
Uncommanded roll and yaw, Douglas DC-9-34, April 30, 1998

Micro-summary: This Douglas DC-9-34 experienced unusual yaw and roll behavior after takeoff.


Event Date: 1998-04-30 at 1040 CDT


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


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

Cautions:

1. Accident reports can be and sometimes are revised. Be sure to consult the investigative agency for the latest version before basing anything significant on content (e.g., thesis, research, etc).
 2. Readers are advised that each report is a glimpse of events at specific points in time. While broad themes permeate the causal events leading up to crashes, and we can learn from those, the specific regulatory and technological environments can and do change. ***Your company's flight operations manual is the final authority as to the safe operation of your aircraft!***
 3. Reports may or may not represent reality. Many many non-scientific factors go into an investigation, including the magnitude of the event, the experience of the investigator, the political climate, relationship with the regulatory authority, technological and recovery capabilities, etc. It is recommended that the reader review all reports analytically. Even a "bad" report can be a very useful launching point for learning.
 4. Contact us before reproducing or redistributing a report from this anthology. Individual countries have very differing views on copyright! We can advise you on the steps to follow.
-

 National Transportation Safety Board FACTUAL REPORT AVIATION		NTSB ID: CHI98IA169		Aircraft Registration Number: N928L	
		Occurrence Date: 04/30/1998		Most Critical Injury: None	
		Occurrence Type: Incident		Investigated By: NTSB	
Location/Time					
Nearest City/Place ST. LOUIS		State MO	Zip Code 63044	Local Time 1040	Time Zone CDT
Airport Proximity: Unknown		Distance From Landing Facility:		Direction From Airport:	
Aircraft Information Summary					
Aircraft Manufacturer Douglas		Model/Series DC-9-34		Type of Aircraft Airplane	
Sightseeing Flight: No			Air Medical Transport Flight: No		
Narrative					
<p>Brief narrative statement of facts, conditions and circumstances pertinent to the accident/incident:</p> <p>On April 30, 1998, at 1040 cdt, N928L, a McDonnell Douglas DC9-34, being operated as Trans World Airlines flight number 732, from Saint Louis, Missouri to Toronto, Canada, experienced a flight control malfunction after takeoff. The flight declared an emergency and returned to Saint Louis. There was no damage to the aircraft and there were no injuries to the crew of 5 or 39 passengers. The flight was on an IFR flight plan and visual meteorological conditions prevailed.</p> <p>The Captain's report states: "After takeoff the aircraft began to yaw and roll in a cyclic fashion left and right. I switched the yaw damper off and on to ensure that the yaw damper was on. Yaw and roll continued and appeared to increase in its yaw amplitude as the airspeed increased... I declared an 'Emergency' and requested an immediate return for a landing with the emergency equipment standing by... The landing was made in a normal fashion without damage to the aircraft or injury to anyone on board. Total air time was 6 minutes." The Captain's full statement is an attachment to this factual report.</p> <p>The aircraft was a DC-9-34, S/N 48124. The Stability Augmentation Computer, Part 2587826-3, S/N 0270890 was inspected at the TWA Maintenance Facility in Kansas City, Kansas on May 27, 1998. Present at the inspection were personnel from TWA, FAA, NTSB, and Honeywell. See attached "Inspection Sign in Sheet".</p> <p>The inspection determined that the yaw rate gyro of the Stab Aug Computer had been installed in a reverse position that was 180 degrees opposite from the correct position. It was further determined that there is a correct "red alignment mark" and the gyro was not aligned with the red mark. There is a keyway; however, in this circumstance the pin was flush allowing the gyro to be installed in an incorrect manner.</p>					
FACTUAL REPORT - AVIATION					

 National Transportation Safety Board FACTUAL REPORT AVIATION		NTSB ID: CHI98IA169			
		Occurrence Date: 04/30/1998			
		Occurrence Type: Incident			
Landing Facility/Approach Information					
Airport Name	Airport ID:	Airport Elevation Ft. MSL	Runway Used 0	Runway Length	Runway Width
Runway Surface Type:					
Runway Surface Condition:					
Type Instrument Approach:					
VFR Approach/Landing:					
Aircraft Information					
Aircraft Manufacturer Douglas		Model/Series DC-9-34		Serial Number 48124	
Airworthiness Certificate(s):					
Landing Gear Type:					
Homebuilt Aircraft? No	Number of Seats:	Certified Max Gross Wt.	LBS	Number of Engines:	
Engine Type: Unknown	Engine Manufacturer:	Model/Series:	Rated Power:		
- Aircraft Inspection Information					
Type of Last Inspection Unknown	Date of Last Inspection	Time Since Last Inspection Hours	Airframe Total Time Hours		
- Emergency Locator Transmitter (ELT) Information					
ELT Installed?	ELT Operated?	ELT Aided in Locating Accident Site?			
Owner/Operator Information					
Registered Aircraft Owner		Street Address			
		City	State	Zip Code	
Operator of Aircraft TRANS WORLD AIRLINES		Street Address 11495 NATURAL BRIDGE ROAD			
		City SAINT LOUIS	State MO	Zip Code 63044	
Operator Does Business As: TWA			Operator Designator Code: TWAA		
- 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; Domestic; Passenger Only					
FACTUAL REPORT - AVIATION					

 <p>National Transportation Safety Board FACTUAL REPORT AVIATION</p>	NTSB ID: CHI98IA169
	Occurrence Date: 04/30/1998
	Occurrence Type: Incident

First Pilot Information

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

Sex: U	Seat Occupied: Unknown	Principal Profession: Unknown	Certificate Number: On File
--------	------------------------	-------------------------------	-----------------------------

Certificate(s):

Airplane Rating(s):

Rotorcraft/Glider/LTA:

Instrument Rating(s):

Instructor Rating(s):

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

Medical Cert.: Unknown	Medical Cert. Status: Unknown	Date of Last Medical Exam:
------------------------	-------------------------------	----------------------------

- 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										
Pilot In Command(PIC)										
Instructor										
Last 90 Days										
Last 30 Days										
Last 24 Hours										

Seatbelt Used?	Shoulder Harness Used?	Toxicology Performed?	Second Pilot?
----------------	------------------------	-----------------------	---------------

Flight Plan/Itinerary

Type of Flight Plan Filed: IFR

Departure Point Same as Accident/Incident Location	State	Airport Identifier STL	Departure Time 0000	Time Zone
---	-------	---------------------------	------------------------	-----------

Destination TORONTO	State CN	Airport Identifier YYZ	
------------------------	-------------	---------------------------	--


Type of Clearance:

Type of Airspace:

Weather Information

Source of Briefing:

Method of Briefing:

 <p>National Transportation Safety Board FACTUAL REPORT AVIATION</p>	NTSB ID: CHI98IA169
	Occurrence Date: 04/30/1998
	Occurrence Type: Incident

Weather Information

WOF ID	Observation Time	Time Zone	WOF Elevation	WOF Distance From Accident Site	Direction From Accident Site
	0000		0 Ft. MSL	0 NM	0 Deg. Mag.
Sky/Lowest Cloud Condition: Unknown			0 Ft. AGL	Condition of Light: Not Reported	
Lowest Ceiling: Unknown			0 Ft. AGL	Visibility: 0 SM	Altimeter: "Hg
Temperature: °C	Dew Point: °C	Wind Direction:		Density Altitude: Ft.	
Wind Speed:	Gusts:	Weather Conditions at Accident Site: Visual Conditions			
Visibility (RVR): 0 Ft.	Visibility (RVV) 0 SM	Intensity of Precipitation: Unknown			
Restrictions to Visibility:					
Type of Precipitation:					

Accident Information

Aircraft Damage: None	Aircraft Fire: Unknown	Aircraft Explosion: Unknown
-----------------------	------------------------	-----------------------------

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				3	3
Other Crew					
Passengers				39	39
- TOTAL ABOARD -				44	44
Other Ground	0	0	0		0
- GRAND TOTAL -	0	0	0	44	44

National Transportation Safety Board

FACTUAL REPORT

AVIATION



NTSB ID: CHI98IA169

Occurrence Date: 04/30/1998

Occurrence Type: Incident

Administrative Information

Investigator-In-Charge (IIC)

CARL E. DINWIDDIE

Additional Persons Participating in This Accident/Incident Investigation:

RONALD L SCHNEIDER
FAA FSDO, 10015 N. EXECUTIVE
KANSAS CITY, MO 64153