



# National Transportation Safety Board Aviation Accident Final Report

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<b>Location:</b>	KEY WEST, FL	<b>Accident Number:</b>	MIA94FA097
<b>Date &amp; Time:</b>	03/18/1994, 1143 EST	<b>Registration:</b>	N150FB
<b>Aircraft:</b>	GRUMMAN G-73T	<b>Aircraft Damage:</b>	Destroyed
<b>Defining Event:</b>		<b>Injuries:</b>	2 Fatal

**Flight Conducted Under:** Part 91: General Aviation - Positioning

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## Analysis

THE FLIGHTCREW HAD COMPLETED A 14 CFR PART 135 CHARTER FLIGHT AND HAD LANDED IN THE HARBOR AT KEY WEST, FLORIDA. THEY HAD MOORED THE SEAPLANE AND DEPARTED. ABOUT AN HOUR LATER, THEY REBOARDED THE SEAPLANE TO FLY IT TO AN AIRPORT FOR REFUELING, THEN TO RETURN TO THE HARBOR TO BOARD THE PASSENGERS. DURING TAKEOFF, THE SEAPLANE WAS OBSERVED TO PITCH NOSE UP, ROLL LEFT, AND CRASH NOSE DOWN IN THE HARBOR. DUE TO THE DAMAGE DONE BY TIDAL FLOW AND RECOVERY ATTEMPTS, THE EXACT CONDITION OF THE AFT BILGE DRAIN PLUGS WAS UNKNOWN. DURING A CHECK OF THE CVR RECORDING, THE CREW WAS NOT HEARD TO CALL OUT THE BILGE PUMPS DURING THE BEFORE-TAKEOFF CHECKLIST. AFTER LIFT-OFF, BOTH PILOTS MADE COMMENTS ABOUT KEEPING THE NOSE DOWN DUE TO WATER IN THE AFT PORTION OF THE AIRCRAFT.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: FAILURE OF THE PILOT-IN-COMMAND TO ASSURE THE BILGES WERE ADEQUATELY PUMPED FREE OF WATER (ADEQUATELY PREFLIGHTED), WHICH RESULTED IN THE AFT CENTER OF GRAVITY LIMIT TO BE EXCEEDED, AND FAILURE OF THE AIRCREW TO FOLLOW THE CHECKLIST. A FACTOR RELATED TO THE ACCIDENT WAS: THE WATER LEAK.

## Findings

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

### Findings

1. (C) AIRCRAFT PREFLIGHT - INADEQUATE - PILOT IN COMMAND
2. (F) FLUID,WATER - LEAK
3. (C) AIRCRAFT WEIGHT AND BALANCE - EXCEEDED
4. (C) CHECKLIST - NOT FOLLOWED - FLIGHTCREW
5. AIRCRAFT CONTROL - NOT POSSIBLE

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Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER  
Phase of Operation: TAKEOFF

## Factual Information

### HISTORY OF FLIGHT

On March 18, 1994 about 1143 eastern standard time, N150FB, a Grumman G-73-T, operated by Chalks International Airlines, crashed on takeoff in Key West Harbor, Key West, Florida. The previous flight was a 14 CFR Part 135 charter flight that had been completed and the airplane was on the 14 CFR Part 91 positioning leg at the time of the accident. Visual meteorological conditions prevailed at the time and a company VFR flight plan had been filed. The airplane was destroyed and the two pilots received fatal injuries. The flight was originating at the time of the accident.

Witnesses stated they observed the seaplane take off from the water in the harbor area, and as the airplane climbed to about 100 feet the airplane pitched up, rolled left and crashed nose down in a left roll. The seaplane came to rest on the bottom of the harbor in about 30 feet of water. The seaplane was recovered on March 20, 1994.

The crew had arrived in Key West Harbor with 13 passengers about 1010, and had disembarked the passengers. The crew moored the airplane and had gone ashore. The crew returned to the airplane about 1130, and were planning on a short flight to Key West Airport for the purpose of refueling. A review of the cockpit voice recorder indicated that the first officer was the pilot flying, and the checklist for start, run-up, and takeoff was partially accomplished. Shortly after liftoff the airplane was observed by witnesses to pitch up abruptly. The cockpit voice recorder also indicated the captain, and first officer noted the nose pitching up, and the captain was heard to state that they "might have a lot of water in the tail", and the first officer then stated "a lot of water". The crew was then heard to attempt to overcome the nose up pitch until impact.

**PERSONNEL INFORMATION** The captain and first officer were both certificated and had accomplished all medical, flight check and currency requirements as specified by current Federal regulations. Additional crew information is located in and attached to this report.

### AIRCRAFT INFORMATION

N105FB was a Grumman G-73T, serial No. J-51, registered to Flying Boat Inc., and operated by Chalks International Airlines. A review of the company airframe, engine, and propeller records revealed that the airplane was registered, and maintained in accordance with an approved continuous airworthiness program. Additional aircraft information is included in and attached to this report.

### METEOROLOGICAL INFORMATION

The Key West Airport, located about 3 miles east of the accident location, recorded the weather at 1151 as: 2,000 feet scattered, visibility 10 miles, temperature 82 degrees F, dew point 68 degrees F, wind 180 degrees magnetic at 9 knots, altimeter 29.97 inHg. Witnesses near the harbor stated the weather was substantially the same at the harbor.

### FLIGHT RECORDERS

The airplane was not required to be, nor was, equipped with a flight data recorder. The airplane was equipped with a cockpit voice recorder. The CVR was a Fairchild Model GA100, S/N 01584. The CVR was recovered on March 18, 1994, and was rinsed with fresh water and

forwarded to the NTSB Laboratory for readout and transcription. A copy of the CVR transcript is attached to this report.

#### WRECKAGE AND IMPACT INFORMATION

The wreckage of N105FB was located in the Key West, Florida, harbor in about 30 feet of water. An underwater record of the airplane damage was documented utilizing local divers and an underwater camera. Most damage was to the lower left hull which exhibited massive crushing damage. Both wings exhibited damage outboard of the engines. Both propellers showed signs of curling and twisting. The wreckage was recovered to the U.S. Navy docks on March 20, 1994. Examination of the flight controls, and aerodynamic surfaces established control continuity, with those failures noted exhibiting fractures and failures with signatures consistent with overload. Particular attention was centered on examination of the lower control yoke pitch mechanism. The lower yoke assembly, although damaged, revealed that freedom of movement was present and no evidence of hammering or scraping was observed. Examination of the cockpit area revealed the bilge pump switch was in the off position. Both engines and propellers were removed and shipped for further examination.

Both engines were shipped to Longueuil, Montreal, Canada, and were examined by Mr. Jerome D. Frechette, an NTSB powerplants investigator, and representatives of the manufacturer. Both engines exhibited signatures consistent with impact with the water, with power and torque applied. The rubbing, circumferential scarring, scraping, and metalization on the power turbine were consistent on both engines. A detailed powerplant factual report is attached to this report.

Both propellers were examined in Opa Locka, Florida, by the NTSB and a representative of the manufacturer. Both propellers exhibited damage and deformation consistent with torque being applied at the time of impact. The right propeller dome was removed and forwarded to the NTSB metallurgical laboratory for further examination. The interior of the propeller dome exhibited circumferential marking consistent with the dome moving aft at impact or a hard cylindrical object moving forward at impact.

#### MEDICAL AND PATHOLOGICAL INFORMATION

A post-mortem examination of both pilots was conducted by Dr. Hugo Romeu, a District 16 Associate Medical Examiner on March 19, 1994. Dr. Romeu reported both pilots had multiple injuries and both died due to salt water drowning.

#### ADDITIONAL INFORMATION

The wreckage of N105FB was partially released to Mr. Andy Paul, of Crittenden Adjustment Co. representing Chalks Airlines' insurance company, on March 20, 1994, followed by the propellers on March 25, 1994. The engines were released to Mr. Ronnie Powers of Atlanta Air Salvage on May 17, 1994.

## Pilot Information

<b>Certificate:</b>	Airline Transport; Flight Engineer	<b>Age:</b>	31, Male
<b>Airplane Rating(s):</b>	Multi-engine Land; Single-engine Land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	Seatbelt, Shoulder harness
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	Yes
<b>Instructor Rating(s):</b>	Instrument Airplane; None	<b>Toxicology Performed:</b>	Yes
<b>Medical Certification:</b>	Class 1 Valid Medical--no waivers/lim.	<b>Last Medical Exam:</b>	12/09/1993
<b>Occupational Pilot:</b>		<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	7725 hours (Total, all aircraft), 3100 hours (Total, this make and model), 7125 hours (Pilot In Command, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Manufacturer:</b>	GRUMMAN	<b>Registration:</b>	N150FB
<b>Model/Series:</b>	G-73T G-73T	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	No
<b>Airworthiness Certificate:</b>	Transport	<b>Serial Number:</b>	J-51
<b>Landing Gear Type:</b>	Amphibian	<b>Seats:</b>	19
<b>Date/Type of Last Inspection:</b>	10/02/1993, Continuous Airworthiness	<b>Certified Max Gross Wt.:</b>	14000 lbs
<b>Time Since Last Inspection:</b>	201 Hours	<b>Engines:</b>	2 Turbo Prop
<b>Airframe Total Time:</b>	17119 Hours	<b>Engine Manufacturer:</b>	P&W
<b>ELT:</b>	Installed, not activated	<b>Engine Model/Series:</b>	PT6A-34
<b>Registered Owner:</b>	FLYING BOAT INC.	<b>Rated Power:</b>	680 hp
<b>Operator:</b>	CHALKS INT'L AIRLINES	<b>Air Carrier Operating Certificate:</b>	Commuter Air Carrier (135)
<b>Operator Does Business As:</b>		<b>Operator Designator Code:</b>	CHAL

## Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	EYW, 5 ft msl	Observation Time:	1151 EST
Distance from Accident Site:	3 Nautical Miles	Direction from Accident Site:	100°
Lowest Cloud Condition:	Scattered / 2000 ft agl	Temperature/Dew Point:	28° C / 20° C
Lowest Ceiling:	None / 0 ft agl	Visibility	10 Miles
Wind Speed/Gusts, Direction:	9 knots, 180°	Visibility (RVR):	0 ft
Altimeter Setting:	29 inches Hg	Visibility (RVV):	0 Miles
Precipitation and Obscuration:			
Departure Point:		Type of Flight Plan Filed:	Company VFR
Destination:		Type of Clearance:	None
Departure Time:	1143 EST	Type of Airspace:	Class D

## Wreckage and Impact Information

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

## Administrative Information

Investigator In Charge (IIC):	ANDREW A ALSTON	Adopted Date:	06/01/1995
Additional Participating Persons:	MARY HIRSH; FT. LAUDERDALE, FL JIM DOLE; MIAMI, FL ROGER W STALLKAMP; PIQUA, OH BERNARD LALONDE; LONQUEUIL, OF		
Publish Date:			
Investigation Docket:	NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at <a href="mailto:pubinq@ntsb.gov">pubinq@ntsb.gov</a> , or at 800-877-6799. Dockets released after this date are available at <a href="http://dms.nts.gov/pubdms/">http://dms.nts.gov/pubdms/</a> .		

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report.