بسم الله الرحمن الرحيم

ACCIDENT INVESTIGATION COORDINATING COMMITTTEE

AIRCRAFT ACCIDENT REPORT 2015/02

FINAL REPORT ON THE ACCIDENT TO CESSNA 150, 8Q-GAC AT GAN INTERNATIONAL AIRPORT, MALDIVES ON 8th OCTOBER 2015

Operator: Asian Academy of Aeronautics
Manufacturer: Cessna Aircraft Company
Model: Cessna 150M

INTRODUCTION

Maldives is a signatory to 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.

The report is based upon the investigation carried out to date by the Accident Investigation Coordinating Committee (AICC) in accordance with Annex 13 to the Convention, the Civil Aviation Act 2/2001 and the Civil Aviation Regulations. The sole objective of this investigation and the Final Report is to prevent accidents and incidents. It is not the purpose of this investigation apportion blame or liability as envisaged in Annex 13 to the Convention.

The AICC was assisted by the Maldives Civil Aviation Authority (CAA).

The recommendations in this report are addressed to the CAA, unless otherwise stated. It is CAA 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 on 5 April 2017.

ACCIDENT INVESTIGATION COORDINATING COMMITTEE
MALDIVES

Mr. Abdul Razzak Idris
Chairperson
Accident Investigation Coordinating Committee

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LIST OF ABBREVIATIONS

AAA : Asian Academy of Aeronautics
AICC : Accident Investigation Coordinating Committee
ATC : Air Traffic Controller
CG : Centre of Gravity
C of A : Certificate of Airworthiness
COM : Communication
C of R : Certificate of renewal
CAR : Civil Aviation Regulation
CVR : Cockpit Voice Recorder
HF : High Frequency
FVM : Fuamulah Domestic Airport (FVM)
FWD : Forward
GAN : Gan International Airport
ICAO : International Civil Aviation Organization
IFR : Instrument Flight Rules
km : Kilometer
Lbs : Pounds
LH : Left hand
LT : Local time
MAR : Maldivian Airworthiness Requirements
MCAA : Maldives Civil Aviation Authority
MCAR : Maldivian Civil Aviation Regulation
MEL : Minimum Equipment List
MTOW : Maximum take-off weight
NM : Nautical Mile
PIC : Pilot in command
PROP : Propeller
RH : Right hand
RWY : Runway
SIC : Second in command
UTC : Universal Coordinated Time
VFR : Visual Flight Rules
VMC : Visual Meteorological Conditions

SYNOPSIS

On 8th October 2015, the aircraft 8Q-GAC (Cessna 150) was flown by a student pilot on an authorised solo cross country flight from Gan International Airport (GAN) to Fuamulah Domestic Airport (FVM) and return to GAN.

On the return leg to GAN, on landing the aircraft bounced twice and landed on the nose wheel. On impact the nose wheel, propeller and right wing tip were damaged. The aircraft came to a halt along the runway. No injury to the pilot was reported.
The investigation identified the following causal factors:

- Improper recovery from a bounced landing

1. FACTUAL INFORMATION

Organisation:	Asian Academy of Aeronautics Pvt Ltd. (FTO Approval No.001)
Aircraft Type:	Cessna 150M
Aircraft Manufacturer:	Cessna Aircraft Company
Aircraft Owner:	Asian Academy of Aeronautics.
Nationality:	Maldivian registered
Registration:	8Q-GAC
Place of Accident:	Gan International Airport, Runway 10, Elevation 0 ft.
Date and Time:	8th October 2015 at 1115 Hrs.

1.1. History of Flight.

On 8th October 2015, the aircraft 8Q-GAC departed Gan on an authorised solo cross country fight on route Gan-Fvm-Gan flown by a student pilot. This was the student's fifth cross country flight, the first of the day. Instructor and dispatcher were on duty as per the procedures. The accident occurred on landing phase of the return sector to Gan.

The aircraft's approach to runway 10 was higher than the normal flight path. To increase the rate of descent the power was reduced to idle. The aircraft made a three point landing followed by a bounce. The pilot tried to make the correction however the aircraft came down and bounced again. After the second bounce aircraft went to a nose down dive and crashed on the runway. The nose gear collapsed on impact and aircraft skidded before coming to rest at the edge of the runway.

The pilot evacuated himself from the aircraft as soon as it stopped without any injuries. Aircraft propeller, nose gear and right wing were damaged, with no significant damage to the runway observed.

1.2. Injury to persons

Injuries	Crew	Total in the aircraft	Others
Fatal	0	0	NIL
Serious	0	0	NIL
Minor	0	0	NIL
None	1	1	NIL
Total	**1**	**1**	**NIL**

1.3. Damages to aircraft

The aircraft sustained significant damages

- The propeller was damaged beyond repair
- Engine mounts deformed damaging shimmy damper, steering rods, nose gear arm assembly and wheel.
- Right wing tip damaged.
- Right hand wing damaged.

1.4. Other damage

NIL

1.5. Personnel information

1.5.1. Captain –

Age:	19
Nationality:	Maldivian
Gender:	Female
Type of Licence/Permit:	Student Pilot Permit (Aeroplanes)
Medical issued on:	8th February 2015
Medical expires on:	7th February 2016
Type of medical:	Class 1
Types flown:	C150
Total hours as PIC:	20.5 Hrs
Total flight time:	69.3 Hrs.

1.6. Aircraft information

1.6.1. General information –

Aircraft manufacturer:	Cessna
Model:	C150M
Serial number:	15077763
Year of manufacture:	1976
Nationality:	Maldivian
Registration marks:	8Q-GAC
Validity of ARC:	29 April 2016
Name of owner:	Asian Academy of Aeronautics
Name of operator:	Asian Academy of Aeronautics

1.6.2. Aircraft History –

Total flying hours since: -

- Manufacture:	8151.59 Hrs.
- Time since Last check:	17.06 Hrs.

Last inspection carried out at TAT: 8134.53 Hrs.

1.6.3. Engines and propellers –

Engine:

Manufacturer:	Teledyne Continental Motors, Inc.
Year of manufacture:	1996
Model:	O-200-A
Serial number:	254475
Last overhaul date:	5 January 2015
Hours since overhaul:	858 Hrs.
Last check carried out:	100 Hours scheduled check
Hours since last check:	37.12 Hrs

Propeller:

Manufacturer:	McCauley Propeller Systems
Year of manufacture:	2000
Model:	1A102 OCM69-48
Serial number:	G 16438
Last overhaul date:	12 February 2010
Hours since overhaul:	1821.2 Hrs
Hours since Last check:	37.12 Hrs

1.6.4. Fuel –

Type of fuel used: Auto-gas 95
Amount of fuel on board: 17 USG

1.6.5. Accessories – No Component failed.

1.6.6. Defects – No deferrals.

1.7. Meteorological information

As per the METAR information received from Gan International Airport for 8th October 2015 observed at 1100Hrs. Reported wind from 118° at 5 knots, Visibility more than 10 km, cloud condition few at 1800 ft. (appendix 1)

1.8. Aids to navigation

The aircraft was operating under VFR conditions. 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 Aerodrome is certified under Maldives Civil Aviation Authority (Cert no: ADC/001/2007) on 5th November 2007, operated by Gan Airports Company Pvt. Ltd. Consist of Runway 10 and Runway 28.
Runway length of 2650 meters and 45 meters width, concrete runway with grass on the edges along the runway without a runway shoulder.

On the day of the accident the aircraft landed on Runway 10. Due to the ongoing airport expansion project the available length for runway 10 to end is 1200m. The runway touchdown threshold had been displaced.

1.11. Flight Recorders

The aircraft was not fitted with any flight recorders and none was required by the regulation.

1.12. Wreckage and impact information

On the impact the nose landing gear collapsed (appendix 2) and the propeller stuck the runway. As a result both blades were bent (appendix 3 and 4). The aircraft came to a halt along the runway. (appendix 5)

The aircraft was removed from the runway on the same day after all available information was collected by the investigators.

1.13. Medical and pathological information

Medical examination of the crew was not conducted. No physical injuries to the crew were reported.

1.14. Fire

There was no evidence of fire.

1.15. Survival Aspect

Aircraft came to a halt on left side of the runway. The student evacuated the aircraft safely.

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 Flight Training Organisation is a Maldives Civil Aviation Authority (MCAA) approved FTO Certificate holder.

1.18. Additional Information

Nil

1.19. Useful or Effective Investigation Techniques

Nil

2. ANALYSIS

Pilot's statement and photographs of the damages were available to the investigators to analyse the situation and determine the cause(s) of the preceding events. A flight operations inspector from MCAA was at the location and assisted AICC with assessment of damage and analysis.

The following statements were taken from student and eyewitness, this was assessed when AICC analysed the accident.

According to the student the final approach was higher than the usual, and hence to increase the rate of descent the student put the power to idle. At about 100 feet, the student felt that the approach was too steep that it might be difficult to land safely and thought of going around. However the student decided to land.

According to the eyewitness on the initial touch down the aircraft bounced very high. Apparently, the student was unable to recover from the bounce and made a three point landing which resulted in another bounce which was quite high, after which the aircraft crashed nose down with the propeller and nose wheel striking first. On impact the port side door opened.

3. CONCLUSIONS

3.1. Findings

- Student pilot was in compliance with the regulations, with regards to licensing and qualifications.
- The aircraft was released serviceable.
- The aircraft was within the certified weight limitations for both take–off and landing.

3.2. Causal/ Contributing Factor(s)

- Higher approach and steep descent to make the runway.
- High sink rate due to reduced (idle) power.
- Improper level off and flare.
- Improper recovery from a bounced landing.
- Gan Aerodrome was undergoing a runway extension program. The threshold of runway 10 was displaced for the construction work. This may have caused the student to misjudge the touch down zone.
- It was the first time the student used runway 10 after the threshold displacement.

4. RECOMMENDATIONS

4.1. It is recommended that the flying school:

- increase awareness on recovery actions after a bounce;
- increase awareness on the dangers of nose wheel touch down before the main wheels;
- give emphasis on the importance of decision making, in relation to the abnormal procedures such as go around/missed approach and recovery from ballooning – in training and pre-flight briefings;

4.2. It is recommended that the all local operators and training organisations:

- include in their training syllabi the causal factors that can lead to bounced landings such as:
- excessive sink rate;
- excess airspeed;
- late flare initiation;
- incorrect flare technique and power management;
- gusty wind conditions; etc.
- include in their training syllabi Recovery Techniques for the specific aeroplane. The recovery techniques should be consistent with the applicable Flight Crew/student pilot operating and training manuals produced by the Manufacturers;
- Bounced landing training is intended to be mainly conducted in a classroom or briefing environment, as it should not be deliberately performed in an aeroplane. Flight Simulation Training Devices may be used to train the appropriate recovery technique, taking into account the devices' limitations.

5. APPENDICES

Appendix 1

Please find below weather reports for 0500 and 0600 UTC on 08-10-2015.

METAR VRMG 080500Z 16005KT 9999 FEW019 30.5/24.0 Q1013.8=

AAXX 08064 43599 12465 11805 10308 20242 30133 40135 60001 81201 333 58010 81818=

METAR VRMG 080600Z 18005KT 9999 FEW018 30.8/24.2 Q1013.5=

Appendix 2

Appendix 3

Appendix 4

Appendix 5

END OF REPORT