



National Transportation Safety Board Aviation Accident Final Report

Location:	CRYSTAL, MN	Accident Number:	CHI97FA059
Date & Time:	01/22/1997, 1326 CST	Registration:	N5AS
Aircraft:	Cessna 401	Aircraft Damage:	Substantial
Defining Event:		Injuries:	2 Minor, 1 None
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

After landing at the airport, the airplane was taxied to a fixed base operator to pick up a passenger. Rime ice, as thick as two inches was seen on the airplane, and the pilots of the airplane attempted to manually remove the ice. The airplane was topped off with fuel before departure. During departure from runway 31R, the airplane collided with a fence. Numerous areas of ice were found on the airplane following the accident. Both propellers had similar damage. The pilots had reported to the FAA that the left engine had sustained a loss of power. The passenger reported that he did not notice any loss of power from either engine. No preimpact part failure or malfunction of the left engine was found.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: failure of the pilot-in-command to ensure adequate removal of airframe ice from the aircraft during preflight.

Findings

Occurrence #1: IN FLIGHT COLLISION WITH OBJECT
Phase of Operation: TAKEOFF - INITIAL CLIMB

Findings

1. (C) AIRCRAFT PREFLIGHT - INADEQUATE - PILOT IN COMMAND
2. (C) AIRFRAME - ICE
3. (C) ICE/FROST REMOVAL FROM AIRCRAFT - INADEQUATE - PILOT IN COMMAND
4. OBJECT - FENCE

Factual Information

HISTORY OF FLIGHT

On January 22, 1997, at 1326 central standard time (cst), a Cessna 401, N5AS, piloted by a commercially certificated pilot, was substantially damaged during a collision with a fence and snow covered terrain, shortly after takeoff. Instrument meteorological conditions prevailed at the time of the accident. The two pilots received minor injuries, the passenger was uninjured. The 14 CFR Part 91 flight was operating on an IFR flight plan. The flight departed Crystal Airport, Crystal, Minnesota, at 1324 cst, with an intended destination of Lansing, Michigan.

AIRCRAFT INFORMATION

N5AS was flown into Crystal Airport to pick up a passenger and fly that passenger to Lansing, Michigan. After landing at Crystal Airport N5AS was taxied to a fixed base operator (FBO) to pick up the passenger. Employees from the FBO where the airplane stopped to pick up the passenger reported that when the airplane taxied in there was a significant amount of ice on many portions of the airplane. One employee stated that there was approximately two inches of ice on the spinners of the engines. The employee also stated that the ice appeared to be mostly rime ice on the airplane. Employees of the FBO reported that the pilots of the airplane did not request any deice of the airplane, and began manually removing ice from the airplane. The employee of the FBO also stated that the airplane's fuel tanks were all filled before the airplane departed.

WRECKAGE AND IMPACT INFORMATION

N5AS departed from runway 31R at the Crystal Airport, which is listed at 3,263 feet long. The airplane impacted with the fence which surrounds the airport property. On top of the fence barbed wire had been strung. The investigator in charge (IIC) approximated the top of the fence at 12 feet high. After impacting the fence the aircraft came to rest in a housing area.

The right wing outboard of the engine nacelles had separated from the airframe. The left wing leading edge was crushed, and U shaped, and torn back from its original location. The inboard areas on both wings between the engine nacelles and the fuselage had numerous small areas of ice adhering to their upper surface.

Both tip tanks had separated from the airframe. Both propellers appeared to have similar leading edge and bending damage present. All of the propeller blades when checked by the IIC would rotate in their hub. The landing gear and flaps were found retracted.

The horizontal stabilizer did not show any signs of significant damage. The horizontal stabilizer leading edge deice boots had numerous small areas of ice adhering to its upper surface.

The deice boot of the vertical stabilizer had rime ice which was approximately three quarters of an inch thick adhering to three quarters of its length. The leading edge of the vertical stabilizer behind the deice boot had torn sheet metal, which appeared to have been caused by barbed wire.

TESTS AND RESEARCH

The pilots had reported to a Federal Aviation Administration employee that the left engine had sustained a loss of power. The IIC removed the cowling from the left engine to examine the

engine. All engine controls appeared to be connected. No signs of any loose fuel, air, or oil lines were noted. The top spark plugs were removed from each cylinder, and appeared to be a light gray color with no discrepancies noted. When the propeller was rotated compression was found on all cylinders of the engine. The top of the fuel manifold was removed and fuel was found in the fuel manifold. The magnetos were tested by the IIC on January 29, 1997. Both magnetos would produce spark when rotated using an electric drill, from each of the 6 terminals on the back of the magneto. When the left wing tank fuel cap was removed a small amount of fuel was seen still in the ruptured fuel tank.

ADDITIONAL DATA/INFORMATION

Two employees of the FBO where the airplane had received fuel watched the airplane attempt departure. Both employees reported that the engines sound normal, and did not notice any abnormalities. One employee reported that the airplane appeared to rotate at the intersection that runway 31R makes with runway 5L-23R. The approximate distance from the beginning of the takeoff roll to this point would be 2,450 feet.

During the examination of the left engine by the IIC the passenger from the flight returned to the airport. The IIC questioned the passenger if he had noticed any loss of power on either engine during takeoff. The passenger said that he did not notice any loss of power on either engine, and reported that after the airplane lifted off from the runway it felt as if the airplane was being held back, and not accelerating.

Pilot Information

Certificate:	Airline Transport	Age:	30, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	Airplane Multi-engine	Toxicology Performed:	No
Medical Certification:	Class 1 Valid Medical--w/ waivers/lim.	Last FAA Medical Exam:	03/04/1996
Occupational Pilot:	Last Flight Review or Equivalent:		
Flight Time:	3745 hours (Total, all aircraft), 409 hours (Total, this make and model), 3680 hours (Pilot In Command, all aircraft), 143 hours (Last 90 days, all aircraft), 57 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	Registration:	N5AS
Model/Series:	401 401	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	401-0208
Landing Gear Type:	Retractable - Tricycle	Seats:	6
Date/Type of Last Inspection:	Annual	Certified Max Gross Wt.:	6300 lbs
Time Since Last Inspection:		Engines:	2 Reciprocating
Airframe Total Time:		Engine Manufacturer:	Continental
ELT:	Installed	Engine Model/Series:	TSIO-520-E
Registered Owner:	THOMAS A CASPER	Rated Power:	300 hp
Operator:	AIR-ONE	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument Conditions	Condition of Light:	Day
Observation Facility, Elevation:	MIC, 869 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	1328 CST	Direction from Accident Site:	0°
Lowest Cloud Condition:	Unknown / 0 ft agl	Visibility	2.75 Miles
Lowest Ceiling:	Overcast / 1100 ft agl	Visibility (RVR):	0 ft
Wind Speed/Gusts:	10 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	270°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29 inches Hg	Temperature/Dew Point:	
Precipitation and Obscuration:			
Departure Point:	(MIC)	Type of Flight Plan Filed:	IFR
Destination:	LANSING, MI (LAN)	Type of Clearance:	None
Departure Time:	1324 CST	Type of Airspace:	Class D

Airport Information

Airport:	CRYSTAL (MIC)	Runway Surface Type:	Asphalt
Airport Elevation:	869 ft	Runway Surface Condition:	Snow--dry
Runway Used:	31R	IFR Approach:	None
Runway Length/Width:	3263 ft / 75 ft	VFR Approach/Landing:	None

Wreckage and Impact Information

Crew Injuries:	2 Minor	Aircraft Damage:	Substantial
Passenger Injuries:	1 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 Minor, 1 None	Latitude, Longitude:	

Administrative Information

Investigator In Charge (IIC):	DAVID A BOLDENOW	Report Date:	10/31/1997
Additional Participating Persons:	LANCE MENEGHELLI; MINNEAPOLIS, MN		
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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