
Tail strike on landing, A300-600ER, July 15, 1999

Micro-summary: This Airbus A300-600ER experienced a bounced landing and tail strike.


Event Date: 1999-07-15 at 1720 EDT

Investigative Body: National Transportation Safety Board (NTSB), USA

Investigative Body's Web Site: <http://www.nts.gov/>

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|  | | NTSB ID: NYC99LA177 | | Aircraft Registration Number: N80057 | |
| | | Occurrence Date: 07/15/1999 | | Most Critical Injury: None | |
| | | Occurrence Type: Accident | | Investigated By: NTSB | |
| Location/Time | | | | | |
| Nearest City/Place JAMAICA | State NY | Zip Code 11430 | Local Time 1720 | Time Zone EDT | |
| Airport Proximity: On Airport | | Distance From Landing Facility: | | Direction From Airport: | |
| Aircraft Information Summary | | | | | |
| Aircraft Manufacturer Airbus Industrie | | Model/Series A-300-600ER | | Type of Aircraft Airplane | |
| Sightseeing Flight: No | | | Air Medical Transport Flight: No | | |
| Narrative | | | | | |
| Brief narrative statement of facts, conditions and circumstances pertinent to the accident/incident: | | | | | |
| <p>On July 15, 1999, about 1720 eastern daylight time, an Airbus A300-600ER, N80057, operated by American Airlines as flight 670, was substantially damaged while landing at John F. Kennedy International Airport, Jamaica, New York. There were no injuries to the 2 certificated airline transport pilots, 8 flight attendants, or 180 passengers. Visual meteorological conditions prevailed for the flight that had departed from Port-au-Prince International Airport (MTPP), Haiti, about 1209. Flight 670 was operated on an instrument flight rules (IFR) flight plan under 14 CFR Part 121.</p> <p>Both pilots were interviewed. The left seat pilot (captain trainee) was recently upgraded to captain, was receiving his initial operating experience (IOE), and was the operating pilot. The right seat pilot was a check airman and the pilot-in-command (PIC). He was also administering the IOE, and was serving as first officer.</p> <p>The pilots reported the flight was uneventful until landing on Runway 13L. After landing, the airplane was taxied to its gate without assistance where the passengers deplaned through the jetway.</p> <p>The captain trainee reported the landing was conducted on runway 13L. The winds were from 190 at 15 knots, and the flaps were set at 40 degrees prior to touchdown. On final approach, about 30 feet above ground level (AGL), he straightened out the crab and then reduced the throttles. The airplane touched down, and bounced into the air. While airborne, he applied light back pressure to the control yoke to stabilize the airplane, and then it touched down again. He was not aware that there had been a tail strike. He used an approach speed of 132 knots with 5 knots added for the crosswind component. When asked what he believed he should do once the airplane had bounced into the air, he replied that he should have pushed forward on the control yoke.</p> <p>In an interview, the check airman reported that he had flown to Port-au-Prince with the captain trainee as the operating pilot, and it had been a good flight. He considered the captain trainee an above average pilot, and described the approach to runway 13L at JFK as "stellar". The aim point for the runway was correct. About 50 feet AGL, the captain trainee decrabbed the airplane and about 10 feet, he closed the throttles abruptly. The sink rate increased and the airplane bounced upon touchdown. The check airman reported he was prepared to take control of the airplane when the captain trainee said, 'I've got it' and the check airman let the captain trainee continue with the landing. Just prior to the airplane touching down, he observed the captain trainee perform a 'secondary flare' or slight increase on the back pressure on the control yoke, after which the airplane touched down and the tail strike occurred.</p> <p>The check airman reported that he was aware the spoilers had extended in the air during the bounce because he saw their deployment registered on the ECAM, but did not feel the spoilers extend. He described the secondary flare as a quick yank, with a pitch rotation of 2.5 to 3</p> | | | | | |
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National Transportation Safety Board

FACTUAL REPORT

AVIATION

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Occurrence Type: Accident

Narrative (Continued)

degrees.

When the check airman was asked how the accident could have been prevented, he reported that thrust reduction was more abrupt than needed, which set the airplane up for a harder than normal touchdown and bounce. The secondary flare was not needed and rotated the nose sufficiently high to place the tail in the vicinity of the runway. In addition, the check airman also pointed out that when the spoilers deploy on the A300, they would induce a slight nose up pitch attitude. The check airman also reported that he did not have time to make a correction to the flight controls when the captain trainee performed the secondary flare.

American Airlines published A300 Briefing Bulletin Number 3 on March 1, 1998, titled Avoiding Tail Strikes. The bulletin stated in part:


"...Deviation from normal landing technique is the most common cause of tail strikes, specifically...Allowing the speed to decrease well below Vapp...Generally when the airplane decelerates well below Vapp, the pilot increases the pitch attitude to avoid an excessive sink rate...."


Examination of the DFDR data revealed the airplane initially touched down on the right main landing gear at a speed of 129 CAS, and a peak of 1.34 Gs. The second touchdown occurred about 4 seconds later at a speed of 124 CAS, and a peak of 2.26 Gs.

The elevator position was averaging about 4.5 degrees up on the final part of the approach. One-second prior to the initial touchdown, the elevator position was increased to 9.8 degrees up. The elevator position at the initial touchdown was 4.9 degrees up, and then decreased to 2.8 degrees up in the next two seconds. One second prior to the second touchdown the elevator again increased, this time to 6.7 degrees up. The second touchdown occurred with the elevator at 3.9 degrees nose up, and then in the next second the elevator position dropped to less to one degree.

According to the American Airlines A300 Operating Manual, the ground spoilers will extend if both throttles are at the flight idle position and either main landing gear squat switch transitions to the ground mode. Once spoiler extension is initiated, the spoilers will remain extended, even if the airplane becomes airborne, unless the throttles are advanced at which time the spoilers will initiate automatic retraction.

Post flight examination of the airplane by American Airlines revealed that the fuselage was damaged between frames 68 and 80, and stringers 51 on the left and right sides of the fuselage. Internal structure elements were bent, twisted, and broken. Several areas of fuselage skin, which covered the area, were also damaged.

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|  National Transportation Safety Board FACTUAL REPORT AVIATION | | NTSB ID: NYC99LA177 | | | |
| | | Occurrence Date: 07/15/1999 | | | |
| | | Occurrence Type: Accident | | | |
| Landing Facility/Approach Information | | | | | |
| Airport Name | Airport ID: | Airport Elevation | Runway Used | Runway Length | Runway Width |
| JOHN F. KENNEDY | JFK | 13 Ft. MSL | 13L | 10000 | 150 |
| Runway Surface Type: Asphalt | | | | | |
| Runway Surface Condition: Dry | | | | | |
| Type Instrument Approach: VOR/DME | | | | | |
| VFR Approach/Landing: None | | | | | |
| Aircraft Information | | | | | |
| Aircraft Manufacturer | | Model/Series | | Serial Number | |
| Airbus Industrie | | A-300-600ER | | 465 | |
| Airworthiness Certificate(s): Transport | | | | | |
| Landing Gear Type: Retractable - Tricycle | | | | | |
| Homebuilt Aircraft? No | Number of Seats: 282 | Certified Max Gross Wt. | 375888 LBS | Number of Engines: 2 | |
| Engine Type: | Engine Manufacturer: | Model/Series: | Rated Power: | | |
| Turbo Fan | GE | CF6-8-C2A5 | 60100 LBS | | |
| - Aircraft Inspection Information | | | | | |
| Type of Last Inspection | Date of Last Inspection | Time Since Last Inspection | Airframe Total Time | | |
| Continuous Airworthiness | 05/1999 | 382 Hours | 30610 Hours | | |
| - Emergency Locator Transmitter (ELT) Information | | | | | |
| ELT Installed? Yes | ELT Operated? No | ELT Aided in Locating Accident Site? | | | |
| Owner/Operator Information | | | | | |
| Registered Aircraft Owner | | Street Address | | | |
| MEGA BAIL GIE | | C/O BANQUE NATIONALE DE PARIS | | | |
| | | City | State | Zip Code | |
| | | PARIS, FR | OF | | |
| Operator of Aircraft | | Street Address | | | |
| AMERICAN AIRLINES, INC. | | 4333 AMON CARTER BLVD | | | |
| | | City | State | Zip Code | |
| | | FORT WORTH | TX | 76155 | |
| Operator Does Business As: | | | Operator Designator Code: AAL | | |
| - Type of U.S. Certificate(s) Held: | | | | | |
| Air Carrier Operating Certificate(s): Flag Carrier/Domestic | | | | | |
| Operating Certificate: | | | Operator Certificate: | | |
| Regulation Flight Conducted Under: Part 121: Air Carrier | | | | | |
| Type of Flight Operation Conducted: Scheduled; International; Passenger/Cargo | | | | | |
| FACTUAL REPORT - AVIATION | | | | | |

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| | Occurrence Type: Accident |

First Pilot Information

| | | | | |
|-----------------|-----------------|------------------|--------------------------|-----------|
| Name On File | City On File | State On File | Date of Birth On File | Age 41 |
|-----------------|-----------------|------------------|--------------------------|-----------|

| | | | |
|--------|----------------------|--------------------------------------|-----------------------------|
| Sex: M | Seat Occupied: Right | Principal Profession: Civilian Pilot | Certificate Number: On File |
|--------|----------------------|--------------------------------------|-----------------------------|

Certificate(s): Airline Transport; Flight Engineer

Airplane Rating(s): Multi-engine Land; Single-engine Land

Rotorcraft/Glider/LTA: None

Instrument Rating(s): Airplane

Instructor Rating(s): None

| | |
|-------------------------------------------------------------|---------------------------------|
| Type Rating/Endorsement for Accident/Incident Aircraft? Yes | Current Biennial Flight Review? |
|-------------------------------------------------------------|---------------------------------|

| | | |
|------------------------|------------------------------------------------------|------------------------------------|
| Medical Cert.: Class 1 | Medical Cert. Status: Valid Medical--no waivers/lim. | Date of Last Medical Exam: 01/1999 |
|------------------------|------------------------------------------------------|------------------------------------|

| - Flight Time Matrix | All A/C | This Make and Model | Airplane Single Engine | Airplane Multi-Engine | Night | Instrument | | Rotorcraft | Glider | Lighter Than Air |
|-----------------------|---------|---------------------|------------------------|-----------------------|-------|------------|-----------|------------|--------|------------------|
| | | | | | | Actual | Simulated | | | |
| Total Time | 8322 | 4296 | | | | | | | | |
| Pilot In Command(PIC) | | | | | | | | | | |
| Instructor | | | | | | | | | | |
| Last 90 Days | 134 | 134 | | | | | | | | |
| Last 30 Days | 67 | 67 | | | | | | | | |
| Last 24 Hours | 8 | 8 | | | | | | | | |

| | | | |
|--------------------|----------------------------|--------------------------|-------------------|
| Seatbelt Used? Yes | Shoulder Harness Used? Yes | Toxicology Performed? No | Second Pilot? Yes |
|--------------------|----------------------------|--------------------------|-------------------|

Flight Plan/Itinerary

Type of Flight Plan Filed: IFR

| | | | | |
|----------------------------------|-------------|----------------------------|------------------------|------------------|
| Departure Point PORT-A-PRINCE | State OF | Airport Identifier MTPP | Departure Time 1209 | Time Zone EDT |
|----------------------------------|-------------|----------------------------|------------------------|------------------|

| | | | |
|---------------------------------------------------|-------|---------------------------|--|
| Destination Same as Accident/Incident Location | State | Airport Identifier JFK | |
|---------------------------------------------------|-------|---------------------------|--|


Type of Clearance: IFR

Type of Airspace: Class B

Weather Information

Source of Briefing: Company

Method of Briefing:

| | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|
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Weather Information

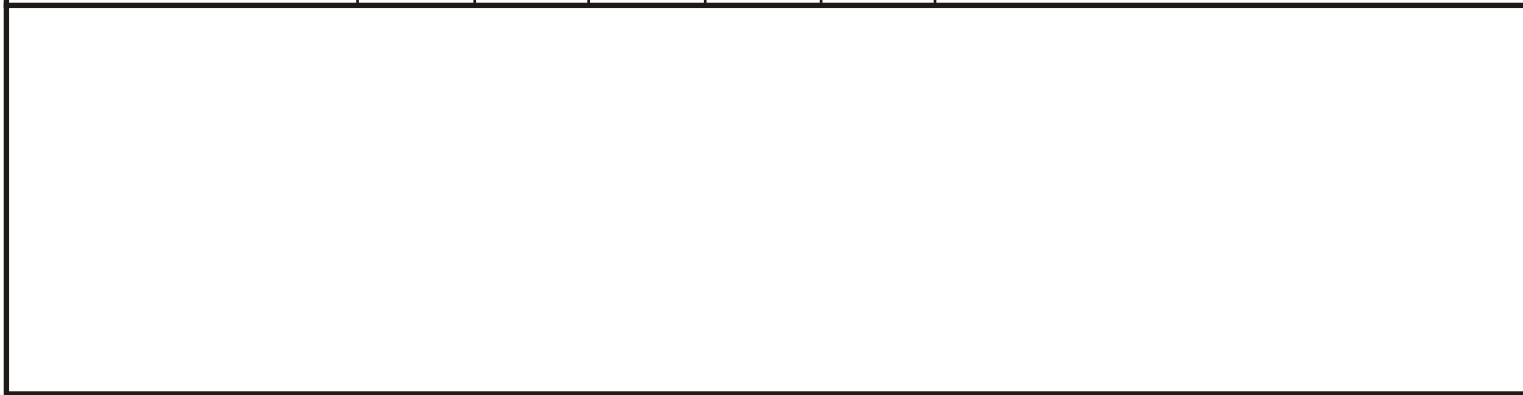
| | | | | | |
|---------------------------------------|-----------------------|--------------------------------------------------------|---------------|---------------------------------|------------------------------|
| WOF ID | Observation Time | Time Zone | WOF Elevation | WOF Distance From Accident Site | Direction From Accident Site |
| JFK | 1751 | EDT | 13 Ft. MSL | 0 NM | 0 Deg. Mag. |
| Sky/Lowest Cloud Condition: Scattered | | | 6500 Ft. AGL | Condition of Light: Day | |
| Lowest Ceiling: None | | | 0 Ft. AGL | Visibility: 10 SM | Altimeter: 30.00 "Hg |
| Temperature: 24 °C | Dew Point: 17 °C | Wind Direction: 180 | | Density Altitude: Ft. | |
| Wind Speed: 17 | Gusts: | Weather Conditions at Accident Site: Visual Conditions | | | |
| Visibility (RVR): 0 Ft. | Visibility (RVV) 0 SM | Intensity of Precipitation: Unknown | | | |
| Restrictions to Visibility: None | | | | | |
| Type of Precipitation: None | | | | | |

Accident Information

| | | |
|------------------------------|---------------------|--------------------------|
| Aircraft Damage: Substantial | Aircraft Fire: None | Aircraft Explosion: None |
|------------------------------|---------------------|--------------------------|

Classification: U.S. Registered/U.S. Soil

| - Injury Summary Matrix | Fatal | Serious | Minor | None | TOTAL |
|-------------------------|-------|---------|-------|------|-------|
| First Pilot | | | | 1 | 1 |
| Second Pilot | | | | 1 | 1 |
| Student Pilot | | | | | |
| Flight Instructor | | | | | |
| Check Pilot | | | | | |
| Flight Engineer | | | | | |
| Cabin Attendants | | | | 8 | 8 |
| Other Crew | | | | | |
| Passengers | | | | 180 | 180 |
| - TOTAL ABOARD - | | | | 190 | 190 |
| Other Ground | 0 | 0 | 0 | | 0 |
| - GRAND TOTAL - | 0 | 0 | 0 | 190 | 190 |



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Occurrence Date: 07/15/1999

Occurrence Type: Accident

Administrative Information

Investigator-In-Charge (IIC)

ROBERT L. HANCOCK

Additional Persons Participating in This Accident/Incident Investigation:

LAWRENCE PFEIFFER
FAA FSDO
GARDEN CITY, NY

ROBERT RUIZ
AMERICAN AIRLINES
FORT WORTH, TX