PRELIMINARY ACCIDENT INVESTIGATION REPORT

OF

9N-ANC (ATR 72-212A, MSN: 754) Aircraft

OPERATED BY YETI AIRLINES PVT LTD

OCCURRED AT

POKHARA (at the bank of Seti River - Gharipatan), KASKI DISTRICT, NEPAL

ON

15 JANUARY 2023

PREPARED BY:

AIRCRAFT ACCIDENT INVESTIGATION COMMISSION

MINISTRY OF CULTURE, TOURISM AND CIVIL AVIATION
GOVERNMENT OF NEPAL

February 13, 2023 (2079/11/01 B.S.)

The Aircraft Accident Investigation Commission (AAIC) 2079 formed by the Government of Nepal to investigate the accident that occurred during the landing of Yeti Airlines Flight 691 at Pokhara International Airport on 15 January 2023.

The sole objective of AAIC's air safety investigations is the prevention of similar aviation accidents. The safety investigation does not seek to apportion blame or liability. Accordingly, AAIC's reports should not be used to assign blame or determine civil or criminal liability.

The information of the Preliminary Report may change as the investigation progresses.

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1 FACTUAL INFORMATION

All times used in this report are Nepal Local Time (LT) unless otherwise stated. Nepal Local Time is five hours forty-five minutes ahead of Coordinated Universal Time (UTC).

Date of Flight	15 January 2023
Flight Number	NYT691 (Yeti 691)
Aircraft Registration	9N-ANC
Aircraft Type	ATR-72-212A / 500
Type of Operation	Scheduled Passenger Flight
VFR/IFR	VFR (Day)
Departure Airport	Tribhuvan International Airport, Kathmandu (VNKT)
Time of Departure	1032
Destination	Pokhara International Airport, Pokhara (VNPR)

Estimated Time of Arrival	1058
Time of Accident	1057

1.1 History of the flight

1.1.1 On 15 January 2023, an ATR 72-212A was operating scheduled flights between Kathmandu (VNKT) and Pokhara International Airport (VNPR). The same flight crew operated two sectors between VNKT to VNPR and VNPR to VNKT earlier in the morning. The accident occurred during a visual approach for runway 12 at VNPR. This was the third flight by the crew members on that day. The flight was operated by two Captains, one Captain was in the process of obtaining aerodrome familarization for operating into Pokhara and the other Captain being the instructor pilot. The Captain being familarized, who was occupying the left hand seat, was the Pilot Flying (PF) and the instructor pilot, occupying the right hand seat, was the Pilot Monitoring (PM).

1.1.2 The take-off, climb, cruise and descent to Pokhara was normal. During the first contact with Pokhara tower the Air Traffic Controller (ATC) assigned the runway 30 to land. But during the later phases of flight crew requested and received clearance from ATC to land on Runway 12.

1.1.3 At 10:51:36, the aircraft descended (from 6,500 feet at five miles away from VNPR and joined the downwind track for Runway 12 to the north of the runway. The aircraft was visually identified by ATC during the approach. At 10:56:12, the pilots extended the flaps to the 15 degrees position and selected the landing gears lever to the down position. The take-off (TO) setting was selected on power management panel.

1.1.4 At 10:56:27, the PF disengaged the Autopilot System (AP) at an altitude of 721 feet Above Ground Level (AGL). The PF then called for “FLAPS 30” at 10:56:32, and the PM replied, “Flaps 30 and descending”. The flight data recorder (FDR) data did not record any flap surface movement at that time. Instead, the propeller rotation speed (**Np**) of both engines decreased

simultaneously to less than 25%[1] and the torque (Tq) started decreasing to 0%, which is consistent with both propellers going into the feathered condition[2]. On the cockpit voice recorder (CVR) area microphone recording, a single Master Caution chime was recorded at 10:56:36. The flight crew then carried out the "Before Landing Checklist" before starting the left turn onto the base leg. During that time, the power lever angle increased from 41% to 44%. At the point, **Np** of both propellers were recorded as Non-Computed Data (NCD) in the FDR and the torque (**Tq**) of both engines were at 0%. When propellers are in feather, they are not producing thrust.

1.1.5 When both propellers were feathered, the investigation team observed that both engines of 9N-ANC were running flight idle condition during the event flight to prevent over torque. As per the FDR data, all the recorded parameters related to engines did not show any anomaly. At 10:56:50 when the radio altitude callout for five hundred feet3 was annunciated, another "click" sound was heard4. The aircraft reached a maximum bank angle of 30 degrees at this altitude. The recorded Np and Tq data remained invalid. The yaw damper disconnected four seconds later. The PF consulted the PM on whether to continue the left turn and the PM replied to continue the turn. Subsequently, the PF asked the PM on whether to continue descend and the PM responded it was not necessary and instructed to apply a little power. At 10:56:54, another click was heard, followed by the flaps surface movement to the 30 degrees position.

1.1.6 When ATC gave the clearance for landing at 10:57:07, the PF mentioned twice that there was no power coming from the engines. At 10:57:11, the power levers were advanced first to 62 degrees then to the maximum power position. It was followed by a "click" sound at 10:57:16. One second after the "click" sound, the aircraft was at the initiation of its last turn at 368 feet AGL, the high-pressure turbine speed (Nh) of both engines increased from 73% to 77%.

1.1.7 It is noted that the PF handed over control of the aircraft to the PM at 10:57:18. At 10:57:20, the PM (who was previously the PF) repeated again that there was no power from the engines. At 10:57:24 when the aircraft was at 311 feet AGL, the stick shaker was activated warning the crew that the aircraft Angle of Attack (AoA) increased up to the stick shaker threshold.

[1] Once the Np of the propeller decreases below 25%, no valid data is recorded in the FDR.
[2] The feathering of a propeller on the ATR72-500 can be commanded automatically by aircraft systems (with interlocks preventing dual automatic feathering) or manually by the pilot. It is usually performed when an engine is shut down so that leading edge of the propeller is parallel to the oncoming airflow to reduce drag.
[3] This refers to five hundred feet about ground surface.
[4] This suggests a crew action inhibiting the master caution light.

1.1.8 At 10:57:26, a second sequence of stick shaker warning was activated when the aircraft banked towards the left abruptly. Thereafter, the radio altitude alert for two hundred feet was annunciated, and the cricket sound and stick shaker ceased. At 10:57:32, sound of impact was heard in the CVR. The FDR and CVR stopped recording at 10:57:33 and 10:57:35 respectively.

1.2 Injuries to persons

1.2.1 Injuries are as stated below:

Injuries	Crew	Passengers	Others	Total
Fatal	4	68	-	72
Serious	-	-	-	
Minor/None	-	-	-	

1.3 Damage to aircraft

1.3.1 The aircraft was destroyed.

1.4 Personnel information

1.4.1 PF

Date of Birth	11 Nov 1978
Licence type	ATPL/333
Issuing authority	CAAN
Licence validity date	30 Nov 2027

1.4.2 PM

Date of Birth	09 Sep 1964
Licence type	ATPL/148
Issuing authority	CAAN
Licence validity date	31 Mar 2023

1.5 Aircraft information

1.5.1 The aircraft has undergone 28 731:33 hours (30 104 cycles) of flight since delivery on 2007 A.D.

Model	ATR 72-212A
Manufacturer	ATR (French: *Avions de Transport Régional* or Italian: *Aerei da Trasporto Regionale*)
Registration	9N-ANC
MSN	754
Engine Make/Model	P&W CANADA /PW-127F
Propeller Make/Model	HAMILTON SUNSTRAND/568F-1
Certificate of Airworthiness	Valid till 24 Apr 2023
Certificate of Release to Service	Valid till 29 257:43 Flight Hours
Type of Fuel Used	JET A-1

1.6 Meteorological information

1.6.1 The applicable METAR and Pokhara aerodrome tower weather observation are as follows:

(a) VNPR TWR OBS 0420Z VISIBILITY 7KM FEW 030, VFR NML

(b) VNPR METAR 0430Z 17003KT 070V190 6000 FEW025 14/09 Q1016 NOSIG

(c) VNPR METAR 0500Z 12005KT 080V160 6000 FEW025 14/09 Q1015 NOSIG

1.6.2 During the time of the crash, the following weather persisted as provided by the Meteorological Office, Pokhara:

(a) The wind speed was light with 3 to 5 knots;

(b) The prevailing visibility was 6 km;

(c) The temperature was measured around 14 degrees Celsius;

(d) The sea level pressure was recorded 1,015 hpa; and,

(e) The sky was almost clear with only a few clouds (1-2 Octas).

1.7 Aerodrome information

1.7.1 Pokhara International Airport (VNPR) is a new airport that was opened on 1 January 2023.

Name	POKHARA International Airport (VNPR)
ARP Coordinates	N28°11′01.69″ E084°00′53.62″ (Center of RWY)

Elevation/ Reference Temperature	803.38 m (2,636 ft) / 27° C (June)
MAG VAR/ Annual Change	0°E
Runway	RWY 12 & RWY 30 2,500 x 45 m

1.8 Flight recorders

1.8.1 The aircraft was fitted with a FDR of L3 Communications model FA2100-4043-00 with serial number 000592732, and a CVR of L3 Communications model FA2100-1020-02 with serial number 000494558.

1.8.2 The extraction and recoveries of data from both the FDR and CVR were performed in the facilities of the Transport Safety Investigation Bureau of Singapore (TSIB), supervised by the chairman of the AIC.

1.8.3 During the analysis of the FDR and CVR data the representatives from the following organisations were also involved:

(a) Transport Safety investigation Bureau (TSIB), Singapore

(b) Bureau d'Enquêtes et d'Analyses pour la sécurité de l'Aviation Civile (BEA), France

(c) Transportation Safety Board of Canada (TSB)

(d) ATR, aircraft Manufacturer as adviser of BEA

(e) European Aviation Safety Agency (EASA) as adviser of BEA

(f) Pratt & Whitney Canada, Engine Manufacturer as adviser of TSB

1.8.4 From the retrieved FDR data, the investigation team was able to recover the flight path of the event flight and another flight on 12 Jan 23, where another set of crew landed on Runway 12 of VNPR.

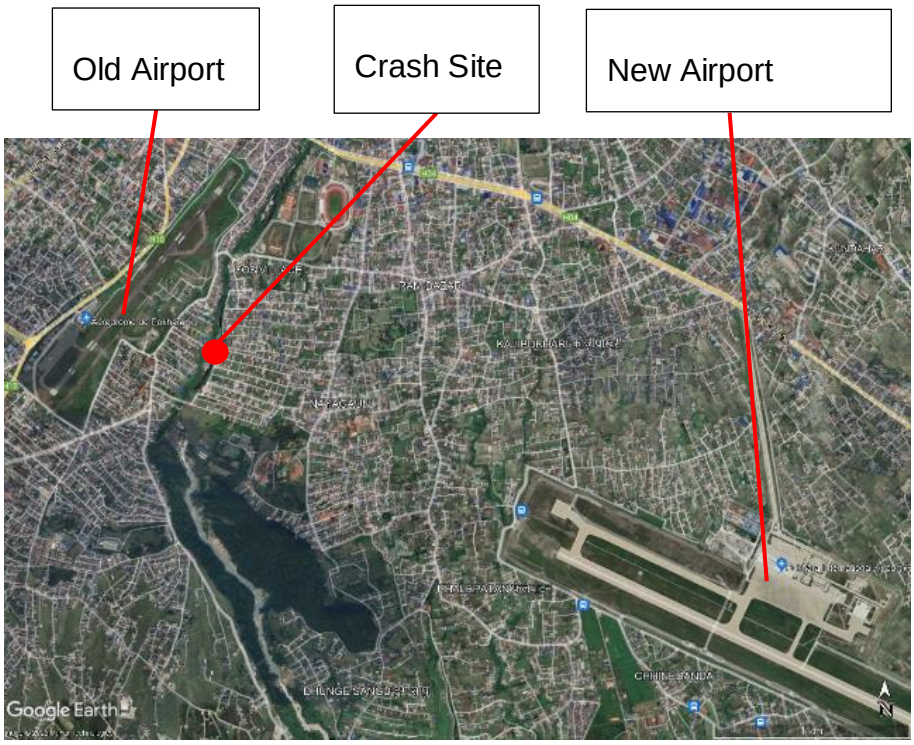
1.8.5 Due to the shortened final approach leg for runway 12, in both the flight the stabilization criteria for a visual approach could not be stabilized at the height of 500ft AGL.

1.9 Wreckage and impact information

1.9.1 The wreckage was located at a gorge on the bank of the Seti Gandaki River and around the bank.

The GPS coordinates of the crash site are as follows:

- latitude: 28°11’51’’ N
- length: 83°59’6’’E



Geographical position of the accident site

Source: Wikim

1.10 Tests and research

1.10.1 As part of the analysis of the FDR and CVR data, the investigation team visited the ATR-72 full flight simulator facility located at the Seletar Aerospace Hub in Singapore,

1.10.2 The investigation team was able to examine various control inputs and the associated flight deck effects which are of relevance to this investigation.

2 SCOPE OF INVESTIGATION

2.1 The investigation will focus on:

(a) The Circumstances under which both propellers went into the feathered condition

(b) Human Factors

(c) Visual approach procedures into Pokhara International Airport including simultaneous operation of both national and international airports.

3 INTERIM SAFETY RECOMMENDATIONS

3.1 The Aircraft Accident Investigation Commission has recommended the following interim safety recommendation:

- The CAAN should conduct a comprehensive study to determine the appropriate flight path that allows the criteria for a stabilised visual approach to be met, taking into consideration of the simultaneous operations at both VNPK and VNPR airports before resuming visual approach on Runway 12 of VNPR.