



National Transportation Safety Board Aviation Accident Final Report

Location:	DFW AIRPORT, TX	Accident Number:	FTW88NA106
Date & Time:	05/21/1988, 1612 CDT	Registration:	N136AA
Aircraft:	MCDONNELL DOUGLAS DC-10-30	Aircraft Damage:	Substantial
Defining Event:		Injuries:	2 Serious, 6 Minor, 246 None
Flight Conducted Under:	Part 121: Air Carrier - Scheduled		

Analysis

A REJECTED TAKEOFF WAS ATTEMPTED WHEN THE SLAT DISAGREE LIGHT ILLUMINATED AND THE TAKEOFF WARNING HORN SOUNDED AT 166 KNOTS (V₁). THE PILOT ABORTED THE TAKEOFF, BUT THE AIRCRAFT ACCELERATED TO 178 KNOTS GROUND SPEED BEFORE IT BEGAN TO DECELERATE. THE DECELERATION WAS NORMAL UNTIL 130 KNOTS WHERE AN UNEXPECTED RAPID DECAY IN THE DECELERATION OCCURRED. THE AIRCRAFT RAN OFF THE END OF THE RUNWAY AT 95 KNOTS, THE NOSE GEAR COLLAPSED, AND THE AIRCRAFT CAME TO A STOP 1,100 FEET BEYOND THE END OF THE RUNWAY. EIGHT OF THE TEN BRAKE SETS FAILED. POST-ACCIDENT EXAM OF THE BRAKES REVEALED THAT EXCESSIVE BRAKE WEAR OCCURRED DURING THE REJECTED TAKEOFF. TESTING SHOWED THAT DC-10 WORN BRAKES HAVE A MUCH GREATER WEAR RATE DURING AN RTO. THE FAA DOES NOT REQUIRE WORN BRAKE TESTING. DOUGLAS DID NOT USE BRAKE WEAR DATA FROM RTO CERTIFICATION TESTS TO SET MORE CONSERVATIVE BRAKE WEAR REPLACEMENT LIMITS. NEW BRAKES WERE USED FOR THOSE TESTS.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

Findings

Occurrence #1: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION
Phase of Operation: TAKEOFF

Findings

1. (F) FLT CONTROL SYST,WING SLAT SYSTEM - FALSE INDICATION

Occurrence #2: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION
Phase of Operation: TAKEOFF - ABORTED

Findings

2. ABORTED TAKEOFF - ATTEMPTED
3. AIRSPEED(V1) - EXCEEDED
4. (C) LANDING GEAR,NORMAL BRAKE SYSTEM - INADEQUATE
5. (C) ACFT/EQUIP,INADEQUATE AIRCRAFT COMPONENT - MANUFACTURER
6. (C) INADEQUATE SUBSTANTIATION PROCESS - MANUFACTURER
7. (C) INADEQUATE CERTIFICATION/APPROVAL,AIRCRAFT - FAA(ORGANIZATION)
8. LANDING GEAR,NORMAL BRAKE SYSTEM - WORN
9. (C) LANDING GEAR,NORMAL BRAKE SYSTEM - FAILURE,TOTAL

Occurrence #3: OVERRUN
Phase of Operation: TAKEOFF - ABORTED

Findings

10. TERRAIN CONDITION - SOFT
11. OBJECT - APPROACH LIGHT/NAVAID

Occurrence #4: NOSE GEAR COLLAPSED
Phase of Operation: TAKEOFF - ABORTED

Factual Information

Pilot Information

Certificate:	Airline Transport	Age:	57, Male
Airplane Rating(s):	Multi-engine Land	Seat Occupied:	Left
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 FAA Medical Exam:	11/25/1987
Occupational Pilot:		Last Flight Review or Equivalent:	
Flight Time:	15660 hours (Total, all aircraft), 2025 hours (Total, this make and model), 175 hours (Last 90 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	MCDONNELL DOUGLAS	Registration:	N136AA
Model/Series:	DC-10-30 DC-10-30	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Transport	Serial Number:	47846
Landing Gear Type:	Retractable - Tricycle	Seats:	259
Date/Type of Last Inspection:	05/19/1988, Continuous Airworthiness	Certified Max Gross Wt.:	568000 lbs
Time Since Last Inspection:	15 Hours	Engines:	3 Turbo Fan
Airframe Total Time:	61322 Hours	Engine Manufacturer:	GE
ELT:	Not installed	Engine Model/Series:	CF6-50C2
Registered Owner:	FIRST SECURITY BANK OF UTAH	Rated Power:	51800 lbs
Operator:	AMERICAN AIRLINES	Operating Certificate(s) Held:	Flag carrier (121)
Operator Does Business As:		Operator Designator Code:	AALA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	DFW, 603 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	1654 CDT	Direction from Accident Site:	0°
Lowest Cloud Condition:	Scattered / 5000 ft agl	Visibility	20 Miles
Lowest Ceiling:	None / 0 ft agl	Visibility (RVR):	0 ft
Wind Speed/Gusts:	10 knots / 19 knots	Turbulence Type Forecast/Actual:	/
Wind Direction:	270°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29 inches Hg	Temperature/Dew Point:	26 °C / 11 °C
Precipitation and Obscuration:			
Departure Point:		Type of Flight Plan Filed:	IFR
Destination:	FRANKFURT, OF (FRA)	Type of Clearance:	IFR
Departure Time:	1612 CDT	Type of Airspace:	Airport Advisory Area

Airport Information

Airport:	DALLAS-FORT WORTH INT'L (DFW)	Runway Surface Type:	Concrete
Airport Elevation:	603 ft	Runway Surface Condition:	Dry
Runway Used:	35L	IFR Approach:	None
Runway Length/Width:	11388 ft / 200 ft	VFR Approach/Landing:	None

Wreckage and Impact Information

Crew Injuries:	2 Serious, 1 Minor, 11 None	Aircraft Damage:	Substantial
Passenger Injuries:	5 Minor, 235 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 Serious, 6 Minor, 246 None	Latitude, Longitude:	

Administrative Information

Investigator In Charge (IIC):	ARMOND V EDWARDS	Report Date:	
Additional Participating Persons:	JAMES R CASH; WASHINGTON, DC DENNIS R GROSSI; WASHINGTON, DC JOHN C CLARK; WASHINGTON, DC GREG PHILLIPS; WASHINGTON, DC		
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 pubinquiry@ntsb.gov , or at 800-877-6799. Dockets released after this date are available at http://dms.nts.gov/pubdms/ .		

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