

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ



ACCIDENT INVESTIGATION COORDINATING COMMITTEE

AIRCRAFT ACCIDENT REPORT 2020/03

FINAL REPORT

**THE ACCIDENT INVOLVING VIKING AIR
DHC-6-300, 8Q-TMF, FLOATPLANE
AT VELANA INTERNATIONAL AIRPORT, MALDIVES
on
05 October 2020**

INTRODUCTION

Maldives is a signatory to the Convention on International Civil Aviation (Chicago, 1944) which established the principles and arrangements for the safe and orderly development of international air transport. Article 26 of the Convention obligates Signatories to investigate accidents to civil aircraft occurring in their State.

This report is based upon the investigation carried out by the Accident Investigation Coordinating Committee (AICC) in accordance with Annex 13 to the Convention, the Civil Aviation Act 2/2001 and the Maldives Civil Aviation Regulations.

The sole objective of the investigation of an accident or incident is prevention of accidents and serious incidents and it shall not be the purpose of this activity to apportion blame or liability.

The AICC was assisted by MCAA and TMA.

All timings in this report are in local time unless otherwise stated. Time difference between local and UTC is +5 hours.

The report is released on 15 September 2021.

Mr. Abdul Razzak Idris

Chairperson

Accident Investigation Coordinating Committee



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LIST OF ABBREVIATIONS

AICC	: Accident Investigation Coordinating Committee
AIP	: Aeronautical Information Publication
ATC	: Air Traffic Control
ATPL	: Air Transport Pilot License
CC	: Cabin Crew License
CG	: Centre of Gravity
Covid-19:	: Coronavirus disease of 2019
CPL	: Commercial Pilot License
CVR	: Cockpit Voice Recorder
DHC-6-300	: Viking Air Twin Otter Series 300 aircraft
DHC-8	: de Havilland Dash 8 aircraft
ELT	: Emergency Locator Transmitter
EMMA	: Equalized Maintenance for Maximum Availability
FDR	: Flight Data Recorder
FO	: First Officer
hrs	: Hours
Knots	: nautical miles per hour
lbs.	: Pounds
LH	: Left Hand
LOPA	: Layout of Passenger Accommodation
MAC	: Mean Aerodynamic Chord
MACL	: Maldives Airports Company Limited
MCAA	: Maldives Civil Aviation Authority
MCAR	: Maldives Civil Aviation Regulations
MLE	: IATA designated 3 letter code for Velana International Airport
PF	: Pilot Flying
PIC	: Pilot-in-Command

PWC	: Pratt & Whitney Canada
RH	: Right Hand
TAC	: Total Air Cycles
TAT	: Total Air Time
TMA	: Trans Maldivian Airways Pvt. Ltd.
UTC	: Coordinated Universal Time
VFR	: Visual Flight Rules
VIA	: Velana International Airport
VMC	: Visual Meteorological Conditions
VOM	: Operator designated 3 letter code for Vommuli Water Aerodrome

SYNOPSIS

On the 5th of October 2020, a Twin Otter aircraft on floats (DHC-6-300, 8Q-TMF) owned and operated by Trans Maldivian Airways Pvt. Ltd. (TMA), departed Vommuli water aerodrome destined to Velana International Airport (VIA). There were four passengers, two pilots and one cabin crew onboard the aircraft. The flight was conducted in accordance with the Visual Flight Rules (VFR). The whole flight was uneventful until after touch down at MLE.

At the time of the accident the Velana International Airport (VIA) was experiencing light rain and winds from the west at about 20 knots, a left crosswind for aircraft approaching from the south to land on the floatplane takeoff and landing area referred to as 'North Right' located on the north east lagoon adjoining the airport.

The aircraft touched down on 'North Right' and just after, rapidly banked/rolled to the right with the right-wing dipping into water and the left wing rising high in the air. The aircraft swerved to the right and finally settled on the water upright on both floats, facing south, the direction from which it landed.

The aircraft was taxied on one engine, assisted by the fire and rescue vessel pushing from the left until it reached to a point where people at TMA main base were able to reach out and pull the aircraft by rope and secure it to the dock.

Once the aircraft was docked all passengers and crew disembarked safely. The aircraft was then moved to the maintenance dock for investigation and assessment of the damages sustained.

During the accident, one of the flight crew and the cabin crew suffered minor injuries. No injury to any of the passengers were reported.

The accident occurred at 06:58 hours. Maldives Civil Aviation Authority (MCAA) reported the accident to the AICC at 08:20 hours and TMA reported the same to AICC at 08:21 hours.

One investigator from AICC and another representing MCAA, arrived at the accident scene, at approximately 10:15 hours and the investigation was initiated. A third investigator representing MCAA joined the team later during the day.

Damages were observed on the RH wing, LH wing and LH propeller blades of the aircraft. However, no obvious damages were found on the fuselage, the RH engine, RH propeller, the floats or float attachments.

1.0 FACTUAL INFORMATION

Aircraft Owner:	Trans Maldivian Airways Pvt Ltd.
Registered owner:	Trans Maldivian Airways Pvt Ltd.
Operator:	Trans Maldivian Airways Pvt Ltd. (Air Operator Certificate No.005)
Aircraft Type:	Viking Air (de Havilland Canada) DHC-6-300
Nationality:	8Q (Republic of Maldives)
Registration:	8Q-TMF
Aircraft Manufacturer:	de Havilland Canada (Type Certificate now owned by Viking Air Ltd.)
Manufacturer's Serial #.:	657
Place of Accident:	Velana International Airport
Latitude:	04° 11' 50.76" N
Longitude:	73° 32' 22.47" E
Date and Time:	05 October 2020 at 06:58 hours

1.1 History of Flight

1.1.1 Background

The aircraft was dispatched on 04 October 2020, on a multi-sector flight, (flight number FLT702955), MLE - Huruelhi (RBM) – Velavaru (VEL) – Vommuli (VOM) – MLE, with 3 crew members (2 flight crew and 1 cabin crew) and 11 passengers with a scheduled overnight layover at VOM. The fourth sector (also the last sector) was the flight from VOM to MLE on 05 October 2020.

The aircraft was released for flight following completion of a daily inspection carried out on 03 October 2020, evening. There was no record of any open deferred defects listed in the Aircraft Technical Log.

The airline's "flight release" document contains three parts - the 'Operational Flight Plan', 'Passenger & Cargo manifest' and the 'Flight release' – documenting weights for luggage and hand luggage. The operational flight plan is signed by both the Flight dispatcher and the PIC.

As per the flight release document, the aircraft departed MLE with 501 pounds (lbs.) of baggage, 1205 lbs of fuel, and a passenger weight of 1,884 lbs., totalling a take-off mass of 12,496 lbs.

The crew did not report any abnormalities in the aircraft throughout the flights operated on 4 October 2020 and aircraft landed safely at VOM, as scheduled. After deplaning passengers at VOM, the PIC carried out an auto-feather test, as called for in the Aircraft Technical Log, and taxied to the mooring buoy, for overnight layover.

The crew had an early night, after dinner at around 19:00 hours on 4 October 2020, and waking up at 05:00 hrs, next morning to prepare the aircraft for departure. The crew, after having breakfast reported at the jetty at 05:31 hrs. A boat took them to the aircraft on the mooring buoy and the aircraft was taxied to the fixed platform. The pre-flight checks were carried out and no abnormal conditions or defects were identified.

On 05 October 2020, the aircraft departed VOM, at 06:14 hrs to MLE with 3 crew members (2 flight crew and 1 cabin crew) and 4 passengers. As per the flight release document, they had 160 lbs. of luggage, 805 lbs. of fuel, and passengers weighing 717 lbs, with a total take-off mass of 10,588 lbs. The center of gravity (CG) was recorded at 30% of MAC.

It is noted that at aerodromes other than the main base (MLE), Passenger and Cargo manifest is printed and issued to the crew by resort staff trained by TMA at the resort. This manifest does not account for Luggage weight and Hand luggage weight separately, unlike in the Flight release document issued at the main base, where both are separately reflected thereof in the manifest for each flight.

A Mass & Balance report for the flight was also issued before the flight departure. This Mass and Balance report is computed by the Pilot-in-Command (PIC), using a tablet in the cockpit and is prepared using the data stated in the flight release document.

The Mass and Balance data is uploaded on company network in real time as the tablet is connected to Operator's network using Wi-Fi available at main base. At every other stations it is connected to the company network using mobile data. If mobile data is

not available at a point of departure, the mass and balance data does not get uploaded on the company network until mobile data becomes available.

The PIC was Pilot Flying (PF) for the sector VOM-MLE. Taxi-out, take-off, cruise, approach and until touch down at MLE all were normal and uneventful. Light rain was encountered during the approach into MLE and as a result PIC stated that he used windshield wipers. The last ATC transmitted wind velocity to the aircraft before it landed was 280°/20 knots that was later revised through a blanket broadcast to all aircraft, also by ATC, to 310°/11 knots, before the aircraft touched down.

The aircraft touched down on 'North Right' and just after, rapidly banked/rolled to the right with the right-wing dipping into water and the left wing rising high in the air. The aircraft swerved to the right and finally settled on the water upright on both floats, facing south, the direction from which it landed.



Figure1: RH Wing



Figure 2: LH Propeller

1.2 Injury to persons

Injuries	Flight Crew	Cabin Crew	Passengers	Others
Fatal	0	0	0	0
Serious	0	0	0	0
Minor	1	1	0	0
Nil	1	0	4	0
Total	2	1	4	0

1.3 Damages to aircraft

Survey of the aircraft by accident investigators revealed the extent of the damages sustained to the airframe, wing, engines and propellers. The damages identified include but not limited to:

1. RH Wing:
 - a. Various damages in the area between ribs 25 to 28;
 - b. The leading-edge bottom skin towards the wingtip buckled upwards;
 - c. Wing tip severely crushed and material missing;
 - d. Wing fin dislocated with the leading edge shifted outboard;
 - e. The inboard trailing flap skin buckled upward.
2. LH Wing:
 - a. Leading edge bottom skin buckled upwards
3. LH Propeller:
 - a. LH propeller blades (all three of them) bent aft;
 - b. LH propeller assembly dislocated.
4. Airframe:

No apparent damage observed.

1.4 Other damage

The accident did not cause damages to any other property or object.

1.5 Personnel information

The PIC holds a valid Airline Transport Pilot Licence (ATPL) while the First Officer (FO) holds a valid Commercial Pilot Licence (CPL). Cabin crew held a valid Cabin Crew Licence (CC).

1.5.1 Pilot-In-Command

Age:	42 years
Nationality:	Maldives
Gender:	Male
Type of License:	ATPL
License issued on:	09 May 2010
License expires on:	08 May 2023
Type of medical:	Class One
Medical issued on:	22 August 2020
Medical expires on:	22 August 2021
Types flown:	DHC-6 (Floats)
Ratings:	DHC-8, DHC-6 (Floatplane)
Last Proficiency check:	13 July 2020
Last instrument rating renewal:	13 February 2020
Last line check:	12 March 2020
Total hours as PIC (on type):	
2008-2011	952 hrs
From Jan 2020 to date	112 hrs
Total flight time:	12,329 hours
Flying experience:	
Total (all types)	12,329 hours
On type:	3417 hours
Last 90 days:	35.7 hours
Last 28 days:	16.8 hours
Last 24 hours:	4.9 hours
Previous rest period:	3 rd duty day after 4 days rest

1.5.2 First Officer

Age:	24 years
Nationality:	Maldives
Gender:	Male
Type of License:	CPL
License issued on:	12 April 2017
License expires on:	11 April 2024

Type of medical:	Class One
Medical issued on:	07 November 2019
Medical expires on:	07 November 2020
Types flown:	DHC-6
Ratings:	DHC-6, Floatplane
Last Proficiency check:	31 August 2020
Last instrument rating renewal:	13 August 2020
Last Line check:	07 September 2020
Total hours as PIC:	N/A
Total flight time:	2808 hours
Flying experience:	
Total (all types)	2808 hours
On type:	2543 hours
Last 90 days:	26.4 hours
Last 28 days:	23.3 hours
Last 24 hours:	4.9 hours
Previous rest period:	3 rd duty day after 3 days rest

1.5.3 Cabin Crew

Age:	40 years
Nationality:	Maldives
Gender:	Male
Type of License:	Cabin Crew License
License issued on:	20 January 2013
License expires on:	19 January 2023
Type of medical:	Class 3
Medical issued on:	16 December 2018
Medical expires on:	16 December 2020
Last recurrent training:	03 August 2020 (DHC-6 type training)
Previous rest period:	3 rd day of duty after 3 days rest

1.6 Aircraft Information

1.6.1 General Information

The aircraft was manufactured by de Havilland Canada (Type Certificate now owned by Viking Air Ltd) in December 1979. It was registered in the Maldives on 29 June 2000, under registration marks 8Q-TMF for operation with Trans Maldivian Airways Pvt Ltd. The aircraft was in float configuration with Wipaire 13000 floats installed.

Manufacturer:	Viking Air Ltd. (de Havilland Canada)
Model:	DHC-6-300 Twin Otter
Registration:	8Q-TMF
Nationality	Maldives
Powerplants:	PT6A-27
Manufacturer's Serial Number (MSN):	657
Year of manufacture:	1979
Validity of C of R:	CR-163 (original issue, 29 June 2000) (Revised 03 September 2014)
Registered Owner:	Trans Maldivian Airways Pvt. Ltd.
Name of Legal Owner:	Seaplane Holding Cayman Ltd.
Certificate of Airworthiness:	MV-21H-0022 (Issued on 30 June 2009)
Airworthiness Review Certificate:	Expiry Date: 27 June 2021
Last periodic inspection carried out at TAT	36,878.40 hours
Total Air Time and Cycles at time of accident:	36,906.30 hours and 74,161 cycles
Last periodic inspection	EMMA No. 17 on 18-19 August 2020
Next inspection due at:	EMMA No. 18 at 37,003.40 hours or 18 October 2020 whichever occurs first

1.6.2 Engines and Propellers

Right Engine (Gas Generator)	
Right engine manufacturer	PWC
Year of manufacture	Unknown
Model	PT6A-27
Serial number	PCE42493
Total Hours since new	26,965.32
Last overhaul date	26 March 2019
Hours since overhaul	1440.73 hours
Last check carried out	EMMA #17
Hours since last check	27.90 hours
Right Engine (Power Section)	
Right engine manufacturer	PWC
Year of manufacture	1980
Model	PT6A-27
Serial number	42044-100
Last overhaul date	26 March 2019
Hours since overhaul:	1440.73
Last check carried out:	EMMA #17
Hours since last check:	27.90 hours
Left Engine (Gas Generator)	
Left engine manufacturer:	PWC
Year of manufacture:	Unknown
Model:	PT6A-27
Serial number:	PCE-50097
Total Hours since new:	20,297.59 hours
Last overhaul date:	16 April 2018
Hours since overhaul:	2,204.53
Last check carried out:	EMMA #17 on 18-19 August 2020
Hours since last check:	27.90 hours
Left Engine (Power Section)	
Left engine manufacturer:	PWC
Year of manufacture:	Unknown
Model:	PT6A-27
Serial number:	41655-100

Last overhaul date:	16 April 2018
Hours since overhaul:	2,204.53
Last check carried out:	EMMA#17 dated 29 January 2020
Hours since last check:	27.90 hours
Right Propeller	
Manufacturer:	HARTZELL
Year of manufacture:	UNKNOWN
Model:	HC-B3TN-3DY
Serial number:	BUA30380
Last overhaul date:	9 July 2018
Hours since last overhaul:	2,214.72 hours
Last check carried out:	EMMA#17 dated 18-19 August 2020
Left Propeller	
Manufacturer:	HARTZELL
Year of manufacture:	Unknown
Model:	HC-B3TN-3DY
Serial number:	BUA31296
Last overhaul date:	12 September 2019
Hours since last overhaul:	774.17
Last check carried out:	EMMA#17 dated 18-19 August 2020

1.6.3 Cabin Layout and Configuration

Cabin was configured under a LOPA approved by an EASA approved Design Organization to carry fifteen passengers plus one cabin crew in a standard floatplane configuration in which the seat normally installed in the sixth-row position is removed for carriage of passenger luggage in the cabin in lieu of carrying them in the dedicated cargo compartments. The reason is that the forward cargo compartment is not accessible for loading the luggage while the aft cargo compartment is not large enough to accommodate all the luggage normally carried by fifteen passengers. The aft baggage compartment is only used for loading smaller luggage.

The aircraft had four exits in the cabin and two exits in the cockpit. In this configuration the right aft passenger door is approved to be blocked.

1.6.4 Recent maintenance

The most recent maintenance inspections carried out include: Equalized Maintenance for Maximum Availability (EMMA) number 17 complied with on 19 August 2020 at 36,878.40 hours TAT and 74,076 TAC.

1.6.5 Flight Controls

Not applicable

1.6.6 Powerplants

Not applicable

1.6.7 Fuel

Jet A-1 fuel was used on the aircraft. The aircraft had a total of 805 lbs. of fuel at departure from MLE on 4 October, 2020, as per the Mass & Balance Report filed by the dispatchers.

1.6.8 Accessories

Not applicable

1.6.9 Defects

There was no record of any open deferred defects.

1.6.10 Aircraft load

The aircraft had a take-off mass of 10,587 pounds, when it was dispatched from VOM on the morning of 5 October 2020.

Passenger List (also known as passenger manifest) - Flight Release document completed and printed by TMA Flight Dispatchers (available in TMA Dispatch at MLE) confirms that:

- Passenger weight (4 passengers) weighed a total of 717 lbs.;
- Luggage (4 pieces) weighed a total of 160 lbs.;
- Hand luggage was not separately accounted for.

1.6.11 Load sheet

The load sheet also served as the passenger manifest. A copy of the load sheet was retained at VOM.

1.7 Meteorological Information

ATC last communicated wind velocity to the aircraft was 280°/20 knots after which a revised wind of 300°/11 knots was blanket broadcasted to all aircraft just before 8Q-TMF landed.

Weather reports transmitted on VIA ATIS for 0100 and 0200 UTC on 05 October 2020 were:

METAR VRMM 050100z 34011KT 9999 SCT018TCU BKN270 28/25 Q1010
TEMPO FEW 018CB
METAR VRMM 050200Z 27018KT 8000 SHRA SCT018 FEW 019 CB
BKN270 27/25 Q1011, CB S, SW, W TEMPO 5000 SHRA

Additionally, through the ATC transmitted observed instantaneous dynamic weather changes to various aircraft operating within the vicinity it was evident there was a tropical squall passing from west to east towards the south of the airfield.

1.8 Aids to Navigation

The aircraft was operating under VFR; hence no navigational aids were required.

1.9 Communications

There were no communication problems or system anomalies reported throughout the flight from taxi to take-off to cruise to initial touchdown.

During the accident PIC headset was damaged which hindered inter-crew communications. Both crew members were found to have communicated without the use of headsets, thereafter.

1.10 Aerodrome Information

Aerodrome: Velana International Airport

Reference: 4°12' 12.18" N, 73° 32' 14.54" E

Facilities: 5 water runways with fixed passenger platforms at different locations.

Velana International Airport, whose geographical location given in AIP Maldives is 04° 11' 30" N, 073° 31' 45" E is the primary airport of entry and departure for the Maldives. On the lagoon to the northeast adjoining the airport, a large floatplane operation, to transport passengers to and from the airport is conducted by three different operators.

Floatplanes land and takeoff along specific paths that are partially delineated and referred to as, 'North Left', 'North Right' and 'South Left' so that repeatability and predictability can be anticipated by all operators and ATC as well.

However, under challenging weather conditions, takeoff and landing operations are permitted by ATC in north-east/south-west and east/west directions on a case by case basis.

1.11 Flight Recorders

Maldives Civil Aviation Regulations (MCAR's) do not require installation of a flight data recorder (FDR) or a cockpit voice recorder (CVR) for operation of DHC-6 aircraft in the Maldives. Therefore, the aircraft was not installed with FDR or CVR.

1.12 Wreckage and impact information

1.12.1 Accident site visit

Accident site was visited by investigators from both MCAA and AICC.

1.12.2 Wreckage Condition

For impact information refer to 1.3.

1.12.3 Salvage operations

Not applicable

1.13 Medical and pathological information

The flight crew members were tested for drugs. Both the flight crew had a negative result.

Medical records of the FO and the cabin crew member do not state any diagnosis with respect to the reported minor injuries.

1.14 Fire

At the time of impacting the water, crew reported that an engine fire alarm was heard, and the alarm continued for few seconds. The PIC could not establish the engine to which the alarm related, as neither T handles illuminated. The PIC did not operate the fire shutoff handle as there was no visible sign of fire; and the indicator cartridge suggests the fire bottle was not discharged. Visual inspections do not indicate any signs of fire on the LH or the RH engine.

1.15 Survival Aspect

Having the aircraft stabilized the PIC and the FO communicated to the TMA dispatch to seek assistance. The Maldives Airports Company Limited (MACL) Fire and Rescue dinghy assisted the aircraft to taxi to the dock and secure the aircraft. All passengers then safely disembarked the aircraft on to the passenger dock.

The cabin crew did attend to check on the welfare of the passengers. The cabin crew reported that none of the passengers reported any injuries.

There were no evidences of an activated ELT.

1.16 Tests and Research

None

1.17 Organizational and Management Information

TMA is a MCAA approved Air Operator Certificate holder. TMA provides domestic air services with the aircraft fleet of DHC-6 on floats. The company is authorized to conduct day VFR Operations.

MCAA conducts regular inspections and audits on all aspects of the operation and maintenance to ensure compliance with applicable regulations and standards.

The company also holds Aircraft Maintenance Organization Approval (MCAR-145).

1.18 Additional Information

Following points are noted through post incident interviews with the aircraft crew:

- i. The aircraft flew a meandering path rather than a direct path from departure to destination in order to avoid weather and maintain VMC;

- ii. Though it was windy none of the flight crew believed the conditions were challenging to land the aircraft;
- iii. It was considered a stable approach and smooth landing by both pilots;
- iv. PIC did not recollect noticing anything unusual happening to the aircraft after touchdown but the co-pilot believes the aircraft began to skid to the right after landing;
- v. Cabin crew played a very proactive role in re-assuring passenger welfare and assisting the flight crew in getting the aircraft to taxi on one engine and get it docked and secured at company base.

1.19 Useful or Effective Investigation Techniques

Video footage covering the landing was used in the assessment of accident sequence.

2.0 ANALYSIS

The DHC-6 aircraft, had no known system malfunctions, maintenance overruns or open deferred defects that would have contributed to the accident, and therefore those are ruled out as contributing factors. Hence, the analysis is focused on flight operations; handling of the aircraft during approach and landing, crew training and weather conditions that existed.

The aircraft, operating under VFR had three crew (two pilots and one cabin crew) onboard and a total take off mass of 10,588 lbs. with its CG located between Forward (25%) and Aft (32%) MAC and sufficient fuel (820 lbs: Mass & Balance Report) to complete the flight.

Both cockpit crew were qualified, proficiency-checked and experienced on type. PIC held a valid ATPL with a total of over 12,000 flying hours, including 3302 hours on DHC-6 float planes (between 2008-2011) and 8600 hours on Dash-8 aircraft (DHC-8) on land (between 2011 to 2019). Beginning January 2020, the PIC started flying the DHC-6 float aircraft, gaining 60.38 hours as PIC under supervision, and another 51.32 hours as PIC.

The FO held a CPL with a total of 2,808 flying hours which includes 2543 hours on type. Both held valid medicals and proficiency checks too.

The FO had only been flying the DHC-6 floatplanes since completion of the ab-initio training, however.

The destination - Velana International Airport, abbreviated as VIA (04° 11' 30" N, 073° 31' 45" E) is the main airport of entry into and departure from the Maldives. The lagoon located on the eastern side of VIA is used as a waterdrome dedicated for operating floatplanes.

Floatplanes take-off and land along specific paths that are partially delineated and referred to as, 'North Left', 'North Right' and 'South Left' so that repeatability and predictability can be anticipated by all operators and ATC as well. However, under challenging weather conditions, takeoff and landing operations are permitted by ATC in north-east/south-west and east/west directions on a case by case basis.

When the crew briefed the approach, they were aware that VIA was experiencing light rain and winds from the west at about 290 / 20 knots, a left crosswind for the aircraft approaching from the south to land on the area referred to as 'North Right' (cleared for landing by ATC). The prevailing weather condition was assumed unpredictable. The Maximum Demonstrated Cross Wind for DHC-6 Twin Otter aircraft on Floats is 17 knots.

Just after touch down, the aircraft rapidly banked/rolled to the right with the right float and wing dipping into water with the left wing rising high in the air, and swerved to the right until the aircraft was facing south (opposite direction to landing); then the left wing dropped to the water and the aircraft settled down afloat.

The PIC who was the PF had been operating DHC-8 (land planes) for a considerably long period prior to reconverting to DHC-6 (floatplane) beginning January 2020. It took 60.38 hours for him to be finally released for line flying. This is more than the operator's standard 25 hours required for a PIC to be released for line flying.

Following release to the Line Flying, like many others, the PIC did not have the opportunity to undertake flying primarily due to lack of air transportation activities resulting from the lockdown imposed in the country to control spread of Covid-19 virus. He had only 37.5 hours of flying during the last 90 day period prior to the accident flight.

Past incidents/accidents reveal that pilots who transit from wheeled airplanes to float airplanes have often had difficulty in mastering the motor skills necessary to maintain the proper attitude for water landing within the time period specified in the Operations Manual.

In this case the extra time taken by the PIC to be released could have contributed to: the lull in flying activity that prevailed during the Covid-19 pandemic and the longer time the PIC took to master the landing attitude of the floatplanes, which contrastingly differ to that required to land wheeled airplanes on land.

Aircraft operating crew and the airport Fire and Rescue team acted swiftly, and thereafter assisted the aircraft to the dock where the occupants were disembarked safely. There were no fatalities but some had minor injuries which were later examined and treated at the hospital.

3.0 CONCLUSIONS

3.1 Findings

- a) The PIC had a prolonged period of inactivity (flying) due to Covid-19 pandemic.
- b) The PIC took longer than usual time to be released for Line Flying.
- c) Varying gusty wind conditions during landing were reported.

3.2 Causes / Contributing Factors

The causes / contributing factors of this accident were:

- a) Loss of control on landing;
- b) Varying crosswind conditions during landing;
- c) Lack of practice or experience (change of motor skills) of the PIC for landing floatplanes.

3.3 Recommendation to all Operators:

- a) Review flight training requirements of all floatplane operators, especially for those flight crew who change from aircraft on wheels to floatplanes with more emphasis given on landing performances and techniques that maintain the right attitude/orientation.

3.4 Recommendation to the Regulator:

- a) Establish procedures to ensure review of the existing training requirements, as stated in 3.3 above, is carried out by all Operators and the reviewed requirements are implemented in a timely manner.

4.0 APPENDICES

4.1. Flight Release Documents

a. Operational Flight Plan

OPERATIONAL FLIGHT PLAN - DAY / VFR						TMA FLIGHT RELEASE			AC Type	Printed By	Software
04-Oct-20	13:29	FLT702955	8Q-TMF	8906	11.9	1250v	KTAS 135	DRG-6-200	Printed Time	04-Oct-20 13:33:00	
SECTOR	MLE-RBM	RBM-VEL	VEL-VOM	SID Night	VOM-MLE						
SEED	1400	1445	1520		800						
ETE	30	20	7		41						
MAG. BRG	236	156	247		031						
DIST (nm)	82	39	10		87						
OFF BLOCK	1437	1522	1554		0608						
TAKE OFF	1442	1529	1601		0614						
LAND	1518	1549	1610		0658						
ON BLOCK	1521	1553	1613		0720						
AIR TIME	36	29	09		43						
BLOCK TIME	44	39	19		73						
BOARDING	11(0)+0	0(0)+0	0(0)+0		4(0)+0						
TOT ON BOARD	11(0)+0	0(0)+0	0(0)+0		4(0)+0						
DISSEMBLING	2(0)+0	3(0)+0	0(0)+0		4(0)+0						
A/C APS	8906	8906	8906		8906						
PAX	1,884	1,545	1,017		717						
BAGGAGE	501	412	198		159						
MAN AJUST.	0	0	0		0						
+/- FUEL	-280	0	0		280						
FUEL @ T/O	1205	875	645		805						
T/O MASS	12,496	11,738	10,766		10,587						
MAN AJUST.	0	0	0		0						
SECTOR BURN	300	200	70		410						
L/DG MASS	12,196	11,538	10,696		10,177						
OPS FUEL O/B	500	470	440		380						
MIN FUEL REQ	1480	1150	920		790						
+/- FUEL	-260	0	0		260						
FUEL @ DEP	1220	890	660		820						
SECTOR BURN	300	200	70		410						
TAXI FUEL	30	30	30		30						
FUEL @ ARR	890	660	560		380						
TOTAL BURN	330	560	660		1100						
C of G % MAC	30	31	32		33						

This flight release has been prepared in accordance with ICAO Air Operations and TMA Flight Operations Manual.

Signature of Captain: _____

Signature of Flight Dispatcher: _____

Pass Number	Name	Hand Luggage	Chk. In Luggage	Destination	Airport	Type
0	TOTAL COUNT	0	0		RBM	
0	TOTAL COUNT	0	0		VEL	
0	TOTAL COUNT	0	0		VOM	

Route: RBM - (RBM-20), VEL - (VEL-30), VOM - (VOM-40)

BURPED / ADDITIONAL BAGGAGE / VFR REPORT DHONI INFORMATION

NOTAMS: See Reverse Side

DELAY / OUTSTATION DEFECT REPORT

1135 ALL

Airport:
RBM SPECIAL INSTRUCTIONS
RESORT NAME RAOISSON BLU

FACILITIES:
01 FIXED, 01 FLOATING, 01 BUOY

OTHER:
Ahmed Ihusan (Assistant FOM) on 7973617
RBM - 7951113 NAZEEHA / Ihusan 7973617
Resort number : 6501818

VEL SPECIAL INSTRUCTIONS:
WATCH FOR TRANSFER TRAFFIC BETWEEN THE WATER VILLAGE & MAIN RESORT ISLAND
FACILITIES: 02 FLOATING 01 BUOY
ALTERNATIVE: VLR, VOM, FIR
1
OTHER:
RESORT LUNCH TIME - 1230HRS - 1430HRS
Resort no. 6760325 / 7980884 MUHAMMAD
6760028

VOM SPECIAL INSTRUCTIONS:
FLOATING PLATFORM RELOCATED TO SW MONSOON LOCATION
VOM LAGOON PLATFORM REMOVED
RESTRICTED OPERATING AREA DECLARED AT VOM. REF TO MEMO FD2017-M020A FR DETAILS
PLS ADVISE DISPATCH AHEAD IF PLANNING TO USE PLATFORM INSIDE THE LAGOON(FAR)
EXTRA FLOATING PLTFRM + CN BUOY INSTALLED INSIDE LAGOON 1.4NM NNW OF THE ISLAND
PLS ADVISE DISPATCH AHEAD IF PLANNING TO USE PLATFORM INSIDE THE LAGOON(FAR)
VOM WATER SPORTS DINGHY WILL BE PROVIDED ON REQUEST
BUOY INSTALLED NE SIDE (SAME LOCATION FLOATING PLATFORM PREVIOUSLY WAS)
ALTERNATIVE: VLR, VEL, FIR
FACILITIES
01 FIXED 01 FLOATING 01 BUOY
FUELING AVAILABLE
LUNCH TIME: 1200 - 1430 HRS.
RESORT NUMBER : 6766333

MLE DO NOT OVERFLY NEARBY RESORTS LIKE TAJ EXOTICA, LAGUNA, VADHO & KURUMBA!!
MLE ATIS 125.5
ALTERNATIVE: KUH, MER, REE
VRWG_TWR 118.1 VRWH_TWR 118.3 VRMT_TWR 118.4 VRMK_TWR 118.5
VRMV_TWR 118.9 VRMD_TWR 118.25 VRMR_TWR 118.15 VRMO_TWR 118.3
VREL_TWR 118.35 VRMU_TWR 118.65 VRDA_TWR 118.6 VRBK_TWR 118.65

General: SSR CODES UPDATED 5th April 2015
MAD 0204 - MAF 0206 - MAH 0210 - MAJ 0211 - MAJ 0235
MAN 0236 - MAO 0215 - MAP 0216 - MAT 0222 - MAW 0232
MAX 0231 - MAZ 0233 - MDA 0207 - MBB 0221 - MGC 0227
MBD 0234 - MBE 0201 - MBF 0203 - MBG 0205 - MBH 0220
CEQ 0226
TAB 0223 - TAC 0217 - TAD 0242 - TAE 0202 - TMB 0241 - TAJ 0262 - TAJ - 0263
TME 0243 - TMF 0244 - TMG 0245 - TMH 0246 - TMI 0247
TMJ 0250 - TMK 0251 - TML 0252 - TMN 0253 - TMO 0254
TMP 0255 - TMQ 0256 - TMR 0237 - TMS 0240 - TMU 0224 - TMA 0280
N.B. 1 All notams can NOT be printed on this document. Please contact Flight Ops for instructions.

RECALCULATIONS

A/C APS	8906	8906	8906	8906				
PAX								
FUEL @ TAO								
BAGGAGE								
T/O MASS								
SECTOR BURN								
LND MASS								
C of G % MAC								

b. Passenger and Cargo manifest

TRANS MALDIVIAN AIRWAYS

TRANS MALDIVIAN AIRWAYS
PASSENGER & CARGO MANIFEST

PRINT - Please print 2 copies for the captain

Date: Monday, October 5, 2020
Checkin Close Time: 05:44:00

Fit. No.: FLT703021
Sequence of Close: 1 of 2

Arr. Station:
Resort Name: VOMR

Dep. Flight No.:
Login ID:

Passengers:

Resort	Passenger No.	Name	VIP	Type	Conn. Flt.	Tour Opr.	Pcs.	Lug. Wgt.	Pax Wgt.	Checked In
VOMR	8818768		✓	MALE	EK657	VOM	3	110	189	✓
VOMR	8818769		✓	FEMALE	EK657	VOM	0	0	150	✓
VOMR	8818772			MALE	EK657	VOM	2	50	189	✓
VOMR	8818773			MALE	EK657	VOM	0	0	189	✓

Weight of checked in pax only

Checked in Count	Lug. Weight	Pax Weight
4	160.00	717.00

Cargo :

Last Minute Changes(manual input):

Name	VIP	Type	Conn. Flt.	Tour Opr.	Pcs.	Lug. Wgt.	Pax Wgt.

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

Captain's Signature _____

Prepared by: (Resort Agent's Name/Signature) _____

Pax. Wgt	717
Cgo Wgt.	
Lug. Wgt.	160
TOTAL PAYLOAD	877
APS WGT.	8906
Fuel	805
T.O.W.	10588 99
Corr	-
ACT. T.O.W.	10588
Burn off	410
Landing WGT	10178

* All Weights in lbs.

Close Window

https://tis.transmaldivian.com/WebForms/Manifest.aspx?FlightNo=FLT703021&CurrentLeg=1&Resort_str=VOM

c. Mass and Balance Report



Mass & Balance Report

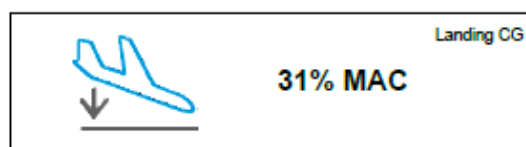
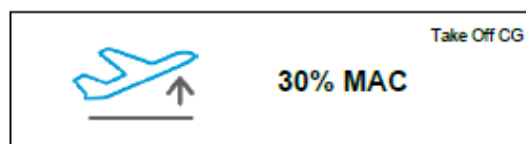
Monday, 05 October 2020 - 8Q-TMF - 06:06:29 - VOM to MLE

Trip Information

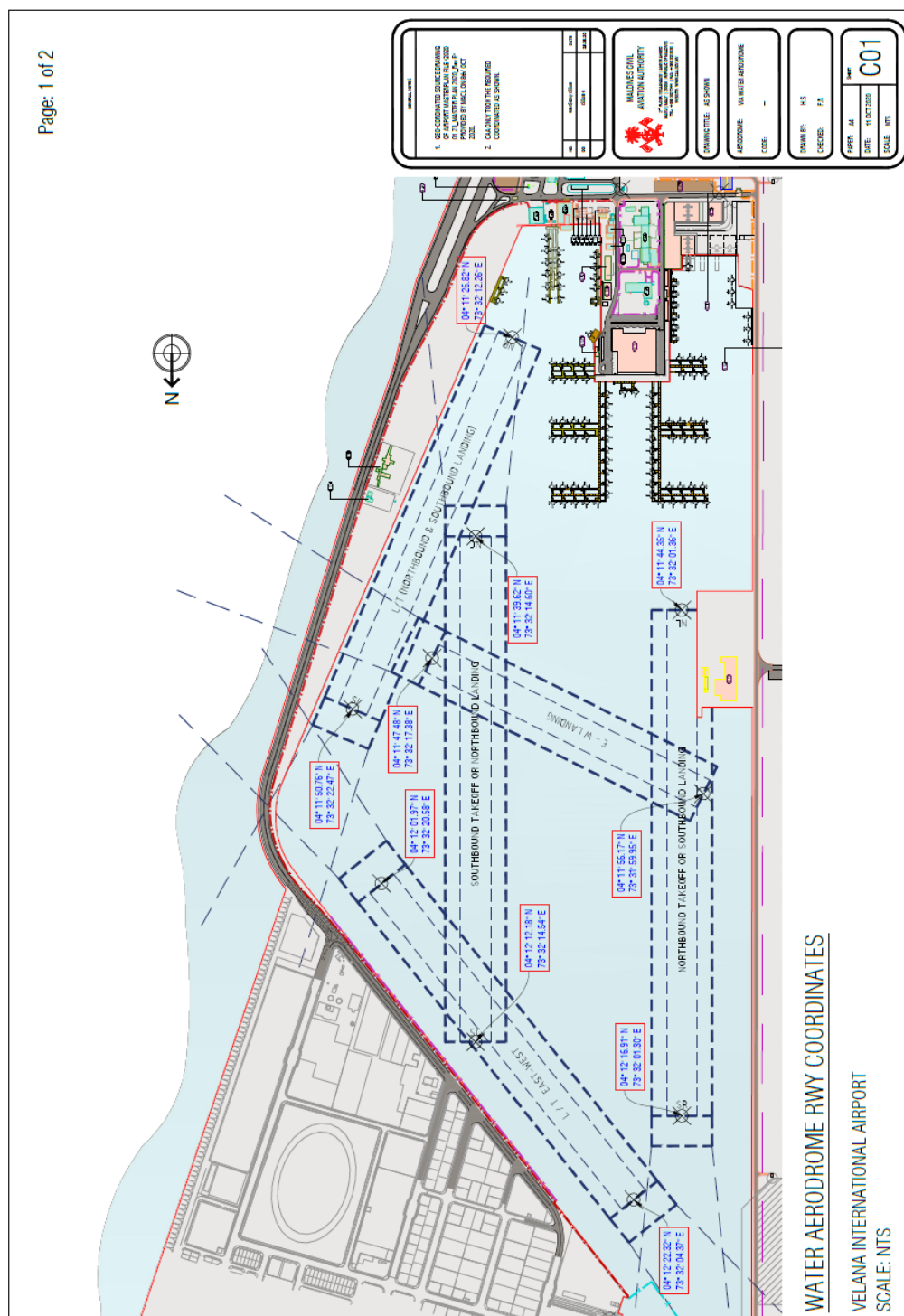
AIRCRAFT	
Registration No	8Q-TMF
APS Index	11.95
APS Weight	8,905.70 lbs
CREW	
Pilot-in-Command	IRAS Ismail Rasheed
ROUTE	
Departure	VOM Vommuli
Arrival	MLE Velana International Airport
Distance	86 nm
Bearing	27° NNE
TOTALS	
Total Pax Weight	717.00 lbs
Total Fuel	820.00 lbs
Total Baggage	160.00 lbs
Take-Off Weight	10,587.70 lbs
Sector Burn	400.00 lbs
Landing Weight	10,187.70 lbs

Details

FUEL TANKS	
FWD Tank	410.00 lbs
AFT Tank	410.00 lbs
MOMENTS	
APS Moment	1,889,697.00
Take Off Moment	2,240,377.05
Landing Moment	2,160,177.05
SECTIONS	
Section A	0.00 lbs
Section B	378.00 lbs
Section C	339.00 lbs
Section D	160.00 lbs
Section Tail	0.00 lbs



5.2 VIA Water Aerodrome Charts



5.3 Damages to aircraft

The below photos show the damages to the aircraft caused due to the accident.



Figure 3: RH Wing: Damage to RH Wing



Figure 4: Damage to RH wing tip



Figure 5: RH Wing: Damage to RH Aileron



Figure 6: RH Wing: Damage to Wing Leading Edge



Figure 7: RH Wing: Damage to RH Wing



Figure 8: Damaged LH Propeller



Figure 9: Damaged LH Propeller



Figure 10: Damaged LH Wing tip