Aviation Investigation Final Report

Location:	JAMAICA, New York	**Incident Number:**	NYC00IA036
Date & Time:	November 20, 1999, 21:07 Local	**Registration:**	N610UA
Aircraft:	Boeing 767-200	**Aircraft Damage:**	None
Defining Event:		**Injuries:**	179 None
Flight Conducted Under:	Part 121: Air carrier - Scheduled		

Analysis

While on final, the first officer had trouble trimming the airplane. The captain attempted to trim the airplane via his yoke switch and the manual trim handle, with no success. A go-around was executed. The crew ran the checklist, but control of the stabilizer trim was not regained. The crew pulled circuit breakers H11 and H20, and then reset them. The stabilizer trim was still inoperative. The crew reset the trim cutout switches twice, and normal operation of the stabilizer trim was reestablished. The left stabilizer position transmitter, and the right stabilizer position transmitter were out of calibration. Also, the left stabilizer trim control module (STCM) was found to have a higher than normal leakage, and the connector for the corresponding shut-off valve was shorting across several of its pins due to skydrol incursion. No faults were identified for the right system except for the right-stabilizer-position transmitter. According to the operator, the system should have operated at half rate with the above discrepancy, but did not. There have been no reports of difficulties with the airplane's stabilizer trim system since the event.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this incident to be: Total failure of the stabilizer control system for undetermined reasons.

Findings

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

Findings
1. (C) FLT CONTROL SYST,STABILATOR CONTROL - FAILURE,TOTAL
2. REASON FOR OCCURRENCE UNDETERMINED

Factual Information

On November 20, 1999, at 2107 Eastern Standard Time, a Boeing 767-200, N610UA, operated by United Airlines as flight 20, experienced an inoperative stabilizer trim system while executing an approach to runway 31R at Kennedy International Airport (JFK), Jamaica, New York. The airplane was not damaged. The 2 flight crewmembers, 6 flight attendants, and 145 passengers were not injured. Night visual meteorological conditions prevailed, and an instrument flight rules flight plan was filed for the scheduled 14 CFR Part 121 passenger flight that departed the San Francisco International Airport, San Francisco, California.

According to the captain, while at 1,400 feet, and on final for runway 31R at JFK, the first officer stated he was having trouble trimming the airplane. The captain checked the trim indicator and noticed it was approximately 12.5 degrees nose up. The captain then attempted to trim the airplane via his yoke switch and the manual trim handle, with no success. The captain advised ATC they needed a go-around, and requested a block altitude of 2,000 to 3,000 feet.

After changing to departure control, the captain declared an emergency, and ran the unscheduled-stabilizer-trim-quick-reference checklist. The first officer flew the airplane and communicated with ATC. The captain completed the checklist, but control of the stabilizer trim was not regained. The captain then requested a phone patch to system aircraft maintenance control (SAMC) in San Francisco. While in communication with SAMC, the captain had the purser pull circuit breakers H11 and H20, and then reset them after a 30 second cool down period. The stabilizer trim was still inoperative. SAMC then requested that the trim cutout switches be reset. After resetting the switches twice, normal operation of the stabilizer trim was reestablished.

The captain took control of the airplane and had a flight attendant advise the passengers that an unsafe indication necessitated the go-around, and that everything was "now normal." While at altitude, the captain preformed a controllability check at approach speed, and then executed an approach to runway 31L at JFK without further incident.

The captain added that during the emergency he and the first officer did not observed any warning indications, which made troubleshooting the problem more difficult.

The first officer estimated that it required approximately 15 to 20 pounds of forward pressure on the yoke to keep the airplane level. In addition, he stated that the stabilizer trim indicator was 13 to 14 degrees nose up.

According to data retrieved from the digital flight data recorder, the stabilizer was at 11.46 degrees nose up, during the emergency.

According to the maintenance manual, stabilizer position and stabilizer trim control system faults are indicated in the flight compartment for the following reasons: Unscheduled stabilizer trim; faulty stabilizer trim drive rate; loss of power to the control stand stabilizer trim position indicators; loss of input signal to control stand stabilizer trim position indicators; and incorrect stabilizer position for takeoff.

Testing conducted by the operator of the stabilizer trim system found that the left stabilizer position transmitter, and the right stabilizer position transmitter were out of calibration. Also, the left stabilizer trim control module (STCM) was found to have a higher than normal leakage, and the connector for the corresponding shut-off valve was shorting across several of its pins due to skydrol incursion. The right STCM was also removed and tested ok.

According to the operator, the system should have operated at half rate with the above discrepancy, but did not. There has been no reports of difficulties with the airplane's stabilizer trim system since the initial event.

Pilot Information

Certificate:	Airline transport; Flight engineer	**Age:**	56,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
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:**	June 24, 1999
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	4870 hours (Total, all aircraft), 3299 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	Boeing	**Registration:**	N610UA
Model/Series:	767-200 767-200	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Transport	**Serial Number:**	21871
Landing Gear Type:	Retractable - Tricycle	**Seats:**	179
Date/Type of Last Inspection:	Unknown	**Certified Max Gross Wt.:**	320000 lbs
Time Since Last Inspection:		**Engines:**	2 Turbo fan
Airframe Total Time:		**Engine Manufacturer:**	P&W
ELT:	Not installed	**Engine Model/Series:**	JT9D-7R4D
Registered Owner:	UNITED AIRLINES	**Rated Power:**	47000 Lbs thrust
Operator:		**Operating Certificate(s) Held:**	Flag carrier (121)
Operator Does Business As:		**Operator Designator Code:**	UALA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Night/dark
Observation Facility, Elevation:	JFK ,50 ft msl	**Distance from Accident Site:**	
Observation Time:	20:51 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:	Scattered / 2000 ft AGL	**Visibility**	7 miles
Lowest Ceiling:	Broken / 5500 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	3 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	220°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	13°C / 13°C
Precipitation and Obscuration:	Light - None - Rain		
Departure Point:	SAN FRANCISCO , CA (SFO)	**Type of Flight Plan Filed:**	IFR
Destination:	JAMAICA , NY (JFK)	**Type of Clearance:**	IFR
Departure Time:	12:39 Local	**Type of Airspace:**	Class B

Airport Information

Airport:	JOHN F KENNEDY INTL JFK	**Runway Surface Type:**	Asphalt
Airport Elevation:	13 ft msl	**Runway Surface Condition:**	
Runway Used:	31L	**IFR Approach:**	ILS
Runway Length/Width:	14572 ft / 150 ft	**VFR Approach/Landing:**	

Wreckage and Impact Information

Crew Injuries:	11 None	**Aircraft Damage:**	None
Passenger Injuries:	168 None	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	179 None	**Latitude, Longitude:**	40.649345,-73.789779(est)

Administrative Information

Investigator In Charge (IIC):	Muzio, David
Additional Participating Persons:	
Original Publish Date:	December 4, 2000
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=47860