



National Transportation Safety Board Aviation Accident Final Report

Location:	JAMAICA, NY	Accident Number:	NYC99LA177
Date & Time:	07/15/1999, 1720 EDT	Registration:	N80057
Aircraft:	Airbus Industrie A-300-600ER	Aircraft Damage:	Substantial
Defining Event:		Injuries:	190 None
Flight Conducted Under:	Part 121: Air Carrier - Scheduled		

Analysis

The A300 came in for a landing with a captain trainee as the operating pilot and who was receiving initial operating experience. A check airman, who was the pilot-in-command, occupied the right seat and served as first officer. The captain trainee closed the throttles as the airplane neared the runway. The airplane touched down and bounced into the air, and touched down again about 4 seconds later. Just prior to each touchdown, the captain trainee pulled back on the control yoke and the airplane experienced a tail strike upon the second touchdown. DFDR data revealed the initial touchdown was 1.3 Gs and the second touchdown was 2.26 Gs. Interviews disclosed the approach speed was 132 knots plus 5 knots for crosswind. DFDR data recorded the initial touchdown occurred at 129 KCAS, and the second touchdown occurred at 124 KCAS.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: improper use of the flight controls by the captain trainee, and inadequate supervision by the check airman.

Findings

Occurrence #1: HARD LANDING
Phase of Operation: LANDING - FLARE/TOUCHDOWN

Findings

1. (C) FLIGHT CONTROLS - IMPROPER USE OF - COPILOT/SECOND PILOT
2. (C) SUPERVISION - INADEQUATE - CHECK PILOT

Factual Information

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.

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.

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.

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.

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.

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 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.

Pilot Information

Certificate:	Airline Transport; Flight Engineer	Age:	41, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Right
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 1 Valid Medical--no waivers/lim.	Last Medical Exam:	01/22/1999
Occupational Pilot:	Last Flight Review or Equivalent:		
Flight Time:	8322 hours (Total, all aircraft), 4296 hours (Total, this make and model), 134 hours (Last 90 days, all aircraft), 67 hours (Last 30 days, all aircraft), 8 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	Airbus Industrie	Registration:	N80057
Model/Series:	A-300-600ER A300-600ER	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Transport	Serial Number:	465
Landing Gear Type:	Retractable - Tricycle	Seats:	282
Date/Type of Last Inspection:	05/29/1999, Continuous Airworthiness	Certified Max Gross Wt.:	375888 lbs
Time Since Last Inspection:	382 Hours	Engines:	2 Turbo Fan
Airframe Total Time:	30610 Hours	Engine Manufacturer:	GE
ELT:	Installed, not activated	Engine Model/Series:	CF6-8-C2A5
Registered Owner:	MEGA BAIL GIE	Rated Power:	60100 lbs
Operator:	AMERICAN AIRLINES, INC.	Air Carrier Operating Certificate:	Flag carrier (121)
Operator Does Business As:		Operator Designator Code:	AAL

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	JFK, 13 ft msl	Observation Time:	1751 EDT
Distance from Accident Site:	0 Nautical Miles	Direction from Accident Site:	0°
Lowest Cloud Condition:	Scattered / 6500 ft agl	Temperature/Dew Point:	24° C / 17° C
Lowest Ceiling:	None / 0 ft agl	Visibility	10 Miles
Wind Speed/Gusts, Direction:	17 knots, 180°	Visibility (RVR):	0 ft
Altimeter Setting:	30 inches Hg	Visibility (RVV):	0 Miles
Precipitation and Obscuration:			
Departure Point:	PORT-A-PRINCE, OF (MTPP)	Type of Flight Plan Filed:	IFR
Destination:	(JFK)	Type of Clearance:	IFR
Departure Time:	1209 EDT	Type of Airspace:	Class B

Airport Information

Airport:	JOHN F. KENNEDY (JFK)	Runway Surface Type:	Asphalt
Airport Elevation:	13 ft	Runway Surface Condition:	Dry
Runway Used:	13L	IFR Approach:	VOR/DME
Runway Length/Width:	10000 ft / 150 ft	VFR Approach/Landing:	None

Wreckage and Impact Information

Crew Injuries:	10 None	Aircraft Damage:	Substantial
Passenger Injuries:	180 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	190 None	Latitude, Longitude:	

Administrative Information

Investigator In Charge (IIC):	ROBERT L HANCOCK	Adopted Date:	06/22/2000
Additional Participating Persons:	LAWRENCE PFEIFFER; GARDEN CITY, NY ROBERT RUIZ; FORT WORTH, TX		
Publish Date:			
Investigation Docket:	NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at pubinq@ntsb.gov , or at 800-877-6799. Dockets released after this date are available at http://dms.nts.gov/pubdms/ .		

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