



National Transportation Safety Board Aviation Accident Final Report

Location:	KINSTON, NC	Accident Number:	ATL90FA146
Date & Time:	07/22/1990, 1455 EDT	Registration:	N210US
Aircraft:	BOEING 737-222	Aircraft Damage:	Substantial
Defining Event:		Injuries:	2 Minor, 25 None
Flight Conducted Under:	Part 121: Air Carrier - Scheduled		

Analysis

AS ENGINE POWER WAS INCREASED FOR TAKEOFF, THE NO. 1 ENGINE ACCELERATED BEYOND TARGET EPR. ENGINE SHUT DOWN HAD TO BE DONE WITH THE FUEL SHUT OFF LEVER. THE ASYMMETRIC THRUST WAS CONTROLLED WITH NOSE WHEEL STEERING. BEFORE THE AIRPLANE COULD BE STOPPED THE NOSE WHEELS SEPARATED FROM THE LANDING GEAR. THE INVESTIGATION REVEALED THAT THE FUEL PUMP OUTPUT SPLINE TO THE FUEL CONTROL HAD STRIPPED. IT OCCURRED AT SUCH A TIME THAT THE FUEL CONTROL SENSED AN UNDERSPEED & INCREASED FUEL FLOW. MISALIGNMENT OF THE SPLINE SHAFT RESULTED FROM IMPROPER MACHINING DURING PUMP MODIFICATION. THE NOSE GEAR INNER CYLINDER FAILED IN FATIGUE IN AN AREA OF EXCESSIVE GRINDING DURING OVERHAUL.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: FAILURE OF THE FUEL PUMP CONTROL SHAFT BECAUSE OF IMPROPER MACHINING BY THE REPAIR FACILITY DURING MAINTENANCE MODIFICATION OF THE PUMP AND IMPROPER PROCEDURES DURING OVERHAUL OF THE NOSE LANDING GEAR.

Findings

Occurrence #1: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION

Phase of Operation: TAKEOFF - ABORTED

Findings

1. 1 ENGINE
2. (C) FUEL SYSTEM,PUMP - DISCONNECTED
3. (C) FUEL SYSTEM,PUMP - WORN
4. (C) MAINTENANCE,MODIFICATION - IMPROPER - OTHER MAINTENANCE PERSONNEL
5. POWERPLANT - OVERSPEED

Occurrence #2: NOSE GEAR COLLAPSED

Phase of Operation: TAKEOFF - ABORTED

Findings

6. (C) LANDING GEAR,NOSE GEAR - FAILURE,TOTAL
7. LANDING GEAR,NOSE GEAR - FATIGUE

Occurrence #3: NOSE GEAR COLLAPSED

Phase of Operation: TAKEOFF - ROLL/RUN

Factual Information

Pilot Information

Certificate:	Airline Transport	Age:	47, 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):		Toxicology Performed:	Yes
Medical Certification:	Class 1 Valid Medical--no waivers/lim.	Last FAA Medical Exam:	01/18/1990
Occupational Pilot:	Last Flight Review or Equivalent:		
Flight Time:	10100 hours (Total, all aircraft), 3300 hours (Total, this make and model), 127 hours (Last 90 days, all aircraft), 41 hours (Last 30 days, all aircraft), 7 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	BOEING	Registration:	N210US
Model/Series:	737-222 737-222	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:		Serial Number:	19555
Landing Gear Type:	Retractable - Tricycle	Seats:	
Date/Type of Last Inspection:	06/19/1990, Continuous Airworthiness	Certified Max Gross Wt.:	109000 lbs
Time Since Last Inspection:	238 Hours	Engines:	2 Turbo Fan
Airframe Total Time:	51264 Hours	Engine Manufacturer:	P&W
ELT:	Not installed	Engine Model/Series:	JT8-D-9
Registered Owner:	USAIR	Rated Power:	14500 lbs
Operator:	USAIR	Operating Certificate(s) Held:	Flag carrier (121)

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	ISO, 94 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	1502 EDT	Direction from Accident Site:	0°
Lowest Cloud Condition:	Scattered / 3500 ft agl	Visibility	10 Miles
Lowest Ceiling:	Broken / 20000 ft agl	Visibility (RVR):	0 ft
Wind Speed/Gusts:	6 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	240°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29 inches Hg	Temperature/Dew Point:	34° C / 23° C
Precipitation and Obscuration:			
Departure Point:		Type of Flight Plan Filed:	IFR
Destination:	CHARLOTTE, NC (CLT)	Type of Clearance:	IFR
Departure Time:	1450 EDT	Type of Airspace:	

Airport Information

Airport:	KINSTON REGIONAL JETPORT (ISO)	Runway Surface Type:	Concrete
Airport Elevation:	94 ft	Runway Surface Condition:	Dry
Runway Used:	23	IFR Approach:	None
Runway Length/Width:	7500 ft / 150 ft	VFR Approach/Landing:	None

Wreckage and Impact Information

Crew Injuries:	5 None	Aircraft Damage:	Substantial
Passenger Injuries:	2 Minor, 20 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 Minor, 25 None	Latitude, Longitude:	

Administrative Information

Investigator In Charge (IIC):	PRESTON E HICKS	Report Date:	03/12/1993
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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The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).