

Animation: Runway Incursion and Overflight, Southwest Airlines Flight 708 and Federal Express Flight 1432

Austin, Texas
February 4, 2023
DCA23FA149

This animated reconstruction depicts the sequence of events in a runway incursion that occurred at Austin-Bergstrom International Airport (AUS), Austin, Texas on February 4, 2024, about 6:40 a.m. central standard time. Southwest Airlines (SWA) flight 708, a Boeing 737-700, and Federal Express (FedEx) flight 1432, a Boeing 767-300 were involved.

The sequence of events was reconstructed based on Automatic Dependent Surveillance-Broadcast (ADS-B) data, Air Traffic Control (ATC) radio communications, flight data recorder (FDR) data from both airplanes, and aircraft performance data.

A map and still images are used to provide an overview of the incident, followed by a three-dimensional animation. The animation does not depict the weather or visibility conditions. The animation includes narration, and the script is attached. The animation of the close approach of the two airplanes is shown twice, the first time with a narrative description of the events, and the second time with recorded ATC communications along with a transcript in the right upper corner of the screen.

The animation begins with a map showing Texas and the surrounding states with the location of Austin-Bergstrom International Airport indicated by a symbol and a label. The map is overlaid with a photograph of the airplane that served as Southwest Airlines (SWA) flight 708, and a photograph of the airplane that served as Federal Express (FedEx) flight 1432. Text boxes indicate the flight numbers and the occupants of each airplane. Text boxes indicate that ten airplanes had departed before SWA flight 708, but FedEx 1432 was the first arrival. A Google Earth image shows the north end of runway 18L, overlaid with the photograph of SWA flight 708

indicating its departure on runway 18L, then overlaid with the photograph of FedEx flight 1432 indicating its arrival on runway 18L. A graphic then indicates the location of the control tower, which is about 3,700 feet from the north end of the runway.

The weather at the airport at the time of incident is discussed; night conditions prevailed, and dense fog obscured the controller's view of the airport surface. The effect of the weather on visibility is highlighted in a text box. The lack of surface detection equipment at the airport is highlighted in a text box. Then, the Google Earth image is shifted to the area where taxiway Bravo intersects runway 18L. Text boxes indicate the FedEx crew reported being established on the Category III instrument landing system approach for 18L, meaning that the autopilot was flying the approach while the crew monitored. Another text box indicates the controller reported runway visibility to the FedEx crew and cleared them to land.

A still image introduces the SWA on taxiway Bravo with an oval around the airplane and a label SWA, and an animated arrow shows the path of SWA to runway 18L. At the bottom of the screen, the local time, separation of the two airplanes and altitude above ground level of the FedEx airplane are displayed. A disclaimer is shown in a text box that the animation does not depict the weather, which prevented the controller from seeing the airplanes.

The still image is followed by a three-dimensional real time animation. When the SWA crew reports they are short of runway 18L and ready to depart, the animation shows arrows with dimensions indicating that SWA 708 was 550 feet from the hold-short line, which is 200 feet from the edge of the runway 18L. SWA 708 turns to the right from taxiway Bravo onto runway 18L and stops to perform an engine runup. FedEx 1432 is shown on approach in the upper left of the screen; initially, the location of FedEx 1432 is highlighted by a circle and FedEx label; the circle and label are removed when the separation between airplanes is about 2 miles. As SWA 708 begins to move down the runway, the camera view pans left to right to follow it, showing FedEx 1432 descending behind it. Shortly after crossing the threshold, the

FedEx airplane begins to climb, and the crew announces they are going around. FedEx 1432 descends to an altitude of 60 feet above the runway about 400 feet behind SWA 708. FedEx 1432 passes about 200 feet over SWA 708 and begins to turn left, while SWA 708 continues the takeoff.

The animation is played again with ATC audio and its transcript. At the end of the repeated animation, a text box indicates that the FedEx crew reported seeing SWA 708 through the dense fog. The animation is followed by an image of two orange cockpit voice recorders and a text box indicating that the cockpit voice recorders on both airplanes were overwritten. The final still image shows the minimum separation between the two airplanes, which is indicated on the screen to be 170 feet.

Austin Animation Script

1. On February 4, 2023, about 6:40 am central standard time, Southwest Airlines flight 708 and Federal Express flight 1432 were involved in a runway incursion at Austin-Bergstrom International Airport in Austin, Texas.
2. Southwest Airlines flight 708, a Boeing seven three seven, seven hundred, was departing from runway one eight left enroute to Cancún, Mexico, with one hundred twenty-three passengers, two flight crew, and three cabin crew.
3. FedEx flight fourteen thirty-two, a Boeing 767-300, was a cargo flight arriving on runway one eight left from Memphis, Tennessee with two crew and one off-duty FedEx pilot.
4. Ten airplanes had taken off that morning before Southwest 708, but FedEx 1432 was the first arrival of the day.
5. Arrivals and departures were cleared by a local controller in the tower.
6. The tower is about 3,700 feet from the north end of runway 18L.
7. Night conditions prevailed, and dense fog obscured the view of the airport surface, so the controller could not see the airplanes on the taxiways or runways.

8. Also, the airport does not have surface detection equipment that could show the positions of airplanes on taxiways or runways on a display.
9. At 0634:02, the FedEx crew called to report they were established on the category three instrument landing system approach for runway one eight left.
10. This meant that the autopilot was flying the precision approach while the crew monitored.
11. The controller reported runway visibility to the FedEx crew and cleared the airplane to land.
12. The following animation will be played twice; the Air Traffic Control audio and a transcript will be included the second time.
13. The animation does not depict the lighting or weather conditions.
14. As a reminder, the weather prevented the controller from seeing the airplanes and limited the ability of the FedEx crew to see the Southwest airplane.
15. The animation begins with Southwest 708 on taxiway bravo proceeding to runway 18L.
16. FedEx 1432 is on approach but not yet clearly visible in the animation; its position is indicated by the circle.
17. At the bottom of the animation the local time, separation of the two airplanes and altitude above ground level of the FedEx airplane are displayed.
18. Nearly 5 minutes after the FedEx airplane was cleared to land, Southwest 708 reported they were short of runway one eight left and ready to depart. At that time, Southwest 708 was 550 feet from the hold short line, which is 200 feet from the edge of the runway.
19. The controller cleared the Southwest airplane for takeoff and advised that a Boeing 767 was on a 3-mile final approach.
20. The FedEx flight crew asked the controller to confirm they were cleared to land.
21. The controller confirmed they were cleared to land and that a Boeing 737 was departing ahead of them.

22. About that time, the FedEx airplane descended below 800 feet above ground level, meaning they were no longer visible on the controller's display.
23. At 0639:44, FedEx 1432 was within two miles of the runway threshold.
24. Controllers are required to separate aircraft by a minimum of two miles.
25. Southwest 708 turned onto the runway and stopped to perform an engine run-up, which is required when engine anti-ice is used for takeoff.
26. Southwest was stopped for 19 seconds before beginning its takeoff roll.
27. The controller asked Southwest to confirm they were moving.
28. The Southwest crew reported they were rolling, and the airplane began to move.
29. At 0640:34, the FedEx crew reported that they were going around.
30. At that time, FedEx fourteen thirty-two was already beginning to climb.
31. The animation will be played again with the Air Traffic Control audio and its transcript.
32. As a reminder, the weather prevented the controller from seeing the airplanes and limited the ability of the FedEx crew to see the Southwest airplane.

(The animation is played again with the Air Traffic Control audio, along with a transcript in the upper right corner of the screen.)

33. Southwest 708 continued its scheduled flight to Cancun and FedEx 1432 returned and landed at 0705.
34. None of the occupants on either airplane were injured.
35. Afterward, the FedEx crew reported seeing the lights and silhouette of Southwest 708 through the dense fog and calling for a missed approach.
36. The timing of the missed approach call is unknown because the cockpit voice recorders on both airplanes were overwritten, but the engines were advanced just after the FedEx airplane crossed the runway threshold.
37. At their closest point, the belly of FedEx 1432 was less than two hundred feet from the tail of Southwest 708.

Air Traffic Control Transcript

Time	Source	Communication
0634:02	FedEx 1432	austin tower fedex fourteen thirty-two heavy passing five point four cat three i-l-s one eight left
0634:14	AUS-LC	fedex fourteen thirty-two heavy austin tower one eight left r-v-r touchdown one thousand four hundred midpoint six hundred rollout one thousand eight hundred one eight left clear to land
0634:25	FedEx 1432	cleared to land one eight left fedex fourteen thirty-two heavy
0638:47	SWA 708	tower southwest seven o eight we're short of one eight left we're ready
0638:58	AUS-LC	southwest seven zero eight austin tower runway one eight left r-v-r one thousand two hundred midpoint six hundred rollout one thousand six hundred fly heading one seven zero runway one eight left cleared for takeoff traffic three mile final is a heavy seven sixty-seven
0639:13	SWA 708	okay that's one seven zero cleared for takeoff one eight left copy the traffic southwest seven o eight
0639:29	FedEx 1432	tower confirm uh fedex fourteen thirty-two heavy's cleared to land on the one eight left
0639:34	AUS-LC	fedex fourteen thirty-two heavy that is affirmative one eight left you are cleared to land traffic departing prior to your arrival's a seven thirty-seven
0639:40	FedEx 1432	roger
0640:10	AUS-LC	southwest seven zero eight confirm on the roll
0640:13	SWA 708	rollin now
0640:31	FedEx 1432	southwest abort
0640:34	FedEx 1432	fedex is on the go
0640:44	AUS-LC	southwest seven zero eight roger you can turn right when able
0640:49	SWA 708	negative