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AIR ACCIDENT INVESTIGATION AND PREVENTION UNIT CIVIL AVIATION DEPARTMENT

NASSAU, N. P., BAHAMAS

AVIATION SHORT INVESTIGATION REPORT

UNCONTROLLED FLIGHT INTO TERRAIN

PIPER SARATOGA PA-32R-300

N8415C

TREASURE CAY, ABACO, BAHAMAS
MARCH 25, 2012

Bahamas Department of Civil Aviation
Air Accident Investigation and Prevention Unit
P. O. Box AP-59244
Lynden Pindling International Airport
Nassau N. P., Bahamas

AVIATION SHORT INVESTIGATION REPORT

PIPER SARATOGA PA-32R-300

N8415C

LOSS OF CONTROL AND UNCONTROLLED FLIGHT INTO TERRAIN TREASURE CAY, ABACO, BAHAMAS

February 25, 2013

Abstract: This report presents the circumstances of the aircraft accident involving N8415C, a single-engine, Piper PA-32R-300 aircraft registered to Moonchaser LLC and operated by Mr. Gregory Allan Schwartzenberger which crashed shortly after take-off from Runway 32 at Treasure Cay International Airport, Abaco, Bahamas on March 25, 2012.

Bahamas Department of Civil Aviation
Air Accident Investigation and Prevention Unit

The Air Accident Investigation and Prevention Unit (AAIPU) is the accident investigation unit of the Bahamas Civil Aviation Department (BCAD).

The AAIPU's function is to promote and improve safety and public confidence in the aviation industry through excellence in:

- independent investigation of aviation accidents and other safety occurrences
- safety data recording, analysis and research
- fostering safety awareness, knowledge and action.

The AAIPU does not investigate for the purpose of apportioning blame or to provide a means for determining liability.

The AAIPU performs its functions in accordance with the provisions of the *Bahamas Civil Aviation (Safety) (Amendment) Regulations (CASAR) 2010, Schedule 19, International Civil Aviation Organization (ICAO) Annex 13* and, where applicable, relevant international agreements.

The Civil Aviation Department is mandated by the Ministry of Transportation and Aviation to investigate air transportation accidents and incidents, determine probable causes of accidents and incidents, issue safety recommendations, study transportation safety issues and evaluate the safety effectiveness of agencies and stakeholders involved in air transportation.

The AAIPU makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations and safety alerts. When the AAIPU issues a safety recommendation, the person, organization or agency must provide a written response within 90 days. That response must indicate whether the person, organization or agency accepts the recommendation, any reasons for not accepting part or all of the recommendation, and details of any proposed safety action to give effect to the recommendation.

The AAIPU receives numerous notifications of aviation occurrences each year; many of which are accidents, serious incidents and incidents. It is from the information provided in these notifications that the AAIPU makes a decision on whether or not to investigate. While further information is sought in some cases to assist in making those decisions, resource constraints dictate that a significant amount of professional judgment needs to be exercised.

There are times when more detailed information about the circumstances of the occurrence would have allowed the AAIPU to make a more informed decision both about whether to investigate at all and, if so, what necessary resources were required (investigation level). In addition, further publicly available information on accidents and serious incidents would increase safety awareness in the industry and enable improved research activities and analysis of safety trends, leading to more targeted safety education.

To enable this, the AAIPU has established a small team to manage and process these factual investigations, the Short Investigation Team. The primary objective of the team is to undertake limited-scope, fact-gathering investigations, which result in a short summary report.

The summary report is a compilation of the information the AAIPU has gathered, sourced from individuals or organizations involved in the occurrences, and to highlight any safety messages that may be useful to the aviation industry or members of the public in order to prevent similar occurrences. The summary report detailed herein was compiled from information provided to the AAIPU by individuals or organizations involved in this occurrence.

Copies of accident reports can be obtained by contacting:

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February 25, 2013

Captain Patrick L. Rolle
Director
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Sir

I am duty-bound to submit this report on the circumstances of the accident involving N8415C, a Piper, PA-32R-300 aircraft, registered in the United States to Moonchaser LLC and operated by Mr. Gregory Allan Schwartzenberger. This accident occurred shortly after takeoff, from Runway 32 at Treasure Cay International Airport, Treasure Cay, Abaco, Bahamas on March 25, 2012 approximately 1:30pm local (1830 UTC).

This report is submitted pursuant to Part XII, Regulation 80, and Schedule 19 of the Bahamas Civil Aviation (Safety)(Amendment) Regulation (CASR 2010) and in accordance with Annex 13 to the Convention on International Civil Aviation Organization (ICAO).

In accordance with Annex 13 to the Convention on International Civil Aviation (ICAO), and Schedule 19 of the Bahamas Civil Aviation (Safety)(Amendment) Regulations (CASAR), the fundamental purpose of such investigations is to determine the circumstances and causes of these events, with a view to the preservation of life and the avoidance of similar occurrences in the future. It is not the purpose of such investigations to apportion blame or liability.

This report contains facts, which have been determined up to the time of publication. Information is published to inform the aviation industry and the public of the circumstances surrounding this accident. The contents of this report may be subjected to alterations or corrections if additional factual information becomes available.

Regards

Philip Romer
Investigator in Charge
Air Accident Investigation and Prevention Unit
Bahamas Department of Civil Aviation
Lynden Pindling International Airport
Nassau, N. P., Bahamas

BAHAMAS CIVIL AVIATION DEPARTMENT
AIR ACCIDENT INVESTIGATION AND PREVENTION UNIT

Date and Time:	March 25, 2012 at approximately 1830 UTC (1:30pm EST)	
Location:	In bushes on the right side of Runway 32 at Treasure Cay International Airport	
Occurrence Category:	Accident	
Occurrence Type:	Uncontrolled Flight into Terrain	
Aircraft Registration:	N8415C	
Manufacturer and Model:	Piper PA-32R-300	
Type of Operation:	Private	
Persons on Board:	Crew 1	Passengers 3
Injuries:	Crew - Fatal	Passengers - Fatal
Damage to Aircraft:	Destroyed	

History of the Flight

On Sunday March 25, 2012 at approximately 1:30 pm local (1830 UTC[1]) a fixed wing, single-engine, Piper PA-32R-300 aircraft United States registration N8415C serial number 32R-7680112, crashed into bushes shortly after take-off on the right side of Runway 32 at Treasure Cay International Airport, Treasure Cay, Abaco, Bahamas. The accident aircraft was found burning in bushes on the right side of Runway 32, 616 feet from the edge, 271 feet from S. C. Bootle Highway and 3,428 feet from the threshold of Runway 32. The crash occurred at coordinates 26˚ 44.86N and 077˚23.473W.

The aircraft was destroyed as a result of the impact sequence and post impact fire. The pilot, three passengers and two dogs on board were fatally injured.

The aircraft and its occupants arrived from Fort Pierce, Florida (KFPR), USA on March 21, 2012. On the morning of the accident, a VFR flight plan was filed with Miami Lockheed Flight Service for a flight from Marsh Harbour Abaco to Fort Pierce, Florida. Reports from personnel at the airport stated that no fuel was requested by the pilot of the aircraft during his stay nor prior to his departure. The flight plan was filed for an altitude of 6,500 feet with an estimated enroute time of two (2) hours. On the day of departure, the PIC received an abbreviated weather briefing from the Flight Service Center where he filed the flight plan. The required Bahamas Customs Aircraft General Declaration form indicated four persons onboard. Two dogs also accompanied the occupants. Each occupant carried bags weighing approximately one hundred pounds.

Pilots of several arriving aircraft to Treasure Cay International Airport on the day of the accident reported that the winds were strong and the favoured runway was Runway 14. Reports also indicated that wind shear was in the area while landing on Runway 14. The accident aircraft was observed taxiing to depart from Runway 32.

The aircraft departed at approximately 1:30 pm local (1830 UTC). The flight was operated on a Visual Flight Rules (VFR[2]) flight plan. Visual

[1] UTC - The 24 hour clock is used to describe the time of day, Coordinated Universal Time (UTC) as particular events occurred.

[2] Visual Flight Rules - are a set of regulations which allow a pilot to operate an aircraft in weather conditions generally clear enough to allow the pilot to see where the aircraft is going.

meteorological conditions (VMC) prevailed at the time of the accident.

Approximately thirty to forty minutes after the aircraft would have departed, black smoke was observed billowing from the forested area, right of Runway 32. Firemen stationed at the airport at the time went to investigate. The occupants were found burnt beyond recognition. First responders and local authorities arrived on the scene sometime thereafter.

Injuries to Persons

A total of four (4) persons were onboard, accompanied by two (2) dogs. All occupants received fatal injuries.

Damage to Aircraft

The aircraft was destroyed due to the impact sequence and post impact fire. Un-burnt remains of the aircraft were recovered and transported to a secure facility in the United States of America for follow-up examination. Other than damage sustained by the aircraft and subsequent recovery efforts, no other damage was reported.

Personnel Information

N8415C was piloted by 61 year old Gregory Allan Schwartzenberger of Neptune Beach, Duval Florida, USA. Mr. Schwartzenberger was the holder of a valid Private Pilot Certificate number 3403826, issued by the Federal Aviation Administration (FAA) (USA) on August 23, 2011 with airplane single-engine land, instrument airplane category and class rating with no limitations.

Mr. Schwartzenberger was also the holder of a Third Class medical certificate issued by the FAA on June 22, 2010. His medical certificate held the following limitation: "Must Have Available Glasses For Near Vision".

Mr. Schwartzenberger's total flying experience retrieved from the FAA Airman Database post accident listed his total civilian flight times in excess of 250 flight hours. The amount of hours flown by Mr. Schwartzenberger in the last 24 hours, 7 days or the last 30 days prior to the accident is unknown.

FAA records also indicate no violations or prior recorded aviation accident history against Mr. Schwartzenberger.

Aircraft Information

Aircraft N8415C, a USA registered aircraft, was manufactured by Piper Aircraft Company. The aircraft model was PA-32R-300. This single engine aircraft was manufactured in 1976 with serial number 32R-7680112.

The aircraft was fitted with one (1) reciprocating engine, model number I0-540-K1A5D manufactured by Lycoming. It was listed in the normal category, standard classification. The Airworthiness Certificate for this aircraft was issued by the FAA on January 22, 1976.

N8415C was not fitted with a flight recorder as none was required by regulations for this type of aircraft.

Meteorological Information

Bahamas Meteorological Department at the Lynden Pindling International Airport issued the Bahamas Area Forecast[3] which originated at 1800UTC; dated March 25, 2012 valid for 12 hours from 1800 UTC covering the Northwestern Bahamas reported in Special Features: a pre-frontal trough moving across the north-western Bahamas with unsettled weather as cold front moves into extreme northwest Bahamas by end of period.

Significant Weather section of this report stated, in the vicinity of pre-frontal trough: towering cumulus and cumulonimbus clouds were scattered and broken at 1,200 and 1,800 feet. Clouds were also scattered and broken at 3,000 and 5,000 feet with tops at 7,000 feet. Occasionally broken and overcast layers were reported at 10,000 and 12,000 feet up to 24,000 feet (FL240).

Scattered rain showers and isolated thunderstorm and rain were reported in lines and clusters with towering

[3] Area Forecast - An **Aviation Area Forecast** or FA encompasses the weather conditions over a large regional area and is considered one of the better sources of information for en route weather. It is also beneficial in verifying airport conditions at airports that do not have terminal aerodrome forecasts.

cumulus and cumulonimbus clouds with tops above 16,000 and 24,000 feet.

Cloud ceiling was reported below 1,200 feet with visibility reduced to 3 nm in heavy rain showers and thunderstorm and rain. Moderate to severe turbulence was also reported in the vicinity of the towering cumulus and cumulonimbus clouds.

Aerodrome Information

Treasure Cay Airport (IATA: TCB, ICAO: MYAT) is an airport serving Treasure Cay in the Abaco Islands in The Bahamas. The airport resides at an elevation of 8 ft (2.4 m) above mean sea level. It has one Runway designated 14/32 with an asphalt surface measuring 2,134 × 46 m (7,001 × 151 ft).

No problems with navigational aids were known or reported. No difficulties with internal or external communications were known or reported.

Wreckage and Impact Info

The aircraft apparently entered the bushes at a high altitude as noted by the first set of markings on the trees on the right side of Runway 32. It also appeared to have become inverted in its descent and slid a few feet before coming to a complete stop. The aircraft was found inverted with its tail caught around a tree, the fuselage completely burnt out, and the engine burnt but somewhat intact. The propellers were found bent in a backward position. The wreckage field was approximately 200 ft in diameter.

General Wreckage Description

Examination on site revealed that the fuselage of the aircraft was severely burnt. The nose of the airplane was detached due to impact sequence.

The engine and propeller were detached from the fuselage. The propeller was found bent towards the fuselage.

Both wings were detached from the aircraft and scattered about the debris field.

The vertical stabilizer, rudder and rudder trim tab remained attached to what was left of the fuselage.

Based on initial examination of the wreckage it could not be determined whether the fire which destroyed the aircraft was pre or post impact. The debris field covered an area of approximately 200 feet in diameter from where the fuselage was found.

Medical and Pathological

The body of the pilot, three (3) passengers and one of the dogs were recovered the day of the accident. The remains of the pilot and passengers were transported to the Rand Laboratory (Morgue) located at the Princess Margaret Hospital, Nassau, Bahamas. The second day after the accident the second dog was found and recovered from the accident scene. Post-mortem examinations were performed on Mr. Gregory A. Schwartzenberger, the pilot of the accident aircraft. The cause of death for all occupants was determined to be multiple blunt force injuries due to airplane crash.

Specimens of bile, blood (cavity), brain, gastric, heart, kidney, liver, lung, muscle and spleen of the pilot were obtained by pathologist from the Department of Pathology at the Princess Margaret Hospital. The diagnostic specimen for toxicology was sent via DHL Express, in a Federal Aviation Administration Tox-Box Kit to the Bio-aeronautical Sciences Research Laboratory at the Civil Aerospace Medical Institute (CAMI) at the Federal Aviation Administration Mike Monroney Aeronautical Center (MMAC) 6500 South MacArthur Boulevard, Oklahoma City, Oklahoma 73169 – 6901 for toxicological analysis. The analysis was to determine if there was any pre-existing disease, alcohol, drugs or any toxic substance in the pilot, which may have caused or contributed to the cause of the accident.

Forensic Toxicology Report received from CAMI indicated specimens were unsuitable for analysis to detect carbon monoxide, and neither cyanide nor ethanol was detected in the blood. Various drugs (over the counter) were detected in the kidney, blood (cavity), brain, liver, lung, and bile. It was not determined if the amount found in his system was sufficient to impair his judgment to operate the aircraft.

Survivability Aspects

The emergency response for this accident was timely and effective.

The investigation assessed survivability aspects to determine the extent to which the number of fatal injuries could have been reduced and the effectiveness of the seatbelt in use. The accident was not survivable for the airplane occupants because they were subjected to impact forces that exceeded the limits of human tolerances.

Airframe Analysis

An off-site examination was conducted by representatives from Piper Aircraft Company (State of Design and Manufacture). The actual report listing the findings from Piper Aircraft Company follows.

Fuselage

The fuselage was destroyed by impact and post impact fire. It was segmented into three major sections, nose, fuselage and tail. All sections were burned through. All windows and windshields were melted. All seats were viewed and exhibited impact and fire damage. The forward nose section contained the nose gear and engine mount.

The instrument panel was burned, fragmented and destroyed. All electrical switches and circuit breakers were destroyed. The rudder pedals and flap torque tube were fire damaged and separated from their respective mounting points.

The flap handle was separated from its attachment points but was noted to be in the flaps up position. The fuel tank selector valve was segmented.

The fuel valve bowl was not located. The selector control rod was intact and received fire damage. All engine power controls were not located. All three cabin doors were separated and destroyed by fire. The control "T" bar had fire damage and the aileron control chain was separated from the sprockets. The stabilator cables remained attached to the "T" bar and the rudder cables remained attached to the rudder bar.

Flight control continuity was established to all flight controls except for impact related separation. No airframe anomalies were noted during the investigation.

Empennage

The Empennage was destroyed by impact and post impact fire. The stabilator, vertical fin and rudder remained attached. The left stabilator tip section was separated. The stabilator trim drum displayed 8 threads, which is consistent with a neutral to nose up position. The stabilator cables remained attached to the stabialator balance weight. The rudder balance weight was separated and had impact damage. The rudder cables remained attached to the rudder horn.

Left Wing

The left wing was destroyed and separated from the fuselage. The aileron with balance weight remained partially attached to the separated outboard wing. The leading edge of this section of wing displayed circular impact deformation consistent with a tree strike. The wing tip was separated.

The main gear had impact and fire damage and remained partially attached. Both fuel tanks were breached and damaged by fire and impact. The pitot static mast was separated.

The left flap was burned and damaged, but remained attached to the wing. The aileron bell crank was located at its mounting area and both cables and push pull rod were attached. The aileron control cable remained attached to the broken aileron control chain and the balance cable was separated near the wing root. The cable separation area was broom strawed.

Right Wing

The right wing was destroyed and separated from the fuselage. Both fuel tanks were breached and damaged by fire and impact. Both spars were destroyed by impact and fire. The left flap was bent and breached at mid span. The inboard section was attached by two hinges and the outboard section was separated.

The main gear was damaged and remained partially attached. The gear appeared to be partially in the down position. The aileron was attached and had impact damage. The balance weight was not located. The aileron bell crank was damaged and separated from its attachment points, however both ailerons cables remained attached.

Both cables were separated near the wing root and their separation area was broom strawed. The leading edge area of the wing, forward of the tie down ring, received circular impact deformation consistent with a tree strike.

Powerplant

The six cylinder Lycoming Engine had impact and fire damage. The engine received extensive fire damage and could not be rotated by hand. The rear case and accessories were removed. No engine anomalies were found during the examination.

The three bladed propeller remained attached to the crankshaft flange. All three propeller blades were bent and twisted, consistent with engine power at impact.

Engine Observations (as reported by Lycoming – Engine Manufacturer)

On July 11, 2012 a wreckage and engine examination was conducted at the facilities of Air and Sea recovery, Ft. Pierce, FL. Present at that examination were representatives from the National Transportation Safety Board, The Bahamas Civil Aviation Dept., Air Accident Investigation and Prevention Unit, Piper Aircraft, and this investigator representing Lycoming Engines.

All rocker covers, the top spark plugs, and the remnants of the accessories were removed to facilitate an attempt to rotate the engine by hand to verify internal component continuity. This endeavor failed due to the engine having been subjected to high heat for an extended period of time.

In order to verify continuity, this investigator drilled three 5/8 inch holes in the crank case and used a lighted borescope to visually examine the internal components of the engine. All internal components were intact and displayed no pre-impact damage. All engine accessories were fire destroyed.

The propeller displayed damage that is consistent with it being driven at the time of impact.

Nothing was observed during the course of this examination that would have precluded this engine from making power prior to impact.

Probable Cause

Loss of control and uncontrolled flight into terrain.

Contributing Factors

- Meteorological conditions including possible wind shear have been determined as a contributing factor.
- Pilot low flying time in weather conditions beyond the capability of a non instrument rated pilot has also been considered a contributing factor.
- Decision made to depart on a runway that was not favored for approaching and departing traffic has also been considered a contributing factor.

Recommendations

Due to the findings of this investigation, no recommendations can be established at this time.