Aviation Investigation Final Report

Location:	Homestead, Florida	**Accident Number:**	MIA04FA049
Date & Time:	January 31, 2004, 16:32 Local	**Registration:**	N75GC
Aircraft:	Beech C90	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	2 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The instrument rated pilot received three weather briefings on the date of the accident from the Miami Automated Flight Service Station. The pilot obtained his IFR clearance while airborne, was advised to climb to 9000 feet mean sea level (MSL), then later advised to descend and maintain 2000 feet, and to fly heading 030 degrees. Radar data indicates that following the instruction from the controller, the airplane made a right descending turn to a southeasterly heading, followed by a left turn to an easterly heading where the airplane was lost from radar while at 2,200 feet mean sea level. The crash was located 138 degrees and .38 nautical mile from the last radar target. Between 1631:04, and 1631:16, the airplane descended from 7,600 to 6,100 feet. Between 1631:16, and the last radar target 12 seconds later at 1631:28, the airplane descended 3,900 feet. Weather radar data indicates the airplane encountered video integrator and processor (VIP) Level 2, or "moderate intensity" echoes in the area of the in-flight loss of control. Approximately 10 and 20 miles east-northeast through southeast of the accident site, maximum echoes of VIP Level 5 to 6, or "intends to extreme intensity" echoes were noted. The strongest reflectivities were located 20 miles east of the accident site. Disintegration of the airplane was noted; there was no evidence of in-flight, or post crash fire of any recovered components. The full span of the left wing, left aileron, left horizontal, and left elevator were accounted for. A section of the right wing and right outboard flap was identified; the right wing was fragmented. Examination of the engine and propellers revealed no evidence of preimpact failure or malfunction. No determination was made whether the pilot met the instrument recency of experience requirement of 14 CFR Part 61.57 (c).

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

The pilot's inadequate in-flight planning/decision which resulted in an encounter with rain showers and turbulence, a loss of aircraft control, and overstress of the airframe.

Findings

Occurrence #1: IN FLIGHT ENCOUNTER WITH WEATHER
Phase of Operation: DESCENT - NORMAL

Findings
1. WEATHER CONDITION - RAIN
2. (C) IN-FLIGHT PLANNING/DECISION - INADEQUATE - PILOT IN COMMAND
3. WEATHER CONDITION - TURBULENCE

Occurrence #2: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: DESCENT - NORMAL

Findings
4. (C) AIRCRAFT CONTROL - NOT MAINTAINED - PILOT IN COMMAND

Occurrence #3: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION
Phase of Operation: DESCENT - UNCONTROLLED

Findings
5. DESIGN STRESS LIMITS OF AIRCRAFT - EXCEEDED
6. AIRFRAME - OVERLOAD

Occurrence #4: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Findings
7. TERRAIN CONDITION - SWAMPY

Factual Information

HISTORY OF FLIGHT

On January 31, 2004, about 1632 eastern standard time, a Beech C90, N75GC registered to Global Aerofleet Inc., impacted with the terrain in a remote location of the Everglades National Park, about 10 miles north of the Flamingo Recreation area, Homestead, Florida. Instrument meteorological conditions prevailed at the time and an instrument flight rules (IFR) flight plan was filed for the 14 CFR Part 91 personal flight from The Florida Keys Marathon Airport (MTH), Marathon, Florida, to Fort Lauderdale Executive Airport (FXE), Fort Lauderdale, Florida. The airplane was destroyed and the commercial-rated pilot and one passenger were fatally injured. The flight originated about 1610, from The Florida Keys Marathon Airport.

According to the Federal Aviation Administration (FAA) Report of Aircraft Accident Continuation Sheet pertaining to Miami Air Route Traffic Control Center, at approximately 1618, the pilot contacted the facility and advised the controller that the flight was circling 6 miles north of MTH, and requested an IFR clearance to FXE. The controller advised the pilot that an IFR clearance was not available due to other IFR traffic in the area and to remain visual flight rules (VFR). The pilot advised the controller that it was difficult to maintain VFR and the controller provided the pilot with a discrete transponder code and advised him of IFR traffic. The pilot then advised the controller that he was descending to 1,500 feet, and could not see the IFR traffic. The controller again advised the pilot to maintain VFR. At approximately 1620, the controller advised the pilot that radar contact was established, the flight was 9 miles north of MTH, and cleared the pilot to fly heading 350 degrees and climb and maintain 9,000 feet, which the pilot acknowledged. At approximately 1623, the controller cleared the flight to FXE via direct WEVER intersection, DUVAL arrival, deviation left of course is approved, and to maintain 9,000 feet. The pilot acknowledged the clearance and at approximately 1625, the pilot asked the controller to spell the name of the intersection WEVER, which the controller complied with. At approximately 1629, air traffic control communications were transferred to Miami International Airport (MIA) Air Traffic Control Tower (ATCT).

According to a transcription of communications with MIA ATCT, the pilot contacted the facility at 1629:32, and advised the flight was at 9,000 feet. The controller acknowledged that transmission and the pilot then asked the controller for an altimeter setting which the controller provided. At 1630:04, the controller advised the pilot to descend and maintain 2,000 feet and to fly heading 030 degrees. The pilot questioned the descent clearance, and the controller repeated the descent and heading clearance which the pilot correctly read back at 1630:27. At 1632:34, the controller questioned the pilot about what altitude the airplane was flying at; there was no response by the pilot and there was no further recorded radio transmissions from the pilot. Attempts to communicate with the pilot by the pilot of another aircraft were unsuccessful. According to a personnel statement from the controller handling

the communications with the accident airplane, he briefly noted the mode C altitude display for a short period of time indicating 5,000, and he asked to the pilot to verify his altitude; there was no reply.

Recorded radar data was obtained by NTSB from FAA air traffic control facilities. The data revealed that the first radar target associated with the transponder code assigned to the accident airplane occurred at 1620:06. At that time the airplane was at 1,500 feet mean sea level (msl), and was located approximately 6 nautical miles east-northeast of the departure airport. The radar plot and data indicates between the first radar contact (1620:06), and 1622:08, the airplane climbed to 2,600 feet msl. Between 1622:18, and 1628:04, the airplane climbed to 9,000 feet msl while flying on a northerly heading. Between 1628:04, and 1630:28, the data indicates the airplane was at 9,000 feet msl. From 1630:40, to 1631:04, the airplane descended from 8,600 to 7,600 feet, and began a right turn to an easterly heading at 1630:52. Between 1631:04, and 1631:16, the airplane continued in a right turn and descended from 7,600 to 6,100 feet. The next radar target 12 seconds later at 1631:28, indicates the airplane was at 2,200 feet msl and was located nearly due east of the previous radar target. No further data concerning the accident airplane was recorded.

Search and rescue operations were initiated; the wreckage was located approximately 1 hour after the accident.

PERSONNEL INFORMATION

The pilot was the holder of a FAA commercial pilot certificate, with airplane single engine land, multi-engine land, and instrument airplane ratings, last issued on November 13, 1996, when the single engine land rating was added. He was issued a FAA second class medical certificate on February 27, 2002, with the no limitations. On the medical application for his last medical certificate he listed a total flight time of 4,800 hours.

The pilot's wife informed the NTSB investigator-in-charge that her husband started flight training with the Israeli Air Force, but he was "bumped" and did not complete the training. She also provided a document indicating estimated flight time for her husband. The document indicated his estimated total flight time was 4,528 hours, with an estimated 330 hours flown in last 12 months. Of the estimated 330 hours, an estimated 65 hours were flown in the accident make and model airplane. During the last 90 days, he flew an estimated 110 hours, of which she estimated 45 were in the accident make and model airplane. The document also indicated his estimated total instrument time was 786 hours.

NTSB review of a provided copy of one of his pilot logbooks that reportedly does not include his military flight time and begins with an entry dated August 21, 1993, to the last entry of the logbook dated July 9, 2001, revealed no logged flights in a Beech C90 airplane. The logbook reflects that he logged a total time between these dates of 1,482.1 hours, of which 1,464.1 hours were logged as pilot-in-command. Of the logged 1482.1 hours total time, 931.3 hours were in multi-engine land airplanes, 506.2 hours were logged as actual instrument, and 97.0

hours were logged as simulated instrument time. He did log one flight in a Beech 200 airplane in December 1998; the flight duration was not determined. A review of a provided copy of another logbook that begins with an entry dated August 12, 2001, to the last entry dated May 6, 2002, revealed he logged a total time of 128.8 hours, of which 51.4 hours were in the accident airplane. The first flight logged in the accident airplane occurred on February 7, 2002. A review of the entry for that date indicates an introduction flight with a flight instructor signature. During the same time period (8/12/2001 through 05/06/2002), he logged 28.0 hours actual instrument time, and 13.1 hours simulated instrument time. The logbook contains an entry dated March 8, 2002, in which the pilot satisfactorily completed an instrument proficiency check. The logbook also a contains an entry dated October 8, 2003, which was signed by a flight instructor indicating the pilot had completed a flight review required by 14 Code of Federal Regulations (CFR) Part 61.56(a).

According to the flight instructor who gave the pilot his last flight review, the flight was conducted in a Beech T-34A (single-engine airplane), and lasted approximately 1 hour 20 minutes. Of the 1 hour 20 minute flight, approximately 20 minutes were spent flying to and from the training area. The flight maneuvers performed consisted of high angle of banked turns, accelerated installs with recovery, spatial disorientation maneuvers with recovery, demonstration of the positive dynamic and static stability of the aircraft, nose-high and nose-low unusual attitude recoveries, and full stalls.

No determination could be made as to whether the pilot met the instrument recency of experience requirements stipulated in 14 CFR Part 61.57 (c).

The pilot was involved in a previous accident which occurred on December 30, 1996, involving a hard landing in a twin-engine airplane due to failure of the pilot's seat back. There were no records of previous accidents, incidents, or enforcement actions.

AIRCRAFT INFORMATION

The airplane was manufactured by Raytheon Aircraft Company in June 1977, as model C90, and was designated serial number LJ-727. It was certificated in the normal category and was equipped with two Pratt & Whitney PT6A-21 engines rated at 550 shaft horsepower, and two, three-bladed Hartzell HC-B3TN-3B constant speed full feathering propellers.

A review of the maintenance records for the airplane revealed the last recorded automatic pressure altitude reporting system, static pressure system, and altimeter instrument tests occurred on September 27, 2001. Review of 14 CFR Part 91.411, revealed the automatic pressure altitude reporting system, static pressure system, and each altimeter instrument are required to be tested within the preceding 24 calendar months to operate an airplane in controlled airspace under IFR.

Further review of the maintenance records revealed an entry dated April 8, 2003, which indicates the aircraft was inspected in accordance with a "Biennial Schedule Inspection

(Complete) using Raytheon Aircraft Beech King Air 90 Series Maintenance Manual Inspection Form, Section 5-22-02 pages 201 through 234.-- Due to non-functional equipment and systems some checks and final engine run have not been accomplished, see discrepancy list. A signed list of Discrepancies and Unairworthy Items dated 04-08-03 has been provided to the owner.-" According to the mechanic who performed the inspection, the owner took the aircraft to another facility to repair items found during the inspection. A list of discrepancies found during the inspection signed by both himself and the owner was provided to the owner. The next entry in the maintenance records dated July 1, 2003, indicates "the airframe items 1 through 114, as noted above were repaired in accordance with current regulations of the Federal Aviation Agency under 14 CFR part 43.9 and is approved for returned to service, pertinent details of the repair are on file at this repair station under work order No.: 713 and 718 Date: 07/01/2003...." The entry was signed by individual using the FAA certified repair station certificate number. Item 6 of the entry indicates, "Fabricated and installed pitot static lines for pilot and co-pilot systems located in aft avionics compartment. Operational and leak checks found to be good." The last entry in the airframe logbook was dated August 11, 2003.

METEOROLOGICAL INFORMATION

On the day of the accident at 0813 hours, the pilot phoned the FAA Miami Automated Flight Service Station (Miami AFSS) and received a preflight weather briefing for an IFR flight from FXE to MTH. At 0947, he again phoned the Miami AFSS, and received an abbreviated weather briefing for the same flight, and filed round trip flight plans from FXE to MTH and return to FXE. At 1558 (approximately 12 minutes before the accident flight departed), the pilot again phoned the Miami AFSS and received current weather conditions for the destination airport, and changed his proposed departure time from MTH.

A METAR weather report taken from Homestead Air Reserve Base on the accident date at 1635 hours (approximately 3 minutes after the accident), indicates the wind was from 070 degrees at 10 knots, the visibility was 2 statute miles, showers, moderate rain, and mist was reported. Scattered clouds existed at 500 feet, overcast clouds existed at 1,200 feet, the temperature and dew point were each 20 degrees Celsius, and the altimeter setting was 29.89 inHg. The accident site was located approximately 256 degrees and 30 nautical miles from Homestead Air Reserve Base.

According to a NTSB Meteorological Factual Report prepared by NTSB personnel located in Washington, D.C., the surface analysis chart for the day of the accident at 1600 hours local (approximately 10 minutes before the flight departed), indicates a stationary front along the Florida Keys and the southeast Florida coast, extending eastward across the Bahamas. The accident site was located immediately north of the stationary front on the cool air side of the front. The hours National Weather Service (NWS) Weather Depiction Chart on the day of the accident at 1700 hours (approximately 28 minutes after the accident), indicates instrument flight rules conditions over southern Florida, which extended over the accident site area. The radar summary chart on the day of the accident at 1615 hours (approximately 5 minutes after the flight departed), indicates several areas of strong to very strong intensity echoes over the

vicinity of the accident site area. The echo tops ranged from 28,000 to 32,000 feet, and cell motion was towards the north-northeast at 43 knots over southeast Florida. The technical narrative associated issued with the NWS Convective Outlook Chart updated on the day of the accident at 1130 hours (approximately 4 hours 40 minutes before the flight departed) indicates a concern for the potential of a few enhanced thunderstorms over south Florida. The freezing level in the area of the accident was at 13,000 feet. Additionally, the weather surveillance radar indicates that at the altitude and area of the in-flight loss of control, reflectivity's in the range of 30 to 35 dBZ are indicated, which equate to video integrator and processor (VIP) Level 2, or "moderate intensity" echoes. Several more organized areas are identified at approximately 10 and 20 miles east-northeast through southeast of the accident site, with maximum echoes near 50 to 55 dBZ or VIP Level 5 to 6, or "intense to extreme intensity" echoes. The strongest reflectivity's (45 to 50 dBZ) were located 20 miles east of the accident site where a north-south embedded line of echoes were identified.

COMMUNICATIONS

The pilot was last in contact with the Miami Air Traffic Control Tower; there were no reported communication difficulties before the in-flight loss of control occurred.

FLIGHT RECORDERS

The airplane was not equipped with a flight data recorder nor a cockpit voice recorder.

WRECKAGE AND IMPACT INFORMATION

The airplane crashed into the Everglades National Park; the area consisted of low vegetation and water. The main wreckage was located at 25 degrees 19.7 minutes north latitude and 080 degrees 54.2 minutes west longitude, or approximately 138 degrees and .38 nautical mile from the last radar target. Examination of the accident site revealed a Northwest/Southeast oriented ground scar and two additional ground scar's located east of the northwest/southeast oriented ground scar. The two ground scars located east of the northwest/southeast oriented ground scar were oriented in the east/west direction. Both engines were located south of the northwest/southeast oriented ground scar and were located on the east and west side of that ground scar. The nose landing gear was noted on the south side of the northwest/southeast oriented ground scar, and the right main landing gear, left wing tip, and vertical stabilizer were located on the west side of the northwest/southeast oriented ground scar. All observed wreckage was recovered for further examination.

Examination of the airplane, engines, and propellers was performed with NTSB oversight along with representatives of the airframe, engine, and propeller manufacturer. The fuselage, empennage, and wings were fragmented. No evidence of in-flight or postcrash fire was noted on any airframe or engine components that were examined. The nose section of the airplane was not recovered and/or identified. The full length of the left aileron which was accounted for consisted of one large piece from the outboard end to a fracture location near the middle

hinge location, and the inboard piece with attached trim tab; the trim tab actuator was found positioned at the trailing edge tab down limit. The fracture surface of the aileron was located at a manufactured 90-degree angle which was located at the outboard end of the aileron trim tab. Examination of the large section of left aileron revealed a small compression wrinkle on the lower skin surface near the outboard hinge; no evidence of overtravel was noted on the lower skin of the aileron immediately aft of the outboard hinge, or on the remaining section of aileron aft of the middle hinge location. No other obvious compression wrinkles or areas of missing paint were noted on the lower surface of the large section of left aileron. The upper and lower skins were displaced down at the inboard fracture surface location. Slight chordwise compression wrinkles were noted on the upper surface of the left aileron between the fracture surface location and outboard hinge. The full span of the left wing which was comprised of several large sections was accounted for at the wreckage site. Examination of the outer wing center panel of the left wing between wing station (WS) 229 and WS 266.735 (location of the outboard end of the aileron) revealed no compression buckling. The aft spar of the left wing from WS 229 to WS 266.735 was rotated up; the spar was rotated up the greatest in the fracture surface area. The wing structure inboard of the fracture surface location was fragmented. Both flaps of the left wing remained secured to their respective sections on the wing. A section of the right outboard flap and right wing was identified; the right wing was fragmented. The vertical stabilizer was separated but recovered, and the rudder was separated from the vertical stabilizer but also recovered in close proximity to the main wreckage. The rudder trim tab remained secured to the rudder; the trim tab actuator was found positioned at the trailing edge tab left limit. The rudder counterweight was separated but recovered. Visual inspection of the rudder stops revealed no evidence of deformation. The left horizontal stabilizer was separated but recovered in close proximity to the main wreckage and the left elevator was separated from the stabilizer but also recovered in close proximity to the main wreckage. The left elevator trim tab actuator was found positioned at the trailing edge tab up limit. The inboard portion of the right elevator was recovered from the main wreckage area. Examination of the flight control cables for roll, pitch, and yaw revealed sections were missing which precluded determination of preimpact failure or malfunction. The alkaline battery of the emergency locator transmitter expired in September 2003. The flaps were in the retracted position. No fuel was found in any of the engine components or accessories that were examined. Weather radar/detection equipment was installed but the on-off position could not be determined. The electrical/system switches were either destroyed or positions could not be determined. The landing gear control in the cockpit was found in the down position. Neither instrument panel was recovered; however, the engine condition gauge stack was recovered but damage to the instruments precluded determination of needle capture settings.

Examination of the left engine was performed with NTSB oversight. The examination revealed impact damage and only the gas generator section, the reduction gearbox forward housing, and the accessory gearbox oil pump were located and recovered. Examination of the reduction gearbox revealed the propeller shaft was not failed, and the propeller overspeed governor was in-place. The front housing was nearly disintegrated while the rear housing was not recovered. The gas generator case was impact damaged and the exhaust duct was torn from the "C"

flange. The compressor inlet case was disintegrated. Examination of the accessory gearbox revealed the oil pump and its drive gear were the only components recovered. Impact damage to the power control and reversing linkage, compressor discharge air (P3), and power turbine control (Py) pneumatic lines precluded assessment of the pre-impact continuity. The reduction gearbox chip detector, oil filter, and fuel filter were not recovered. The combustion chamber liner, large and small exit ducts were not accessed. Examination of the compressor turbine guide vane ring of the turbine section revealed the vane ring was impact deformed and the vane airfoils did not indicate operational distress. The compressor turbine shroud displayed heavy circumferential machining due to radial contact with the compressor turbine blades. The compressor turbine blades were separated from the fur tree fittings and the disc downstream face displayed heavy circumferential rubbing. The ITT probes, busbar, and harness were obliterated. The power turbine housing was not accessed, and the power turbine guide vane ring and interstage baffle was not recovered. The power turbine shroud displayed heavy circumferential scoring; the power turbine was not recovered. The power turbine shaft and shaft housing were also not recovered. Examination of the reduction gearbox revealed the propeller shaft and the reduction gearbox propeller shaft and second stage gearing were the only components recovered, the bearing displayed no indications of operational distress. The oil pump and drive gear were the only components recovered of the accessory gearbox.

Examination of the impact damaged right engine was performed with NTSB oversight. Only the gas generator section, accessory gearbox oil pump, external scavenge pump, and portion of the housing were recovered. The gas generator case displayed severe compressional deformation. The forward housing was torn from the engine mount collar and the compressor inlet case was disintegrated. Impact damage to the power control and reversing linkage, compressor discharge air (P3) and power turbine control (Py) pneumatic lines precluded assessment of pre-impact continuity. The reduction gearbox chip detector, oil, and fuel filters were not recovered. Examination of the compressor section of the engine revealed the first stage compressor blades were fractured at the blade roots and the first spacer was circumferentially scored. The first stage shroud was circumferentially rubbed and scored. The first stage vanes were deformed away from the direction of rotation and circumferentially rubbed. The impeller vanes were circumferentially rubbed and fractured. Examination of the combustion chamber liner revealed severe impact damage, the liner displayed no indications of operational distress. Examination of the turbine section revealed the compressor turbine guide vane ring was impact damaged. The vane airfoils displayed no indication of operational distress. Examination of the compressor turbine shroud revealed heavy circumferential machining, and examination of the compressor turbine revealed the blades were separated from their fir tree fixings; the disc downstream face displayed heavy circumferential rubbing. The disc hub and balancing was circumferentially deformed away. The ITT probes, busbar, harness, and power turbine housing were impact deformed. The power turbine guide vane ring was torn and deformed. The airfoils displayed no indications of operational distress. Circumferential scoring was noted on the downstream side inner and outer drums. The interstage baffle was circumferentially scored and machined. The power turbine shroud displayed heavy circumferential scoring, and the power turbine and power turbine shaft and shaft housing were not recovered. Examination and testing of the controls and accessories

was not performed.

Examination of the left propeller was performed with NTSB oversight at the facility where the airplane was taken following recovery. The examination revealed that the propeller and a portion of the engine gearbox had separated from the engine; the propeller remained attached to the engine gearbox. Propeller blade No. 3 was missing, and the No. three propeller blade clamp was also missing. The hub pilot tube for the No. 3 propeller blade was fractured and the outer half was missing, the spinner dome was separated from the propeller. The piston, cylinder, spring assembly and all three link arms had separated from the propeller and were missing. The spinner dome and spinner bulkhead were both crushed and fragmented. Cycling of the pitch change mechanism was not possible. The mounting flange was unremarkable and remained attached to the engine gearbox. Propeller blade Nos. 1 and 2 were not rotated in their clamps; propeller blade No. three and the blade clamp were missing. The feather stops, or verse tops, piston, linked arms, cylinder, and feathering spring assembly were missing and not recovered. Examination of the blade clamp's revealed blade clamps for propeller blades Nos. 1 and 2 were not fractured, the link screw for the No. 2 propeller blade was missing. Examination of the hub unit revealed the cylinder had separated from the hub at the hub attachment threads. Impact signatures were noted on the Nos. 1 and 2 butt ends of the propeller blades. The No. 1 propeller blade was bent aft approximately 120 degrees, with a large radius bend about mid-blade; no significant twisting was noted to the blade which also had a slight forward bend approximately 5 inches from the blade tip. The No. 2 propeller blade was bent forward approximate 30 degrees, also with a large radius bend about mid-blade; the outer 6 inches of the tip were bent at the trailing edge.

Examination of the right propeller was performed with NTSB oversight at the facility where the airplane was taken following recovery. The propeller had separated from the engine but remain attached to the fractured engine shaft. Propeller blade No. 1 was fractured approximately 5 inches from the outboard end of the blade clamp, the outer portion of the blade was missing and was not located. The spinner assembly was separated from the propeller. The piston, cylinder, and spring assembly were separated from the propeller. The piston was jammed at a position in the normal operating blade angle range. Propeller blade Nos. 1 and 2 link arms remained attached to the piston/cylinder assembly. Propeller blade No. 3 link arm remained attached to its clamp. The spinner dome and spinner bulkhead were crushed and fragmented. Cycling of the pitch change mechanism was not possible. The propeller mounting flange was intact and the engine shaft was fractured immediately aft of the propeller mounting flange. None of the three propeller blades had rotated in their clamps. The feather stops were undamaged and had no impact marks. Examination of the piston revealed an impact mark caused by the forward end of the cylinder; the mark was located approximately 2 18/32 inches from the end of the piston, which equates to approximately 27-degree blade angle. Examination of the link arms revealed reveal the link arms for propeller blade Nos. 1 and 2 had elongated link screw holes. The No. 3 propeller blade link arm was bent and wrapped beneath the No. 3 blade counterweight. The cylinder was separated from the hub and exhibited damage to the retention threads; the cylinder was mildly deformed in the area adjacent to the hub. Examination of the feathering spring assembly revealed the front

spring retainer was partially dislodged from the cylinder attachment threads, otherwise the spring assembly was intact; the pitch change rod was bent. Disassembly of the spring assembly was not accomplished. Examination of the propeller blade clamps and counterweight's revealed the clamp for propeller blade Nos. 1 and 2 were intact; the counterweight for propeller blade No. 1 was missing and the attachment bolts were fractured. The propeller blade clamp for the No. 3 propeller blade was intact and unremarkable. Examination of the hub assembly revealed the mounting flange was intact; the cylinder was separated from the hub at the attachment threads. The butt end of all three propeller blades exhibited impact marks caused by contact with the hub arms. The No. 1 propeller blade was fractured outboard of the blade clamp with only a short portion of the shank and butt end of the blade remaining; the fracture surface exhibited a 45 degree shear lip around the circumference. The No. 2 propeller blade was bent aft about 10 degrees at mid-blade with a slight forward bend of about 10 degrees at the three-quarter radius. Abrasion of the paint was noted on the leading edge of the cambered side of the blade which was not twisted. The No. 3 propeller blade was bent forward approximately 30 degrees with a large radius bent at the 1/3 radius. The outer 1/4 of the blade was bent aft approximately 30 degrees. Mild abrasion of the paint was noted on the leading edge of the cambered side of the blade which did not exhibit any significant twisting.

MEDICAL AND PATHOLOGICAL INFORMATION

Postmortem examinations of the pilot and passenger were performed by the District Sixteen Medical Examiner's Office, located in Marathon Shores, Florida. The cause of death for both was listed as multiple blunt force injuries.

Toxicological analysis of recovered specimens unidentified as to whether they belonged to the pilot or passenger was performed by the University of Florida Diagnostic Referral Laboratory. The results of analysis of specimens of skeletal muscle was positive for ethanol (0.04g/100g), and negative for the comprehensive drug screen. A note indicates that the presence of the low amount of ethanol is a result of decompositional product and does not imply the use of ethanol by the decedent. The results of analysis also of skeletal muscle was negative for volatiles and the comprehensive drug screen.

TESTS AND RESEARCH

Visual examination of the retained copilot's attitude indicator revealed extensive impact damage.

ADDITIONAL INFORMATION

The airplane minus the retained co-pilot's attitude indicator was released to David E. Gourgues, Senior Surveyor/Liability Specialist for CTC Services Aviation (LAD, Inc.), on March 3, 2003. The retained attitude indicator was also released to David Gourgues, on October 19, 2004.

Pilot Information

Certificate:	Commercial	**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):	None	**Toxicology Performed:**	No
Medical Certification:	Class 2 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	April 27, 2002
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	October 8, 2003
Flight Time:	4528 hours (Total, all aircraft), 200 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	Beech	**Registration:**	N75GC
Model/Series:	C90	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	LJ-727
Landing Gear Type:	Retractable - Tricycle	**Seats:**	7
Date/Type of Last Inspection:	April 8, 2003 Continuous airworthiness	**Certified Max Gross Wt.:**	9650 lbs
Time Since Last Inspection:		**Engines:**	2 Turbo prop
Airframe Total Time:	8208.7 Hrs as of last inspection	**Engine Manufacturer:**	Pratt & Whitney Canada
ELT:	Installed, not activated	**Engine Model/Series:**	PT6A-21
Registered Owner:	Global Aerofleet,Inc.	**Rated Power:**	580 Horsepower
Operator:	Saul Zadik	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	HST,7 ft msl	**Distance from Accident Site:**	30 Nautical Miles
Observation Time:	16:35 Local	**Direction from Accident Site:**	76°
Lowest Cloud Condition:	Scattered / 500 ft AGL	**Visibility**	2 miles
Lowest Ceiling:	Overcast / 1200 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	10 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	70°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.88 inches Hg	**Temperature/Dew Point:**	20°C / 20°C
Precipitation and Obscuration:	Moderate - None - Rain		
Departure Point:	Marathon, FL (KMTH)	**Type of Flight Plan Filed:**	IFR
Destination:	Fort Lauderdale, FL (KFXE)	**Type of Clearance:**	IFR
Departure Time:	16:10 Local	**Type of Airspace:**	Class E

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	1 Fatal	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Fatal	**Latitude, Longitude:**	25.318611,-80.900558

Administrative Information

Investigator In Charge (IIC):	Monville, Timothy
Additional Participating Persons:	Charles Cunningham; FAA Flight Standards District Office; Miami, FL Paul Yoos; Raytheon Aircraft Company; Wichita, KS Tom McCreary; Hartzell Propeller; Piqua, OH Thomas A Berthe; P & W Canada; South Burlington, VT
Original Publish Date:	September 13, 2005
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=58701