



National Transportation Safety Board

Washington, D.C. 20594

Safety Recommendation

Date: February 8, 2000

In reply refer to: A-00-1 through -3

Honorable Jane F. Garvey
Administrator
Federal Aviation Administration
Washington, D.C. 20591

On January 28, 1998, at 0916:58 eastern standard time, an operational error¹ involving Air Force 1 (A1)², a Boeing 707, and US Airways flight 484 (USA484), a Boeing 737, occurred approximately 6 miles west of Ronald Reagan Washington National Airport (DCA). Recorded radar data indicate that the two aircraft were separated by 2.7 miles horizontally and 800 feet vertically. Approximately 30 seconds later, recorded radar data indicate that A1 and Delta Air Lines flight 740 (DAL740), an MD-80, were at 7,000 feet³ and 2.56 miles apart. The DCA Air Traffic Control Tower (ATCT) was providing ATC separation. (Figure 1 shows the positions of the three aircraft during this time period.) The departure radar controller, a developmental⁴ controller, was responsible for A1, and an approach controller was responsible for the other two aircraft.

¹ According to Federal Aviation Administration (FAA) Order 7210.3, "Facility Operations and Administration," an operational error is defined as "an occurrence attributable to an element of the air traffic system which results in less than the applicable separation minima between two or more aircraft." In this incident, the aircraft were required to be separated by 1,000 feet vertically and 3 miles horizontally.

² The airborne call sign used when transporting the President of the United States.

³ In this instance, one aircraft had already crossed the projected path of the other, and the angular difference between their courses was greater than 15°. When these conditions are met, a controller may discontinue vertical separation.

⁴ The developmental controller was only certified to work the departure control position.

(DCA981A020, Air Force 1, 1/28/98)

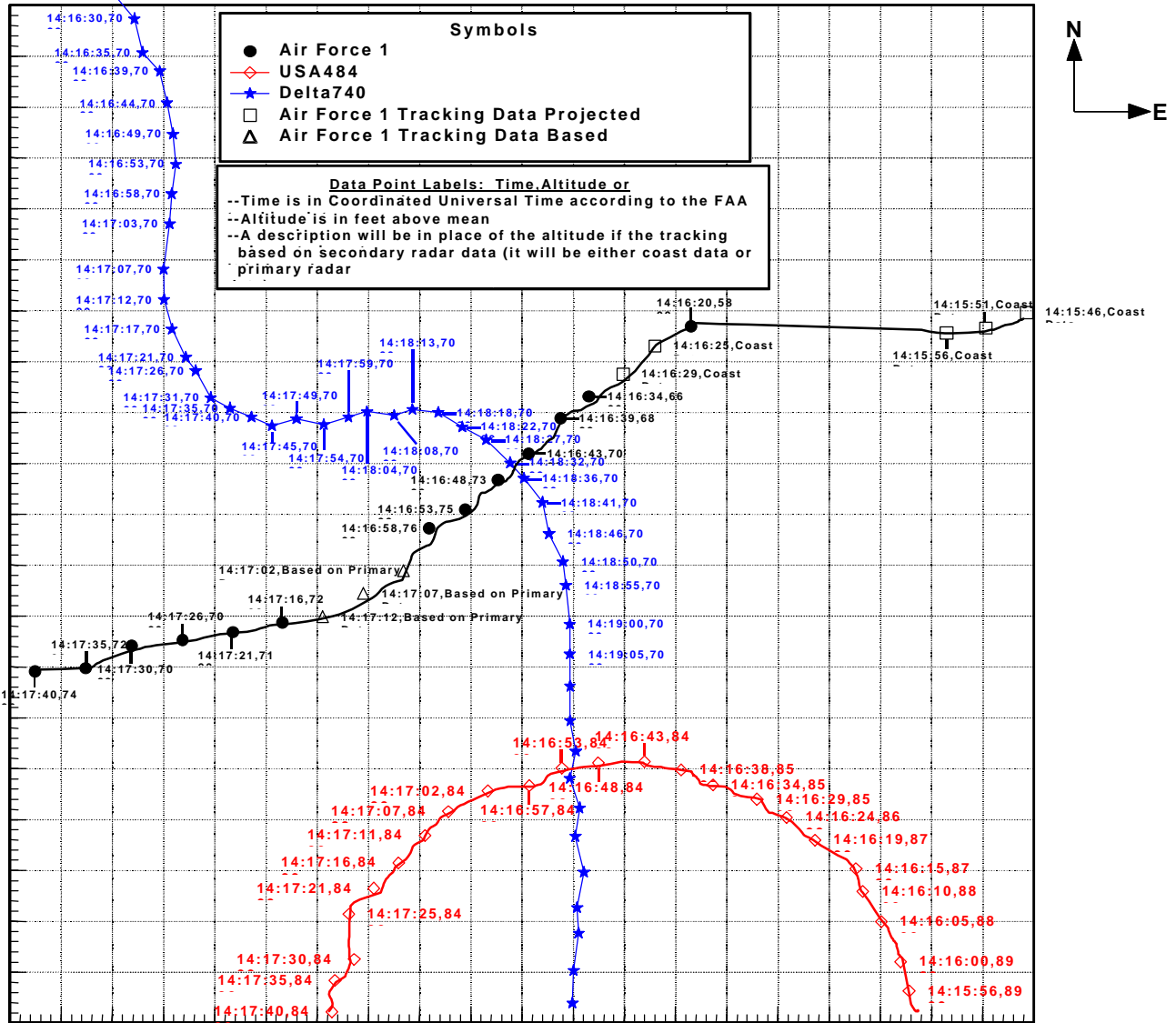


Figure 1

The events leading up to the operational error are as follows. Approximately 30 minutes before A1 departed Andrews Air Force Base (ADW), two military helicopters transported the President and Vice President of the United States from the White House to ADW. To ensure separation, the tower controller suspended inbound flights,⁵ causing a backup of traffic in DCA's airspace. At 0908:48, ADW personnel contacted the DCA ATCT departure controller and

⁵ He instructed four arrival aircraft to make missed approaches and then brought them back into the approach sequence.

requested release for A1, adding, “looking for maximum altitude on departure.” Several seconds later, the departure controller advised ADW that A1 was released, and the ADW controller replied, “released and A1 is looking for maximum altitude.” In response to this request, the DCA supervisor coordinated 6,000 feet for A1 and 7,000 feet for DAL740, an inbound aircraft to DCA from the west. The departure controller and approach controller were advised. (The traffic management coordinator [TMC] and an off-duty TMC confirmed that the approach controller was aware of the coordinated altitudes.)

At 0913:46, A1 departed ADW and transmitted, “passing one thousand for three [thousand feet]” to the departure controller, who acknowledged. A1 immediately transmitted, “looking for higher.” The departure controller instructed A1 to maintain 3,000 feet because of traffic at 4,000 feet. At 0914:05, A1 transmitted, “Sir, we’d really like to keep going if you could move him and get us higher, we’d appreciate that.”

At 0914:15, after A1 passed the aircraft at 4,000 feet, the departure controller instructed A1 to climb to 6,000 feet. The supervisor, who had been monitoring A1 at the departure position to this point, walked to the approach control position to monitor A1 but soon left the position to take a phone call. As the supervisor was leaving, the departure controller heard someone advise him to “turn him (A1) to [a heading of] 320 [degrees] through the P’s (prohibited area) and climb.” At 0914:31, the approach controller assigned DAL740 7,000 feet.

At 0915:12, when A1 was climbing through about 3,500 feet, the departure controller instructed A1 to turn right to a heading of 320° and climb to 17,000 feet. A1 repeated the heading and replied that he would expedite the climb. The TMC informed the approach controller that A1 was turning to 320°. Several seconds later, the departure controller amended the altitude to 13,000 feet, then instructed A1, “correction on the heading, fly heading two four zero,” and amended A1’s altitude to 14,000 feet. A1 acknowledged the transmission.

At 0915:37, the approach controller instructed USA484, at 8,000 feet heading northeast, to turn to a heading of 170° to divert the flight from A1. At 0915:59, the departure controller asked A1 to report leaving 8,000 feet. (The airplane’s altitude information was not reporting because of the airplane’s proximity to the radar antenna.) At 0916:24, the departure controller advised A1 of traffic and requested the flight’s altitude. The flight crew of A1 reported leaving 6,500 feet for 14,000 feet.

The approach controller turned DAL740 southwest-bound at 0916:02 and asked the TMC to confirm A1’s altitude but received no reply. The approach controller then asked the departure controller about A1. The departure controller responded, “I’m in a turn to 240 climbing to 8,000.” The approach controller then mistakenly addressed USA484 as American flight 484 and said, “turn left heading 190, tight turn, there’s traffic, right turn, off, right off your right at 4 miles, southwest bound.” Several seconds later, the approach controller transmitted, “American, correction US Air 484, maintain your present altitude.” USA484 replied, “okay, that would be eighty four hundred feet.”

At 0916:42, the departure controller instructed A1 to go direct to Linden VORTAC and to maintain 7,000 feet. At 0916:52, A1 replied, "Okay, we're above seven thousand [recorded radar data showed the flight to be at 7,600 feet] we're descending to seven thousand, going direct Linden VORTAC...." Also at 0916:52, the approach controller instructed DAL740 to "come left heading 090" and instructed USA484 (again incorrectly addressing it as "American"), "tight turn all the way back around to one two zero, one two zero." USA484 was now to the left of A1 traveling in the same direction but turning southbound, increasing its distance from A1. At 0916:57, the departure controller transmitted to A1, "traffic alert, turn right immediately, traffic off to your left at 8,500 [feet], a [Boeing] seven thirty seven westbound." At 0917:03, A1 replied, "say again you were blocked." The controller then transmitted, "Air Force One, hard right turn immediately, right turn, maintain seven thousand [feet]."

At 0917:09, DAL740 asked the approach controller, "do we got a conflict for delta seven forty?" The controller advised of traffic at 11 o'clock and advised that the aircraft should be turning left to a heading of 090°. At 0917:15, A1 reported descending to 7,000 feet and, 7 seconds later, reported level at that altitude. At 0917:31, DAL740 and A1 were separated by less than the required standard separation.

The National Transportation Safety Board's investigation of this incident revealed several operational issues at DCA's ATC facility regarding the safe handling of Presidential flights. The Safety Board notes that FAA Order 7210.3, "Facility Operation and Administration," Paragraph 5-1-2, "Monitoring the Presidential Aircraft Flight," provides that every ATC facility "shall ensure that a supervisory specialist(s) monitors the aircraft while in the facility's airspace. The supervisory specialist shall...be present at each sector/position providing ATC service to the presidential aircraft [and] [m]onitor the flight to ensure that separation, control, and coordination are accomplished."

The Safety Board also notes that DCA's typically heavy traffic volume and the frequency of Presidential flights in its airspace, which totaled approximately 600 in 1998, requires that the facility accommodate Presidential flights without unduly delaying other air traffic. DCA personnel reported in a postincident interview that, to adequately perform supervisory duties, the facility needed 15 supervisors in addition to the 3 traffic management unit (TMU) specialists already on staff. (TMU specialists sometimes perform supervisory functions.) At the time of the January 28, 1998, incident, 10 supervisors were on staff at DCA, 9 of whom were qualified as controllers for the positions they supervised. One supervisor was on duty at the time of the incident.

In May 1998, the FAA reported that four additional, temporary supervisors had been authorized as a result of the Safety Board's investigation of this incident; this brought the supervisor total to 14. However, in May 1999, the FAA reported that the temporary positions were no longer authorized and, as of January 1, 2000, DCA will again have 10 supervisors.

The Safety Board is concerned that DCA's current supervisor staffing level sometimes makes strict adherence to FAA Order 7210.3, paragraph 5-1-2, unfeasible. As this incident indicates, adherence to this policy is critical. If the supervisor on duty had continued to monitor the situation rather than take a phone call, she would probably have prevented the incident by

reinforcing the coordinated altitude release of 6,000 feet. The Board notes, however, that issues requiring a supervisor's attention may arise while a Presidential operation is being monitored and that it may be necessary to have more than one supervisor on duty. Therefore, the Safety Board believes that the FAA should increase the supervisor staffing level at the DCA ATCT to ensure adequate supervisory monitoring of Presidential aircraft as required by FAA Order 7210.3, "Facility Operation and Administration," Paragraph 5-1-2, "Monitoring the Presidential Aircraft Flight," regardless of other supervisory duties.

The Safety Board also learned during its investigation of this incident, that when DCA supervisors visually monitor Presidential flights, they generally do not also aurally monitor them. Although this practice complies with the requirements set forth in FAA Order 7210.3, paragraph 5-1-2, the Board considers adequate monitoring of a Presidential flight to include auditory as well as visual supervision. The FAA apparently agreed, and as a result of this investigation, sent the following notice in July 1998 to all supervisors at DCA regarding monitoring Presidential flights:

In the tower,...[y]ou may plug in with your headset at the position, or you may monitor from an adjacent position with a handset plugged into an area that gives you all radio/landline capabilities in order to monitor the flight.

In the TRACON [terminal radar approach control], you may plug into the position providing the ATC Service, you may plug a handset into an adjacent position that has all the radio/telephone capabilities to monitor the flight.

The Safety Board concludes that adequate monitoring of Presidential flights requires both visual and aural supervision. Therefore, the Safety Board believes that the FAA should amend FAA Order 7210.3, "Facility Operation and Administration," Paragraph 5-1-2, "Monitoring the Presidential Aircraft Flight," to require that ATC supervisory specialists aurally and visually monitor Presidential flights.

As mentioned previously, the controller working the departure position was a developmental controller, that is, certified on the departure control position but not facility rated. His actions immediately preceding the incident demonstrate that the controller did not understand that changing a coordinated altitude assignment requires recoordination with other controllers.

The Safety Board notes that, before being certified on a control position, all controllers must work under the guidance of an on-the-job-training (OJT) instructor who is responsible for the developmental controller's position and can override his or her instructions at any time. In April 1998, as a result of this investigation, the FAA informed the Safety Board that DCA ATCT personnel intended to require developmental controllers to work A1 under the guidance of an OJT instructor in the radar and tower environments before position certification. However, as of May 1999, this procedure had not yet been adopted. Because implementing this procedure will prepare developmental controllers to handle Presidential aircraft, the Safety Board believes that the FAA should require that all developmental controllers at the DCA ATCT work Presidential flights under the guidance of an OJT instructor in the TRACON and tower environments before position certification.

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

Increase the supervisor staffing level at the Ronald Reagan Washington National Airport Air Traffic Control Tower to ensure adequate supervisory monitoring of Presidential aircraft as required by Federal Aviation Administration Order 7210.3, "Facility Operation and Administration," Paragraph 5-1-2, "Monitoring the Presidential Aircraft Flight," regardless of other supervisory duties. (A-00-1)

Amend Federal Aviation Administration Order 7210.3, "Facility Operation and Administration," Paragraph 5-1-2, "Monitoring the Presidential Aircraft Flight," to require that air traffic control supervisory specialists aurally and visually monitor Presidential flights. (A-00-2)

Require that all developmental controllers at the Ronald Reagan Washington National Airport Air Traffic Control Tower work Presidential flights under the guidance of an on-the-job-training instructor in the terminal radar approach control and tower environments before position certification. (A-00-3)

Chairman HALL and Members HAMMERSCHMIDT, GOGLIA, and BLACK concurred in these recommendations. Vice Chairman FRANCIS concurred in each recommendation except for Safety Recommendation A-00-1.

By: Jim Hall
Chairman