



Aviation Investigation Final Report

Location:	NAPLES, Florida	Accident Number:	MIA93LA088
Date & Time:	March 21, 1993, 11:42 Local	Registration:	N218MC
Aircraft:	Christen Industries PITTS S1-T	Aircraft Damage:	Substantial
Defining Event:		Injuries:	1 Minor
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

THE PILOT, WHO DOES NOT HOLD AN AIRFRAME OR POWERPLANT MECHANIC'S LICENSE STATED HE INSTALLED A STRAIGHT AIR INTAKE TUBE ON HIS AIRCRAFT. THIS TUBE DID NOT HAVE ANY MEANS FOR ALTERNATE AIR OR FILTERING OF INCOMING AIR. HE FURTHER MODIFIED THE TUBE BY INSTALLING A SCREEN AND A PIECE OF AIR FILTERING MATERIAL IN THE TUBE. DURING THE FIRST TAKEOFF AFTER THE MODIFICATION THE AIRCRAFT CLIMBED TO 200 FEET, AT WHICH TIME THE MANIFOLD PRESSURE DROPPED AND THE ENGINE LOST POWER. HE WAS UNABLE TO MAINTAIN ALTITUDE AND THE AIRCRAFT TOUCHED DOWN HARD ON THE RUNWAY AND NOSED OVER INVERTED. POSTCRASH EXAMINATION AND TESTING OF THE INTAKE TUBE WAS PERFORMED BY AN FAA INSPECTOR. WHEN A VACUUM CLEANER WAS ATTACHED TO THE ENGINE SIDE OF THE INTAKE TUBE AND TURNED ON THE AIR FLOW THROUGH THE TUBE WAS NORMAL FOR SEVERAL MINUTES. AFTER THIS, MOISTURE BUILT UP ON THE AIR FILTERING MATERIAL AND THE FILTER COLLAPSED. THE VACUUM CLEANER THEN BEGAN TO STRAIN DUE TO LACK OF AIR FLOW.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: THE INSTALLATION OF AN IMPROPER DESIGNED INTAKE TUBE AND AIR FILTER BY THE NONMECHANIC RATED PILOT-IN-COMMAND, WHICH RESULTED IN MOISTURE BUILD UP AND COLLAPSE OF THE AIR FILTER, WHICH RESULTED IN BLOCKAGE OF AIR FLOW TO THE ENGINE AND LOSS OF ENGINE POWER. CONTRIBUTING TO THE ACCIDENT WAS THE FAILURE OF THE PILOT-IN-COMMAND TO MAINTAIN AIRSPEED AND FLARE PROPERLY DURING A FORCED LANDING.

Findings

Occurrence #1: LOSS OF ENGINE POWER(PARTIAL) - NONMECHANICAL

Phase of Operation: TAKEOFF - INITIAL CLIMB

Findings

1. (C) INDUCTION AIR DUCTING - INADEQUATE
2. (C) MAINTENANCE, INSTALLATION - IMPROPER - UNQUALIFIED PERSON
3. (C) ACFT/EQUIP, INADEQUATE DESIGN - MANUFACTURER
4. (C) INDUCTION AIR CONTROL, AIR FILTER/SCREEN - INADEQUATE
5. (C) MAINTENANCE, INSTALLATION - IMPROPER - UNQUALIFIED PERSON
6. (F) INDUCTION AIR CONTROL, AIR FILTER/SCREEN - COLLAPSED
7. (F) INDUCTION AIR CONTROL, AIR FILTER/SCREEN - BLOCKED(PARTIAL)

Occurrence #2: FORCED LANDING

Phase of Operation: DESCENT - EMERGENCY

Occurrence #3: HARD LANDING

Phase of Operation: LANDING - FLARE/TOUCHDOWN

Findings

8. (C) AIRSPEED - NOT MAINTAINED - PILOT IN COMMAND
9. (C) FLARE - IMPROPER - PILOT IN COMMAND

Occurrence #4: NOSE OVER

Phase of Operation: LANDING - FLARE/TOUCHDOWN

Factual Information

Pilot Information

Certificate:	Airline transport; Flight instructor	Age:	38, 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:	No
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine	Toxicology Performed:	No
Medical Certification:	Class 1 Valid Medical--no waivers/lim.	Last FAA Medical Exam:	March 27, 1992
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	
Flight Time:	14000 hours (Total, all aircraft), 350 hours (Total, this make and model), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Christen Industries	Registration:	N218MC
Model/Series:	PITTS S1-T PITTS S1-T	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Experimental (Special)	Serial Number:	1041
Landing Gear Type:	Tailwheel	Seats:	1
Date/Type of Last Inspection:	June 20, 1992 Annual	Certified Max Gross Wt.:	1100 lbs
Time Since Last Inspection:	25 Hrs	Engines:	1 Reciprocating
Airframe Total Time:	470 Hrs	Engine Manufacturer:	LYCOMING
ELT:	Not installed	Engine Model/Series:	AEIO-360
Registered Owner:	CUTSHAW, MICHAEL H.	Rated Power:	200 Horsepower
Operator:	CUTSHAW, MICHAEL H.	Operating Certificate(s) Held:	None
Operator Does Business As:		Operator Designator Code:	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	APF ,9 ft msl	Distance from Accident Site:	1 Nautical Miles
Observation Time:	11:42 Local	Direction from Accident Site:	220°
Lowest Cloud Condition:	Scattered / 3000 ft AGL	Visibility	10 miles
Lowest Ceiling:	Broken / 4000 ft AGL	Visibility (RVR):	
Wind Speed/Gusts:	3 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	100°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30 inches Hg	Temperature/Dew Point:	24°C / 19°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	(APF)	Type of Flight Plan Filed:	None
Destination:		Type of Clearance:	VFR
Departure Time:	11:42 Local	Type of Airspace:	Class E

Airport Information

Airport:	NAPLES MUNICIPAL APF	Runway Surface Type:	Asphalt
Airport Elevation:	9 ft msl	Runway Surface Condition:	Dry
Runway Used:	4	IFR Approach:	
Runway Length/Width:	5000 ft / 150 ft	VFR Approach/Landing:	Forced landing

Wreckage and Impact Information

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

Administrative Information

Investigator In Charge (IIC):	Kennedy, Jeffrey
Additional Participating Persons:	DAVE CARLTON; MIAMI , FL
Original Publish Date:	February 10, 1994
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=33243

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).