AAIPU# A09-01444

AIR ACCIDENT INVESTIGATION AND PREVENTION UNIT CIVIL AVIATION DEPARTMENT

NASSAU, N. P., BAHAMAS

AIRCRAFT ACCIDENT REPORT

LOSS OF CONTROL

HUBER HARTMUT EXPRESS

N93HE

CHUB CAY, BERRY ISLANDS, BAHAMAS
DECEMBER 12, 2009

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

AIRCRAFT ACCIDENT REPORT

HUBER HARTMUT EXPRESS
N93HE

CHUB CAY, BERRY ISLAND, BAHAMAS
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AAIPU# A09-01444
Adopted July 20, 2010

Abstract: This report explains the circumstances surrounding the crash of N93HE a Huber Hartmut Express experimental aircraft while on approach for a landing on runway 11 at Chub Cay, Berry Island.

Bahamas Department of Civil Aviation
Air Accident Investigation and Prevention Unit

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July 20, 2010

Captain Patrick Rolle
Director
Civil Aviation Department
Seaban House
Crawford Street, Oakes Field
P.O. Box N-975
Nassau, N.P.,
Bahamas

Sir

The attached report summarizes the investigation into the circumstances of the accident involving N93HE, a Huber Hartmut Express, fixed-wing, single-engine, registered in the United States of America to Littlefield Lawrence. This accident occurred on December 12, 2009 at approximately 8:15 am EST time while on approach for a landing on Runway 11 at Chub Cay, Berry Island, the Bahamas

This report is submitted pursuant to Part XII, Regulation 80, and Schedule 19 of the Bahamas Civil Aviation (Safety) Regulation (CASR 2001) 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) Regulations (CASR April 17, 2001), 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 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 information becomes available.

Delvin R. Major
Investigator in Charge
Bahamas Department of Civil Aviation
Air Accident Investigation and Prevention Unit

BAHAMAS CIVIL AVIATION DEPARTMENT
AIR ACCIDENT INVESTIGATION AND PREVENTION UNIT

TITLE

Operator:	DHPN INC.
Manufacturer:	Huber Hartmut
Model:	Express
Nationality:	United States of America
Registration:	N93HE
Place of Accident:	Approximately 600 feet from the centerline of Runway 11, to the left, in approximately 2 feet of water at high tide.
Date of Accident:	December 12, 2009

SYNOPSIS

Notification:	DCA, NTSB, FAA, Teledyne
Investigating Authority:	Civil Aviation Department Air Accident Investigation and Prevention Unit
Investigator in Charge:	Delvin R. Major
Accredited Representative:	Mr. Rodney Martinez Teledyne Mr. Jose Obregon – NTSB Mr. Darrell T. Webb – FAA
Releasing Authority:	Civil Aviation Department
Date of Report Publication:	July 20, 2010

ABBREVIATIONS and TERMINOLOGY

When the following terms are used in this report, they have the following meanings;

AAIPU	Air Accident Investigation and Prevention Unit
ADDS	Aviation Digital Data Service - Report by Meteorological Department
AIS	Automatic Information Services
ATS	Air Traffic Services
BDCA	Bahamas Department of Civil Aviation
CASR	Bahamas Civil Aviation (Safety) Regulations (April 17, 2001)
C of A	Certificate of Airworthiness
C of R	Certificate of Registration
CG	Center of Gravity
CVR	Cockpit Voice Recorder
DCA	Director of Civil Aviation
CAD	Civil Aviation Department
EST	Eastern Standard Time (-5 hours (-4DT) to convert from UTC)
FAA	Federal Aviation Administration
FSI	Flight Standards Inspectorate
FSS	Flight Service Station
ICAO	International Civil Aviation Organization
ILS	Instrument Landing System
IFR	Instrument Flight Rules
IMC	Instrument Meteorological Condition
MALSF	Medium-intensity Approach Lighting System (with sequenced flashers)
MET	Meteorological Office / Department
METAR	Weather Report furnished by Meteorological Department
MIRL	Medium Intensity Runway Lights
NDB	Non-directional Beacon
NM or nm	Nautical Miles
NTSB	National Transportation Safety Board
PAPI	Precision Approach Path Indicator
RCA	Root Cause Analysis
SEP	Survival and Emergency Procedures Training
T/L	Technical Log
USA	United States of America
VFR	Visual Flight Rules
VOR	(Very High Frequency) Omni-directional Range Station
VMC	Visual Meteorological Conditions
UTC / Z	Universal Coordinated Time / Zulu time

DEFINITIONS

When the following terms are used in the Standards and Recommended Practices for Aircraft Accident and Incident Investigation, they have the following meaning:

Accident. An occurrence associated with the operation of an aircraft which takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked, in which:

a) a person is fatally or seriously injured as a result of:
— being in the aircraft, or
— direct contact with any part of the aircraft, including parts which have become detached from the aircraft, or
— direct exposure to jet blast, except when the injuries are from natural causes, self inflicted or inflicted by other persons, or when the injuries are to stowaways hiding outside the areas normally available to the passengers and crew; or

b) the aircraft sustains damage or structural failure which:
— adversely affects the structural strength, performance or flight characteristics of the aircraft, and
— would normally require major repair or replacement of the affected component, except for engine failure or damage, when the damage is limited to the engine, its cowlings or accessories; or for damage limited to propellers, wing tips, antennas, tires, brakes, fairings, small dents or puncture holes in the aircraft skin; or
c) the aircraft is missing or is completely inaccessible.

Note 1.— For statistical uniformity only, an injury resulting in death within thirty days of the date of the accident is classified as a fatal injury by ICAO.

Note 2.— An aircraft is considered to be missing when the official search has been terminated and the wreckage has not been located.

Accredited representative. A person designated by a State, on the basis of his or her qualifications, for the purpose of participating in an investigation conducted by another State.

Adviser. A person appointed by a State, on the basis of his or her qualifications, for the purpose of assisting its accredited representative in an investigation.

Aircraft. Any machine that can derive support in the atmosphere from the reactions of the air other than the reactions of the air against the earth's surface.

Causes. Actions, omissions, events, conditions, or a combination thereof, which led to the accident or incident.

Fatal injury. - means any injury which results in death within 30 days of the accident.

Flight recorder. Any type of recorder installed in the aircraft for the purpose of complementing accident/incident investigation.

Incident. An occurrence, other than an accident, associated with the operation of an aircraft which affects or could affect the safety of operation.
Note.— The types of incidents which are of main interest to the International Civil Aviation Organization for accident prevention studies are listed in the Accident/Incident Reporting Manual (Doc 9156).

Investigation. A process conducted for the purpose of accident prevention which includes the gathering and analysis of information, the drawing of conclusions, including the determination of causes and, when appropriate, the making of safety recommendations.

Investigator-in-charge. A person charged, on the basis of his or her qualifications, with the responsibility for the organization, conduct and control of an investigation.
Note.— Nothing in the above definition is intended to preclude the functions of an investigator-in-charge being assigned to a commission or other body.

Maximum mass. Maximum certificated take-off mass.

Operator. A person, organization or enterprise engaged in or offering to engage in an aircraft operation.

Preliminary Report. The communication used for the prompt dissemination of data obtained during the early stages of the investigation.

Safety recommendation. A proposal of the accident investigation authority of the State conducting the investigation, based on information derived from the investigation, made with the intention of preventing accidents or incidents.

Serious incident. An incident involving circumstances indicating that an accident nearly occurred.
Note 1.— The difference between an accident and a serious incident lies only in the result.
Note 2.— Examples of serious incidents can be found in Attachment C of Annex 13 and in the Accident/Incident Reporting Manual (Doc 9156).

Serious injury. An injury which is sustained by a person in an accident and which:
a) requires hospitalization for more than 48 hours, commencing within seven days from the date the injury was received; or
b) results in a fracture of any bone (except simple fractures of fingers, toes or nose); or
c) involves lacerations which cause severe hemorrhage, nerve, muscle or tendon damage; or
d) involves injury to any internal organ; or
e) involves second or third degree burns, or any burns affecting more than 5 per cent of the body surface; or
f) involves verified exposure to infectious substances or injurious radiation.

State of Design. The State having jurisdiction over the organization responsible for the type design.

State of Manufacture. The State having jurisdiction over the organization responsible for the final assembly of the aircraft.

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State of Occurrence. The State in the territory of which an accident or incident occurs.

State of the Operator. The State in which the operator's principal place of business is located or, if there is no such place of business, the operator's permanent residence.

State of Registry. The State on whose register the aircraft is entered.
Note.— In the case of the registration of aircraft of an international operating agency on other than a national basis, the States constituting the agency are jointly and severally bound to assume the obligations which, under the Chicago Convention, attach to a State of Registry. See, in this regard,
the Council Resolution of 14 December 1967 on Nationality and Registration of Aircraft Operated by International Operating Agencies which can be found in Policy and Guidance Material on the Economic Regulation of International

"State of Design" - The State having jurisdiction over the organization responsible for the type design

"State of Manufacture" - The State having jurisdiction over the organization responsible for the final assembly of the aircraft.

"Substantial damage" - means damage or failure which adversely affects the structural strength, performance, or flight characteristics of the aircraft, and which would normally require major repair or replacement of the affected component. Engine failure or damage limited to an engine if only one engine fails or is damaged, bent failings or cowling, dented skin, small punctured holes in the skin or fabric, ground damage to rotor or propeller blades, and damage to landing gear, wheels, tires, flaps, engine accessories, brakes, or wingtips are not considered "substantial damage" for the purpose of this Report.

BODY

1.0 FACTUAL INFORMATION:

1.1 HISTORY OF THE FLIGHT

On Saturday December 12, 2009 at approximately 8:15am EST (1215 UTC) a single engine, amateur built experimental aircraft N93HE crashed while on approach for a landing on Runway 11 at Chub Cay, Berry Islands, Bahamas. The accident occurred approximately 600 feet from the centerline of Runway 11, to the left, in approximately 2 feet of water at high tide. The coordinates of the aircraft crash site is Latitude 25°25'5.30" longitude 77°53'11.72"W. The aircraft was destroyed.

The private flight departed Lantana Airport, Palm Beach County at 1200 UTC (7:00am). The destination was Chub Cay Int'l Airport, Chub Cay, Berry Island, Bahamas. The flight was operated under Visual Flight Rules[1] (VFR) and proposed a flight time of approximately two (2) hours, Palm Beach County direct to Chub Cay, Berry Island, Bahamas. The aircraft altitude, fuelled gallons and flight plans are unknown.

The aircraft was piloted by Mr. Lawrence Lee Littlefield. Mr. Littlefield held a valid United States Airline Transport Pilot license. Mr. Littlefield also held a United States valid second class medical certificate issued June 17, 2009.

1.2 INJURIES TO PERSONS

Injuries	*Crew*	*Passengers*	*Others*	*Total*
Fatal	**1**	**0**	**0**	**1**
Serious				
Minor/None				

1.3 DAMAGE TO AIRCRAFT

The aircraft was destroyed during the impact sequence and subsequent water submersion. It was later recovered from the crash site and when no longer required the aircraft was properly disposed of.

1.4 OTHER DAMAGE

Other than damage sustained by aircraft, no other damage was reported.

1.5 PERSONNEL INFORMATION

The aircraft was piloted by 60 yr old Lawrence Lee Littlefield of Boynton Beach, Florida, USA. Mr. Littlefield was the holder of a valid USA Airline Transport Pilot Certificate issued on November 25 1991 with Airplane Single Engine Land category and class rating with no limitations. Mr. Littlefield was also the holder of a valid USA second class medical certificate issued June 17, 2009. Mr. Littlefield's medical certificate held no medical restrictions.

Mr. Littlefield's total flying experience recorded on his last medical certificate application in June 2009 total civilian flight is unknown. His flying experience including experience on this type of aircraft is unknown. The amount of hours flown by Mr. Littlefield in the last 24 hr, 7 days or the last 30 days prior to the accident is unknown. FAA record indicates there have been no violations or prior FAA-recorded aviation accident history against Mr. Littlefield.

1.6 AIRCRAFT INFORMATION

Aircraft N93HE a US registered aircraft was manufactured by Huber Hartmut. The aircraft was an Express model. The single engine aircraft was manufactured in 1993 with serial number 143 and was registered to Lawrence Littlefield (Pilot). The aircraft was fitted with a reciprocating engine, model number IO-360 SER manufactured by Cont Motor. The aircraft was listed in the amateur built category,

experimental classification. Airworthiness date of the aircraft was October 28 1993. The aircraft was registered to Littlefield Lawrence L, 865 Sun Disk PL, Boynton Beach, Florida.

No information available on the maintenance history of the aircraft. Family members unable to provide any information on the facility that conducted any maintenance or the records.

The aircraft was operated privately. It was not known if the mass and center of gravity were within prescribed limits.

No information was available about how much fuel was uplifted prior to the departure.

1.7 METEOROLOGICAL INFORMATION

Bahamas Meteorological Department Bahamas Area Forecast dated December 12 2009 valid for 12 hours from 1200 UTC was reviewed.

Special Features section of the report indicated quasi stationary front over the north-west Bahamas to lift northwards today.

Significant Weather section of the report indicated, weather in the northwest Bahamas scattered[2] to broken[3] clouds at 1,500 to 2,000 feet, occasional broken clouds at 5,000 to 7,000 merging with higher layers. Scattered showers with tops near flight level 160 (16,000 ft) were forecasted. Ceiling and visibility below 1,500ft and 3 nautical miles in heavy showers with moderate to severe turbulence. In the central and southeast Bahamas no significant weather forecasted.

It was not known if the pilot received a weather report prior to departure from Lantana Florida. It was also not known whether the pilot received any enroute weather report from Miami Center or Nassau Flight Service Station. However, the weather in the vicinity of Chub Cay at the time of the accident was Visual Meteorological Conditions.

1.8 AIDS TO NAVIGATION

At the time of the accident the aircraft had available to it, Nassau VOR[4] on frequency 112.7 for its approach and Bimini VORTAC[5] on frequency 116.7. Both VOR and VORTAC equipment were reported as serviceable.

1.9 COMMUNICATIONS

Communication was established on the common traffic advisory frequency (CTAF)[6] of 122.80 mega hertz in the Chub Cay Area.

1.10 AERODROME INFORMATION

Chub Cay Airport is an airport in Chub Cay in the Berry Islands in Bahamas (IATA: **CCZ**, ICAO: **MYBC**). The airport actually lies in Frazers Hog Cay. Altitude 5 ft / 2 m above mean sea level (MSL). Coordinates latitude 25°25′01.59″N and longitude 077°52′51.06″W. Runway 11/29 length 5,000 ft / 1,524m Runway paved with bitumen[7].

1.11 FLIGHT RECORDERS

N93HE was not fitted with a flight recorder as none was required by regulations for this type of aircraft.

1.12 WRECKAGE AND IMPACT INFO

Upon impact with the terrain (Sea) the aircraft power-plant section was separated from the fuselage, and came to rest approximately 30 feet forward of the point of impact in approximately 2 feet of water.

The separated fuselage cart-wheeled further, to the left of the point of impact and was found partially separated in two pieces approximately 100 feet left (approximately 90 degrees) of the point of impact. Several smaller components from the aircraft were found scattered in a debris field of approximately 100 feet forward x 300 feet left of the point of impact.

The fuselage was found upside down approximately 40 yards to the left of the location of the engine. The fuselage was partially separated in two pieces between the two forward and two rear rows of seats of the aircraft. The rear fuselage with empennage still attached was bent and twisted and came to rest on top of the left wing upside down. The left wing of the aircraft sustained significantly more damage than the right wing which is consistent with the left wing of the aircraft making first contact with the terrain.

1.13 MEDICAL AND PATHOLOGICAL

Remains recovered were transported to the Princess Margaret Hospital Morgue. Up to the production of this draft report, results of the toxicology report were not available.

However, a copy of the autopsy report dated December 16 2009, accomplished by the Rand Pathology Laboratory at the Princess Margaret Hospital was received.

The autopsy report final diagnosis was drowning complicating multiple injuries, blunt force trauma consistent with plane crash history.

The opinion expressed in the autopsy report indicated that, "Lawrence Littlefield appears to have died as a result of drowning complicating multiple injuries caused when the aircraft which he was piloting crashed into waters off Chub Cay, Berry Islands in The Bahamas. It is possible that his mildly enlarged heart and partially blocked coronary arteries could have contributed to his death."

1.14 FIRE

Examination of the wreckage concluded no fire was involved pre or post crash.

1.15 SURVIVAL ASPECTS

The crash was not survivable as the aircraft came to rest upside down in the water, which resulted in the drowning of the pilot.

1.16 TESTS AND RESEARCH

An inspection and examination of the engine of N93HE was conducted at Chub Cay, Berry Island, Bahamas. Engine report conducted by Continental Motors is attached in Appendix, Part 5.

1.17 ADDITIONAL INFORMATION

No other pertinent information relevant at this time.

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[1] 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.

[2] Scattered Clouds means occasional clouds

[3] Broken Clouds - clouds which cover between 6/10 and 9/10 of the sky

[4] VOR, short for VHF Omni-directional Radio Range, is a type of radio navigation system for aircraft. A VOR ground station broadcasts a VHF radio composite signal including the station's identifier, voice (if equipped), and navigation signal. The identifier is morse code. The voice signal is usually station name, in-flight recorded advisories, or live flight service broadcasts. The navigation signal allows the airborne receiving equipment to determine a magnetic bearing from the station to the aircraft (direction from the VOR station in relation to the Earth's magnetic North at the time of installation). VOR stations in areas of magnetic compass unreliability are oriented with respect to True North. This line of position is called the "radial" from the VOR. The "intersection" of two radials from different VOR stations on a chart provides an approximate position of the aircraft.

[5] TACtical Air Navigation, commonly referred to by the acronym TACAN, is a navigation system used by military aircraft. It provides the user with bearing and distance (slant-range) to a ground or ship-borne station. It is a more accurate version of the VHF omnidirectional range/distance measuring equipment (VOR/DME) system that provides bearing and range information for military aviation. At VORTAC facilities where a VOR is combined with a TACAN, the DME portion of the TACAN system is available for civil use.

[6] **Common Traffic Advisory Frequency** (**CTAF**), is the name given to the VHF radio frequency used for air-to-air communication. Many towered airports close their towers overnight, keeping the airport itself open for cargo operations and other activity. Pilots use the common frequency to coordinate their arrivals and departures safely, giving position reports and acknowledging other aircraft in the airfield traffic pattern.

[7] **Bitumen** is a mixture of organic liquids that are highly viscous, black, sticky, entirely soluble in carbon disulfide, and composed primarily of highly condensed polycyclic aromatic hydrocarbons.

2.0 ANALYSIS

2.1 GENERAL

1. **Airframe** - The airplane crashed when control was lost during the final approach phase of flight into Runway 11 at Chub Cay. An examination of the wreckage and impact marks revealed that the nose gear, engine and upper forward portion of the aircraft received the brunt of the impact forces.

The fuselage was breached and segmented into three sections that consisted of the *forward cabin area, the engine and the rear fuselage.*

The engine was located with some firewall sections with portions of the engine mount attached; the nose gear was separated from the engine mount and displaced near the point of impact with the ground.

The forward section consisting of the instrument panel was still attached to the engine.

The center section and the *aft tail cone section.* The roof and side wall sections were breached upon impact.

Both sets of rudder pedals were viewable with impact damage noticeable.

Crumpling of the fuselage, wing, vertical and horizontal stabilizer indicative of the aircraft making contact with the water, cart-wheeling and coming to rest in an inverted position.

The *fuselage center section* was void of all top and side wall structure. The floor was impact damaged.

Extend of damage consistent with aircraft cart-wheeling upon making contact with the water.

The examination of the airframe showed that all structural components were intact immediately prior to the accident sequence. The continuity of the aircraft control system was confirmed by tracing individual cables throughout their respective routings.

LEFT WING:

The left wing was separated from the fuselage wreckage at the root. It was separated from the wing structure and was breached. The wing leading edge was breached along the entire wing span.

RIGHT WING:

The right wing was attached to the fuselage. The right aileron was accounted for. The outboard wing was breached.

The most recent annual / 100 hour inspection or other required maintenance completed on the aircraft could not be confirmed because the log books and maintenance records could not be located for the aircraft.

Several smaller components from the aircraft were found scattered in a debris field of approximately 100 feet forward x 300 feet left of the point of impact. The fuselage was found upside down approximately 40 yards to the left of the location of the engine. The fuselage was partially separated in two pieces between the two forward and two rear rows of seats of the aircraft. The rear fuselage with empennage still attached was bent and twisted and came to rest on top of the left wing upside down. The left wing of the aircraft sustained significantly more damage than the right wing which is consistent with the left wing of the aircraft making first contact with the terrain.

2. **Engine** – No information could be found on the maintenance of the engine. An examination of the engine was completed in Chub Cay Berry Island by Continental Motor. *See continental engine field inspection report attached in Appendix 5.*

- **Pilot Qualifications** –

The aircraft was piloted by 60 yr old Lawrence Lee Littlefield of Boynton Beach, Florida, USA. Mr. Littlefield was the holder of a valid USA Airline Transport Pilot Certificate issued on November 25 1991 with Airplane Single Engine Land category and class rating with no limitations. Mr. Littlefield was also the holder of a valid USA second class medical certificate issued June 17, 2009. Mr. Littlefield's medical certificate held no medical restrictions.

Mr. Littlefield's total flying experience recorded on his last medical certificate application in June 2009 total civilian flight is unknown. His flying experience including experience on this type of aircraft is unknown. The amount of hours flown by Mr. Littlefield in the last 24 hr, 7 days or the last 30 days prior to the accident is unknown.

- **Weather –**

Observations from witnesses on the ground in Chub Cay indicated that the weather the morning of the accident was "very good".

See Meteorological 1.7 for more detailed weather information.

2.2 AIRCRAFT

- Aircraft Performance- no information available on whether aircraft performance was a causal factor in the accident.

- Mass and Balance – no information on mass and balance available to make a determination on whether mass and balance had an effect on the outcome of this accident.

- Human Factors – the aircraft's seating configuration included two flight crew seats and two additional seats. One directly behind the pilot's seat and one directly behind the co-pilot's seat. According to first responders pilot was wearing seat belts at the time of the accident.

- Psychological and physiological factors affecting personnel involved –

  - no evidence exist to indicate whether psychological and / or physiological factors affected the pilot.
  - No evidence exists to support whether or not the pilot was suffering from chronic or acute illness.
  - Investigation uncovered that pilot was previously on medication for high cholesterol.
  - Autopsy report confirmed that the pilot's mildly enlarged heart and partially blocked coronary arteries could have contributed to his death.
  - No toxicology test results for the pilot available up to the publication of this draft report to support whether any alcohol or other legal or illegal drugs were in the system of the pilot that may have affected his ability to pilot the aircraft.
  - No information available to substantiate whether the pilot received adequate rest and /or nourishment prior to the accident.
  - No information available to determine if the pilot was under any kind of undue stress which may have affected his ability to pilot the aircraft.

3.0 CONCLUSIONS

3.1 FINDINGS

1. The pilot was properly certified and qualified for the flight.

2. The airplane was properly certificated in accordance with existing regulations.

3. No record could be found to determine whether aircraft was maintained in accordance with regulations.

4. There were no airplane system or power-plant anomalies that would have prevented the ability of the engine to produce rated horsepower.

5. No evidence of any pre-impact mechanical failure or malfunction was found.

3.2 PROBABLE CAUSE

The investigation team has determined that the probable cause of this accident was pilot loss of control.

Based upon medical findings, Mr. Littlefield suffered from conditions that may have contributed to his inability to safely operate the aircraft prior to the aircraft losing control and subsequently crashing.

3.3 CONTRIBUTING FACTORS

- The pilot's failure to recover from loss of control.

- According to the autopsy report, his mildly enlarged heart and partially blocked coronary arteries could have contributed to his death.

4.0 SAFETY RECOMMENDATIONS:

As a result of this investigation the AAIPU makes NO recommendations;