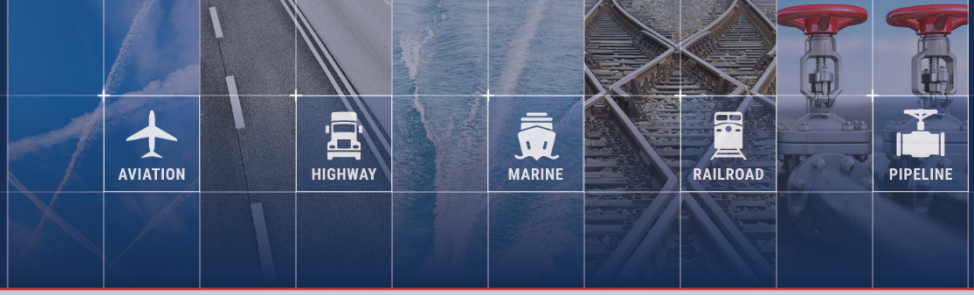

Aviation Investigation Final Report

Location:	SPICEWOOD, Texas	**Accident Number:**	FTW00FA001
Date & Time:	October 2, 1999, 11:46 Local	**Registration:**	N7542K
Aircraft:	Cessna P210N	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	2 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

According to pilot-rated witnesses, the aircraft was 'very fast on final approach.' They added that the airplane floated for approximately 1/3 of the runway length and then flared. During the flare, the airplane ballooned about 50-75 feet, and continued to lose speed as it traveled down the runway. With about 1/3 of the runway length remaining, the airplane's right wing dropped, and the witnesses heard power being added as the airplane began an 'uncoordinated turn' to the west. The witnesses stated that the airplane appeared to be 'near a stall' when they lost sight of it, and they heard 'full power being applied' just prior to the sound of impact. One of the witnesses, who had flown with the pilot, stated that he cautioned her to be careful with the application of power, because the engine was recently overhauled and a mechanic told him to limit the manifold pressure (MP) until the engine was broken in. The maintenance records contained break-in procedures for a previous overhaul, which instructed the pilot not to exceed 30' of MP on takeoff, except in an emergency. No anomalies with the aircraft or engine were noted during the post-accident examinations.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's delayed application of full throttle during a go-around, which resulted in a slow airspeed and inadvertent stall/spin. A factor was the pilot's habit of only applying partial power during takeoff.

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: GO-AROUND (VFR)

Findings
1. AIRSPEED - EXCESSIVE - PILOT IN COMMAND
2. GO-AROUND - INITIATED - PILOT IN COMMAND
3. (C) THROTTLE/POWER CONTROL - DELAYED - PILOT IN COMMAND
4. (F) HABIT INTERFERENCE - PILOT IN COMMAND
5. (C) AIRSPEED - NOT MAINTAINED - PILOT IN COMMAND
6. (C) STALL/SPIN - INADVERTENT - PILOT IN COMMAND

Occurrence #2: IN FLIGHT COLLISION WITH OBJECT
Phase of Operation: DESCENT - UNCONTROLLED

Findings
7. OBJECT - TREE(S)

Factual Information

HISTORY OF FLIGHT

On October 2, 1999, at 1146 central daylight time, a Cessna P210N airplane, N7542K, impacted terrain following a go around at the Spicewood Airport, Spicewood, Texas. The private pilot, who was the owner of the airplane, and his passenger were fatally injured. The airplane was destroyed by impact damage and fire. Visual meteorological conditions prevailed, and a flight plan was not filed for the 14 Code of Federal Regulations Part 91 personal flight. The cross-country flight originated from the Red Bird Airport near Dallas, Texas, approximately 1040.

According to pilot-rated witnesses, located at the airport, the aircraft was "very fast on final approach" for runway 17. They added that the airplane floated for approximately 1/3 of the runway length and then flared. During the flare, the airplane "ballooned about 50-75 feet and continued to lose speed as it traveled down the runway." With about 1/3 of the runway length remaining, the airplane's right wing dropped, and the witnesses heard power being added as the airplane began an "uncoordinated turn" to the west. The witnesses stated that the airplane appeared to be "near a stall" as it continued its turn to the northeast. The airplane disappeared behind trees and buildings, and the witnesses started running towards the airplane. Just prior to the sound of impact, the witnesses heard the sound of "full power being applied" to the engine.

One of the pilot-rated witnesses said that she had flown with the pilot a week prior to the accident, and he cautioned her to be careful with the amount of throttle she applied, because the engine had just been overhauled, and "the mechanic had told him to not give it over so many inches of manifold pressure, until it was broken in."

PERSONNEL INFORMATION

The private pilot held an airplane single-engine land rating. According to his friends and family, he had obtained all the training necessary for the airplane instrument rating. The pilot's logbook was located in the wreckage; however, it sustained heavy fire damage. According to the last entry, dated September 12, 1999, the pilot had obtained 548.4 total flight hours, of which 294.4 hours were in the accident airplane. The pilot's logbook contained an endorsement for the instrument rating dated May 12, 1998. An Airman Certificate and/or Rating Application (FAA Form 8710-1) for an instrument airplane rating was located, and indicated that as of May 18, 1998, the pilot had obtained 505 hours total flight time, of which 253 hours were with an instructor. The FAA did not have any record of the pilot completing a practical examination for the instrument airplane rating.

AERODROME INFORMATION

The Spicewood Airport is located on the south side of Lake Travis. The Airport Facility Directory indicates that there are trees located on the approach end of runway 17 and that it has a right hand traffic pattern. The runway is 3,000 feet long and 30 feet wide. Located on the south end of the runway, is a flat, mowed, grass area approximately 1,800 feet long, void of obstructions. The field elevation is 830 feet. Friends of the pilot stated that the pilot landed at Spicewood on four other occasions. One witness stated that in the past, during approaches to Spicewood, the pilot had to accomplish three go-arounds as a result of high airspeed.

AIRCRAFT INFORMATION

The 1980 model airplane was painted white with blue, black and gray stripes. According to a sale advertisement for the accident airplane (last revised September 16, 1999), the airplane had a total airframe time of 2,536 hours and the engine had 1,535 total hours. The airplane was modified with full de-ice boots, a heated windshield plate, a hot propeller, AM/FM stereo cassette with jacks, and speed brakes. The airplane had also been modified with auxiliary fuel tanks, located in the wing tips and the baggage area, to hold a total fuel capacity of 150 gallons of 100LL fuel. The avionics included a color weather radar, a global positioning system, graphic engine monitor, an encoding altitude alert system, a fuel computer, and an autopilot/flight director system.

Review of the engine maintenance records revealed that on June 24, 1994, all six cylinders were removed and replaced with cylinders that were reworked by Ram Aircraft Corporation. Included in the maintenance manual for the Ram cylinders was an overhaul manual supplement that included a section titled "TSIO-520 Break-In Procedures." In that section it states that during, "Takeoff Roll: Apply MP slowly until 30" MP - Do not exceed 30" and 2700 RPM except in an emergency." It states again at the end of that section that in an, "Emergency: Use maximum available power if needed." The break-in procedures were applicable to the initial break-in flight, which they recommend be a minimum of 2 hours.

According the Cessna P210N Pilot's Information Manual, the takeoff power settings are 36.5 inches of manifold pressure, and 2,700 RPM. Under the section titled "Balked landings," it states that 36.5 inches of manifold pressure and 2,700 RPM should be used.

Review of the aircraft's maintenance records revealed that the last annual inspection was completed on April 7, 1999, at an aircraft total time of 2,521.3 hours. The maintenance records indicate that during the annual inspection, another "top overhaul" was completed on the engine. According to the engine maintenance records, all six cylinders were removed and replaced with overhauled cylinders.

The NTSB investigator-in-charge (IIC) estimated that the airplane had 125 gallons of fuel on board at the time of the accident, and was within its weight and balance limits.

METEOROLOGICAL INFORMATION

At 1153, the weather observation facility at Austin, Texas (located 23 miles east of the accident site), reported the wind from 180 degrees at 10 knots, visibility 10 statute miles, scattered clouds at 2,800 feet agl, temperature 81 degrees Fahrenheit, dew point 63 degrees Fahrenheit, and an altimeter setting of 29.99 inches of mercury.

Witnesses at the airport reported the wind from 150 degrees at 10 knots with gusts to 15 knots.

WRECKAGE AND IMPACT INFORMATION

The airplane came to rest within one mile of the airport in a heavily wooded area, in a dry stream bed against steep terrain. The slope of the ravine was estimated by the NTSB IIC to be about 25 degrees, increasing to a 50 degree slope near the main wreckage area. The 317-foot impact and wreckage energy path was along a 50 degree magnetic course and followed the down slope of the terrain. Fresh tree breaks and cuts were noted above the wreckage at a higher terrain. Numerous 1 to 3-inch diameter tree limbs were found along the wreckage path. The limbs were cut in 6-inch sections. Approximately 150 feet uphill from the main wreckage area, was the weather radar pod, which was mounted on the right wing. Downhill from the radar pod was a 5-foot outboard section of the right wing tip with the auxiliary fuel tank installed with fuel remaining inside the tank. Approximately 15 feet uphill from the main wreckage area was the propeller piston.

The entire airplane was consumed by fire. Examination of the landing gear and flap actuators indicated that the landing gear was in the extended position and the flaps were extended 30 degrees. The propeller blades were separated from the hub, and the hub was found fractured and melted. The propeller governor was attached and the speed lever was found in the low pitch/high rpm position. The engine was heavily fire damaged on the left and rear sides. The left side rocker arm covers were melted away. The turbocharger was intact and remained attached to the engine. The compressor and turbine sections of the turbocharger were free to rotate by hand. The turbochargers waste gate valve was in the full open position. All the accessories remained attached and sustained heavy fire damage.

The engine was shipped to the manufacturer's facility for a teardown inspection.

PATHOLOGICAL INFORMATION

An autopsy was performed on the pilot at the Travis County Medical Examiner's Office. Toxicology tests revealed that the pilot had 20.5% Carbon Monoxide detected in his blood. Tests for drugs and alcohol were negative. According the medical examiner, the pilot "came to his death as a result of extensive body burns and smoke inhalation sustained...in an airplane crash."

ADDITIONAL INFORMATION

The Continental TSIO-520-P engine, serial number 517692, was examined on December 9, 1999, at the manufacturer's facility under the supervision of an FAA inspector. The left side induction system was melted by the fire, and the #4 cylinder head was separated from the cylinder barrel due to impact damage. The engine oil pump gears were heat damaged and rusted, but were intact. The pistons, piston rings, and piston pins appeared to have "normal operational signatures." The crankcase bearings exhibited "normal operational signatures;" however, the #2 and #3 main bearings displayed shifting marks in their saddles. The connecting rods were free to rotate on the crankshaft. The crankshaft counterweights were intact and were free and unrestricted. The camshaft and lifters exhibited "normal operational signatures" free from spalling and camshaft lobe wear. No anomalies were noted that would have prevented operation of the engine. See the enclosed engine manufacturer's report for more information.

The aircraft was released to the owner's representative on May 1, 2000.

Pilot Information

Certificate:	Private	**Age:**	69,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 3 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	September 16, 1998
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	548 hours (Total, all aircraft), 294 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N7542K
Model/Series:	P210N P210N	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	P21000405
Landing Gear Type:	Retractable - Tricycle	**Seats:**	6
Date/Type of Last Inspection:	April 7, 1999 Annual	**Certified Max Gross Wt.:**	3400 lbs
Time Since Last Inspection:	21 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	2542 Hrs	**Engine Manufacturer:**	Continental
ELT:	Installed, not activated	**Engine Model/Series:**	TSIO-520-P
Registered Owner:	WERNER H. SUESSMANN	**Rated Power:**	300 Horsepower
Operator:		**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:	AUS ,541 ft msl	**Distance from Accident Site:**	23 Nautical Miles
Observation Time:	11:53 Local	**Direction from Accident Site:**	110°
Lowest Cloud Condition:	Scattered / 2800 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	10 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	180°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29 inches Hg	**Temperature/Dew Point:**	27°C / 17°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	DALLAS , TX (RBD)	**Type of Flight Plan Filed:**	None
Destination:	(88R)	**Type of Clearance:**	None
Departure Time:	10:40 Local	**Type of Airspace:**	Class G

Airport Information

Airport:	SPICEWOOD 88R	**Runway Surface Type:**	Asphalt
Airport Elevation:	830 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	17	**IFR Approach:**	
Runway Length/Width:	3000 ft / 30 ft	**VFR Approach/Landing:**	

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	1 Fatal	**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	On-ground
Total Injuries:	2 Fatal	**Latitude, Longitude:**	30.479742,-98.159034(est)

Administrative Information

Investigator In Charge (IIC):	Lupino, Nicole
Additional Participating Persons:	FAYE S MAKARSKY; SAN ANTONIO , TX
Original Publish Date:	November 30, 2000
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=47499