بسم الله الرحمن الرحيم

**ACCIDENT INVESTIGATION COORDINATING COMMITTTEE**

# ACCIDENT REPORT ON
# 8Q-MAG (TWIN OTTER) CRASH
# At the Reef of Halaveli Resort Lagoon (North Ari Atoll), Maldives
# On 2nd of June 2009

**Operator:** **Maldivian Air Taxi**
**Manufacturer:** **De Havilland (Canadian)**
**Model:** **DHC-6-200 (Floatplane)**

## INTRODUCTION

Maldives is a signatory to Convention on International Civil Aviation (Chicago 1944) which established the International Civil Aviation Organisation. Article 26 of the Chicago Convention obligates the conduct of accident investigation of civil aircraft occurring in their state.

The Accident Investigation Coordinating Committee (AICC) conducted the investigation.

The AICC was assisted by technical staff of Civil Aviation Department (CAD).

The Accident was notified to CAD at 1013 hrs (LT) by Maldivian Air Taxi. ICAO and Transport Canada was notified by CAD. The accident investigating coordinating committee reached the accident site at 1445 hrs. The flight time from Male International Airport to Halaveli is approximately 27 minutes.

In accordance with Annex 13 to Convention on International Civil Aviation, it is not the purpose of this investigation to apportion blame or liability. The sole objective of this investigation and the Final Report is to prevent accidents and incidents.

Unless otherwise stated recommendations in this report are addressed to the CAD. It is CAD who will decide on implementation.

All times in this report are in Local Time unless otherwise stated. Time Difference between Local and UTC is +5 hrs.

The report is released by the Chairman of the Accident Investigation Coordinating Committee.

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## List of Abbreviations

| | | |
|---|---|---|
| **AICC** | : | Accident Investigation Coordinating Committee |
| **C of A** | : | Certificate of Airworthiness |
| **C of R** | : | Certificate of renewal |
| **CAD** | : | Civil Aviation Department |
| **CAR** | : | Civil Aviation Regulation |
| **CVR** | : | Cockpit Voice Recorder |
| **ICAO** | : | International Civil Aviation Organization |
| **LH** | : | Left hand |
| **LT** | : | Local time |
| **MAR** | : | Maldivian Airworthiness Requirements |
| **MAT** | : | Maldivian Air Taxi Pvt. Ltd |
| **MCAR** | : | Maldivian Civil Aviation Regulation |
| **MEL** | : | Minimum Equipment List |
| **MTOW** | : | Maximum takeoff weight |
| **PIC** | : | Pilot in command |
| **PROP** | : | Propeller |
| **RH** | : | Right hand |
| **SIC** | : | Second in command |
| **VFR** | : | Visual Flight Rules |

## Synopsis

The 8Q-MAG aircraft departed at 0945hrs, with 3 crew and 4 passengers on board, for a Photo Flight around the Lagoon of Halaveli (North Ari Atoll) from the floating platform ( fixed to jetty) of Halaveli (North Ari Atoll). The sky was clear with good visibility and wind, 8-10 knots, from westerly direction. The estimated flight time for the flight was 40 minutes. The aircraft took off westbound. After levelling the aircraft the co-pilot gave his seat to the cameraman, one of the passengers. The co-pilot remained at third row left seat from thereon until the aircraft met the accident. According to the crew and passengers the aircraft made few orbits (right bank) around the island at the initial levelled height and, then descended lower heights and made few more orbits around the lagoon for photography. The passenger seated at the cabin wearing the headset informed the PIC that they got all the shots they wanted and now he could land. PIC started a descending turn (right bank) while keeping the passenger at the co-pilot seat in order to give a different view to him. Before the PIC could complete the turn, the right wing and/or float hit the water. The accident resulted in both wings being broken at the root. Left float was detached and right float got stuck, between the engine and the fuselage, blocking the co-pilot exit. Empennage was twisted upside down. The depth of the lagoon at the site of wreckage was about 1 metre. All the passengers and crew were able to escape the aircraft without any fatalities.

*The investigation identified the following causal factors:*

- The PIC's decision to fly the aircraft, other than for take-off and landing, lower than an altitude allowed by CAD regulations and Company Operations Manual.

- A passenger occupying the co-pilot seat.

- No effective means established by the operator to ensure that amendments to the regulations, guidance, procedures are communicated to the crew appropriately and in a timely manner.

## 1. FACTUAL INFORMATION

| | |
|---|---|
| **Operator:** | Maldivian Air Taxi Pvt Ltd. (Maldivian Air Operator Certificate Holder No.005) |
| **Aircraft Type**: | DHC-6-200 (on CAP floats) |
| **Aircraft Manufacturer:** | De Havilland |
| **Aircraft Owner:** | Kenn Borek Air Ltd. (Canadian Company) |
| **Nationality**: | Maldivian registered |
| **Registration:** | 8Q-MAG |
| **Place of Accident**: | Halaveli Island Resort (North Ari Atoll) (04° 02' 22.4" N, 072° 54' 14.8" E) |
| **Date and Time**: | 2nd June 2009 at 1009 hrs |

### 1.1 History of Flight.

2nd June 2009 was a Tuesday; the busiest day of the week with an average of 150-200 movements. 8Q-MAG first flight of the day was from Male' to Halaveli, from 0904 hrs to 0924 hrs. The same crew then departed for a photo flight at 0945 hrs from Halaveli (North Ari Atoll) floating platform (attached to the jetty) with four passengers from Halaveli.

The flight manifest (appendix 1) signed by Pilot-in-Command indicated that the aircraft was loaded up to 9994 lbs. The aircraft was boarded with 4 passengers (4 males) and the flight manifest used approved weights of 181 lbs for male to calculate the aircraft weight. The aircraft had 875 lbs of fuel. This particular aircraft was a short nose twin otter aircraft.

The MAT seaplane operation was based on a day VFR, non-schedule and a self dispatch system. All pre-flight duties were completed by the crew.

The sky was clear with good visibility. Wind was from westerly direction with 8-10 knots. The estimated flight time for the photo flight was 40 minutes.

The aircraft took off westbound. After levelling the aircraft the co-pilot gave his seat to the cameraman, one of the passengers. The co-pilot remained at third row left seat from thereon until the aircraft met the accident. According to the crew and passengers the aircraft made few orbits (right bank) around the island at the initial levelled height and, then descended lower heights and made few more orbits around the lagoon for photography. The passenger seated at the cabin wearing the headset informed the PIC that they got all the shots they wanted and now he could land. PIC started a descending turn (right bank) while keeping the passenger at the co-pilot seat in order to give a different view to him. Before the PIC could complete the turn, the right wing and/or float hit the water. The PIC tried to level the aircraft but he lost control of the aircraft and the aircraft skid on water (appendix 2). Left float was detached

(appendix 3) and right float got stuck between the engine and the fuselage blocking the co-pilot exit. Empennage (appendix 4) was twisted upside down. All the passengers and crew escaped through the exits safely. The depth of water at the wreckage site was about 1 metre. The passengers and crew was transferred to speedboat using a dinghy.

### 1.2 Injury to persons

| *Injuries* | *Crew* | *Passengers* | *Total in the aircraft* | *others* |
|---|---|---|---|---|
| Fatal | 0 | 0 | **0** | **NIL** |
| Serious | 0 | 0 | **0** | **NIL** |
| Minor | 1 | 1 | **2** | **NIL** |
| None | **2** | **3** | **5** | **NIL** |
| **Total** | **3** | **4** | **7** | **NIL** |

### 1.3 Damages to aircraft

RH float was broken close to forward end and got stuck on the co-pilot door. LH float was detached from the aircraft. Both wings were broken at the roots (appendix 5). Empennage was twisted anticlockwise upside down. Both propeller blades twisted. A large cut made by the propeller right behind the captain's seat (appendix 6). Co-pilot's wind screen broken into two halves and almost detached (appendix 7). Right hand side passenger window damaged. The aircraft was badly crushed near aircraft nose (appendix 8). Aircraft was on the shallow reef after the accident. Aircraft stopped heading north-north easterly direction.

### 1.4 Other damage

Damage to nearby corals were seen, but the damage was not assessed

**1.5 Personnel information**

1.5.1 Captain –

| | |
|---|---|
| Age: | 30 |
| Nationality: | Maldivian |
| Gender: | Male |
| Type of Licence: | Airline Transport Pilot Licence (Aeroplanes) |
| Medical issued on: | 12 November 2008 |
| Medical expires on: | 1 December 2009 |
| Type of medical: | Class 1 |
| Licence issued on: | 13 January 2009 |
| Licence expires on: | 13 January 2011 |
| Types flown: | DHC-6 (on Maldivian licence) |
| Hours on type: | DHC-6 3240 hrs |
| Ratings: | DHC-6 Float Plane |
| Last Proficiency check: | 19 July 08 |
| Total hours as PIC: | 863.7hrs |
| Total flight time: | 3556hrs |

1.5.2 Co-pilot –

| | |
|---|---|
| Age: | 22 |
| Nationality: | Maldivian |
| Gender: | Male |
| Type of Licence: | Commercial Pilot Licence (Aeroplanes) |
| Medical issued on: | 30 July 2008 |
| Medical expires on: | 1 August 2009 |
| Type of medical: | Class 1 |
| Licence issued on: | 10 July 2007 |
| Licence expires on: | 10 July 2009 |
| Types flown: | DHC-6 (on Maldivian Licence) |
| Hours on type: | 1688hrs |
| Ratings: | DHC-6 Float Plane |
| Last Proficiency check: | 25 July 2008 |
| Total hours as SIC: | 150hrs |
| Total flight time: | 1974hrs |

1.5.3 Cabin Crew –

| | |
|---|---|
| Age: | 30 |
| Nationality: | Maldivian |
| Gender: | Male |
| Licence issued on: | 04 November 2008 |
| Medical issued on: | 12 November 2008 |
| Medical expires on: | 11 November 2010 |
| Type of medical: | Class 3 |

**1.6 Aircraft information**

1.6.1 General information –

| | |
|---|---|
| Aircraft manufacturer: | De-Havilland of Canada |
| Model: | DHC-6-200 Twin Otter |
| Serial number: | 224 |
| Year of manufacture: | April 1969 |
| Nationality: | Maldivian |
| Registration marks: | 8Q-MAG |
| Validity of C of R: | Perpetual |
| Validity of C of A: | 30 Dec 2009 |
| Name of owner: | Kenn Borek Air Ltd. |
| Name of operator: | Maldivian Air Taxi |

1.6.2 Aircraft History –

Total flying hours since: -

| | |
|---|---|
| - manufacture: | 33685.0 hrs |
| - last periodic inspection: | 113. 0 hrs |

Last inspection carried out at TAT: 33572.0 hrs (EMMA #24)

1.6.3 Engines and propellers –

Right engine:

Gas Generator:-

| | |
|---|---|
| Manufacturer: | Pratt & Whitney (Canada) |
| Year of manufacture: | Not available |
| Model: | PT6A-27 |
| Serial number: | PCE51998 |
| Last overhaul date: | 28th May 1990 |
| Hours since overhaul: | 12373.3 hrs |
| Last check carried out: | EMMA #24 |
| Hours since last check: | 113.0 hrs |

Power Section:-

| | |
|---|---|
| Manufacturer: | Pratt & Whitney (Canada) |
| Year of manufacture: | August 2001 |
| Model: | PT6A-27 |
| Serial Number: | PG 0167-100 |
| Last overhaul date: | New |
| Total hours since new: | 5572.5 hrs |
| Last Check carried out: | EMMA #24 |
| Hours since last check: | 113.0 hrs |

Left engine:

Gas Generator:-

| | |
|---|---|
| Manufacturer: | Pratt & Whitney (Canada) |
| Year of manufacture: | Not available |
| Model: | PT6A-27 |
| Serial number: | PCE52024 |
| Total Hours since new: | 15231.1 hrs |
| Last overhaul date: | 13th Sep 1993 |
| Hours since overhaul: | 6511.8 hrs |
| Last check carried out: | EMMA #24 |
| Hours since last check: | 113.0 hrs |

Power Section:-

| | |
|---|---|
| Manufacturer: | Pratt & Whitney (Canada) |
| Year of manufacture: | Not available |
| Model: | PT6A-27 |
| Serial Number: | 51866-100 |
| Last overhaul date: | Not available |
| Hours since overhaul: | 7323.5 hrs |
| Last Check carried out: | EMMA #24 |
| Hours since last check: | 113.0 hrs |

Right propeller:

| | |
|---|---|
| Manufacturer: | Hartzell Propellers Inc |
| Year of manufacture: | Not available |
| Model: | HC-B3TN-3DY |
| Serial number: | BUA22901 |
| Last overhaul date: | 22nd May 2008 |
| Hours since overhaul: | 847.1 hrs |
| Last check carried out: | EMMA#24 |

Left propeller:

| | |
|---|---|
| Manufacturer: | Hartzell Propellers Inc |
| Year of manufacture: | Not available |
| Model: | HC-B3TN-3DY |
| Serial number: | BUA23781 |
| Last overhaul date: | 17th Feb 2005 |
| Hours since overhaul: | 3379.6 hrs |
| Last check carried out: | EMMA#24 |

1.6.4 Fuel –

| | |
|---|---|
| Type of fuel used: | Jet A1 |
| Amount of fuel on board: | 875 lbs |

1.6.5 Accessories – No Component failed.

1.6.6 Defects – No deferrals.

1.6.7 Aircraft load –

| | |
|---|---|
| Certified take-off mass: | 11,600 lbs |
| Certified landing mass: | 11,600 lbs |
| Take-off mass as per load sheet: | 9,994 lbs |

1.6.7.1 Load sheet

The load sheet served as the passenger manifest. A copy of the load sheet was retained with dispatch before take-off as required by the company Operations Manual

1.6.7.2 Payload

The payload was the aggregated weight of the pilots, the passengers and their baggage. Payload was not a contributing factor to this accident. As per the passenger manifest/load sheet the takeoff weight was 9994 lbs.

## 1.7 Meteorological information

Meteorological report at Male' International Airport at 1000hrs local time on 02nd June 2009 was as follows:

Wind 240/07 KT, Visibility 10km, Clouds scattered at 1800 ft, temperature 31 deg C, dew point 26, QNH 1012mb.

The meteorological condition at and around the Halaveli Island area, according to the meteorological department at 1000hrs local time was as follows:
Wind 250/08-10 KT, Visibility 10km, clouds scattered at 1800, temperature 31 deg C dew point 26 QNH 1012mb. The accident occurred during daylight at about 1005 hrs local time.

## 1.8 Aids to navigation

No Navigational aids were available at the site of landing. The aircraft was operating under VFR condition. Navigational aids were not a contributing factor of the accident.

## 1.9 Communications

Two VHF sets COM1 and COM2 were both serviceable at the time of departure. No communication problem was reported.

## 1.10 Aerodrome information

The area was licensed under Civil Aviation Department of the Maldives (License No AP/0/49). It was observed during the investigation that there were no specific areas marked for takeoff and landing at the site. It was to up to the PIC to choose the most appropriate landing site after inspection. Platform was located at (04°02'39" N, 72°55'14" E) within the landing area and was equipped with emergency equipments.

## 1.11 Flight Recorders

The aircraft was not fitted with any flight recorders and none was required by the regulation. (The aircraft is type certified below the weight category 5700kg; Refer MAR Series-C9, 4.2)

## 1.12 Wreckage and impact information

The Accident was notified to CAD at 1013 hrs (LT) by Maldivian Air Taxi. Accident Investigating Coordinating Committee (AICC) members left Male' International Airport at 1351 hrs and reached Halaveli at 1418 hrs. The AICC reached the accident site at 1445 hrs. The flight time from Male International Airport to Halaveli was approximately 27 minutes.

Right after the impact, according to the information gathered during investigation, the aircraft was facing north-north-easterly direction but when the investigation team arrived to the site, the aircraft was facing a westerly direction, due to waves. Both wings were broken at the roots and the wing tips were also damaged. Aircraft nose was crushed and the underside of nose was badly damaged. Both engines were intact on the wings but both propeller blades were severely damaged. Right float forward end was cut by the propeller and detached. The left float was detached from the aircraft but it was prevented from drifting away by securing to the aircraft using a rope when the investigation team arrived at the scene. It is noted here that when the investigating team arrived the air operator's staff were already at the crashed aircraft. The empennage was twisted anticlockwise upside down. A large vertical cut was made close to captain's seat.

The fist point of contact of the aircraft was the right wing and/or the right float.

At the time of site visit the RH float was located on the beach of Halaveli (appendix 9). PIC accounted that the float was stuck on the co-pilot door.

The wreckage was brought from Halaveli Island Resort to MAT Hangar, Male' International Airport on the morning of 6 June 2009.

Investigation revealed no component malfunctioning or technical fault prior to the accident. This was further confirmed by the PIC and rest of the Crew.

## 1.13 Medical and pathological information

Examinations were performed on all the crew of the aircraft. There was no evidence of any pre-existing disease, alcohol, drugs or any toxic substance in either of the pilots which may have caused or contributed to the cause of the accident.

## 1.14 Fire

There was no evidence of fire before or after impact.

## 1.15 Survival Aspect

Aircraft came to a halt on the reef with no fire. The passengers were instructed and evacuated by the crew. The passenger at the co-pilot seat was evacuated using the captain's door since the co-pilot door was unable to open because of the right hand float was stuck on the co-pilot door.

The reef was shallow (less than a metre) and passengers were rescued from the reef to the speed boat, using a dinghy.

Some amount of fuel leaked to the sea from the aircraft.

### 1.16 Tests and research

No further tests were conducted on any equipment as the cause of the accident was evident.

### 1.17 Organizational and management information

The company is a Civil Aviation Department (CAD) approved Air Operator Certificate holder. Regular inspections and periodical flight checks were conducted on the company and crew respectively by CAD to verify compliance and competency. The company had undergone a Cockpit and Cabin Enroute check on 25th February 2009. A Ramp inspection was carried out on 16th April 2009. Base inspection was carried out on 14th -18th December 2008.

### 1.18 Additional Information

None

### 1.19 Useful or Effective Investigation Techniques

After the accident, the pilots and cabin crew had a medical check-up done at ADK Hospital. Urine was tested for narcotics and the results were negative.

## 2. ANALYSIS

It was observed by the investigation team that;

- The PIC was conducting flying activities (photographic activities) lower than that allowed in regulations and company operations manual and standard operating procedures.

- At the time of accident a passenger was occupying the co-pilot seat.

- PIC could not make a fair judgment of the aircraft altitude by looking outside since the aircraft was banking to the right for a turn and the co-pilot seat was occupied by a passenger.

- The crew of the aircraft acted swiftly to save lives, after the aircraft came to a halt.

- Investigation revealed that the right float forward and both wingtips were severely damaged. Since the aircraft was right banked at the impact it was evident that the right wing and/or float were the first to impact with the water.

## 3. CONCLUSIONS

### (a) Findings

- When the AICC members arrived at the accident site it was observed that operator staff was **on the aircraft** and picking wreckage parts. Operator Staff were also known to be inside the aircraft.

- The PIC was qualified, experienced, adequately rested and medically fit to conduct the flight.

- The SIC was adequately rested, medically fit and competent to perform the role of 'second pilot' as specified in the Company Operations Manual.

- The aircraft was within the certified weight limitations for both take–off and landing.

- The aircraft was serviceable for take-off and landing.

- No obstacle on the landing area.

- An exemption to CAR Part 15.11 was issued on March 28, 2004 for the purpose of conducting professional aerial photography provided the following conditions are met:

    - The photographer may occupy the right hand seat except for take-off and landing; in this case photographer must be securely strapped and thoroughly briefed of the use of survival equipment available to him
    - Two qualified pilots must be at the controls during take-off and landing
    - No fare paying passengers should be carried on such flights
    - All relevant ATS provisions must be complied with

  During the investigation it was evident none of the crew fully knew the conditions of above exemption.

- A passenger was occupying the co-pilot seat at the time of accident.

- The preparing of the cabin for landing was not performed on the flight of accident.

- As per the wreckage pictures, the flap selector was set to zero flaps and the flap angle indicator indicates zero flaps (appendix 10) and the aircraft was heading north-north easterly direction ( wind direction from westerly direction) prior contact with water, giving the impression that aircraft was not on final for a landing.

- The PIC was conducting flying activities below an altitude allowed by CAD regulations and Company Operations Manual.

- During investigation it was revealed that the crew were not aware of amendments to the regulations, although all amendments to the regulations were published on the CAD website and sent to the operators via email.

- Under an exemption, limited to MAT only, issued to MAR C09 paragraph 4.1.1 (h) and paragraph 4.1.2 (h) by Civil Aviation Department, MAT is not required to keep a standing flight manual and operations manual on aircraft. But it was the responsibility of Crew to update the manuals and take the manuals to the aircraft during each flight. There was no acknowledgement procedure by the person issuing the amendments to ensure receipt of amendment by the crew.

- No training has been given or guidance prepared for special operations, which require special manoeuvring and passenger movements in the cabin, such as photo flights.

- During investigation it was observed that CAD was not equipped with sufficient number of qualified, experienced and competent technical staff to carry out safety oversight and assurance activities as required by ICAO guidelines. CAD has issued regulations on implementation of Safety Management System and was in the process of implementation of a State Safety Program.

**(b) Causal Factors**

- The PIC's decision to fly the aircraft, other than for take-off and landing, lower than an altitude allowed by CAD regulations and Company Operations Manual.

- A passenger occupying the co-pilot seat.

- No effective means established by the operator to ensure that amendments to the regulations, guidance, procedures are communicated to the crew appropriately and in a timely manner.

## 4. RECOMMENDATIONS

The following recommendations were made on 10 June 2009:

**Recommendation 4.1**

Operator to implement a mechanism to ensure that the changes to regulations, guidance and procedures are communicated to the crew effectively and in a timely manner.

**Recommendation 4.2**

Crew to be given guidance on limitations and training on special operations where different aspect of manoeuvring and passenger movement in cabin is expected such as Photo Flights.

**Recommendation 4.3**

CAD to mandate installation of CVR on all aircraft used for commercial operations.

**Recommendation 4.4**

CAD to publish all exemptions issued on their website.

**Recommendation 4.5**

To take all reasonable measures to protect the evidence and to maintain safe custody of the aircraft and its contents for such a period as may be necessary for the purposes of an investigation as soon as possible.

**Recommendation 4.6**

CAD to strengthen its safety oversight and assurance activities, by hiring and retaining experience, qualified and competent technical staff, to ensure the level of compliance with regulation and company Operating Procedures by the operators and service providers. CAD should also expedite the process of implementation of Safety Management System by operators and service providers and implementation of the State Safety Program required by ICAO annexes.

**Recommendation 4.7**

All licensed aerodrome operators to establish an emergency response plan according to established guidelines. CAD to work with respective stakeholders in establishing a national level aircraft emergency response plan.

Report compiled by:

Accident Investigation Coordinating Committee

Date: Final report released on 21 June 2009.

## 5. APPENDICES

### Appendix 1

**MALDIVIAN AIR TAXI (Pvt) Ltd.**

**PASSENGER & CARGO MANIFEST**

Date: 02/05/05 Time:

A/C Reg.: 8Q-MAG Flt. No.: 285 Prepared by: Aduley

Dep. Station: HAL Arr. Station: HAL

Arr. Flight No.: Dep. Flight No.:

| No. | Name/Cargo description | M | F | C | I | Conn. Flt. | Tour Opr | Payment | *Standby | Pcs. | Lug. Wgt. | Cgo. Wgt. | Pax. Wgt. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Klinger Dominique | / | | | | HAL | HAL | INV | 1 | | | | 181 |
| 2 | Gaurav Bamba | / | | | | " | " | " | 1 | | | | 181 |
| 3 | Franta Fabio | / | | | | " | " | " | 1 | | | | 181 |
| 4 | Mr Grainger David | / | | | | " | " | " | 1 | | | | 181 |
| 5 | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | |
| | | | | | | | | TOTAL | | | | | 724 |

Aircraft weight and balance is within limits for take-off, enroute and landing of the above flight

Aircraft is considered airworthy for this flight.

Captains Signature

| | | |
|---|---|---|
| | Pax. Wgt. | |
| | Cgo Wgt. | |
| | Lug Wgt. | 100 |
| | TOTAL PAYLOAD | 824 |
| | APS WGT. | 8295 |
| | Dry Oper. Wgt. | 9119 |
| 9991 | Fuel | 875 |
| | T.O.W. | 9994 |
| | Corr | |
| | ACT. TOW | 9994 |
| | Burn off | 350 |
| 9644 | Landing WGT | 9644 |

*All weights in lbs.

Boarding Card Colour

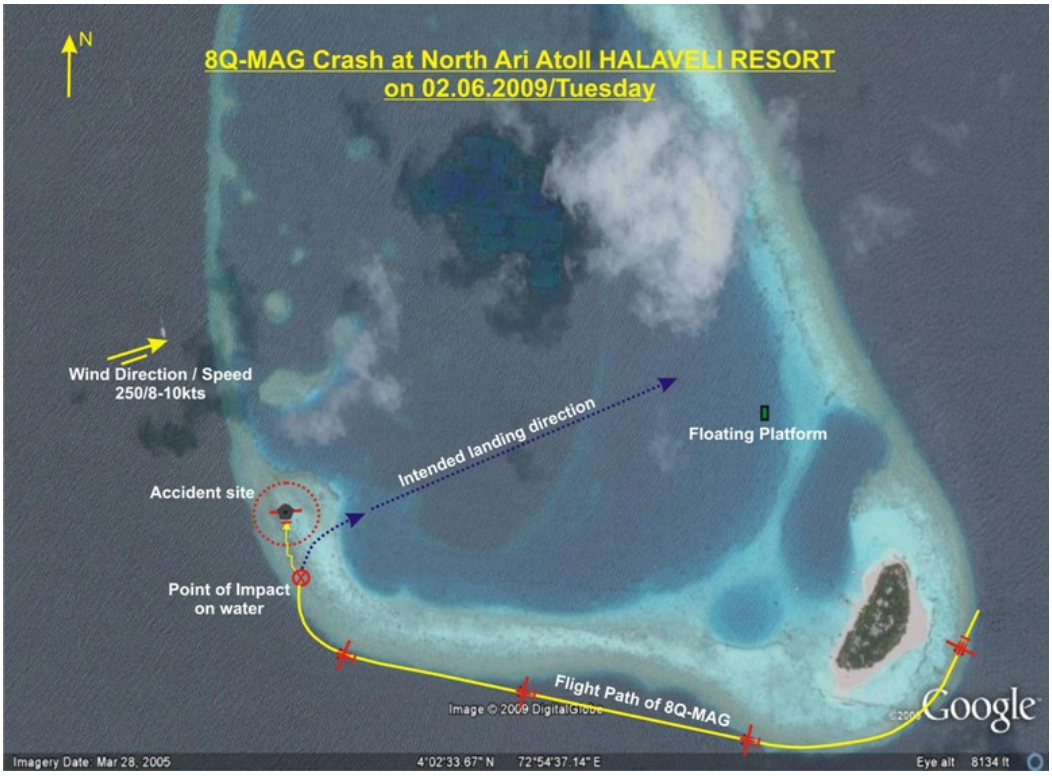
Notes:

Standby (1): Priority passenger / Standby (2): Secondary Importance

## Appendix 2

**Aerial view of aircraft with Halaveli in the view**

**Aircraft on the reef**




**Aircraft flight path**

## Appendix 3

**Left float behind the aircraft**

## Appendix 4


**Aircraft tail twisted**

## Appendix 5

**Wings broken at the roots**

## Appendix 6

**Fuselage cut made by propeller close to captain's seat**

## Appendix 7

**Co-pilot's windscreen broken**

## Appendix 8

**Fuselage area close to aircraft nose crushed**

## Appendix 9

**Right hand float on Halaveli beach**

## Appendix 10


**Flap angle indicator**

**END OF REPORT**