FLIGHT SAFETY FOUNDATION

Accident Prevention

Vol. 47 No. 4 *For Everyone Concerned with the Safety of Flight* April 1990

Communications Problems: Immediate Corrective Action Needed

An Important Message to FSF Members from John H. Enders, President

We call attention to another tragic accident that is fraught with human factors problems, especially those related to ground/air communications and cross-language difficulties. Flight Safety Foundation is reprinting, in its entirety in this bulletin, the U.S. National Transportation Safety Board's (NTSB) Safety Recommendation, released 21 February, 1990, that concerns Avianca's Boeing 707 accident in New York on January 25, 1990.

We urge all operators and air traffic authorities to study this report. Its recommendations aim to prevent communications-related accidents.

The Foundation is committed to an assertive program of facilitating the acquisition and dissemination of knowledge and understanding about human error and its causes. Our purpose is to enable our members and all involved in aviation to benefit from the collective wisdom of the international efforts underway to reduce or eliminate aviation accidents.

We solicit your comments about the communications problems experienced in the United States and elsewhere in the worldwide air traffic network. The Foundation will provide a summary of these inputs to our members, and to air traffic control authorities throughout the world, for consideration as they address this pervasive problem.

Please address your comments to:

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Full text of NTSB Safety Recommendation begins on Page 2.

National Transportation Safety Board

Washington D.C. 20594

Safety Recommendation

Date: February 21, 1990
In reply to: A-90-9 through -11

Honorable James B. Busey
Administrator
Federal Aviation Administration
Washington, D. C. 20594

On January 25, 1990, about 2134,[1] Avianca Airline flight 052 (AVA052), a Boeing 707-321B (Columbian Registration HK2016), crashed in Cove Neck, New York, during an approach to land at John F. Kennedy International Airport (JFK), New York. AVA052 was a scheduled international passenger service' flight from Bogota, Colombia, to JFK with an intermediate stop at Medellin, Colombia. The flightcrew had executed a missed approach after conducting the initial standard instrument approach to land on runway 22L at JFK. While receiving radar vectors for a second approach, the flightcrew of AVA052 informed the controller at the JFK air traffic control tower (JFK TOWER) at 2124:07 that "… we're running out of fuel … ." Later, at 2125:07 and again at 2130:40, the flightcrew said "...we're running out of fuel..." to the controller at the New York Terminal Radar Approach Control (NY TRACON). Subsequently, at 2132:51, AVA052 advised the NY TRACON that "we just lost two engines and we need priority please." Shortly thereafter the flight apparently experienced fuel exhaustion and crashed. Of the 158 persons aboard, 73 were fatally injured, including the 3 flight crewmembers and 5 of the 6 flight attendants, 82 were seriously injured, and 3 received minor injuries.

The National Transportation Safety Board is continuing its investigation of the facts, conditions, and circumstances involving the accident of AVA052. As a result of evidence developed thus far in the investigation, the Safety Board believes that immediate corrective action is needed to ensure that standard communication and coordination procedures and phraseology are used between commercial air carrier flightcrews and air traffic controllers and among air traffic control (ATC) facilities. Preliminary evidence gained from the investigation indicates that there may incomplete communication between the flightcrew of AVA052 and at the New York Air Route Traffic Control Center (NY ARTCC), the and the JFK TOWER--and during inter-facility coordination among at NY ARTCC, NY TRACON, and JFK TOWER. The critical nature of its fuel state was not conveyed properly by the flightcrew of AVA052 during communications with NY ARTCC, NY TRACON, and JFK TOWER. Also, air traffic controllers at all three facilities apparently did not perceive the urgency of AVA052's fuel state because of the nonstandard phraseology that was used by the flightcrew. As a result, the information was not forwarded from

facility to facility, and AVAØ52 was not provided with additional ATC assistance and traffic priority consistent with its critical fuel status.

The Safety Board is focusing on many areas during its continuing investigation and has not concluded that any specific communication or coordination problems were causal to the accident. Notwithstanding its current position with respect to the cause of the accident, however, the Safety Board believes that the Federal Aviation Administration (FAA) should take immediate action to make certain that flightcrews operating in the U.S. National Airspace System (NAS) are thoroughly knowledgeable of the flight operating and ATC rules and procedures, including standard phraseology, for operating in the NAS; and that all air traffic controllers are alert and vigilant to communications from flightcrews, especially those involving foreign air carriers, that may convey the need to declare an emergency and provide additional ATC assistance even in instances when flightcrews use nonstandard phraseology.

History of the Flight

AVAØ52 departed Medellin at 15Ø8 en route to JFK on a filed flight plan that took the airplane via an oceanic route over Bimini, Bahama Islands, and then northbound toward the east coast of the United States. The flight was cleared into U.S. airspace by ATC via Atlantic route 7 to Dixon, North Carolina, jet airway 174 to Norfolk, Virginia (ORF), direct to Sea Isle, New Jersey, and then via the CAMRN TWO ARRIVAL to JFK to maintain flight level 37Ø[2] (FL37Ø). AVAØ52 was delayed three times for ATC purposes as the flight proceeded en route up the northeast coast of the United States. The flight was cleared to circle in holding patterns over ORF for about 19 minutes (19Ø4-1923); over the BOTON navigational intersection (near Atlantic City, New Jersey) for about 29 minutes (1943-2Ø12); and over the CAMRN navigational intersection (35 miles south of JFK) for about 29 minutes (2Ø182Ø47). Between ORF and CAMRN, AVAØ52 was cleared to descend from FL37Ø to several lower FL's and altitudes. The flight entered the CAMRN holding pattern at 14,ØØØ feet msl,[3] and subsequently was descended to 11,ØØØ feet in the pattern.

At 2Ø44:43, while holding at CAMRN, the NY ARTCC radar controller advised AVAØ52 to expect further clearance (EFC) at 21Ø5 (the flight had previously been issued EFCs of 2Ø3Ø and 2Ø39). The flightcrew responded, ...ah well I think we need priority we're passing out of (garbled)." The radar controller inquired, "...roger how long can you hold and what is your alternate [airport]." At 2Ø46:Ø3, the flightcrew transmitted, "Yes Sir we'll be able to hold about five minutes that's all we can do." The controller replied, "...roger what is your alternate." The flightcrew responded, "Ah its Boston but its ah full of traffic [I] think."

A handoff controller who was assisting the radar controller at the NY ARTCC, and who was able to monitor most of the transmissions described above, initiated a call to the NY TRACON at 2Ø46:23. The handoff controller advised the NY TRACON controller that "AVAØ52 just came out at CAMRN and can only do five more minutes in the hold. Do you think you can take him or should I offer him his alternate?" The NY TRACON controller responded, "What's his speed now," and then stated, "Slow him to one eight zero knots and I will take him." The handoff controller asked for a repeat of this information. The NY TRACON controller responded, "Slow him to one eight zero knots and I'll take him ... he's radar ... three southwest of CAMRN." The handoff controller replied, "One eighty on the speed, radar contact, and I'll put

him on a forty [Ø4Ø degree] heading." This coordination between the NY ARTCC handoff controller and the NY TRACON controller terminated at 2Ø46:44.

While the handoff controller was talking to the NY TRACON, he did not hear AVAØ52s response to the request to identify the flight's alternate airport. At 2Ø46:24, the flightcrew advised the NY ARTCC radar controller, "It was Boston but we can't do it now we ah we will run out of fuel now." After being advised by his handoff controller that the NY TRACON would be able to accept AVAØ52, the NY ARTCC radar controller, at 2Ø46:47, instructed the flight, "...cleared to the Kennedy airport via heading zero four zero maintain one one thousand speed one eight zero." After acknowledging the clearance, the flightcrew was instructed to contact the NY TRACON. Recorded air traffic control radar data indicates that AVAØ52 departed the holding pattern at 2Ø47:ØØ.

At 2Ø47:21, AVAØ52 established initial communications with the NY TRACON feeder controller. The flightcrew was provided routine radar service, including descents to lower altitudes and radar vectors, to sequence it with other airplanes that were en route to JFK. At 2Ø54:4Ø, the feeder controller cleared the flight to "turn right, right turn heading two twenty I'm going to have to spin you [make a 36Ø-degree turn] sir." At 2Ø56:15, the feeder controller advised, "...I have a windshear for you ah at fifteen ah increase of ten knots at fifteen hundred feet and then an increase of ten knots at five hundred feet reported by seven twenty seven." At 2Ø56:24, AVAØ52 acknowledged receipt of the windshear advisory and, at 21Ø2:38, the flightcrew was instructed to contact the NY TRACON final controller.

AVAØ52 contacted the NY TRACON final controller at 21Ø3:Ø76 reporting level at 5,ØØØ feet. During the next 7 minutes, the flightcrew received routine radar service including numerous heading changes and further descent clearances to 3,ØØØ feet and finally to 2,ØØØ feet. At 2111:Ø6, the final controller stated, "...you're one five miles from the marker maintain two thousand till established on localizer cleared ILS two two left," and at 2115:Ø8 the flightcrew was instructed to contact JFK TOWER.

At 2115:2Ø, the flightcrew contacted JFK TOWER and stated that AVAØ52 was "established two two left." The JFK TOWER responded that the flight was number three to land following a Boeing B-727 that was on a 9-mile final. The tower controller requested twice that AVAØ52 increase airspeed 1Ø knots for sequencing and at 2119:57 stated, "...wind one nine zero at twenty cleared to land." At 2123:33, AVAØ52 advised the tower controller that it was executing a missed approach. The tower controller cleared the flight to climb to 2,ØØØ feet and turn to a heading of one eight zero degrees. The flightcrew acknowledged the clearance, and shortly thereafter, at 2124:Ø7, told the tower, "...ah we'll try once again we're running out of fuel." The tower controller replied, "Okay." The tower controller cleared the flight to turn further left to a heading of one five zero degrees and at 2124:39 cleared it to contact the NY TRACON final controller.

At 2124:55, the flightcrew contacted the NY TRACON final controller for the second time and stated that it had just made a missed approach and repeated the heading and altitude clearances received from JFK TOWER. The final controller stated, "...good evening, climb and maintain three thousand [feet]." The flightcrew responded at 2125:Ø7, "Climb and maintain three thousand and uh we're running out of fuel sir." The final controller replied, "Okay ah fly a heading of zero eight zero." At 2126:36, the final controller advised AVAØ52 that "...I'm going to bring you about fifteen miles

northeast and then turn you back on for the approach is that fine with you and your fuel." The flightcrew replied, "I guess so thank you very much."

At 2129:19, the flightcrew asked, "When can you give us a final...," and the final controller responded, "...affirmative turn left heading zero four zero [degrees]." At 2130:36, the final controller recleared AVA052 to maintain 3,000 feet and the flightcrew replied, "Ah negative sir we we just running out of fuel we okay three thousand …." During the next two minutes, AVA052 was given three heading changes and then at 2132:51 the flightcrew advised, "...we just lost two engines and we need priority please." The final controller then turned the flight to a heading of two five zero degrees, advised that it was 15 miles from the outer marker and cleared for the ILS approach to runway two two left. At 2134:00, the final controller asked AVA052, "You have ah you have enough fuel to make it to the airport?" There was no response from the flightcrew.

Weather Conditions

During the period AVA052 was approaching the New York City metropolitan area through the time of the accident, the coastal sections of central and southern New England and the mid-Atlantic States were in the warm sector of a complex frontal system associated with a deep surface low over extreme northern Lake Huron. Conditions in the warm sector were characterized by low or obscured ceilings with visibilities reduced by rain, drizzle, and fog, and gusty south to southwesterly winds. At 2100, preceding the accident, the hourly weather observation for JFK was indefinite ceiling, 200 feet obscured, visibility 1/4 mile in light drizzle and fog. The wind was from 1900 at 20 knots gusting to 28 knots, and the runway visual range measured at the approach end of runway 4R was 1,800 feet variable to 2,200 feet.

A special observation recorded for JFK at 2135, immediately after the accident, reported a partial obscuration with the ceiling measured 300 feet overcast, visibility 3/4 mile in fog. The wind was from 190° at 20 knots and the runway visual range measured at the approach end of runway 4R was 5,500 feet variable to 6,000 feet plus. At 1900, the winds aloft at Atlantic City, New Jersey, the upper air station closest to New York City, were observed to have been from 195° at 53 knots at 1,000 feet and from 200° at 50 knots at 2,000 feet. These weather conditions had a substantial and adverse effect on traffic operations at JFK. The low ceilings, low visibilities, and adverse wind conditions resulted in major delays to air carrier flights to and from JFK. Some flights were delayed at their departure points, others were delayed in holding patterns en route and in the terminal area, and many flights were diverted to their alternate or another airport.

Operational and Air Traffic Control Rules and Procedures

Commercial air carrier flightcrews must be thoroughly knowledgeable of the flight operating and ATC rules and procedures, including standard phraseology, for operating in the U.S. NAS, and must be particularly familiar with pilot duties and responsibilities affecting flight operations and safety which include fuel supply, emergency conditions, requests for assistance, declaring a state of minimum fuel, and declaring an emergency for additional ATC assistance to ensure a safe landing. This information is contained in several publications: Part I of Annex 6 to the Convention on International Civil Aviation, the U.S. Federal Aviation Regulations (FARs), the Air Carrier's Operational Specifications issued by the Administrator of the FAA, the U.S. Aeronautical Information Publication (AIP), the U.S. Airman's

Information Manual (AIM), Notices to Airmen, Advisory Circulars, and the U.S. Air Traffic Control Handbook 7110.65F. For example, the AIP, AIM, and 7110.65F all contain specific procedures, guidance, and phraseology for use by pilots when it is necessary to advise ATC of a "minimum fuel" status and for use by controllers when they receive such an advisory. The information is nearly identical in all three publications; that contained in the AIP follows (from Rules of the Air and Air Traffic Services, ATC Clearance and Separation--Pilot/Controller Roles and Responsibilities, Minimum Fuel Advisory, paragraph 6.15):

6.15 Minimum Fuel Advisory

6.15.1. Pilot

- Advise ATC of your "minimum fuel" status when your fuel supply has reached a state where, upon reaching destination, you cannot accept any undue delay.

- Be aware this is not an emergency situation but merely an advisory that indicates an emergency situation is possible should any undue delay occur.

- Be aware a minimum fuel advisory does not imply a need for traffic priority.

- If the remaining usable fuel supply suggests the need for traffic priority to ensure a safe landing you should declare an emergency, account low fuel, and report fuel remaining in minutes.

6.15.2. Controller

- When an aircraft declares a state of minimum fuel, relay this information to the facility to whom control jurisdiction is transferred.

- Be alert for any occurrence which might delay the aircraft.

Further, the AIP urges pilots to declare an emergency and request immediate assistance when they first become concerned about the safety of their flights. This guidance follows (from Search and Rescue, Procedures and Signals for Aircraft in Emergency, paragraph 4, Emergency Condition--Request Assistance):

4. Emergency Condition--Request Assistance

(a) Pilots do not hesitate to declare an emergency when they are faced with distress conditions such as fire, mechanical failure, or structural damage. However, some are reluctant to report an urgency condition when they encounter situations which may not be immediately perilous, but are potentially catastrophic. An aircraft is in at least an urgency condition the moment the pilot becomes doubtful about position, fuel endurance, weather, or any other condition that could adversely affect flight safety. This is the time to ask for help, not after the situation has developed into a distress condition.

(b) Pilots who become apprehensive for their safety for any reason should request assistance immediately. Ready and willing help is available in the form of radio, radar, direction finding stations and other aircraft. Delay has caused accidents and cost lives. Safety is not a luxury. Take action.

The AIP, AIM, and 7110.65F contain the following terms pertaining to aircraft in emergency:

> EMERGENCY - A distress or an urgency condition.
>
> DISTRESS - A condition of being threatened by serious and/or imminent danger and of requiring immediate assistance.
>
> URGENCY - A condition of being concerned about safety and of requiring timely but not immediate assistance; a potential distress condition.
>
> MAYDAY - The international radio-telephony distress signal. When repeated three times, it indicates imminent and grave danger and that immediate assistance is requested.
>
> PAN-PAN - The international radio-telephony urgency signal. When repeated three times, indicates uncertainty or alert followed by the nature of the urgency.

Air traffic controllers have defined duties and responsibilities to provide ATC separation and service to users of the NAS. The procedures, guidelines, and phraseology are contained in 7110.65F. As it pertains to receipt of a "minimum fuel" advisory from a pilot, paragraph 2-8, Minimum Fuel, advises the controller:

> - If an aircraft declares a state of "minimum fuel," inform any facility to whom control jurisdiction is transferred of the minimum fuel problem and be alert for any occurrence which might delay the aircraft en route.

Chapter 9, Emergencies, provides the controller with direction in how an emergency may be determined. Specifically, paragraph 9-1, Emergency Determinations, advises that an emergency can be either a distress or an urgent condition. A pilot who encounters a distress condition should declare an emergency with the word "mayday" repeated three times; and for an urgency condition, the word "pan-pan" should be used. Further, controllers are advised that if these words are not used and they are "in doubt that a situation constitutes an emergency or potential emergency, handle it as though it were an emergency." Finally, controllers are instructed that, "when you believe an emergency exists or is imminent, select and pursue a course of action which appears to be most appropriate under the circumstances and which most nearly conforms to the instructions in this manual."

Interviews With Air Traffic Controllers

All of the air traffic controllers who directly or indirectly provided service to the flightcrew of AVA052 were interviewed by Safety Board investigators. These interviews focused on what the controllers perceived and what their actions were in response to that information provided to them by the flightcrew of AVA052.

The radar controller at the NY ARTCC told Safety Board investigators that he had four airplanes, including AVAØ52, in the holding pattern at CAMRN that were destined for JFK. He was required to provide 2Ø miles-in-trail spacing between successive arrivals to the JFK airport. The controller was asked his interpretation of statements from the flightcrew, "I think we need priority" and "we'll be able to hold about five minutes that's all we can do." He stated that he believed the flightcrew was advising him they would only be able to stay in the holding pattern about 5 minutes and that they needed "priority" to come out of holding and proceed to the JFK airport. When asked why he requested information about the alternate airport from the flightcrew of AVAØ52, he stated that he wanted the information in the event the NY TRACON could not accept the airplane; he then would be able to develop another strategy for providing service. He was asked about his understanding of the statement "it was Boston but we can't do it now we A we will run out of fuel now." He replied that he believed that by issuing the flightcrew an immediate clearance out of holding and toward the airport, he was complying with the pilot's request to shorten the time in the holding pattern; and since the airplane was being vectored to JFK, the lack of sufficient fuel to go to Boston was no longer relevant. He also stated that because he had complied with the pilot's request, there was no requirement to pass to the next facility the flightcrew's request for "priority." He stated that had the flightcrew advised that they were fuel critical, minimum fuel, or in an emergency situation, he would have provided them with emergency service.

The NY ARTCC handoff controller told Safety Board investigators that while monitoring the transmissions between the radar controller and airplanes, he immediately initiated coordination with the NY TRACON after hearing the flightcrew of AVAØ52 state that they would "be able to hold about five minutes and that's all we can do." He stated that he passed on this information and asked the NY TRACON controller if he could take the airplane or if the alternate airport should be offered to the flightcrew. Because the NY TRACON controller accepted the handoff on AVAØ52, the handoff controller stated that he believed he was fulfilling AVAØ52's request for priority by initiating action that would take the airplane out of the holding pattern. He did not believe the flightcrew's request constituted anything more than to leave the holding pattern. He stated that he did not believe it was necessary to pass on a request for "priority" if the request had been met. He stated that he did not hear the flightcrew of AVAØ52 inform the radar controller that, as a result of their fuel state, they could not reach their alternate airport, nor was this information given to him by the radar controller.

The NY TRACON feeder controller advised Safety Board investigators that when he was informed by the NY ARTCC handoff controller that AVAØ52 could only hold for 5 minutes, he believed that after that time (5 minutes) the airplane would have to proceed to its alternate airport. He stated that the flightcrew of AVAØ52 provided no information to him that indicated that the flight had minimum fuel problems, nor was he ever made aware that the flight could not reach its alternate airport.

The NY TRACON final controller advised Safety Board investigators that during the time AVAØ52 was receiving vectors for the first ILS approach to runway 22L, there were no communications pertaining to a minimum fuel status or to an urgent condition. The flight was given routine radar service, cleared for the approach, and then cleared to contact the JFK TOWER controller.

The JFK TOWER controller advised Safety Board investigators that, following the missed approach, he did recall the flightcrew of AVAØ52 telling him about a "fuel problem," but that he assumed the JFK TOWER assistant controller, who was monitoring his frequency, had heard this information and passed it to the NY TRACON. He also stated that he believed the flightcrew's comment meant that they could make another approach and then proceed to their alternate airport. The JFK TOWER assistant controller advised Safety Board investigators that he did not hear the flightcrew of AVAØ52 advise that they were running out of fuel because he was on an inter-phone line coordinating the flight's missed approach with the NY TRACON.

The NY TRACON final controller advised Safety Board investigators that when the flightcrew informed him following the missed approach, "...and uh we're running out of fuel Sir," they did not convey anything urgent or an emergency situation which "triggered my sixth sense." He stated that the pilot's tone was very matter of fact. He stated that he turned the airplane on downwind right away and advised the flightcrew of AVAØ52 of his intentions to resequence the flight for landing. He asked the flightcrew, "...is that fine with you and your fuel," and they replied, "I guess so thank you very much." When the flightcrew of AVAØ52 advised him that they had just lost two engines, he understood this to mean that they had just lost the No. 2 engine, so he immediately turned the flight toward the localizer and then issued the approach clearance.

Discussion

The Safety Board is concerned that the flightcrew of AVAØ52 did not communicate either their "minimum fuel" or "emergency fuel" condition to ATC and did not use the proper phraseology if it was their intent to indicate either of those conditions. The flightcrew was certainly aware of the major delays for traffic landing at JFK after being held at ORF, BOTON, and CAMRN for a total of 1 hour 17 minutes. Also, while holding at CAMRN, the flightcrew advised ATC that they would run out of fuel if the flight had to proceed to its alternate airport at Boston. Later, they asked, "...do you have any estimates sir," and were advised by the NY ARTCC controller that "it's an indefinite hold at this time." Shortly thereafter, NY ARTCC issued the flight a third extension to hold for an additional 2Ø minutes at CAMRN until 21Ø5. The flightcrew repeated the new EFC time and then stated, "...I think we need priority...." The communications by the flightcrew of AVAØ52 failed to alert the NY ARTCC controllers to a need for any priority beyond leaving the holding pattern.

Following the initial missed approach, the flightcrew told the JFK TOWER first and the NY TRACON second that "we're running out of fuel." While these messages were explicit, they, too, failed to alert the controllers to an emergency condition. The use of terms and phrases such as "I think we need priority," "it was Boston but we can't do it now we will run out of fuel now," "we're running out of fuel," and "when can you give us a final" may have been an attempt by the flightcrew to communicate to ATC that they were in an emergency condition. However, because precise terms such as "minimum fuel" and "emergency" were not included in the communications, the air traffic controllers did not attach a distress significance to them; hence, the information was not forwarded from facility to facility, and the flight was not provided with additional ATC assistance.

Controllers believed that they had satisfied the flight's request for priority and that it was not necessary to pass on the advisory that insufficient fuel was available to reach the alternate airport. Another controller, after being advised that the flight was running out of fuel, believed that his assistant controller had passed this information to the next control facility. A second controller, after receiving the same message twice, did not question the flight to determine the exact amount of fuel remaining in minutes of flying time. Instead, the flight was vectored 20 miles northeast of the airport where it was sequenced to land behind three other airplanes. Further inquiries by any one of these controllers to clarify the flightcrew's meaning and to determine the amount of fuel remaining, might have established that the flight was in a distress situation and, as a result, required additional ATC assistance and traffic priority to ensure a safe landing. The Safety Board believes that air traffic controllers should question flightcrews when there is any indication that flight safety may be compromised.

The Safety Board further believes that, to achieve a safe, orderly, and efficient flow of traffic in the NAS, both pilots and air traffic controllers must rigidly adhere to proper flight operating, ATC, and communication procedures. These are contained in appropriate international and governmental publications that include specific rules, regulations, procedures, and communications phraseology. The Safety Board believes that these operational and ATC rules and procedures are comprehensive and thorough. Both pilots and controllers must comply with them to achieve effective management of the NAS. Pilots-in-command are responsible for the safe operation of their aircraft, and controllers are responsible for aircraft separation and emergency assistance when it is requested. Both exist and interface in the NAS through continuous two-way communication involving clearances, advisories, pilot requests and reports, and occasionally the declaration of an emergency situation. The Safety Board believes that the contents of this safety recommendation letter should receive the widest distribution possible to commercial air carrier pilots, dispatchers, safety and training departments, and to air traffic controllers-all of whom are cooperative participants toward achieving the safest possible NAS.

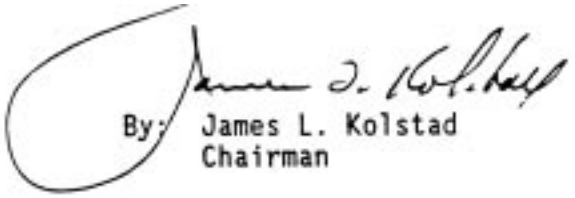
The Safety Board is aware of similar misunderstandings of communications between flightcrews and air traffic controllers, especially in the traffic environment around New York City. The Safety Board is investigating at least three other incidents involving deficiencies in communication that occurred on and since January 25, 1990. Two of these incidents involve U.S. air carriers and the third, a foreign carrier. Also, the Safety Board notes that the FAA's recent System Safety and Efficiency Review of the Northeast Corridor of the U.S. identifies poor communications between pilots and controllers as a problem.[4] This review, which was prompted by the Safety Board's Safety Recommendation A-88-157 issued to the FAA on November 15, 1988, concludes that poor communications between pilots and controllers adversely affect the safety and efficiency of the NAS. Further, the review, states that poor phraseology is one of the factors contributing to the communication problems "...which are significantly intensified within the Northeast Corridor's complex airspace." The Safety Board believes that difficulties in communication can be a serious problem for users operating in the NAS and, if not corrected, could lead to an erosion of safety. Therefore, the Safety Board urges the FAA to reemphasize to pilots and controllers the need to use proper procedures, phraseology, and

good judgment during normal flight operations, and especially when confronted with or exposed to potential or actual emergency situations.

Therefore, the National Transportation Safety Board recommends that the Federal Aviation Administration:

> Immediately notify all domestic and foreign air carriers to emphasize that all pilots operating commercial air transport flights in the United States (U.S.) National Airspace System (NAS) must be thoroughly knowledgeable of the flight operating and air traffic control (ATC) rules and procedures, including standard phraseology, for operating in the U.S. NAS. This information is included in several publications: Part I of Annex 6 to the Convention on International Civil Aviation, the U.S Federal Aviation Regulations, the Air Carrier's Operational Specifications issued by the Administrator of the FAA, the U.S. Aeronautical Information Publication, the U.S. Airman's Information Manual, Notices to Airmen, Advisory Circulars, and the U.S. Air Traffic Control Handbook (7110.65F). Pilots must be particularly familiar with their duties and responsibilities affecting flight operations and safety which include fuel supply, emergency conditions, requests for assistance, declaring a state of minimum fuel, and declaring an emergency for additional ATC assistance to ensure a safe landing. (Class I, Urgent Action)(A-90-9)
>
> Immediately disseminate the contents of this safety recommendation letter (A-90-9 through -11) to all air carrier operators involved in commercial air transport operations in the United States National Airspace System. (Class 1, Urgent Action)(A-90-10)
>
> Immediately issue a General Notice (GENOT) directing management of all air traffic control (ATC) facilities to formally brief all air traffic controllers on the circumstances of the January 25, 1990, accident of Avianca Airlines flight 052 and to emphasize the need to request from flightcrews clarification of unclear or ambiguous transmissions that convey a possible emergency situation or the need for additional ATC assistance. (Class I, Urgent Action)(A-90-11)

KOLSTAD, Chairman, COUGHLIN, Acting Vice Chairman, and LAUBER, Member, concurred in these recommendations. BURNETT, Member, did not concur.



By: James L. Kolstad
Chairman

Footnotes appear on page 12

Footnotes

[1] All times shown are eastern standard and based on the 24-hour clock.

[2] Flight level is a level of constant atmospheric pressure related to a reference datum of 29.92 inches of mercury. Each level is stated in three digits that represent hundreds of feet. For example, level 370 represents a barometric altimeter indication of 37,000 feet.

[3] All altitudes are expressed in terms of mean sea level (msl) unless otherwise indicated.

[4] System Safety and Efficiency Review, Northeast Corridor Issues, Volume 2: FAA Team Discussion and Recommendations, June 12, 1989, Issue 16: Communication Awareness Between Pilots and Air Traffic Control Specialists.

What's Your Input?

Flight Safety Foundation welcomes articles and papers for publication. If you have an article proposal, a completed manuscript or a technical paper that may be appropriate for *Accident Prevention* please contact the editor. Submitted materials are evaluated for suitability and a cash stipend is paid upon publication. Request a copy of "Editorial Guidelines for Flight Safety Foundation Writers."

ACCIDENT PREVENTION