



National Transportation Safety Board Aviation Accident Final Report

Location:	DENVER, CO	Accident Number:	DEN88MA203
Date & Time:	09/12/1988, 1350 MDT	Registration:	N1830U
Aircraft:	MCDONNELL DOUGLAS DC-10-10	Aircraft Damage:	Substantial
Defining Event:		Injuries:	1 Minor, 206 None
Flight Conducted Under:	Part 121: Air Carrier - Scheduled		

Analysis

AS THE CAPT WAS DEPLOYING REVERSERS DRG LNDG, #2 & #3 REVERSERS UNLOCKED & DEPLOYED (GREEN LGT COND), BUT #1 REVERSER WAS BINDING & ONLY MOVED TO THE UNLOCKED PSN (AMBER LGT COND). CAPT WAS NOT WARNED OF THIS COND, THOUGH 2ND OFFICER SHOULD HAVE MONITORED LGTS. CAPT SAID HE RCHD TO CHECK #1 LEVER. AT ABT THAT TIME, ACFT YAWED RGT. DESPITE IMT ACTION BYTHE CAPT, DRCTNL CTL OF ACFT WAS LOST DUE TO YAWING CAUSED BY INOP THRUST REVERSER. ACFT CONTD OFF RWY, CROSSED 2 TWYS & NOSE GEAR COLLAPSED. AFTER STOPPING, EVACUATION WAS ORDERED. EVACUATION SLIDES DEPLOYED NMLY, BUT WITH THE ACFT ON ITS NOSE, USE OF SLIDES AT DOORS 4L & 4R WAS DISCONTINUED DUE TO EXCESSIVE VERTICAL ANGLE OF SLIDES. INV REVEALED THAT AFTERTCHDWN, #1 ENG ACCELERATED WITH FWD THRUST AS #2 & #3 ENGS PROVIDED REVERSE THRUST. AT ABT THE SAME TIME, THE ACFT'S NOSE LIFTED OFF THE RWY TO A 4 DEG ATTITUDE & THE ACFT WENT OFF THE RWY. AN EXAM OF THE THROTTLE QUADRANT REVEALED THE S1-847 SW WAS CURLED/TWISTED & 2 SUPPORT SHAFTS (HOLDING THE SWS) WERE BENT CAUSING INTMT OPN OF THE #1 REVERSER.

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: LANDING - ROLL

Findings

1. (C) THRUST REVERSER, COCKPIT CONTROL - BENT
2. (C) THRUST REVERSER, COCKPIT CONTROL - BINDING (MECHANICAL)
3. (C) THRUST REVERSER - INOPERATIVE

Occurrence #2: LOSS OF CONTROL - ON GROUND/WATER
Phase of Operation: LANDING - ROLL

Findings

4. (C) MONITORING - INADEQUATE - FLIGHT ENGINEER
5. (C) REVERSERS - IMPROPER USE OF - PILOT IN COMMAND
6. (C) DIRECTIONAL CONTROL - NOT MAINTAINED - PILOT IN COMMAND

Occurrence #3: NOSE GEAR COLLAPSED
Phase of Operation: LANDING - ROLL

Findings

7. TERRAIN CONDITION - ROUGH/UNEVEN
8. LANDING GEAR, NOSE GEAR - OVERLOAD

Factual Information

Pilot Information

Certificate:	Airline Transport; Commercial	Age:	56, Male
Airplane Rating(s):	Multi-engine Land; Single-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--w/ waivers/lim.	Last Medical Exam:	07/07/1988
Occupational Pilot:		Last Flight Review or Equivalent:	
Flight Time:	22500 hours (Total, all aircraft), 233 hours (Last 90 days, all aircraft), 79 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	MCDONNELL DOUGLAS	Registration:	N1830U
Model/Series:	DC-10-10 DC-10-10	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Transport	Serial Number:	46629
Landing Gear Type:	Retractable - Tricycle	Seats:	257
Date/Type of Last Inspection:	06/19/1988, Continuous Airworthiness	Certified Max Gross Wt.:	430000 lbs
Time Since Last Inspection:	1130 Hours	Engines:	3 Turbo Fan
Airframe Total Time:	37265 Hours	Engine Manufacturer:	GE
ELT:	Not installed	Engine Model/Series:	CF6-6D
Registered Owner:	UNITED AIRLINES	Rated Power:	39300 lbs
Operator:	UNITED AIRLINES	Air Carrier Operating Certificate:	Flag carrier (121)
Operator Does Business As:		Operator Designator Code:	UALA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	DEN, 5333 ft msl	Observation Time:	1351 MDT
Distance from Accident Site:	0 Nautical Miles	Direction from Accident Site:	0°
Lowest Cloud Condition:	Scattered / 700 ft agl	Temperature/Dew Point:	7° C / 6° C
Lowest Ceiling:	Overcast / 1400 ft agl	Visibility	5 Miles
Wind Speed/Gusts, Direction:	7 knots, 360°	Visibility (RVR):	0 ft
Altimeter Setting:	30 inches Hg	Visibility (RVV):	0 Miles
Precipitation and Obscuration:			
Departure Point:	CHICAGO, IL (ORD)	Type of Flight Plan Filed:	IFR
Destination:	(DEN)	Type of Clearance:	IFR
Departure Time:	1145 MDT	Type of Airspace:	Class D; Class E

Airport Information

Airport:	STAPLETON INTL (DEN)	Runway Surface Type:	Concrete
Airport Elevation:	5333 ft	Runway Surface Condition:	Wet
Runway Used:	26L	IFR Approach:	ILS
Runway Length/Width:	10004 ft / 150 ft	VFR Approach/Landing:	Full Stop

Wreckage and Impact Information

Crew Injuries:	10 None	Aircraft Damage:	Substantial
Passenger Injuries:	1 Minor, 196 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Minor, 206 None	Latitude, Longitude:	

Administrative Information

Investigator In Charge (IIC):	GREGORY A FEITH	Adopted Date:	07/12/1991
Additional Participating Persons:			
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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