be done. Improvements should be made to the procedures FAA uses to collect data on near midair collisions. This would provide FAA more detailed information on the number of incidents caused by language and phraseology miscommunications. When foreign pilots are involved in near midair collisions, or other incidents while in U.S. airspace, FAA needs to be more proactive in determining that its counterpart organizations take action against their pilots. Finally, FAA needs

to be diligent in its efforts to complete work begun on development of standard aviation phraseology and English proficiency tests. A more detailed description of our review and recommendations follows.

FAA collects data on near midair collisions (NMAC); however, NMAC reports do not have designated data fields to collect information on causal factors for each incident. Although causal factors could be included in the narrative sections of these reports, our review determined that the narratives focus more on the sequence of events that led to the aircraft flying too close together rather than the causes. For example, the reports would show the specific altitude of each aircraft at different time periods as the two aircraft lost their required separation distance, but did not show why the loss of separation occurred.

When foreign pilots are involved in incidents while in U.S. airspace, FAA International staff advised us that they try to investigate the incident and determine if the pilot can adequately communicate in English. However, since FAA does not issue foreign pilots' operating certificates, FAA refers these issues to the pilots' home country for disposition. FAA does not follow up with the civil aviation authority to determine what action was taken.

FAA has two working groups looking at English proficiency and standard aviation phraseology. First, FAA formed a working group with the International Civil Aviation Organization (ICAO), EUROCONTROL, and NAV Canada to develop standard aviation phraseology to be adopted by ICAO. FAA needs to follow up with ICAO to encourage prompt adoption of the working group's recommendations. Second, FAA is working with others in the aviation community, including ICAO, to develop English standards and proficiency tests for pilots, air traffic controllers, and ground operators. This group plans to complete its work by December 2000. These are important initiatives, which when implemented, should improve safety for air travelers worldwide.

To continue to advance your work in language and phraseology miscommunications, we are recommending that FAA:

- ✍ Change the NMAC database to more accurately and completely capture causal factors such as language or phraseology miscommunications.
- ✍ Implement procedures to follow up with the home country's civil aviation authorities to verify that the authorities address incidents involving foreign pilots that occur in U.S. airspace.
- ✍ Establish milestones for timely follow-up, completion, and implementation of English proficiency and standard phraseology initiatives.

We would appreciate being kept informed of the results of your efforts. If we may be of further assistance in this or any other matter, please feel free to contact me at (202) 366-1959, or my Acting Deputy, Todd J. Zinser, at (202) 366-6767.

Attachment



**U.S. Department of
Transportation**

Office of the Secretary
of Transportation

The Inspector General

Office of Inspector General
Washington, D.C. 20590

October 27, 2000

The Honorable Bob Franks
U.S. House of Representatives
Washington, DC 20515

Dear Congressman Franks:

We are responding to your recent letter requesting that we perform an investigation of the number of near miss incidents caused by language or phraseology miscommunications between pilots and air traffic controllers. You stated that there is a disturbingly high incidence of international pilots flying in U.S. airspace who are unable to communicate with air traffic controllers and expressed concern that the Federal Aviation Administration (FAA) never took action to ground aircraft piloted by these individuals when a near miss incident occurred.

As a result of our review of your concerns, we are making a number of recommendations to FAA. We are recommending that FAA modify the way it collects data on midair collisions and follow up on enforcement actions against foreign pilots involved in near miss incidents in U.S. airspace. The procedures FAA currently uses in these areas do not provide FAA complete information on near midair collisions involving foreign pilots and what actions, if any, are taken when foreign pilots are involved in such incidents in U.S. airspace. In addition, we are recommending that FAA establish milestones for implementing its planned or on-going initiatives to improve air to ground communications between foreign pilots and U.S. air traffic control. A copy of our letter to FAA is enclosed.

To respond to your request, we spoke with members of your staff, representatives from the FAA, including air traffic controllers, and pertinent industry associations. We also reviewed FAA data on near midair collisions and on pilot deviations that either led to or could have led to near miss incidents. Based on the data available at FAA, we could not conclude that a significant number of near miss incidents have occurred as a result of language or phraseology miscommunications involving foreign pilots. From January 1997 to August 2000, FAA recorded a total of 309 pilot deviations nationwide attributable to language or phraseology problems between pilots and air traffic controllers, and 16 of these incidents involved foreign air carriers. None of the 16 incidents resulted in a near miss

situation and 1 of the 16 incidents occurred in the busy airspace over the New York/New Jersey area.

Unlike the pilot deviation reporting system, near midair collision reports do not have designated fields to collect causal factors for each incident. The reports focus more on the sequence of events that led to the aircraft flying too close together rather than the causes. Changes to these procedures may yield additional information on the number of near miss incidents that are caused by language or phraseology miscommunications between pilots and air traffic controllers. We are recommending that FAA change the way it collects data on near midair collisions.

As you indicated in your letter, FAA does not take action to ground aircraft when incidents involving foreign pilots occur. FAA officials responsible for oversight of foreign carriers' operations in the United States stated they do try to investigate such incidents and determine if the pilot can adequately communicate in English. However, FAA leaves it to the civil aviation authority of the pilot's home country to take any necessary action against the pilot. We think FAA can do more and are recommending that FAA verify that the home country's civil aviation authority has taken necessary action against the pilot.

FAA believes phraseology miscommunications and English proficiency are safety concerns and has initiated several efforts addressing these issues. FAA is working with the international aviation community to develop standard aviation phraseology and standards on English proficiency. Additionally, the National Transportation Safety Board (NTSB) recently recommended that FAA use internationally accepted phraseology for airport surface operations. To respond to NTSB's recommendation, FAA plans to form a working group to review phraseology currently used in air to ground communications. To ensure these two important initiatives are completed we are recommending that FAA establish milestones for implementing these efforts. When fully implemented, these initiatives should result in improved safety for all passengers worldwide. Our results are discussed further in the paragraphs that follow.

No Reported Near Miss Incidents Caused by Language or Phraseology Miscommunications. FAA collects data on pilot deviations, which are incidents where pilots violate FAA procedures in the air or on the ground, fly into unauthorized air space, or fly too close to other aircraft and create situations that could result in a near miss incident. This data system has designated fields to capture the cause of each incident. From January 1997 to August 2000, the data included 309 incidents attributable to language or phraseology problems; however, 16 of these incidents involved foreign air carriers, and 1 of these 16 occurred in airspace over the New York/New Jersey area. None of the 16 incidents resulted in a near midair collision.

In addition to pilot deviation data, FAA also maintains a data system that specifically captures near midair collisions (incidents where two or more aircraft actually come dangerously close to colliding). Although there were 838 reports of such incidents from January 1997 to July 2000, none referenced language or phraseology as a cause of the incident. Unlike the pilot deviation reporting system, near midair collision reports do not have designated data fields to collect causal factors for each incident. Although causal factors could be included in the narrative sections of these reports, our review determined that the narratives focused more on the sequence of events that led to the aircraft flying too close together rather than the causes. For example, the reports would show the specific altitude of each aircraft at different time periods as the two aircraft lost their required separation distance, but did not show why the loss of separation occurred.

Concerns With Phraseology Miscommunication. Representatives from FAA, the Air Line Pilots Association, and the Air Transport Association agreed that while English proficiency can be a problem with foreign pilots, a greater concern is the use of non-standard phraseology in air to ground communications. These differences can create confusion and misunderstandings that could lead to near miss incidents.

Standard air traffic control phraseology has been developed by the International Civil Aviation Organization (ICAO), but there are nations, including the United States, which have adopted different phraseology. For example, the ICAO standard phraseology for an aircraft to hold its position is “line up and wait.” However, U.S. air traffic controllers use the phraseology “taxi into position and hold.” This phraseology may not be familiar to foreign pilots arriving at U.S. airports. The NTSB recognized the risks of non-standard air traffic control phraseology and on July 6, 2000, recommended that FAA require air traffic controllers to use standard ICAO phraseology for airport surface operations. On September 6, 2000, FAA responded to NTSB on this recommendation, stating that FAA planned to form a working group to complete a review of existing phraseology by December 2000.

FAA Actions on Foreign Pilot Incidents and Initiatives to Address English Proficiency and Phraseology. Because FAA does not issue foreign pilots their operating certificates, when an incident involving a foreign air carrier occurs, FAA relies on the civil aviation authority of the carrier’s home country to take any necessary action against the pilot. To operate in the United States, FAA requires foreign carriers to state whether their pilots can speak English fluently enough to communicate with air traffic control. However, FAA does not verify this information. Under the terms of international agreements with other nations, FAA accepts the validity of the licenses and certificates issued by other nations.

FAA believes the English proficiency of foreign pilots and the use of non-standard phraseology is an issue that should be addressed on an international level and has initiated efforts with ICAO, EUROCONTROL and NAV Canada to address these issues. FAA is forming a task force of aviation community representatives, including ICAO and air carrier representatives to develop English standards and proficiency tests for pilots, air traffic controllers, and ground operators by December 2000. In addition, FAA worked with EUROCONTROL and NAV Canada to develop standard aviation phraseology. When fully implemented, these initiatives should improve safety for air travelers worldwide.

Language and phraseology miscommunications in air to ground communications are a serious concern. FAA has taken steps to address these issues, but more could be done. FAA needs to make changes to the way it collects data to obtain a better record of near miss incidents caused by language or phraseology miscommunications. In addition, FAA needs to complete the work it has begun in the development of English standards and proficiency tests for pilots, air traffic controllers, and ground operators as well as the development of standard aviation phraseology. Lastly, FAA needs to take action to verify with the civil aviation authorities in foreign pilots' home countries that necessary action has been taken when there is a near miss incident involving a foreign pilot. We are making these recommendations to the FAA Administrator in a separate letter. A copy of our letter to FAA is enclosed.

If I can answer any questions or be of further assistance, please feel free to contact me at (202) 366-1959, or my Acting Deputy, Todd J. Zinser, at (202) 366-6767.

Sincerely,



Kenneth M. Mead
Inspector General

Enclosure

cc: FAA Administrator