Aviation Investigation Final Report

Location:	FLUSHING, New York	**Incident Number:**	NYC96IA168
Date & Time:	August 14, 1996, 19:20 Local	**Registration:**	N533DA
Aircraft:	Boeing 727-232	**Aircraft Damage:**	None
Defining Event:		**Injuries:**	139 None
Flight Conducted Under:	Part 121: Air carrier - Scheduled		

Analysis

The pilots reported that shortly after takeoff, there was a compressor stall in the No. 2 engine, followed by a loss of engine power, and an abnormal oil pressure reading. The engine was shut down and the pilot made an emergency landing at JFK Airport. Debris came to rest in a residential area where a vehicle was struck. Examination of the engine revealed that turbine parts punctured through the turbine exhaust case in several locations but were contained by the fan exit duct. All the 4th stage turbine blades fractured across the airfoil just above the platform and were retained in the disk. Twelve of the twenty-five 4th stage turbine vane clusters were missing and the remaining clusters showed considerable trailing edge damage. All the 3rd stage turbine blades and vanes exhibited minor secondary damage with no blade or vane damage observed forward of the 3rd stage. The engine had accumulated 235 flight hours and 171 cycles prior to the incident since its last heavy maintenance inspection. The investigation did not reveal the exact origin of the turbine failure.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this incident to be: a failure of the low pressure turbine assembly for undetermined reason(s).

Findings

Occurrence #1: LOSS OF ENGINE POWER(TOTAL) - MECH FAILURE/MALF
Phase of Operation: CLIMB

Findings
1. 1 ENGINE
2. (C) TURBINE ASSEMBLY - UNDETERMINED
3. (C) TURBINE ASSEMBLY - FAILURE

Factual Information

On August 14, 1996, about 1920 eastern daylight time, a Boeing 727-232, N533DA, operated by Delta Airlines as flight 801, experienced a turbine failure of the number two engine, during departure from LaGuardia Airport, Flushing, New York. The airplane received minor damage, and the occupants were not injured. Visual meteorological conditions existed and an instrument flight plan was filed. The destination was Tampa, Florida and the flight was operated under the provisions of 14 CFR Part 121.

The pilot reported that shortly after takeoff, there was a compressor stall, followed by a loss of engine power, and an abnormal oil pressure reading. The engine was shut down and the flight diverted to John F. Kennedy Airport for a landing. After landing, the flight taxied to the gate where the passengers deplaned normally through the jetway.

Debris came to rest in a residential area where a vehicle was struck.

Examination of the engine revealed that turbine parts punctured through the turbine exhaust case in several locations but were contained by the fan exit duct. All the 4th stage turbine blades were fractured across the airfoil just above the platform and were retained in the disk. Twelve of the twenty-five 4th stage turbine vane clusters were missing and the remaining clusters showed considerable trailing edge damage. All the 3rd stage turbine blades and vanes exhibited minor secondary damage with no blade or vane damage observed forward of the 3rd stage. The engine had accumulated 235 flight hours and 171 cycles prior to the incident since its last heavy maintenance inspection. The investigation did not reveal the exact origin of the turbine failure.

Pilot Information

Certificate:	Airline transport	**Age:**	59,Male
Airplane Rating(s):	Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	
Instructor Rating(s):		**Toxicology Performed:**	No
Medical Certification:	Class 1 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	April 4, 1996
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Make:	Boeing	**Registration:**	N533DA
Model/Series:	727-232 727-232	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Transport	**Serial Number:**	22046
Landing Gear Type:	Tricycle	**Seats:**	157
Date/Type of Last Inspection:	August 11, 1996 Continuous airworthiness	**Certified Max Gross Wt.:**	190500 lbs
Time Since Last Inspection:	21 Hrs	**Engines:**	3 Turbo fan
Airframe Total Time:	48427 Hrs	**Engine Manufacturer:**	P&W
ELT:		**Engine Model/Series:**	JT8D-15A
Registered Owner:	DELTA AIRLINES	**Rated Power:**	15500 Lbs thrust
Operator:		**Operating Certificate(s) Held:**	Flag carrier (121)
Operator Does Business As:		**Operator Designator Code:**	DALA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	LGA	**Distance from Accident Site:**	
Observation Time:		**Direction from Accident Site:**	
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	Broken / 13000 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	10 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	120°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	24°C / 18°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	(LGA)	**Type of Flight Plan Filed:**	Unknown
Destination:	TAMPA , FL (TPA)	**Type of Clearance:**	IFR
Departure Time:	00:00 Local	**Type of Airspace:**	Class B

Airport Information

Airport:		**Runway Surface Type:**	
Airport Elevation:		**Runway Surface Condition:**	
Runway Used:	0	**IFR Approach:**	
Runway Length/Width:		**VFR Approach/Landing:**	

Wreckage and Impact Information

Crew Injuries:	7 None	**Aircraft Damage:**	None
Passenger Injuries:	132 None	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	139 None	**Latitude, Longitude:**	40.770305,-73.870925(est)

Administrative Information

Investigator In Charge (IIC):	Hancock, Robert
Additional Participating Persons:	LOUIS ALVAREZ; GARDEN CITY , NY JAMES HOOKEY; WASHINGTON , DC
Original Publish Date:	July 30, 1998
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=39104