Aviation Investigation Final Report

Location:	HOMESTEAD, Florida	**Accident Number:**	MIA99GA064
Date & Time:	January 6, 1999, 22:36 Local	**Registration:**	N756XQ
Aircraft:	Cessna U206G	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	1 Serious
Flight Conducted Under:	Part 91: General aviation - Public aircraft		

Analysis

The accident pilot received mission briefings for 2 planned training exercises; he was scheduled to fly a U.S. Customs Service (USCS) aircraft, acting as a target. There was no mention of any floor during the mission briefings and USCS did not have regulations that indicated the lowest floor to be flown during a training exercise. The first flight was uneventful lasting 1 hour 15 minutes. The second flight was flown using the same airplane. While returning to the departure airport flying over Biscayne Bay on a dark night, the airplane was flown into the water. No warning to the accident pilot was made before water impact by the flight crews and Domestic Air Interdiction Coordination Center facility tracking the airplane. The airplane was recovered and examination of the flight controls, engine, engine systems, altimeter, vertical speed indicator, pilot's restraint, or pitot static system revealed no evidence of preimpact failure or malfunction. The position lights were not illuminated at the time of the accident contrary to USCS procedures. A life raft that was dropped by a hovering USCS helicopter began inflating while descending but the inflation bottle separated after impact with the water before complete inflation of the raft.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The intentional low altitude flight/maneuver by the pilot-in-command and his disregard of the altitude clearance with terrain resulting in the inflight collision with water during the dark night. Contributing to the accident was the lack of U.S. Customs procedures regarding the establishing of floors during training exercises at night. Findings in the accident were the pilot's intentional operation of the airplane at night during a training flight without operating the position lights contrary to U.S. Customs Service procedures, and the failure of the flightcrews tracking the airplane to notify the pilot before impact with the water.

Findings

Occurrence #1: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT

Findings
1. LIGHT CONDITION - DARK NIGHT
2. (C) LOW ALTITUDE FLIGHT/MANEUVER - INTENTIONAL - PILOT IN COMMAND
3. (F) CONDITION(S)/STEP(S) NOT LISTED - COMPANY/OPERATOR MANAGEMENT
4. (C) ALTITUDE/CLEARANCE - DISREGARDED - PILOT IN COMMAND

Factual Information

HISTORY OF FLIGHT

On January 6, 1999, about 2236 eastern standard time, a Cessna U206G, N756XQ, registered to U.S. Customs Service, crashed into the Biscayne Bay, about 7 nautical miles east-southeast of the Homestead Air Reserve Base, Homestead, Florida. Visual meteorological conditions prevailed at the time and no flight plan was filed for the public-use flight. The airplane was destroyed and the commercial-rated pilot, the sole occupant, sustained serious injuries. The flight originated about 2121 local, from the Homestead Air Reserve Base, Homestead, Florida.

The pilot stated that he had attended a mission briefing for two training exercises/flights in which he was to fly the accident airplane acting as a "target" for two different U.S. Customs Service aircraft. He later reported that he did not intend on descending below 500 feet during the training exercise except for takeoff and landing. During the mission plan for the accident flight, there was no mention of established floors during the training exercise or the mention that the accident flight would be operated near a barge. The first flight departed with full fuel tanks and lasted approximately 1 hour 15 minutes as determined by times from air traffic control (ATC). The pilot reported that he noted a discrepancy during the flight with the alternator which was surging as evidenced by a hum in the radio with each surge, and he also noticed that the panel lights would dim and brighten with each surge of the alternator. After landing, he ate and exercised. Before takeoff on the second flight, he performed a walkaround, and when he applied power to take off, he noticed that the foot needle of the altimeter was swinging 400 feet either side of the altimeter indication. The altimeter indication became steady prior to rotating for takeoff and he elected to continue the flight. He climbed to 9,000 feet where he orbited waiting for the tracking airplane (Cessna Citation) to depart from Homestead Air Reserve Base (HARB). The Cessna Citation departed at approximately 2140 as determined by ATC, and after departure, he heard the flightcrew of the Citation contact the Domestic Air Interdiction Coordination Center (DAICC), located in Riverside, California. The flightcrew of the Citation requested and performed two head-on intercepts; the final intercept consisted of a "stern" intercept. The DAICC facility vectored his aircraft for the final intercept. Following that intercept, the flightcrew of a U.S. Customs Blackhawk helicopter which departed HARB at approximately 2146 as determined by ATC, for the purpose of night vision goggle training, joined in along with the Cessna Citation. One of the flightcrew members of the Blackhawk asked the accident pilot if he was "freezing up there" to which he responded, "No, I have all the vents closed and the heater on full hot and I'm toasty warm." He further stated that prior to the inception of the apprehension portion of the training exercise, the flightcrew of the Cessna Citation advised him and the flightcrew of the Blackhawk that the apprehension would be performed at HARB. He reported hearing communications between the crew of the Blackhawk and the DAICC facility.

According to a transcription of communications from the HARB Air Traffic Control Tower (ATCT), at 2225.26, the accident pilot contacted HARB ATCT and advised the controller that his aircraft along with the Blackhawk helicopter and the Cessna Citation were going to perform a practice "buzz" scenario and that after landing, the Blackhawk would be landing to perform an enforcement type stop. The accident pilot later reported that he set his altimeter to the barometric setting provided by the controller and while flying at 500-800 feet on a northerly heading, he transited over Elliott Key. He then made a west-southwesterly turn towards a fuel barge that was departing out of the Turkey Point Power Plant (TPPP). He maneuvered his airplane towards a nearly head-on convergence with the barge; the barge was located off his left wing. After passing the fuel barge, he heard communications between the flightcrews of the Blackhawk and the Citation aircraft; the crew of the Blackhawk advised that it appeared that the accident airplane was maneuvering to simulate an air drop to a vessel. He initiated a turn to the northwest, then turned towards the southwest; the last altitude he recalled was 570 feet. He next recalled being underwater, and struggled to free himself. He swam to the surface, then towards the lights of the TPPP, and recalled being in the rotor wash of a helicopter. He held on to a partially inflated life raft that was later determined to have been dropped by a flight crewmember of the Blackhawk helicopter, was pulled into a boat, then lifted by a basket into a helicopter. He later stated that he intended to writeup the discrepancies pertaining to the alternator and altimeter following the second flight. He reported when interviewed in the hospital 4 days after the accident that there was no engine or flight control preimpact failure or malfunction.

The pilot of the Cessna Citation reported that they were tracking the 206 aircraft using Forward Looking Infra Red (FLIR) radar, and on board radar, and noted that the accident airplane appeared to fly over a barge and noted that his radar indicated that the accident airplane was flying between 200 to 300 feet. The airplane then while in a turn to the left, impacted the water first with the left wing, causing it to separate. The airplane then cartwheeled and after coming to rest, began sinking. The Citation flightcrew advised the DAICC facility that the airplane had crashed. There was no communications made by the flight crew of the Cessna Citation to the pilot of the accident airplane immediately before the accident, pertaining to the altitude flown. The on-board radar of the Cessna Citation was not recording at the time of the accident.

Review of a transcription of communications from a voice tape provided by DAICC revealed that the individual in DAICC stated that the accident airplane's altitude was 100 feet. The time of the transmission was not determined. The transcription also indicates that a flightcrew member of the Cessna Citation responded that the accident airplane was flying at 400 feet; time undetermined. There was no communications attempted by personnel from DAICC with the accident pilot immediately before the accident, pertaining to the altitude flown.

The Blackhawk helicopter was vectored to the area by the flightcrew of the Citation and after visually acquiring the debris and pilot in the water, a flightcrew member dropped a life raft from a height estimated to be greater than 35 feet. A park ranger from the United States

Department of the Interior National Park Service reported that after he was notified of the airplane accident, he requested additional Park Service employees to respond, and he immediately proceeded via boat to the area or the last known point. Additionally, a U.S. Coast Guard helicopter responded to the accident site, dropped a swimmer in the water, and the Park Service employee who responded via boat, arrived in time to see the pilot being assisted by the swimmer. The pilot was lifted into the Park Service rangers' boat then hoisted into the Coast Guard helicopter where he was transported to the Jackson Memorial Hospital for treatment of his injuries.

PERSONNEL INFORMATION

The pilot's training file indicates that he was designated on October 7, 1994, to act as pilot-in-command of Cessna 206 aircraft. His last check-flight with Customs in a Cessna 206 type airplane was on December 10, 1997, which lasted a total of 4.8 hours. That flight was performed in conjunction with a surveillance flight that lasted 3.5 hours; the remainder of the flight was used for the completion of the evaluation. Additionally, the flight time that the pilot listed on page 2 of the NTSB Pilot/Operator Aircraft Accident Report form only included flight time information obtained from Customs from January 1989 to present. His personal pilot logbook was lost in 1992. He had previously flown the same make and model airplane for the Drug Enforcement Administration for a period of about 2 years; that flight time is not included in the report. The pilot estimated that he had a total of about 1,500 additional flight hours. Additional information pertaining to the pilot is contained on page 2 of the Factual Report-Aviation.

AIRCRAFT INFORMATION

The airplane was removed from government seizure, inspected, and approved for return to service on October 9, 1992. A replacement standard airworthiness certificate was issued on November 13, 1992. An engine that was rebuilt by the manufacturer was installed on June 28, 1994. Review of the aircraft logbook revealed that an entry dated June 17, 1997, indicated that a muffler assembly was replaced. Review of the accompanying work order indicates that the right muffler assembly was replaced. Review of the discrepancy sheets for the annual inspection that was signed off on January 8, 1998, indicates that the left muffler heater shroud was cracked. The muffler was removed, the muffler and shroud were repaired by a FAA certificated mechanic at a non FAA certified repair station, and the muffler and shroud were reinstalled on January 2, 1998. The airplane was not equipped with a radar altimeter.

Further review of the maintenance records revealed that on June 4, 1998, an aircraft maintenance record/work order indicates the discrepancy "altimeter fluctuates in a climb." The altimeter was replaced with an altimeter that had been checked to manufacturers specifications by United Instruments, on November 18, 1997. The altimeter and pitot static system was checked in accordance with 14 CFR Part 91.411(a)(1), on June 4, 1998. There was no written discrepancies prior to the accident pertaining to the altimeter since the June 1998, entry. The maintenance records also indicate that the airspeed indicator, vertical speed

indicator, and the magnetic compass were checked satisfactory on October 16, 1998. The equipment used to test the pitot static system was calibrated last February 1998, and was due again February 1999.

By design, heating of the cockpit and cabin is accomplished by air that passes from an inlet duct located on a baffle installed at the aft left side of the engine. The air passes through a "scat" hose to the inlet connection of the left exhaust muffler shroud which covers the left muffler assembly. The air then flows between the external portion of the muffler and the interior portion of the shroud and is ducted via a "scat" hose from the outlet connection of the shroud to the valve body which is mounted on the firewall. With the valve in the open position, air flows through the valve into the heater plenum where it is distributed. With the valve in the closed position, the air is exhausted out the bottom side of the shroud, which is above the cowl flap opening area. The valve body is controlled by a cable that is connected to a push/pull type control knob mounted on the lower right portion of the instrument panel.

Additional information pertaining to the airplane is contained on page 2 of the Factual Report-Aviation, and in Supplements A and B.

METEOROLOGICAL INFORMATION

Sun and moon calculations were performed by the NTSB, located in Washington, D.C. The results indicate that in the area of the crash site, no light from the moon was available. According to the flightcrew of the Blackhawk helicopter, it was a dark night in the area of the crash site. Additionally, the altimeter setting when the flight departed was the same altimeter setting given to the pilot by the tower controller about 11 minutes before the accident. Additional information pertaining to the weather is contained on page 4 of the Factual Report Aviation.

COMMUNICATIONS

A transcription of communications for the Cessna U206G, the Cessna Citation, and the Blackhawk helicopter from HARB Air Traffic Control Tower (ATCT) is an attachment to this report. Also, a transcription of communications with the HARB ATCT for the first flight of the Cessna 206 is an attachment to this report. Additionally, review of conversations between the pilot and the Homestead Tower indicate that about 1 hour and 4 minutes after takeoff, or 11 minutes before the accident, the pilot advised the tower over a period of about 1 minute 7 seconds, instructions which indicated the intended flight path of the accident airplane. The pilot was also notified during that time of the wind direction and the controller asked his intentions. The pilot responded with his intended runway. A transcription of recorded voice communications with DAICC and the flight crews of the Citation and Blackhawk helicopter crew is also an attachment to this report.

WRECKAGE AND IMPACT INFORMATION

A wreckage diagram was prepared by the Underwater Recovery/Marine Theft Investigations unit of the Miami Police Department, before recovery of the airplane. The main wreckage which consisted of the cockpit, and cabin section was noted to be resting on a easterly heading. The engine which had separated was found about 78 feet south-southeast from the main wreckage. The left and right wings were located about 26 feet south-southwest of the main wreckage, and about 90 feet west-northwest of the main wreckage, respectively. Only two of the three propeller blades were initially located. The third propeller blade was subsequently located several months after the accident and retained for further examination. The wreckage was recovered for further examination.

Examination of the fuselage revealed that the floor at the pilot's location was separated forward of the seat track, and the upper cabin skin from the windshield area aft to fuselage station 65 was displaced aft 180 degrees. The instrument panel and firewall were attached only by cables and electrical wires, and the fuselage and empennage were structurally separated at approximately fuselage station 155. The empennage was partially connected to the fuselage by the elevator and rudder flight control cables. Examination of the bottom skin of the fuselage revealed a longitudinal tear near the center portion of the fuselage from approximately fuselage station 155 forward to fuselage station 65. Examination of the left wing revealed that the leading edge exhibited evidence of chordwise crushing from the wing tip to abeam the lift strut. The aileron flight control cables were connected at the bellcrank near the control surface, but exhibited evidence of overload failure in the wing root area. The lift strut was connected at the wing and fuselage connection with a portion of the door frame attached. The right wing also exhibited slight evidence of chordwise crushing near the wing tip. The aileron cables were also connected at the bellcrank near the control surface but evidence of overload failure was also noted near the wing root area. The flap cables exhibited evidence of overload failure. The flaps were determined to be retracted and the right main landing gear was separated from the airplane; the attach bolt exhibited evidence of failure due to shear. Examination of both wings navigation light bulbs, and the beacon light bulb revealed no evidence of stretching of the filaments. The navigation, beacon, and taxi switches were found in the "off" position. Flight control cable continuity was confirmed for the rudder and elevator flight controls. The heater valve was found in the closed position at both the valve and the cockpit control, with control continuity from the cockpit to the valve. The heater valve shroud was impact damaged. Examination of the pitot static system for the airplane revealed no evidence of blockage of the clear plastic tubing or evidence of preimpact failure or malfunction. The pilot's lapbelt which was found buckled with the shoulder harness attached, was retained for further examination. The altimeter which was impact damaged and the vertical speed indicator were also retained for further examination (see Tests and Research section of this report).

Examination of the engine revealed that a section of the propeller hub remained attached to the crankshaft flange. The right exhaust exhibited evidence of impact damage at the joint connection while the left exhaust with muffler was in place and secured; the left muffler shroud partially attached. No obstructions of the left exhaust assembly was noted. All nuts and gaskets for each cylinder exhaust were in place and both exhausts were determined to be

tightly secured to each cylinder. Slight discoloration was noted at the aft side of the intake tube for the No. 6 cylinder, and on a small area of a baffle near the exhaust area for the No. 3 cylinder. Impact damage was noted to the fuel control unit housing. The magnetos were determined to be properly timed to the engine with torque stripe still evident. The spark plugs for cylinder No. 6 were replaced for the attempted engine run, and the impact damaged fuel control housing was replaced. A test club propeller was installed and the initial attempt to start the engine was unsuccessful due to internal corrosion and contamination of each magneto. The magnetos were cleaned internally, and the left magneto was installed on the "right" position and a slave magneto was installed on the "left" position. The engine was started and operated to about 2250 rpm with the installed club propeller installed. The magnetos and the left muffler were retained for further examination (See Tests and Research section of this report). The propeller governor which was installed on the engine, was removed for bench testing, which revealed no evidence of preimpact failure or malfunction.

Examination of the propeller blades revealed that the leading edges of all three blades exhibited similar twist towards low pitch, and all were bent aft similarly.

MEDICAL AND PATHOLOGICAL INFORMATION

The pilot was hoisted into the Coast Guard helicopter approximately 56 minutes after the accident and was administered oxygen at a rate of 15 liters per minute within 2-3 minutes of boarding the helicopter. Coast Guard personnel stated that the pilot was alert and conscious while in the helicopter and when the pilot was asked what occurred, the pilot responded he did not know. During the flight to the hospital, the pilot expressed discomfort wearing the oxygen mask, so it was pulled away from his face and he held it away from his face with oxygen flowing. During that time Coast Guard personnel attended to the pilot. The flight en route to the hospital lasted about 13 minutes. Two blood specimens that were received in the hospital laboratory at 0028 hours on January 7, 1999, and a urine specimen that was received in the laboratory at 0106 hours on January 7, 1999, were retained and tested by the FAA Toxicological and Accident Research Laboratory (CAMI). The results of testing for carbon monoxide of the blood samples indicated 1 percent saturation. Testing for carbon monoxide on January 7, 1999, at 0016 hours, by the hospital laboratory was positive for carbon monoxide (.6 percent). The reference range established by the hospital laboratory for carboxyhemoglobin in a 39 year old male is 0.0 to 1.5 percent. The half life of carbon monoxide breathing room air is about 5 hours and about 1 hour with administered oxygen.

SURVIVAL ASPECTS

According to the U.S. Coast Guard Search and Rescue report, the request for their assistance occurred at 2238 local from a telephone call that was made by the U.S. Customs Service located in Riverside, California. The Coast Guard launched a helicopter to the site and the helicopter arrived on scene at 2315. The Customs Blackhawk helicopter that remained in the area and had previously dropped a life raft, was relieved by the Coast Guard helicopter. A swimmer from the Coast Guard helicopter was dropped into the water and assessed the pilot's

injuries. Based on the hypothermic condition of the pilot, the decision was made to airlift him to the hospital. His hypothermic condition was reported to be moderate to severe by the Coast Guard EMT who responded. A U.S. Park Ranger who responded to the site via a 22-foot boat, arrived near the area when the Coast Guard rescue swimmer was dropped into the water. The swimmer motioned the ranger toward him and after the swimmer freed the pilot's legs from the lines, the swimmer entered the park service boat. Both he and the ranger pulled the pilot into the boat and placed him on the boat deck. A liter was lowered to the boat, and pilot was hoisted into the helicopter at 2332. The pilot was transported to a local hospital and landed there at 2345. Recovered with the wreckage which was part of the aircraft equipment, included the 4-5 person life raft still inside the pouch, and a "Switlik" vest without the "Heeds" bottle. Also, an inflatable vest still inside the pouch was recovered.

Review of his training file revealed that he had attended Primary Aviation Survival School which consisted of 40 hours of training. The training was completed on December 9, 1994. Customs does not require recurrent survival training. The pilot later reported that he deemed the quality of training as "good" but the frequency should be "more often."

TESTS AND RESEARCH

Testing of the altimeter and vertical speed indicator (VSI) was accomplished at the manufacturer's facility located in the United States. Testing of the aneroid of the altimeter revealed no discrepancies; the unit was found to be indicating approximately sea level when examined. The diaphragm of the altimeter was placed into a serviceable altimeter and found to respond to pressure changes from 1,000 feet below sea level to 20,000 feet. Testing of the complete VSI as received could not be accomplished due to corrosion on the inlet orifice which prevented bench testing of the unit. Suction and pressure was applied and the pointer was found to travel from 2,000 feet per minute ascent to 1,000 feet per minute descent. Corrosion on the gears of the pointer prevented full range of movement during the descent test without assistance, but no evidence of preimpact failure or malfunction was noted.

Testing of the left muffler assembly, heater was accomplished at the manufacturer's facility. Pressure testing of a new muffler is accomplished according to the productions test standards which indicate that the muffler is to be pressurized to 5.0, 10.0, and 50.0 psi, respectively with no leakage noted. Production testing is accomplished before an "indexing" hole is drilled into the exit duct. The accident muffler was tested at the first two test points while submerged, with no leakage noted. A test tool fixture was installed through the internal portion of the muffler to accomplish the final test point but the shape of the muffler required several shims and o-rings to help form a seal. The "indexing" hole was welded closed and the muffler was submerged and the pressure was increased incrementally and held at each point for several seconds up to 49 psi, at which point an o-ring seal blew. The testing was then discontinued. Examination of the muffler revealed no evidence of preimpact failure or malfunction.

Examination of the left magneto revealed that the breaker points passed current, and when

operated on a test stand, was found to spark at 150, 300, 1,000, and 3,500 rpm. Examination of the right magneto revealed that the breaker points did not pass current; there was no spark when operated on a test bench to 3,500 rpm. Disassembly of the magneto revealed no continuity from the coil primary lead to the coil laminations. The breaker points of the right magneto were found to open .005 inch, specification is .013 to .019 inch. The points were noted to open a few degrees after magnetic neutral in the normal direction of rotation. The cam follower felt was missing but the cam follower did not appear to be damaged.

Examination of the life raft revealed that a fitting with the nomenclature of "Yoke", made of brass, manufacturer p/n B-50996, was failed at the cylinder connection side. The raft was inflated using compressed shop air through the failed fitting and the raft was inflated intentionally to activation of the overpressure relief valves located in the upper and lower tubes. Both relief valves operated normally deflating both tubes to 2.0 psi; the raft held pressure for a period of about 5 days, before being deflated. The life raft by design is only engineered to be dropped from a height of 5 feet uninflated, onto a hard surface floor, after which it must be inflated and meet the pressure requirements. The life raft was estimated to be dropped from a height greater than 35 feet, and began inflating during the descent following the pulling of the mooring line.

Testing of the pilot's seatbelt which remained in the position as found when the airplane was recovered (latched), was performed at the facility that had renovated the lapbelt in October 1992. The testing was accomplished in accordance with the TSO standards which indicate that the buckle release at no more than 45 pounds of force. The first test indicated that the buckle released at 41 pounds of force. The second test revealed that the buckle released at 24 pounds of force. According to personnel from the facility, the typical release force is 25-30 pounds.

ADDITIONAL INFORMATION

The pilot was not wearing the "switlik" vest. According to Customs procedures for fixed wing aircraft, the pilot is not required to wear the vest when within gliding distance from shore. The main wreckage while submerged in about 8 feet of water, was determined to be located at North 25 28.13 and West 080 16.75, using a GPS receiver. That location when plotted on the Miami to Card Sound nautical chart revealed that the airplane was about 3.3 and 4.75 nautical miles from land due west and due east of the wreckage, respectively. According to the maximum glide distance chart located in the pilot's operating handbook, the minimum altitude to reach land when 3 nautical miles away is about 2,000 feet above terrain. Review of the U.S. Customs Service Air Interdiction Division Aviation Operations Handbook, Chapter IV, Section X, (2)(d), revealed that "whenever possible, pilots should fly at altitudes that will ensure the aircraft is within gliding/autorotational distance to land."

Review of a radar plot using the radar data provided by Miami Approach Control revealed that the direction and distance from the last radar target without an altitude readout to the main wreckage location was determined to be 196 degrees magnetic and .14 nautical mile.

The direction and distance from the second to last radar target to the main wreckage location was determined to be 196 degrees magnetic, and .4 nautical mile. That radar target indicated that the altitude was 300 feet.

According to U.S. Customs Service personnel, there are no written procedures which stipulate the base altitude to descend when flying as a "target" aircraft; the applicable Federal Aviation Administration Regulations (FAR'S), would apply. Review of the Title 14 CFR Part 91.119 revealed that when operating an airplane over open water or sparsely populated areas, the aircraft may not be operated closer than 500 feet to any person, vessel, vehicle, or structure.

According to the U.S. Customs Service Air Interdiction Division Aviation Operations Handbook, with respect to aircraft lights, revealed that operation of the airplane without operating the airplane's position lights is only authorized for U.S. Customs Service aircraft that are "...engaged in law enforcement activities for which visually covert operation is required...." The pilot reported that he was operating the airplane "lights out" when asked during the accident flight by the flightcrew of the Blackhawk helicopter if he was operating in that capacity.

Additional parties to the investigation are Mr. Fred B. Shoaff, Winslow LifeRaft Company, Lake Suzy, Florida; Mr. Toshio Kawawa, United Instruments, Inc., Wichita, Kansas; Mr. Jan Shafer, Stainless Steel Products Division, Burbank, California; Mr. Norman Ballard, Aircraft Belts, Inc., Kemah, Texas; Mr. Thomas M. Knopp, McCauley Propeller Systems, Vandalia, Ohio; and Mr. Tim Davis, Teledyne Continental Motors.

The wreckage minus the retained components was released to Mr. Keith Powell of the U.S. Customs Service on January 12, 1999. All retained components were released to Mr. Warren J. Will, Aviation Maintenance Inspector of the U.S. Customs Service, on April 20, 1999.

Pilot Information

Certificate:	Airline transport; Commercial	**Age:**	39,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):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 1 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	December 3, 1998
Occupational Pilot:	UNK	**Last Flight Review or Equivalent:**	
Flight Time:	2505 hours (Total, all aircraft), 231 hours (Total, this make and model), 1952 hours (Pilot In Command, all aircraft), 41 hours (Last 90 days, all aircraft), 10 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N756XQ
Model/Series:	U206G U206G	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	U20604442
Landing Gear Type:	Tricycle	**Seats:**	4
Date/Type of Last Inspection:	July 22, 1998 Annual	**Certified Max Gross Wt.:**	3600 lbs
Time Since Last Inspection:	84 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	2717 Hrs	**Engine Manufacturer:**	Continental
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	IO-520F
Registered Owner:	U.S. CUSTOMS SERVICE	**Rated Power:**	285 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:**	Night/dark
Observation Facility, Elevation:	HST ,7 ft msl	**Distance from Accident Site:**	6 Nautical Miles
Observation Time:	22:35 Local	**Direction from Accident Site:**	278°
Lowest Cloud Condition:	Clear	**Visibility**	7 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	6 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	340°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	13°C / 12°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	(HST)	**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	None
Departure Time:	21:21 Local	**Type of Airspace:**	Class G

Airport Information

Airport:	HOMESTEAD AIR RESERVE HST	**Runway Surface Type:**	
Airport Elevation:		**Runway Surface Condition:**	
Runway Used:	0	**IFR Approach:**	
Runway Length/Width:		**VFR Approach/Landing:**	

Wreckage and Impact Information

Crew Injuries:	1 Serious	**Aircraft Damage:**	Destroyed
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Serious	**Latitude, Longitude:**	25.499404,-80.399253(est)

Administrative Information

Investigator In Charge (IIC):	Monville, Timothy
Additional Participating Persons:	PAMELA GALLINA; MIAMI , FL JOSEPH HUTTERER; WICHITA , KS DALE CARTER; MARIETTA , GA MICHAEL K POWELL; OKLAHOMA CITY , OK
Original Publish Date:	August 3, 2000
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=45583