

**NATIONAL TRANSPORTATION SAFETY BOARD  
OFFICE OF AVIATION SAFETY  
WASHINGTON, D.C.**

**May 29, 2006**

**SURVIVAL FACTORS SPECIALIST FACTUAL REPORT OF  
INVESTIGATION**

**A. ACCIDENT** : **DCA06MA010**  
OPERATOR : Flying Boat, Inc. dba, Chalk's Ocean Airways  
LOCATION : Miami Seaplane Base (X44) Miami, Florida  
DATE : December 19, 2005  
TIME : 1439 Eastern Standard Time (EST)  
AIRCRAFT : Grumman Mallard G-73T, N2969

**B. SURVIVAL FACTORS SPECIALIST**

Cynthia L. Keegan  
National Transportation Safety Board  
Washington, DC

**C. SUMMARY**

On December 19, 2005, at 2:39 pm eastern standard time, a Grumman Mallard G73T, N2969, operated by Flying Boat, Inc. as Chalk's Ocean Airways flight 101, crashed into a shipping channel adjacent to the Port of Miami shortly after takeoff. The aircraft, a seaplane, had departed from the Miami Seaplane Base (X44), and took off from the shipping channel with 2 flight crew and 18 passengers (including 3 lap-held infants). The scheduled flight was destined to Bimini, Bahamas, operating under the provisions of Title 14 Code of Federal Regulations Part 121. The seaplane was retrofitted with Pratt & Whitney PT-6 turboprop engines. Witness and video recordings indicated a fire on the right wing and showed the wing separating prior to impacting the water. All 20 occupants sustained fatal injuries. Visual meteorological conditions prevailed at the time of the accident.

## D. DETAILS OF THE INVESTIGATION

### 1.0 Aircraft Configuration

Chalk's Ocean Airway's N2969 was a Grumman Mallard amphibious seaplane that had 2 crewmember seats in the cockpit, and 17 passenger seats in the cabin. There was an emergency exit at the right forward cabin between the first and second seat and a main entry door at the left aft side of the cabin. See Figure 1. N2696 Cabin Diagram.

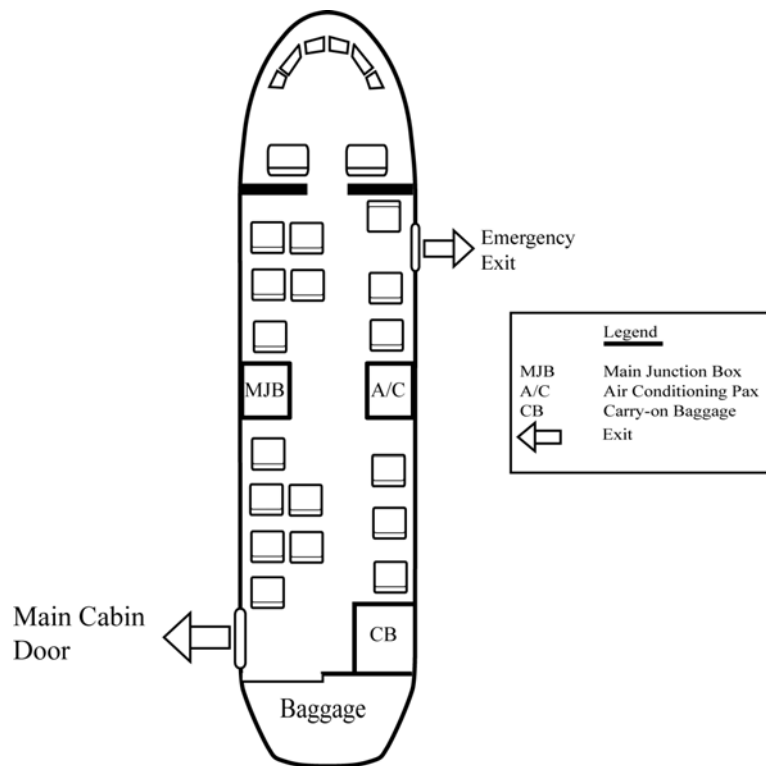


Figure 1. N2969 Cabin Diagram

### 2.0 Crew Information

See the Operations Group Chairman's Factual Report of Investigation for information about the flight crewmembers.

### 3.0 Witness Information

The NTSB made an announcement to the general public over Miami local radio networks requesting that witnesses contact the NTSB's Southeast Regional Office in Miami, Florida. Witnesses that contacted the NTSB had been on Miami Beach, on cruise ships, in the Government Cut<sup>1</sup> (the Cut), or on the Macarthur Causeway when the accident occurred. Also some passengers contacted the NTSB who had previously flown Chalk's Ocean Airways. Several witnesses provided video footage and photographs of the accident airplane. See the Video/Image Factual Report of Investigation for these recordings.

#### 3.1 Witness Interviews

##### 1. John Mondazzi

Located on Miami Beach

He was south of 1<sup>st</sup> street on the beach by a lifeguard station videotaping surfers. He was facing the ocean with his back to the airplane when he heard a huge explosion. He turned around and saw a big fireball in the sky and a portion of the wing spiraling downward. The separated wing had flames trailing from its broken end. The fuselage was engulfed in fire and smoke when it hit the water. He captured the airplane's wing hitting the ocean with his video camera. He said that he did not hear or see anything unusual prior to hearing the explosion.

Police and lifeguards arrived at the accident site within 15 to 30 seconds after the accident.

##### 2. Jeff Anderson

He was in the ocean surfing near 3<sup>rd</sup> Street (about 4 city blocks from the accident site.)

He and his friend (Oscar) were surfing. His friend told him to look toward the sky and he saw an airplane between 200 and 250 feet above the water. The airplane's right wing was on fire and the flames got really big. He heard the engines rev and he saw the right wing snap off and fall into the water. He could see the right propeller and he thought the propeller was

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<sup>1</sup> The Government Cut is a navigable water channel that connects the inland Miami City waterways with the Atlantic Ocean.

turning before the wing separated from the airplane. The airplane hit the water about 100 yards from the where the wing hit the ocean. He ran down to the beach parallel to the wreckage. People on jet skis and lifeguards had already gotten to the wreckage. The rescue response to an accident was the fastest he has ever witnessed.

### 3. Anthony Vavalete

He was surfing in front of the first lifeguard tower about 200 yards from the jetty.

He and his friend watched as the airplane climbed from the Government Cut. For a brief moment he turned his attention away from the airplane and looked at his friend whose face suddenly lit up. He looked back at the airplane and saw the fuselage roll a little toward the left, then it's right wing "ripped off" and there was a big fireball. The airplane rolled and went straight into the water. As the wing came off he heard the airplane engines rev, then he saw the airplane nose-dive into the ocean. He and the other surfers caught a wave to shore. They ran over to the rock jetty and ran into the water.

He saw a lifeguard pull a body from the wreckage on a rescue sled and another Jet Ski driver was trying to help recover bodies. He also noticed a small boat arrive near the wreckage.

### 4. Oscar Diaz

He was surfing off 3<sup>rd</sup> Street, on the south point of Miami Beach

He was sitting on his board when he heard a "whoosh", he turned and he saw a red ball of fire and that looked like a meteor. He told his friend to look, and then he heard what sounded like an engine exploding on the right wing. The right wing separated from the airplane at the fuselage and the right engine was on fire. When the right wing separated the nose of the airplane dropped and he could see the belly of the airplane. The airplane headed south, the left wing dropped and he heard a sound like full throttle coming from the left engine. The airplane hit the water very hard with a loud thump and disappeared under the water.

He thought that the engine attached to the right wing was on fire and leaving a black smoke trail. Several minutes after the accident a cruise ship going out to sea, sailed almost directly over the accident location.

5. Fernando Fuentes

Surfing parallel to the 2<sup>nd</sup> lifeguard stand, about 150 yards from the jetty.

He heard an engine noise, looked toward the jetty and heard a loud explosion. He looked up and saw the airplane's right wing separate. He thought that the airplane was flying very low above the water and noticed that smoke was coming from the right wing when the wing separated from the airplane.

6. John Franks

In the parking lot next to the pier

As he pulled into a parking space he heard the airplane flying overhead. The airplane's engine was sputtering and the airplane appeared to be flying lower than normal. He saw a trail of white/gray smoke coming from the trailing edge of the airplane. Suddenly there was a fireball and then he heard a bang and saw an explosion. He saw something fall from the airplane and then the airplane dove straight towards the pier. He ran towards the beach where he saw surfers in the water near the wreckage.

When he got to the beach the airplane wreckage had sunk in the water. He said that the airplane caught his attention because it was flying very low.

7. Santi Ayala, Employed by the Fish and Wildlife Commission  
State Law Enforcement Agency, patrolling the waterways at  
Government Cut.

He was working by the cruise ships. Shortly after 2:00 p.m. he saw the Chalk airplane come in for a landing. The airplane landed, came around and picked up passengers, then taxied out to the cut. He heard what sounded like an engine advance and the right engine sputtered. He heard two more sounds like the engine advancing on the right engine, then he heard what sounded like the left engine advancing and then the airplane power seemed to rev up normally. He saw the airplane straighten out and taxi east in the Government Cut. The airplane's takeoff seemed to take a little bit longer than normal. The airplane normally got airborne as it passed the cruise ships, but this time the airplane had already passed the cruise ships before

becoming airborne.

The airplane cleared both cruise ships then he turned his attention away from watching the airplane for about 30 seconds. Suddenly he heard “May-day, May-day an airplane has gone down” over his VHS radio and he turned around and saw a trail of black smoke coming from the water just beyond the jetty.

#### 8. Diane Ares

She was driving east to Miami Beach on the Macarthur Causeway

She was driving on the causeway parallel to the airplane taking off from the water. The airplane’s right wing was low and the airplane seemed lower than normal as it passed the cruise ships. The airplane’s wing was hitting the water when suddenly the airplane lifted from the water and went towards the sky. As she was watching the airplane, the right wing suddenly exploded then she heard a bang and she saw a fireball. She said that the fire dissipated in an instant. When she arrived at the bridge on the beach side she drove north on Alton road and lost sight of the airplane.

She has lived in the Miami area for 47 years and has seen the amphibious airplanes takeoff and land for a very long time. She thought that this takeoff seemed very low and the airplane took a very long time to leave the water.

#### 9. Kenny Kateliko

On the Ferry heading east to Fisher Island

He watched as the airplane flew over the Ferryboat, and over a cargo ship in Government Cut. He saw the airplane fly a little toward the left and nose-dived toward the water with smoke trailing from the airplane. The airplane was flying very fast, the engines were running, and the airplane suddenly went down and he saw smoke. He did not hear any loud noises when the airplane crashed.

#### 10. Jack Tippet

Driving east on the Macarthur Causeway.

He was driving on the causeway across from the cruise ships when he noticed the seaplane taking off heading east. The shape of the seaplane

intrigued him, and he noticed that the airplane's propellers were turning as it took off from the water. As he watched the airplane, he saw two tugboats coming into the cut, and he became concerned that the airplane might not clear the tugboats. He diverted his attention back to his driving, and then he suddenly looked up and saw a big fireball and twirling wreckage. The fireball turned to black smoke. He was surprised to see the fireball because he did not hear the airplane explode. He exited the causeway and headed toward the accident site. As he drove toward the beach a police car arrived and as he got out of his car other police cars arrived.

11. Laurence Albert

On a cruise ship, standing outside his room on a balcony

His family was in their stateroom and he could see an airplane coming in for a landing at the seaport. Later he heard the airplane start to takeoff. He and his daughter went out on the balcony and watched the airplane take off. The airplane flew right past their balcony about 100 to 150 feet. As the airplane climbed into the air about 200 feet from the water, he suddenly saw a fireball and a piece of the airplane fell toward the ocean. He did not hear an explosion he just saw the fireball and smoke.

When the airplane was taking off and passing their balcony its engines were running and he did not hear any unusual noises; there was no sign of anything wrong before the airplane broke apart. His 20-year-old daughter thought she saw the airplane's wing separate from the airplane.

12. Teresa Hernandez Acosta

Driving east on Macarthur Causeway

She and her husband were driving to her mother's beach apartment at about 2:30 p.m. As her husband drove the car she watched the Chalk's airplane takeoff. They were driving parallel to the airplane on the Macarthur Causeway. She took a picture of the airplane as it lifted off of the water. She shut off her digital camera and put it in her purse. Suddenly her husband screamed; "Look up! It's coming down!" "Look up, look up!"

She looked at the sky and saw the airplane on fire, surrounded by black smoke. Her husband told her to call the police. She called 911 and the operator told her they had already received calls about the accident. As she hung up her cell phone she could hear ambulances and police sirens

coming from every direction. She sent the photograph that she had taken to the NTSB. She said that the photo was not very clear because the visibility was poor when the accident occurred.

13. Dave Moss

He was on Fisher Island by Government Cut

He was at the end of the ramp working on a construction job. He was talking on his cell phone and watching a freighter moving out of the cut when he saw a seaplane fly over the freighter. As he was watching he saw the airplane's right wing separate from the airplane. He did not hear any loud noises. He saw the wing separate and saw a ball of fire. There was a huge plume of black smoke trailing from the wing when it hit the water. As he watched the wing separate the airplane rolled over until it was almost inverted and then hit the water.

14. Stuart Archer

He, his friend and their Captain were  $\frac{3}{4}$  mile outside of Government Cut in a 22 foot fishing boat

He and his friend had been fishing all day and were working their way to a fishing spot. Someone said look at that enormous freighter in the mouth of the Government Cut. As he looked at the freighter he saw a little puff of black smoke and instantaneously a big puff of black smoke that trailed into the water. He did not hear any loud noises or see the accident airplane, but somehow he knew that an airplane had gone down. Their Captain called "Mayday" "Mayday" over the boat's radio. The Captain unhooked where they were fishing and sped towards Government Cut. During the ride he was considering grabbing a life preserver, but at the speed they were traveling he could not get to the preserver. He estimated that it took 3-4 seconds for their boat to arrive at the scene. They were the first boat at the scene. He saw several surfers in the water with their surfboards and there were two jet skis at the scene. Another boat arrived soon after their boat arrived. Everyone at the scene desperately looked for survivors in the area where the airplane went into the water and over by the rock jetty, but there were no survivors.

Other boats arrived including a Coast Guard boat. They left the site and their Captain headed their boat towards Government Cut. While they were cruising toward the cut a man in a wet suit waved to them from the



docks. Their Captain maneuvered their boat over to the man on the docks and he boarded their boat and told them he was a Miami Beach Rescue Diver. They took the diver out to the scene and he dove into the water to recover the bodies from the accident airplane. In the mean time another larger Miami Beach Fire Rescue Boat with divers came along and the diver that they ferried out to the scene joined the Rescue Boat. After they transferred the divers belongings to the other dive boat they departed the site.

#### 15.Dave Catrett

He was driving west on the Macarthur Causeway

When he first saw the airplane, he was not sure if it was landing or taking off. As he got closer, he noticed the nose of the airplane bobbing up and down as it moved forward in the water at a fair rate of speed. As the airplane moved forward it's heading changed erratically (left to right) with a heavy tendency to lean toward the left (port) side of the airplane. He had his digital camera with him and he took a photo of the airplane just before it took off. As the airplane took off the engines sounded like they were at full power and the airplane's nose was bobbing up and down like a porpusing jet ski. He cracked open his car window to listen to the airplane's engines and he could hear the faint roar of the engines increasing in pitch.

As he drove over the bridge and looked back to his left, he was unable to locate the airplane. Afterwards he heard about the accident and when he viewed the photograph that he took he noticed a bright light coming from the right wing area on the airplane. He said that the photograph was taken at 2:34 p.m. on December 19, 2005, and the time accuracy on his camera is within the +/- 7 seconds. He emailed this photo to Safety Board staff for further review.

#### 4.0 Airplane Damage

The airplane wreckage was submerged in 30 feet of water off the coast of Miami Beach just north of the Government Cut (where the cruise ships enter and depart the harbor.) Bimini Island is 55 nautical miles from Miami Harbor therefore in accordance with the Code of Federal Regulations (CFR) Chalk's Airways was required to have a hand fire extinguisher for the crew and passenger compartments, an approved first aid kit, and floatation

devices for each occupant in accordance with Title 14 CFR, Part 121.309 (d) and Part 121.340 (a).<sup>2</sup>

#### 4.1 Emergency Equipment

According to a Chalk's Airways representative the airplane was equipped with 17 passenger seat cushions that also served as flotation devices. A first aid kit was located in the forward and aft cabin and two halon type C fire extinguishers were mounted in the airplane: one in the cockpit and the other in the aft cabin. Passenger safety briefing cards were located in the seat pockets in front of each seat. A copy of the passenger safety-briefing card is included in Attachment 1.

Examination of the wreckage found 14 intact passenger floatation cushions, 12 composite seat bases and 7 sections of seat track that contained fractured pieces of seat legs or seat attach fittings that remained installed in the seat tracks. The composite seat bases were fractured and broken around the lip of the seat base where the base attaches to the seat bottom. A data plate on one of the composite seat bases contained the following information:

FRAKES AVIATION  
Model #FA5037-13  
STC No. SA4410SW  
1 Pass Seat –Fwd Facing  
F.F.A. P.M.A.  
CAT Aircraft Type 1  
Weight LB 16.5

The Captain's seat was recovered from the water. The Captain's seat back remained attached to the cockpit bulkhead. It's seat bottom tubes were fractured at the rear cast fittings. The forward seat tube was fractured at the inboard end and was missing the seat cushion. The inboard vertical seat back tube fractured at the bottom of the tube.

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<sup>2</sup> 14 CFR Part 1.1:*Extended over-water operation*: states that "With respect to aircraft other than helicopters, an operation over water at a horizontal distance of more than 50 nautical miles from the nearest shoreline."

A portion of the Co-pilot's seat was recovered from the water. It's seatback remained attached to the cockpit rear bulkhead. The Co-pilot's vertical and horizontal outboard seat tubes had fractured from the seat bottom and contained the seat height adjustment lever. The female end of the lap belt remained attached at the intersection of the vertical and horizontal seat tubes.

A Chalk's Airways representative stated that each flight crewmember position was equipped with a personal floatation device (PFD). Neither crewmember PFD was found in the wreckage recovered from the Government Cut. The crewmember PFDs on a Chalk's Airways sister ship were manufactured by Eastern Aero Marine and contained the following information:

Eastern Aero Marine  
 Miami, Fla., U.S.A.  
 Model KSE-35lb.  
 FAA TSO C13e  
 P/N P1074-101

The main cabin door, exterior forward cargo door and the interior aft cargo doors were recovered from the ocean and found in the latched position. The emergency exit door was either destroyed or not recovered from the ocean. See Attachment 2 for photos of the wreckage.

## 5.0 Medical

### 5.1 Injury Table

<u>Injuries</u>	<u>Flight Crew</u>	<u>Flight Attendants</u>	<u>Passengers</u>	<u>Other</u>	<u>Total</u>
<u>Fatal</u>	2	0	18	0	20
Serious	0	0	0	0	0
Minor	0	0	0	0	0
None	0	0	0	0	0
<b>Total</b>	2	0	18	0	20

## 5.2 Occupant Injuries

Two crewmembers, 15 passengers and 3 lap-held infants on board flight 101 sustained fatal injuries. The Miami Medical Examiner conducted autopsies of the occupants. See Attachment 3 for the flight crew and passenger injury summaries.

## 6.0 Search and Rescue

Miami Beach lifeguards who patrolled the beach on foot, and water on jet skis were the first to respond to the accident scene. Miami 911 Dispatch notified the Miami Coast Guard and Miami Beach Police Department.

The Miami Coast Guard received notification of the accident at 2:36 local time of an airplane crash in the vicinity of the Government Cut. At 2:43 p.m. the Coast Guard launched an HH65 helicopter to the site and at 2:46 p.m. the Miami Coast Guard Captain closed all traffic entering and exiting the Government Cut. At 2:49 p.m. the Miami Coast Guard began recovering bodies. See Attachment 4 for the Miami Coast Guard log.

Cynthia L. Keegan  
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