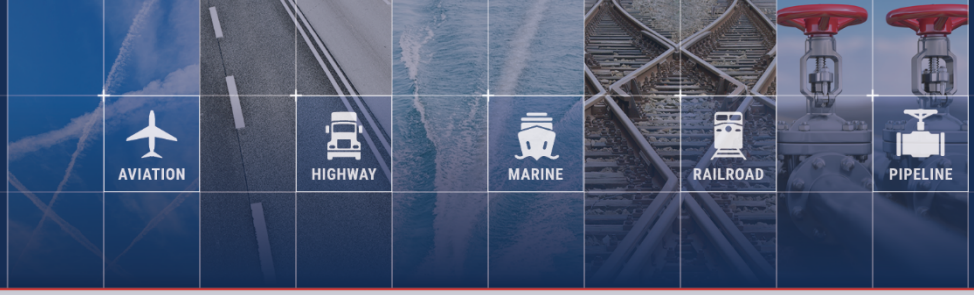

Aviation Investigation Final Report

Location:	AUGUSTA, Georgia	**Accident Number:**	ATL00FA075
Date & Time:	August 4, 2000, 07:45 Local	**Registration:**	N198PM
Aircraft:	Piper PA-46-350P	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	3 Fatal
Flight Conducted Under:	Part 91: General aviation		

Analysis

Witness's reported that the airplane took off from runway 05, which has an up slope of 1.2 degrees. The airplane was observed at approximately 10 feet above ground level, in a nose high attitude traveling parallel to the ground and not climbing. The airplane narrowly cleared a 6-foot fence off the departure end of runway 05. Shortly thereafter, the airplane impacted a utility pole, the roof of a bus stop, which was followed by a brick wall. At the time of the accident runway 23, which has a 1.2-degree down slope and has a clear-cut area on the departure end, was available for use. The basic empty weight for this airplane is 3,097 pounds; the useful load is 1,201.7 pounds. The actual load at the time of the accident was in excess of the useful load. There is no record of the pilot completing a weight and balance computation prior to take-off. The toxicology examinations were negative for carbon monoxide, cyanide, drugs and alcohol. The toxicology examination revealed that 1175(mg/dl) glucose was detected in the urine. Examination of the airplane and subsystems failed to disclose any mechanical or component failures.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: Improper preflight planning/preparation by the pilot, which resulted in taking off with the airplane exceeding the weight and balance limitations. Factors to the accident were the improper loading of the airplane, taking off from a short, up sloping runway and the pilot's elevated glucose level.

Findings

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

Findings
1. OBJECT - POLE
2. (C) PREFLIGHT PLANNING/PREPARATION - INADEQUATE - PILOT IN COMMAND
3. (C) WRONG RUNWAY - SELECTED - PILOT IN COMMAND
4. (C) AIRCRAFT WEIGHT AND BALANCE - EXCEEDED - PILOT IN COMMAND
5. (F) PHYSICAL IMPAIRMENT(HYPOGLYCEMIA/DIET) - PILOT IN COMMAND

Occurrence #2: IN FLIGHT COLLISION WITH OBJECT
Phase of Operation: CLIMB

Findings
6. (C) OBJECT - POLE
7. (C) AIRCRAFT HANDLING - NOT OBTAINED/MAINTAINED - PILOT IN COMMAND

Factual Information

HISTORY OF FLIGHT

On August 4, 2000, at 0745 eastern daylight time, a Piper PA-46-350P Malibu Mirage, N198PM, was destroyed when it collided with a utility pole, bus stop and brick wall and burst into flames during initial climb following takeoff from Daniel Field Airport in Augusta, Georgia. The instrument-rated commercial pilot and two passengers were fatally injured. Visual meteorological conditions prevailed, and an instrument flight plan was filed for the business flight being conducted under Title 14 CFR Part 91. The flight was originating from Augusta, Georgia, at the time of the accident. The planned destination was Atlantic City, New Jersey.

According to several employees at the Daniel Field Airport, the pilot was intending to fly the two passengers and their dog to Portland, Maine, with a fuel stop in Atlantic City. The male passenger had reportedly made arrangements the prior evening for the flight with himself as the sole passenger; however, he arrived on the morning of the accident with a second passenger and a large dog. According to the Fixed Base Operator, the airplane was topped off with 14.7 gallons of 100 low-lead aviation fuel before the pilot attempted the departure.

The airplane was observed by several witnesses located at the departure end of runway 05 and on the airport. One witness observed the airplane approximately 10 feet above ground level (AGL) in a nose high attitude traveling parallel to the ground and not climbing. He observed the right wing dip 45 degrees, then level off. Seconds later, the left wing dipped 45 degrees, then the airplane leveled off again. Several other witnesses observed the airplane narrowly clear the 6-foot fence off the departure end of runway 05. One ear-witness at the airport reported that the engine appeared to operate normally. He further stated that during the takeoff and climb the engine was not "spitting and sputtering".

As the climbout continued, the airplane collided with a utility pole, the roof of a bus stop, and a brick wall approximately 150 feet beyond the utility pole. Witnesses also reported that the airplane burst into flames after it collided with utility pole and the ground.

PERSONNEL INFORMATION

The pilot held a commercial pilot certificate with airplane single and multi-engine land, and instrument ratings. A review of the pilot's flight information showed that he had accumulated a total of approximately 6000 flight hours in all aircraft and he had flown approximately 80 hours in the Piper PA-46-350P. The pilot completed ground and flight refresher training for the Malibu Mirage PA-46-350P at Eclipse International Inc, on February 2, 2000. The pilot held a current second-class medical certificate, dated November 8, 1999, valid when wearing corrective lens for near and distant vision.

AIRCRAFT INFORMATION

The Piper PA-46-350P, N198PM, was owned by Medical Enterprises, Inc., of Wilmington, Delaware. The airplane was operated by Stephen Patterson of Evans, Georgia. N198PM was a low-wing airplane powered by a Lycoming TIO-540-AE2A engine. A review of the airplane maintenance logbooks showed that Augusta Aviation performed an annual inspection on the airplane on July 26, 2000 at 354.7 hours on the airframe. The engine oil and filter were serviced on 07/26/2000, at 451 hours.

METEOROLOGICAL INFORMATION

Augusta/Bush Field, 0753 weather observation, reported winds from 210 at 3 knots, visibility 10 statute miles, temperature 72 degrees Fahrenheit, and a dew point of 72 degrees Fahrenheit. The ceiling was broken at 4400 feet above ground level. The altimeter was 30.10 inches of mercury.

Augusta/Bush Field is six nautical miles southeast of the accident site.

AIRPORT INFORMATION

Daniel Field Airport is an uncontrolled airport one mile west of the city and has two runways: 11-29, 05-23. At the time of the accident runway 05 was in use and has an upslope of 1.2 degrees. Runway 05-23 has a length of 3,900 feet. According to the fixed base operator (FBO), runway 23 has a 1.2 degree down slope and has a clear-cut area on the departure end. Runway 23 was available for use. Daniel Field Airport is approximately 1/4 mile southwest of the accident site, with a field elevation of 423 feet.

WRECKAGE AND IMPACT INFORMATION

Examination of the accident site disclosed that wreckage debris from the airplane was in the immediate vicinity of impact. The wreckage path was oriented on a 050-degree magnetic heading. The aircraft impacted a metal pole, wood pole and metal bus stop structure located street side of a parking lot directly across the street from the airport. One propeller blade was found near that location and a cut in the grass was also present. The distance from the airport boundary fence to the initial point of impact was about 150 feet.

There was circular crushing damage to the leading edge of the left wing that corresponded with the location of the utility wood pole along the wreckage path. The right wing sustained impact damage that corresponded with the damaged bus stop structure on the right side of the flight path. The wood pole and the bus stop structure were dislodged from their respective foundations and dragged along the flight path for several feet. Fuel spray from the fuel system immediately caught fire, and other debris, including the plastic glass-like windows of the bus stop, along the wreckage path was also fire damaged.

Examination of the accident site showed fresh damage to the roadside curb adjacent to the bus stop. The wreckage path continued for about 30 feet where additional fresh damage was noted on the pavement behind the bus stop. Wreckage debris from the right wing assembly and the bus stop structure rested several feet northeast of the initial installation of the bus stop. The airplane continued for about another 100 feet where it came to rest against a brick wall. The airplane sustained a considerable amount of post-crash fire and was destroyed.

The examination of the propeller failed to disclose any discrepancies that could have precluded normal operation. All damage was consistent with impact damage. During the functional test of the propeller governor, the maximum RPM setting of the governor was lower than specified, but it is uncertain whether this was the actual setting prior to the collision sequence of events. There was no heat damage to the propeller governor assembly however, the control arm braces attached to the propeller governor sustained damage. Examination of the composite propeller bladed showed leading edge damage, the propeller blades were torn from the propeller hub assembly. Propeller blade pitch information was not determined.

The examination of turbocharger S/N CDN00956 disclosed damage indicative of turbocharger operation at impact. No pre-existing conditions were found that would have interfered with normal operation.

The examination of turbocharger S/N CEN00998 disclosed neither dynamic or static impact damage to the compressor or turbine components. In their absence, these types of damages could not be used to establish whether the turbocharger was operating at the time of impact or not. No abnormal conditions, such as oil leaks, heavy combustion or fuel deposits, which would be indicative of turbocharger non-operation at impact, were found. No pre-existing conditions were found that would have interfered with normal operation.

The engine sustained impact and post-crash fire damage. The accessories were mostly destroyed. The engine was found free to rotate. Valve and gear train continuity was established. The engine was disassembled and visually examined. The engine was found free of material defects and internal components appeared to exhibit normal conditions. No pre-impact mechanical failure to any rotating or reciprocating component of the engine was observed.

The flight control system was also examined and failed to reveal a mechanical malfunction or component failure.

MEDICAL AND PATHOLOGICAL INFORMATION

Postmortem examination of the pilot was performed by Dr. Sims at the Office of the County Medical Examiner in Decatur, Georgia. The forensic toxicology was performed by the FAA Toxicology and Accident Research Laboratory, Oklahoma City, Oklahoma. The toxicology examinations were negative for carbon monoxide, cyanide, drugs and alcohol. The toxicology

examination revealed that 1175(mg/dl) glucose was detected in the urine. According to the FAA Aero medical Center in Oklahoma City, Oklahoma, the pilot's 1993 medical exam revealed that he has hypertension and his 1997 medical examination reveals that he has diet-controlled diabetes.

FIRE

Further examination showed the airplane sustained post-impact fire. The post-crash fire was mostly confined to the parking lot pavement, bus stop structure and the wall where the aircraft came to rest. The cockpit sustained extensive fire damage. The engine sustained post crash fire damage. The airplane immediately erupted in flames upon initial impact with the poles and bus stop.

ADDITIONAL INFORMATION

Reportedly, the pilot planned for a 0700 departure. The passengers arrived late and they finally departed the ramp at 0735. Reportedly, the pilot was inside the fixed base operator (FBO) while the airplane was being loaded.

According to Piper's Malibu Mirage Information Manual, the maximum takeoff weight is 4,318 pounds. According to aircraft documents for the Malibu Mirage PA-45-350P, the useful load is 1,201.7 pounds. This airplane was loaded with a pilot weighing 205 pounds, one passenger 200 pounds, another passenger 122 pounds, a dog 100 pounds, three baskets of fruit and okra weighing 75 pounds, 193 pounds of miscellaneous items, and full fuel (120 gallons) 720 pounds. The basic empty weight for this airplane is 3,097 pounds. There is no record of the pilot completing weight and balance computations prior to take-off.

According to the Accident Prevention Program pamphlet on weight and balance, FAA-P-8740-5, aircraft performance and handling characteristics are affected by the gross weight and center of gravity limits. An overloaded or improperly balanced aircraft will require more power and greater fuel consumption to maintain flight, and the stability and controllability will be seriously affected. Every pilot should ascertain during preflight preparation that the aircraft gross weight is within safe limits for the intended flight, considering the aircraft performance capabilities. The total weight of baggage, cargo, and fuel load should be adjusted accordingly to provide an adequate margin of safety. Pilots must understand that in many general aviation airplanes it is not possible to fill all seats, load the baggage compartment to capacity, carry full fuel, and remain within approved weight and balance center of gravity (CG) limits. In many four-place and six-place airplanes, the fuel tanks may not be filled to capacity when a full complement of passengers and their baggage is carried. It will be necessary to reduce the number of passengers or baggage weight if the proposed flight distance requires a full fuel load. The aircraft performance characteristics adversely affected by overweight are increased takeoff speed, increased takeoff runway length, rate of climb, maximum altitude capability, operational range, maneuverability, controllability, stall speed, approach speed, and landing distance. For the safety of the pilot and passengers, the weight and balance should be

checked before each flight. Keep the aircraft gross weight and center of gravity within prescribed limits.

According to Piper Malibu Mirage Information Manual, an overloaded airplane will not take off, climb, or cruise as well as a properly loaded one. The heavier the airplane is loaded, the less climb performance it will have. For all airplane configurations, it is the responsibility of the pilot in command to make sure that the airplane always remains within the allowable weight vs. center of gravity envelope.

The airplane wreckage was released on February 12, 2001 to Kern and Wooley, insurance adjuster, Atlanta, Georgia.

Pilot Information

Certificate:	Commercial; Flight instructor	**Age:**	53,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:**	Yes
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	November 8, 1999
Occupational Pilot:	UNK	**Last Flight Review or Equivalent:**	
Flight Time:	6000 hours (Total, all aircraft), 80 hours (Total, this make and model), 128 hours (Last 90 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	N198PM
Model/Series:	PA-46-350P PA-46-350P	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	4636133
Landing Gear Type:	Retractable - Tricycle	**Seats:**	6
Date/Type of Last Inspection:	February 11, 2000 Annual	**Certified Max Gross Wt.:**	4300 lbs
Time Since Last Inspection:	104 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	451 Hrs	**Engine Manufacturer:**	Lycoming
ELT:	Installed	**Engine Model/Series:**	TIO-540-AE2A
Registered Owner:	MEDICAL ENTERPRISE INC	**Rated Power:**	310 Lbs thrust
Operator:	STEPHEN R. PATTERSON	**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:	AGS ,145 ft msl	**Distance from Accident Site:**	6 Nautical Miles
Observation Time:	08:25 Local	**Direction from Accident Site:**	180°
Lowest Cloud Condition:	Scattered / 4400 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	Broken / 4500 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	3 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	210°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	72°C / 72°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	(DNL)	**Type of Flight Plan Filed:**	IFR
Destination:	ATLANTIC CITY , NJ (ACY)	**Type of Clearance:**	None
Departure Time:	07:44 Local	**Type of Airspace:**	Class E

Airport Information

Airport:	DANIEL FIELD DNL	**Runway Surface Type:**	Asphalt
Airport Elevation:	423 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	5	**IFR Approach:**	None
Runway Length/Width:	3900 ft / 100 ft	**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	2 Fatal	**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	3 Fatal	**Latitude, Longitude:**	33.48011,-82.010353(est)

Administrative Information

Investigator In Charge (IIC):	POWELL, PHILLIP
Additional Participating Persons:	RANDY GIBSON; COLLEGE PARK , GA
Original Publish Date:	December 4, 2001
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=49893