Aviation Investigation Final Report

Location:	BALKO, Oklahoma	**Accident Number:**	FTW98LA250
Date & Time:	May 30, 1998, 19:20 Local	**Registration:**	N200HA
Aircraft:	Piper PA-22	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	4 Minor
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

During the initial takeoff climb from a pasture, the airplane's main landing gear struck and severed the top wire on a barbed wire fence. The wire 'flipped up' and bent the inboard section of the right aileron down. The pilot was then unable to prevent the airplane from turning left and made a decision to land immediately. He 'forced' the airplane down, impacting on the left wing tip and left main gear. The pilot reported that he had examined the takeoff area before the flight and determined a point at which he would abort the takeoff if not airborne. The airplane lifted off at the pre-determined point, but would not climb out of ground effect. According to the pilot, the wind was gusty, and it was possible the airplane lifted off at the peak of a gust. The pilot also stated that it was hot (93 degrees F) and the density altitude (5,700 feet) was a factor which he had considered in his takeoff planning. He indicated that 'a later departure for cooler temp[erature] or leaving a passenger behind' could have prevented the accident.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's inadequate preflight planning which failed to assure adequate climb performance to clear an obstacle (fence) during takeoff climb.

Findings

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

Findings
1. (F) WEATHER CONDITION - HIGH DENSITY ALTITUDE
2. (F) WEATHER CONDITION - GUSTS
3. (C) PREFLIGHT PLANNING/PREPARATION - IMPROPER - PILOT IN COMMAND
4. (F) OBJECT - FENCE
5. CLIMB - NOT ATTAINED - PILOT IN COMMAND
6. FLIGHT CONTROL,AILERON - BENT

Occurrence #2: FORCED LANDING
Phase of Operation: EMERGENCY LANDING AFTER TAKEOFF

Findings
7. DIRECTIONAL CONTROL - NOT POSSIBLE - PILOT IN COMMAND

Occurrence #3: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: EMERGENCY LANDING AFTER TAKEOFF

Factual Information

On May 30, 1998, at 1920 central daylight time, a Piper PA-22 airplane, N200HA, impacted a fence and terrain during the initial takeoff climb from a pasture near Balko, Oklahoma. The airplane, which was registered to and operated by the pilot, sustained substantial damage. The airline transport rated pilot and his three passengers received minor injuries. No flight plan was filed and visual meteorological conditions prevailed for the Title 14 CFR Part 91 personal cross country flight to Sylvia, Kansas.

The pilot reported in the Pilot/Operator Aircraft Accident Report (NTSB Form 6120.1/2) that he examined the condition of the takeoff area before the flight. He stated that, for a takeoff to the south, the area "began fairly level, then sloped down to a draw (which was smooth and grassy), the bottom being about 3/4 down the run, then sloped up to about the original height with a barbed wire fence." He further stated that he "decided that if not airborne by draw, [he] would abort" the takeoff. The pilot estimated the winds were from 180 degrees at 20 to 30 knots.

According to the pilot, the airplane lifted off "at the pre-determined point;" however, it "did not climb well at all." The airplane "seemed to stay in ground effect and climb at roughly the same rate that the terrain" sloped upward. The pilot attempted "to hop" the airplane over the barbed wire fence at the end of the pasture, "but caught the top wire." He estimated that the airplane lost a couple of feet of altitude and then began climbing. The airplane was approximately 50 feet above ground level when the pilot began to lose directional control, and one of the passengers pointed out that the inboard section of the right aileron was bent down. The pilot was unable to prevent the airplane from turning left towards rising terrain and made the decision to "set down immediately." He "pushed the nose down and forced the plane down, striking the left wing tip and left main. The plane spun around 180 degrees coming to rest against a service road for an oil well nearby."

The pilot provided the following "guess" as to the cause of the accident:

It was hot and density altitude was a factor, but was considered in planning. The wind was gusty, I wonder if we might have lifted off at the peak of a gust, then as it subsided to steady state, we were left on the edge. When we hit the wire, it apparently broke off on one end then as it came off [the] main gear [it] flipped up and bent the aileron. This made directional control impossible. I forced the plane into the ground before we rolled to the point of cartwheeling or inverted.

On the Pilot/Operator Aircraft Accident Report, in the section entitled "Recommendation (How Could This Accident Have Been Prevented)," the pilot stated: "We could have opted for a 20 mile drive to nearest airport. Once landing was made, a later departure for cooler temp[erature] or leaving a passenger behind."

The FAA inspector, who examined the accident site, reported that the engine separated from the fuselage, the fuselage was buckled and twisted aft of the cabin, and the left wing outboard of the lift struts was bent downward. He further reported that both main landing gear legs were collapsed outward, and fresh scrape marks were visible in the paint on the leading edges of both gear legs. Approximately the inboard 1 foot of the right aileron was bent down. The inspector noted that the grass in the takeoff area was about 12 inches high and described the terrain in the area as "gently rolling."

Using a temperature of 93 degrees F and a ground elevation of 2,800 feet, the density altitude was calculated at 5,700 feet by the NTSB investigator-in-charge. (No correction was made for nonstandard pressure.)

Pilot Information

Certificate:	Airline transport; Commercial; Flight engineer; Flight instructor	**Age:**	45,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 single-engine	**Toxicology Performed:**	No
Medical Certification:	Class 1 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	April 23, 1998
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	11638 hours (Total, all aircraft), 300 hours (Total, this make and model), 8945 hours (Pilot In Command, all aircraft), 161 hours (Last 90 days, all aircraft), 54 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	N200HA
Model/Series:	PA-22 PA-22	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	22-517
Landing Gear Type:	Tailwheel	**Seats:**	4
Date/Type of Last Inspection:	September 1, 1997 Annual	**Certified Max Gross Wt.:**	1950 lbs
Time Since Last Inspection:	32 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	3131 Hrs	**Engine Manufacturer:**	Lycoming
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	O-320-A1B
Registered Owner:	MICHAEL L. MURPHY	**Rated Power:**	150 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:		**Distance from Accident Site:**	
Observation Time:		**Direction from Accident Site:**	
Lowest Cloud Condition:	Scattered / 25000 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	20 knots / 30 knots	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	180°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:		**Temperature/Dew Point:**	34°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:		**Type of Flight Plan Filed:**	None
Destination:	SYLVIA , KS	**Type of Clearance:**	None
Departure Time:	19:20 Local	**Type of Airspace:**	Class G

Airport Information

Airport:		**Runway Surface Type:**	
Airport Elevation:		**Runway Surface Condition:**	
Runway Used:	0	**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 Minor	**Aircraft Damage:**	Substantial
Passenger Injuries:	3 Minor	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	4 Minor	**Latitude, Longitude:**	36.629352,-100.680084(est)

Administrative Information

Investigator In Charge (IIC):	Snyder, Georgia
Additional Participating Persons:	RON EVANS; OKLAHOMA CITY , OK
Original Publish Date:	December 1, 1999
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=20633