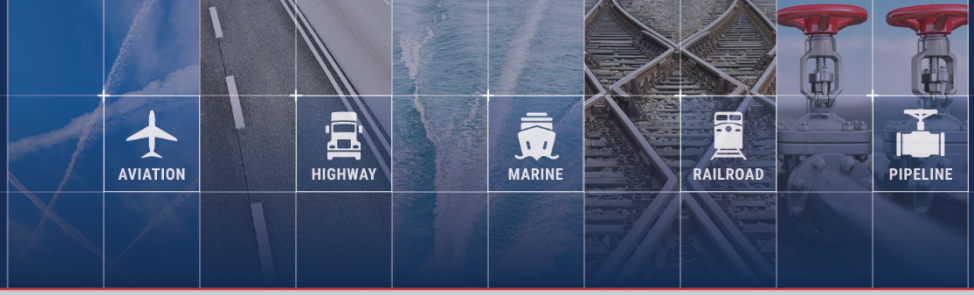

Aviation Investigation Final Report

Location:	Cedar Key, Florida	**Accident Number:**	MIA02FA059
Date & Time:	February 10, 2002, 20:00 Local	**Registration:**	N5136S
Aircraft:	Cessna TR182	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	4 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

A witness observed the airplane's lights, and heard the engine at full power after the airplane departed the runway. He saw the airplane turned left, at an angle of about 45 degrees, and then descend into the waters of the Gulf of Mexico about 1/4 mile from the airport. Witnesses described the weather as a dark night, with no stars visible, patches of fog, and light haze existed over the water. Recovery personnel reported seeing fog at the crash site about 1 hour after the accident. Examination of the wreckage did not reveal any discrepancies with either the airframe, engine, engine components, or propeller.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the failure of the pilot to maintain control of the airplane due to spatial disorientation resulting in the airplane descending and colliding with water. A factor in the accident was a dark night .

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: TAKEOFF - INITIAL CLIMB

Findings
1. (F) LIGHT CONDITION - DARK NIGHT
2. (C) AIRCRAFT CONTROL - NOT MAINTAINED - PILOT IN COMMAND
3. (C) SPATIAL DISORIENTATION - PILOT IN COMMAND

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Findings
4. TERRAIN CONDITION - WATER

Factual Information

HISTORY OF FLIGHT

On February 10, 2002, about 2000 eastern standard time, a Cessna TR182, N5136S, owned by Flying Professionals Inc., and operated by an individual, as a Title 14 CFR Part 91 personal flight, crashed into the water's of the Gulf of Mexico, shortly after takeoff from the Cedar Key Airport, Cedar Key, Florida. Visual meteorological conditions prevailed. No flight plan was filed. The airplane was destroyed. The commercial-rated pilot and three passengers received fatal injuries. The flight was originating at the time, and was en route to Gainesville, Florida.

The airplane had departed Gainesville at 1630, that same day, with four persons on board for the flight to Cedar Key, in order for the occupants to have dinner at a restaurant. The occupants ate dinner at the restaurant and, according to employees at the restaurant; the pilot did not consume alcohol. The occupants returned to the airport by taxi around 1945.

A witness, who was an airport resident and a pilot, stated that he observed the airplane's navigation lights, and heard the engine "...with full power sound," after the airplane departed the runway. He stated "...at an altitude of approximately 150 feet, the airplane made an abrupt left descending turn of about 45 degrees." The witness also pointed out a memorial located at the end of runway 23, which had been placed there after a 1980 aircraft accident, that warned pilots that a horizon "will not be present" during a night takeoff to the west.

An NTSB Air Traffic Control/Operational Factors investigator requested radar data. He reported that he had obtained long-range radar data for February 10-11, 2002, to attempt to identify N5136S after departure from Cedar Key. The Cross City, Florida, radar was the closest site to the accident, and had recorded no targets other than occasional spurious primary reflections during the time period surrounding the accident.

PERSONNEL INFORMATION

The pilot, held an FAA commercial pilot certificate, with airplane single engine land, and airplane instrument, initially issued on August 23, 1999. FAA records showed that the pilot updated his pilot's certificate on October 18, 1999. The pilot held an FAA class 2 medical certificate issued on November 11, 2000, with the limitations "must wear corrective lenses, and possess glasses for near and interim vision." The pilot received a biennial flight review, as required by 14 CFR Part 61, on January 26, 2001.

The pilot's personal flight logbooks were not found. As per entries on the pilot's insurance application, dated November 15, 2001, he had accumulated a total of 1,059.1 total flight hours, all single engine flight hours, and 306.5 hours in this make and model aircraft. There were no

records found to indicate the number of instrument or night flight hours that the pilot had accumulated at the time of the accident.

AIRCRAFT INFORMATION

The airplane was a Cessna; model TR 182, serial number R18201508, manufactured in 1980. The owner at the time of the accident, the Flying Professionals, Inc., had purchased the airplane on August 6, 1996. At the time of the accident the airplane had accumulated 2,407.1 total flight hours. An annual inspection was performed on the airplane and engine on June 14, 2001, 149 hours before the accident. The airplane was equipped with one Lycoming O-540-L3C5D engine, serial number L-22308-40A, rated at 235 horsepower. According to the engine logbook, the engine was put in service October 17, 1980. According to the maintenance records the last static pressure/instrument check as required by FAR 43, was completed on June 14, 2001.

Examination of the aircraft/engine maintenance records revealed that the current time in service of the engine was 2,407.1 hours. According to the Textron Lycoming Service Instruction 1009AQ, dated January 12, 2001, the recommended time before overhaul (TBO) for O-540-L3C5D engines is 2,000 hours. The airplane's propeller was manufactured by McCauley, model B2D34C219/90DHB, and the serial number was 7910457. Aviation Propellers, Inc., of Orlando, Florida, overhauled the propeller and it was installed during the annual inspection, on June 14. 2001.

METEOROLOGICAL INFORMATION

The nearest weather station to the accident site was located at the Cedar Key Airport, field elevation 7 feet msl, located about 030 degrees at 1/4 nautical mile from the accident location. The reported weather at 1953 was; winds 230 degrees at 4 knots; visibility 10 miles; sky condition; clear; temperature 16 degrees Celsius; dew point 12 degrees Celsius; altimeter setting 30.16 inches hg.

According to the taxi driver who drove the airplane's occupants to and from the restaurant, when they returned to the airport it was a dark night, with no stars visible, and patches of fog existed over the water. In addition, a pilot at the airport, who saw the airplane before it crashed stated it was a "dark" night, with "light haze" over the water. Recovery personnel reported seeing fog at the crash site about 1 hour after the accident.

WRECKAGE AND IMPACT INFORMATION

The aircraft crashed about 1/4 mile southwest of the departure runway into the water's of the Gulf of Mexico. The accident occurred during the hours of darkness, and the wreckage was located at N29 degrees, 07.476 minutes, W083 degrees, 03.621 minutes. The Levy County Sheriff's Department initially recovered the engine, instrument panel, aft cabin and tailcone. The wings were later recovered and taken by the salvage company to Atlanta, Georgia. The

front seats and surrounding structure were not recovered. The rear bench seat was located.

Examination of the airframe parts that were recovered revealed that the Sheriff's Department had to pull the recovered sections of the airplane across the ocean floor about 2 miles to a boat ramp. The sections included the engine, with the nose landing gear and instrument panel attached, the tailcone and empennage, and the rear bench seat, including the lower fuselage structure and gear actuators.

After removal of the airplane from the water it was transported to the Cedar Key Airport. An examination of the fuselage revealed no evidence of fire. The engine cowlings, the cabin overhead and the fuselage belly, from the firewall to the aft doorposts, were not recovered.

The wings were later examined at the salvage dealer's property in Atlanta. The examination revealed that the left and right aileron cables were found attached to the bellcrank. The ailerons had remained attached to the wings. The flaps had also remained attached to the wings, and the flap actuator was found retracted.

Flight controls and aerodynamic surface control cable continuity was not established due to fuselage and cable separations. The rudder cables were confirmed attached at their ends. The elevator cables and push/pull tubes were attached at the elevator bellcrank. The cables were also attached forward at the control tube and arm assemblies.

The empennage remained attached to the tailcone. The horizontal stabilizer and elevator displayed impact damage. The elevator was pushed downward beyond its normal limits during the tow through the water.

The examination of the engine revealed that it was intact and no external discrepancies were observed. The propeller was found attached to the engine crankshaft flange, and the engine was attached to the firewall. Fuel system lines and hoses displayed impact damage. The engine mounts and control cables displayed impact damage and deformation.

Partial disassembly of the engine revealed that residual fuel was found within the engine driven fuel pump and carburetor. A lighted borescope was used to examine the engine top and components. The borescope examination revealed no discrepancies. The engine's crankshaft was rotated, and internal gear and valve train continuity was established. Compression was noted on all six cylinders. The turbo assembly displayed rotational scoring inside of the compressor housing. The oil suction screen and filter were found clean. The spark plugs were gapped properly and exhibited a gray-brown combustion signature. Three types of spark plugs were installed, and according to the engine manufacture, one type, Champion RHB32W plugs were not approved for use in the 0-540 engines. The external and internal examinations of the engine and components did not reveal any discrepancies.

Examination of the propeller revealed that only one propeller blade exhibited torsion and aft bending. Both of the blades rotated freely in the hub. The propeller governor was found

secure on the engine case; the governor control arm was found at the high pitch position. The control cable assembly displayed impact damage deformation. The governor was removed and inspected. The inspection revealed that the drive coupling was intact, and rotated. The pumping action of oil was observed. The oil screen was found clean.

Fuel system continuity could not be accomplished due to a lack of recovered components, including sections of lines and the fuel selector valve; however, recovery personnel reported smelling fuel near the crash site. The fuel strainer bowl and screen were found clean. Fuel was found in the engine driven fuel pump and the pump appeared to operate when actuated. The diaphragms showed no discrepancies.

The aircraft was equipped with an engine driven and an electrically driven stand-by vacuum pump. Both pumps rotated and were disassembled. The vanes, rotors and frangible couplings were intact. The check valves in the system allowed a small amount of reverse airflow when blown through.

The instrument panel was recovered with the instruments attached. The attitude indicator was disassembled, the rotor rotated freely and did not exhibit any rotational scoring. The directional gyro was not opened. The instrument panel post lights and the autopilot were found in the "ON" position.

The following documentation of the instruments, switches, avionics and controls, depicts what was observed after the wreckage was removed from the water:

All three landing gear were found in the down position. The gear selector was found in the "down" position. The flap actuator was found retracted, and the flap selector was found at 20 degrees. The elevator trim tab was measured and showed 1.5 inches rod extension, which was equal to 10 degrees tab "up." The emergency locator transmitter (ELT), was found armed, and the ELT battery due date was October 1981.

Flight instrument readings: Airspeed indicator- 0; altimeter- 9,150 feet; altimeter setting- 30.12"; heading indicator- 320 degrees; heading bug- 155 degrees; vertical speed indicator- +/- 2,000 feet; attitude indicator (pitch)- full down; attitude indicator (roll)- left 2 degrees; Nav #1 OBS (omni bearing selector)- 233 degrees; and the Nav #2- destroyed.

The following switches were found in the "ON" position: Master switch, avionics switch #1, navigation lights, rotating beacon, strobe lights, left magneto, right magneto, ignition and alternator/generator.

The following switches were found in the "OFF" position: Landing lights and taxi lights.

The communication and navigational radios were digital and no readings were obtained.

Engine instruments: Tachometer-rpm- 0; Tachometer-hours- 2407.1; manifold pressure- 29

inches; cylinder head temperature- 0; oil pressure- 0; oil temperature- 0; fuel pressure- 0; ammeter- 0; and instrument suction gauge- off scale, on the high side.

The optional, owner installed standby vacuum switch, was found in the "ON" position.

The engine controls were found in the following positions: (at the engine) Throttle- idle; mixture- mid-range; and propeller control- high pitch. The controls in the cockpit showed that the cowl flaps were- open; and the primer- in/locked.

The front seats and seat belts were not recovered. The rear seat was the only seat observed. The seat was intact, but not completely attached to the floor. According to the Levy County Sheriff's Department, the women seated in the rear seats were found wearing their lap belts. The cabin overhead was missing and no evidence of shoulder harnesses was observed. The rear belts had no shoulder harness provisions. According to Cessna's records the aircraft was delivered with front shoulder harnesses and inertia reels.

MEDICAL AND PATHOLOGICAL INFORMATION

Postmortem examination of the pilot and 3 passengers was performed by the Office of the Chief Medical Examiner, Gainesville, Florida. The cause of death for each was attributed to multiple blunt traumatic injuries and no findings which could be considered causal to the accident were reported.

Toxicological tests on specimens obtained from the pilot were conducted at the Federal Aviation Administration, Research Laboratory, Oklahoma City, Oklahoma, and revealed that the following drugs were detected, "Dextrorphan, Dextromethorphan, Ephedrine, and Pseudoephedrine were present in Urine. Pseudoephedrine was detected in Blood."

Toxicological tests specimens obtained from the pilot were conducted, at the Office of the Chief Medical Examiner, Gainesville, Florida, with the following results; Ethanol "positive" - 16 mg/dL (0.01 /dL), in Blood. Ethanol in Urine-"none detected." Comprehensive Drug Screen (blood): "none detected." Comprehensive Drug Screen (urine): Dextromethorphan and Ephedrine/Pseudoephedrine "positive."

ADDITIONAL INFORMATION

The airplane was released to Mr. David E. Gourgues, CTA Inc., on behalf of owner's insurance company, on February 13, 2002.

Pilot Information

Certificate:	Commercial	**Age:**	57,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 2 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	November 6, 2001
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	January 26, 2001
Flight Time:	1059 hours (Total, all aircraft), 307 hours (Total, this make and model), 33 hours (Last 90 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N5136S
Model/Series:	TR182	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	R18201508
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:	June 14, 2001 Annual	**Certified Max Gross Wt.:**	3112 lbs
Time Since Last Inspection:	149 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	2398.7 Hrs at time of accident	**Engine Manufacturer:**	Lycoming
ELT:	Installed, not activated	**Engine Model/Series:**	O-540-L3C5D
Registered Owner:	Flying Professionals	**Rated Power:**	235 Horsepower
Operator:	Russell W. Blaser	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Night/dark
Observation Facility, Elevation:	CTY,7 ft msl	**Distance from Accident Site:**	
Observation Time:	19:53 Local	**Direction from Accident Site:**	30°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	4 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	230°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.15 inches Hg	**Temperature/Dew Point:**	16°C / 12°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Cedar Key, FL (CDK)	**Type of Flight Plan Filed:**	None
Destination:	Gainesville, FL (GNV)	**Type of Clearance:**	None
Departure Time:	20:00 Local	**Type of Airspace:**	Unknown

Airport Information

Airport:	George Lewis KCDK	**Runway Surface Type:**	Asphalt
Airport Elevation:	7 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	23	**IFR Approach:**	None
Runway Length/Width:	2355 ft / 100 ft	**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	3 Fatal	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	4 Fatal	**Latitude, Longitude:**	29.1375,-83.04972

Administrative Information

Investigator In Charge (IIC):	Yurman, Alan J.
Additional Participating Persons:	Steve Hull; FAA; Tampa, FL Edward Rogalski; Lycoming; Belleview, FL Robert August; Cessna; Wichita, KS
Original Publish Date:	June 30, 2004
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=54169