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FINAL INVESTIGATION REPORT ON RUNWAY EXCURSION INCIDENT OF AIRCRAFT CESSNA CARAVAN 208B, VT-AHB OF M/S NAV DURGA AVIATION PVT LTD AT CHANDRAPUR AIRPORT ON 11 JANUARY 2024.

GOVERNMENT OF INDIA
OFFICE OF DIRECTOR OF AIR SAFETY (WR)
INTEGRATED OPERATIONAL OFFICE COMPLEX,
SAHAR ROAD, VILEPARLE (E), MUMBAI – 400099

Foreword

In accordance with Annex 13 to the Convention on International Civil Aviation Organization (ICAO) and Rule 13(1) of Aircraft (Investigation of Accidents and Incidents), Rules 2017, the sole objective of the investigation shall be the prevention of accidents and incidents and not apportion blame or liability. The investigation conducted in accordance with the provisions of above said rules shall be separate from any judicial or administrative proceedings to apportion blame or liability.

This document has been prepared based on the evidence collected during the investigation (including statements and video recordings), opinions obtained from the experts, and laboratory examination results. Consequently, the use of this report for any purpose other than for the prevention of future accidents or incidents could lead to erroneous interpretations.

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ABBREVIATIONS

AME	Aircraft Maintenance Engineering
AMM	Aircraft Maintenance Manual
AOP	Air Operator Permit
ARC	Airworthiness Review Certificate
AUW	All Up Weight
ATC	Air Traffic Control
BA	Breath Analyzer
CAR	Civil Aviation Regulations
CCTV	Closed Circuit Television
C of A	Certificate of Airworthiness
FDTL	Fight Duty Time Limitations
FRTO	Flight Radio Telephony Operator
FTPR	Flying Trainee Progress Report
FTO	Flight Training Organization
Hrs	Hours
IMD	India Meteorological Department
IST	Indian Standard Time

Kts	Knots
MLW	Maximum Landing Weight
NLG	Nose Landing Gear
NOSIG	No Significant
Operator	AOP holder of the incident aircraft
PDR	Pilot Defect Report
PIC	Pilot in Command
POH	Pilot's Operating Handbook
QNH	Pressure Setting to Indicate Elevation of Landing Aerodrome
RWY	Runway
RT	Receiver-Transmitter (Radiotelephony)
SPL	Student Pilot’s License
TPM	Training Procedure Manual
VFR	Visual Flight Rules

FINAL REPORT ON RUNWAY EXCURSION INCIDENT OF AIRCRAFT CESSNA CARAVAN 208B, VT-AHB BELONGING TO M/S NAV DURGA AVIATION PVT LTD AT CHANDRAPUR AIRPORT ON 11 JANUARY 2024.

GENERAL INFORMATION

1.	Aircraft	Type	:	Cessna (Fixed Wing Aircraft)
		Model	:	Caravan 208B
		Nationality	:	Indian
		Registration	:	VT-AHB
2.	Name of the Owner/Operator		:	M/s Nav Durga Aviation Pvt Ltd
3.	Pilot in Command		:	CPL holder
	Extent of Injuries		:	NIL
	First Officer		:	CPL holder
	Extent of Injuries		:	NIL
4.	Date and time of incident		:	11.01.2024, 10:45:00 IST
5.	Place of the incident		:	Chandrapur airport, Maharashtra
6.	Geographical location of site Of Occurrence (Lat. Long)		:	19°59'35"N 79°13'04"E
7.	Last point of Departure		:	Raipur, Chhattisgarh
8.	Point of intended landing		:	Chandrapur airport, Maharashtra
9.	No. of Persons on board		:	09
10.	Extent of Injuries		:	Nil
11.	Type of operation		:	Non schedule Flight
12.	Phase of operation		:	Landing
13.	Type of Incident		:	Runway Excursion

(All timings in the report are in IST)

SYNOPSIS

M/s Nav Durga Aviation Pvt. Ltd (NSOP) planned to operate the CESSNA Caravan 208B aircraft, VT-AHB, on the Raipur-Chandrapur sector with seven passengers on board on 11.01.2024. However, during landing, the aircraft was involved in an incident of Runway Excursion at Chandrapur airport, Maharashtra on 11.01.2024. The incident flight was the first flight of the day for PIC and the First Officer. The aircraft took off from Raipur airport and all operations were normal and the flight was uneventful till approach. The aircraft did the approach and made the touch down on RWY 26. The speed of the aircraft at touchdown was high and the aircraft made a long landing. The poor condition of the runway had affected the braking efficiency of the aircraft as well. This caused the aircraft speed not reducing and considering the high chance of overrun of Runway in to the bushes, the crew veered the aircraft to the left side of the Runway while applying brakes. Aircraft exited left into kutcha near to the threshold area of the Runway 08. During its roll on the kutcha area, the propeller blades and RH landing gear got hit with bushes and small trees present there and the speed got reduced, subsequently coming to halt outside the runway. There was no fire or smoke and the crew came out by themselves and rescued the 07 passengers. There was no injury to any occupants. The weather was fine at the time of the incident.

The Director General of Civil Aviation ordered the investigation of the incident by appointing an Investigator In-charge vide order No. DGCA-15018(17)/2/2024-DAS dated 22.01.2024 under Rule 13(1) of The Aircraft (Investigation of Accidents and Incidents) Rules 2017. The investigation concluded that the long landing combined with high landing speed was the reason due to which the aircraft could not be stopped before the end of the Runway. The deteriorated Runway condition along with crew action post landing had contributed to the excursion.

1. FACTUAL INFORMATION:

1.1 History of Flight:

M/s Nav Durga Aviation Pvt. Ltd (NSOP), CESSNA Caravan 208B aircraft, VT-AHB was planned to operate sector Raipur-Chandrapur with seven passengers on-board on 11.01.2024. Both the crew had sufficient rest before the flight and it was their first flight of the day. The crew did the preflight procedures at Raipur and also got the briefing from Operations department regarding the destination airport i.e Chrandrapur airport, as both were landing at Chandrapur airport for the first time. The weather was favorable for the flight.

During taxying at Raipur, the crew carried out preflight checks including brake check and it was found satisfactory. The aircraft took off from Raipur airport at 09:30 IST. All operations were normal and the flight was uneventful till approach.

Before approaching Runway 26, the crew conducted an overhead check of Chandrapur Airport

and visually inspected the runway and found satisfactory. After that, the aircraft did the approach on Runway 26 for landing.

The aircraft made the touch down on RWY 26 after consuming almost 425.8m from the beginning of RWY 26 threshold marking. Brakes were applied immediately upon touchdown however were not effective to reduce the speed of the aircraft. Both the crew tried to apply maximum brakes with reverser thrust however because of the down slope of the Runway after the midway and the degraded condition of the Runway, the brakes were less effective. As the speed of aircraft was not reducing and the chance of Runway overrun in to the bushes was high, the crew veered the aircraft to left side of the Runway while applying brakes.

Aircraft exited left of the Runway near the threshold area of Runway 08 into kutcha area. During the aircraft roll on the kutcha area, propeller blades and RH landing gear got hit with bushes and small trees present there and the speed got reduced and subsequently came to halt at a distance of 37.5m (nose gear) from the Runway edge. There was no fire or smoke. The crew came out by themselves unhurt and rescued the 07 passengers. There was no injury to any occupants.

1.2 Injuries to persons:

Injuries	Crew	Passenger	Others
Fatal	NIL	NIL	NIL
Serious	NIL	NIL	NIL
Minor	NIL	NIL	NIL
None	02	07	

1.3 Damages to Aircraft:

Subsequent to the incident, the Cessna Caravan 208B aircraft, regn VT-AHB had received the following damages:

1.3.1 Aircraft Propeller – The propeller is fitted in front of the engine and engine is mounted on nose section of aircraft. It is bent on all the tips (03) as a result of propeller strike.

Figure 2 – Aircraft damaged Propeller tips

1.3.2 Aircraft landing gear –

- LH tire condition- has light cut mark and more wear mark

Figure 3 – Left tire light cut mark and more wear mark

- RH tire has deep cut mark on inboard side/shoulder

Figure 4 – Right tire deep cut mark on inboard side/shoulder

- RH tire has hydraulic fluid stain mark

Figure 5 – Right tire has hydraulic fluid stain mark

- RH landing gear brake condition- leaking (static)

- RH brake seam is broken

Figure 6 – RH brake seam is broken

- Landing gear strut and fairing damages - RH main landing gear strut fairing damaged and fairing screw poped-up due to heavy impact.

Figure 7 – RH main landing gear strut fairing

- LH forward cargo pod has rubbed mark with tree

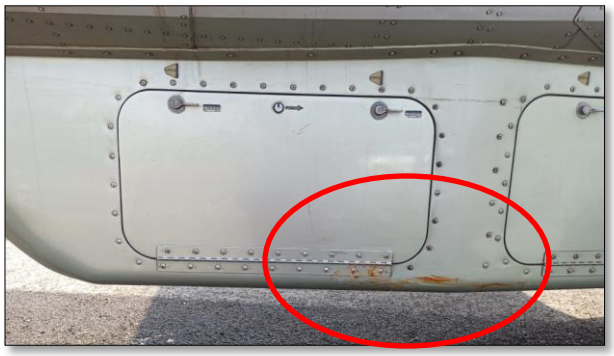

Figure 8 –LH forward cargo pod

1.3.3 Pitot/ static tube damage-

- LH pitot/ static tube-bent towards lower side (minor) and had foreign object in it.

Figure 9 – Pitot/ static tube bent

1.4 Other Damages:

NIL

1.5 Personnel Information:

Pilot in Command (PIC):

Gender , age	Male, 35 Years
License	CPL
License valid up to	17/03/2028
Category	Aeroplane
Class	Land
Medical Assessment Class	Class -1
Date of Medical Exam	19/06/2023
Medical exam Valid up to	05/07/2024
FRTO License date of issue of	18/03/2023
FRTO License Valid up to	07/09/2068
Total Flying experience	3010 Hrs
Experience on type	2800Hrs
Experience as PIC on type	2200 Hrs
Last flown on type	09/01/2024
Total Flying Experience during last 180 days	148:45 Hrs
Total Flying Experience during last 90 days	98:45Hrs
Total Flying Experience during last 30 days	38:45Hrs
Total Flying Experience during last 07 days	01 Hr
Total Flying Experience during last 24 Hours	Nil

Co-Pilot Information

15.2 Co-Pilot Information -	
Gender , age	Male,31 Years
License	CPL
License valid up to	16/06/2024
Category	AEROPLANE
Class	LAND
Medical Assessment Class	Class -1
Date of Medical Exam	01/02/2023
Medical exam Valid up to	09/02/2024
FRTO License date of issue of	17/06/2019
FRTO License Valid up to	16/06/2024
Total Flying experience	470 Hrs
Experience on type	230 Hrs

Experience as First Officer on type	230 Hrs
Last flown on type	08/01/2024
Total Flying Experience during last 180 days	83:45 Hrs
Total Flying Experience during last 90 days	58:45 Hrs
Total Flying Experience during last 30 days	43:45Hrs
Total Flying Experience during last 07 days	08:45 Hrs
Total Flying Experience during last 24 Hours	Nil

The PIC was on the company's payroll, and the Co-Pilot has been flying with M/s Navdurga Aviation Pvt Ltd since 15th December 2023, under cross-utilization policy.

1.6 <u>Aircraft Information</u>:

Manufacturer	Textron Aviation Inc. United States of America
Type	CESSNA CARAVAN 208B
Aircraft Registration	VT-AHB
Manufacturer Sl No.	208B-1064
Year of manufacture	2004
Certificate of Registration No.	3192/2
Certificate of Airworthiness No.	2601/2
C of A validity	Unlimited
ARC issued on	20/12/2023
ARC Expiry on	21/12/2024
Category of C of A	Normal
Subdivision category of C of A	Passenger
Minimum Crew	Two
Aircraft empty weight	2546.26 Kgs.
Maximum all up weight	3968 Kgs.
Date of Aircraft weighment	21/08/2019
Last major inspection	Inspection -10
Last major inspection carried out on	31/10/2023
Airframe hours since new	4590:30
Airframe Hours since last ARC	40:30
Aircraft usual station as per C of R	Kannur International Airport, Kerala
Aeromobile Licence No.	WOLNRRL004012020220901152
Aeromobile License Valid Upto	05/06/2027
Engine	
Manufacturer	Pratt & Whitney

Type (Model)	PT6A-114A
Sl. No.	PCE-PC-1108
Engine hours since new	4590:30 Hrs
Engine Hours since O/H	998:00 Hrs
Date of O/H	18/03/2015
Last major inspection	(200 Hrs./12 Months) Engine Inspection
Last major inspection carried out on	4420:10/16/09/2023
Propeller Details	
Manufacturer	McCAULEY
Type	3GFR34C-703B/106GA0
Sl. No.	980629
Last major inspection	(100 Hrs./12 Months) Propeller Inspection
Last major inspection carried out on	4572:35/01/01/2024
Total Hours since Overhaul	374:10 Hrs
Undercarriage	Tricycle type fixed

The aircraft was being maintained by approved maintenance organization in accordance with the AMP requirements and all the required scheduled maintenance was found to have been performed on the aircraft by appropriately licensed/ authorized personnel.

The aircraft's Airworthiness Review Certificate (ARC) was renewed on 20.12.2023 and it was valid at the time of the incident.

As per the Load & Trim sheet of the incident flight, the weight of the aircraft at the time of take-off was 3959.09 Kgs, which included 725.75 Kgs of fuel, against the MTOW of 3968.80 Kgs. The aircraft landing weight was 3777.66kgs against the MLW of 3855.57 Kgs. The Centre of Gravity was within limits during take-off and landing.

The crew carried out pre-flight inspection before operating the incident flight and no abnormality was observed during the same. There were no reported snags in the last 10 days prior to the incident sector.

Subsequent to the incident, operational check of brakes was carried out by the qualified AME and found to be satisfactory. The aircraft was inspected during the site visit and found flaps were in 30 deg. Also from the cockpit inspection post incident it is understood that the crew had not pulled out fuel shutoff valve to the shut off position while securing the aircraft.

1.7 Meteorological Information:

The actual weather at Chandrapur airport was not available with the crew. The crew took weather data from Nagpur ATC which was favorable. The aircraft took off from Raipur airport at 09:30 IST and landed Chandrapur airport at 10:45 IST.

The weather taken from Nagpur (approx. 150km from Chandrapur airport) on 11.01.2024

was as follows:

Time in IST	10:00	10:30	11:00
Wind	Wind direction 70° at 02 Kts	Wind direction 50° at 02 Kts	Wind direction 40° at 05 Kts
Visibility	2000m	2500m	2500m
Temperature	23 °C	24 °C	25 °C
Dew Point	19 °C	19°C	19°C
QNH	1021 hPa	1020 hPa	1020 hPa
Weather	NOSIG	NOSIG	NOSIG

- The PIC filed a flight plan specifying 'Y' flight rules (i.e first part of the flight is IFR, thereafter the flight is conducted in VFR). As per the statement of the PIC, the actual weather at the time of landing was favorable. Also the visibility during the time of landing at Chandrapur Airport, as observed from the video recording made by one of the security guards was found to be satisfactory.

1.8 Aids to Navigation:

Chandrapur aerodrome is not equipped with any navigational aids and night landing facilities. All the flying activities are based on Visual Flight Rules.

During the site visit, it was observed that there were no windsocks available at the beginning of both Runways. The only available windsock which was near the Helipad/Taxi track was not visible from either ends of the Runway.

1.9 Communications:

At Chandrapur Airport, communication facility is not available. And thereby aircraft was in communication with Nagpur control during the landing.

1.10 Aerodrome Information:

Chandrapur Airport (ICAO: VA1B), an uncontrolled airfield owned and operated by Maharashtra Airport Development Company Ltd (MADC), is located at Morwa, 9 km north-west of Chandrapur district, Maharashtra, India. Chandrapur Airport has Runway 08/26.

Runway used was RWY 26	**Latitude**	19°59'40"N
	Longitude	79°13'22"E
	Elevation	740 ft
	Dimension	946m x 30m

During the site visit, it was observed that the Runway surface was not in good condition. The surface of the runway was found deteriorated with loose pebbles and gravels all around. The last surface carpeting was carried out in the year 2017. The markings on the runway were not visible.

The Runway was found to have down slope after halfway towards the 08 end with the slope value of 0.99%. It is observed that the airport does not have perimeter fencing. Also

heavy bushes/small trees are present around the vicinity of the Runway strip especially at the Runway 26 end. The aerodrome doesn't have any CCTV recordings covering the Runway/apron movement.

Figure 10 - Runway surface condition

1.11 Flight Recorders:

The aircraft is not equipped with flight recorders.

1.12 Wreckage and Impact Information:

Cockpit condition and Flap position after the incident-

Referring the below figure, it was observed during the site visit that:

1. WING FLAPS Handle were in FULL position
2. POWER Lever – IDLE position
3. FUEL SHUTOFF Knob – NOT in OFF (Pull out) position

Fig. 11– Cockpit condition and Flap position

The RH brake seam was found damaged and leaking. The in-situ assessment clarified that the damage had happened during the aircraft movement on unpaved (kutcha) area. The markings of touchdown, brake application, aircraft rolling and subsequent veering towards left of Runway into kutcha area were observed during the site visit. No sign of propeller strike on the Runway was seen. The measurements were taken and is depicted in the below figure (Fig 12).

Approximate points of aircraft contacts with the runway surface were identified and the probable path taken by aircraft on the runway was generated with the help of video recordings made by a witness and the markings of aircraft tires. The following are the distances measured from point to point –

- The distance between the beginning of Runway 26 threshold markings and the touchdown point (A) is 425.8m.
- The distance between the beginning of Runway 26 threshold markings and the point from which aircraft started deviation to left (B) is 749.8m.
- The distance between the beginning of Runway 08 threshold markings and the point (C1) at which the LH tire exited RWY is 42.7m.
- The distance between the beginning of Runway 08 threshold markings and the point (C2) at which the RH tire exited RWY is 33.2m.
- The point D is the final resting location of the aircraft. The distance between the aircraft nose landing gear and centerline of Runway 26 is 52.5 m (towards left side). The distance between the aircraft RH landing gear and centerline of Runway 26 is 49.5m. The distance between the aircraft LH landing gear and centerline of Runway 26 is 48.4m.

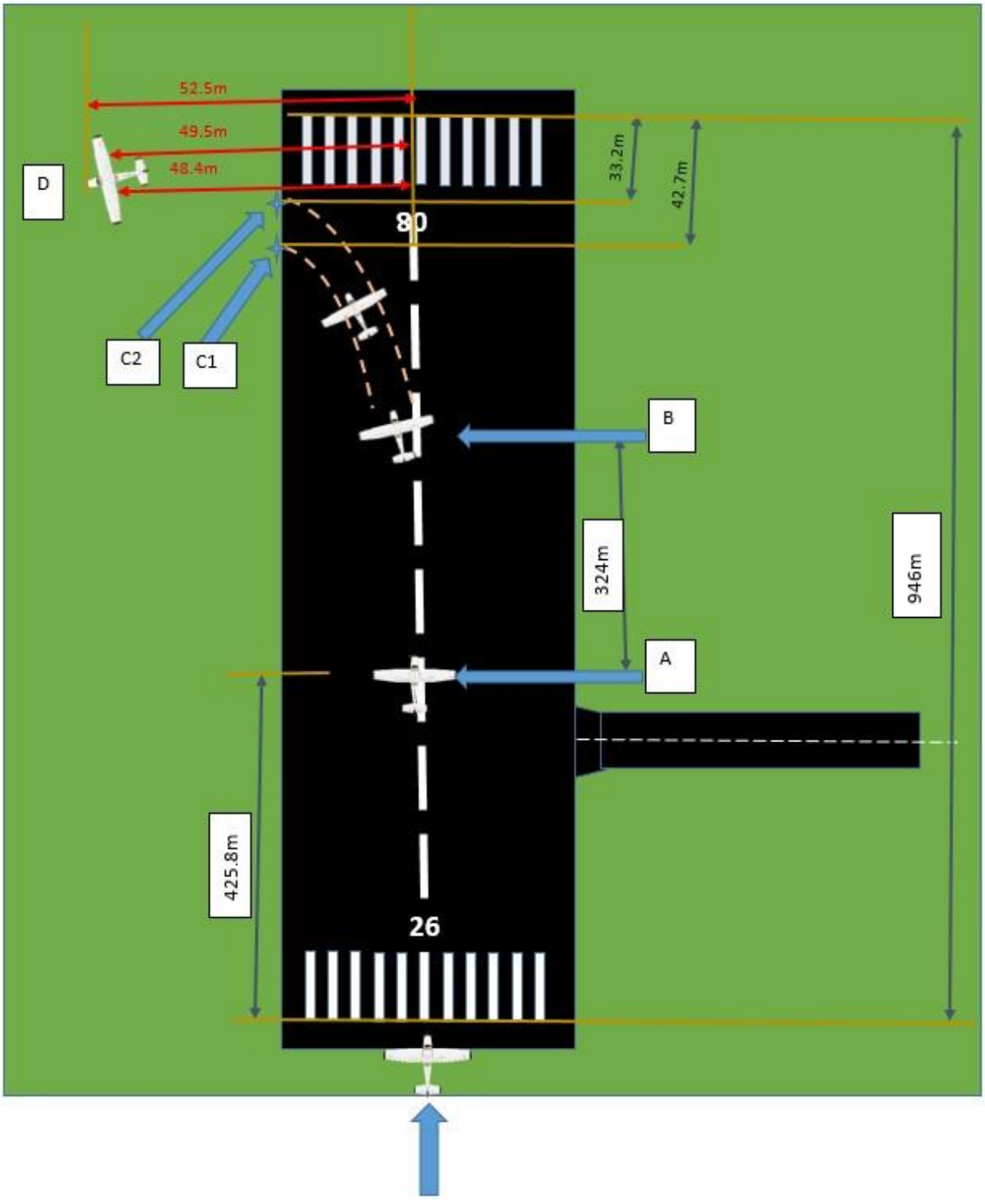

Fig. 12– Landing roll profile and measurements _Aerial view (Not to be scaled)

1.13 Medical and Pathological Information:

The crew were subjected to Breath Analyser examination for alcohol before operating incident flight at Raipur, Chhattisgarh and found to be negative. Further, the involved crew had also undergone a post-incident Breath Analyzer test for Alcohol at Chandrapur airport, Maharashtra and the result was found to be negative.

1.14 Fire:

There was no fire or smoke before or after the incident.

1.15 Survival Aspects:

The incident was survivable.

1.16 Tests and Research:

Not applicable.

1.17 Organizational and Management Information:

M/s Nav Durga Aviation Pvt. Ltd. is a DGCA (Directorate General of Civil Aviation) approved organization to conduct Non-Scheduled Operations. M/s Nav Durga Aviation Pvt. Ltd is based at New Delhi, India. The operator provides flying services in different types of aircraft, i.e. Cessna Caravan 208B, Beech King Air C90A and Cessna Citation 560 XL.

1.18 Additional Information:

1.18.1 PDR of the incident flight made by PIC-

PDR entry of the incident flight was made as: 'After Landing, veered to left and stopped at kutcha'.

1.18.2 As per excerpts from the statement of the PIC-

- On 11.01.2024, he flew as Pilot-in -Command on VT-AHB from Raipur to Chandrapur. The operational department briefed him about the destination runway length and condition. He did the fuel planning, prepared load & trim sheet and CG was within the limits.
- The weather was favorable. During the taxying, he carried out brake check and it was found satisfactory.
- The approach to Runway 26 was stabilized.
- During the approach, the speed was 80-85 kts. The touchdown speed was of 75 kts.
- The touchdown was made abeam taxi track, Runway 26.
- During landing run, he applied breaks but it appeared too sluggish, he advised Co-pilot to apply brakes and F/O found them sluggish too. By that time, they were of

downhill part of the runway and was on full reverser and full brakes.

- The speed of aircraft was not reducing and the chance of overrun was high, he veered the aircraft to left side of the runway and stopped safely.
- After he shut down the engine and came out the aircraft, rescued the 07 passengers.

1.18.3 As per excerpts from the statement of the Co-Pilot-

- He was called for cross utilization in M/s Navdurga Aviation Pvt Ltd from his parent company M/s IIC Technologies, Hyderabad for a period from 15th December 2023 to 15 January 2024.
- On 11.01.2024, he flew as Co-pilot on VT-AHB from Raipur to Chandrapur. Before flight, he followed procedure as per OPS manual. He checked all weather information destination weather & airport information.
- At Raipur, crew followed procedure as per checklist & brake check was satisfactory. During preflight all flight controls and rudder pedals were normal.
- At Chandrapur Airport, they conducted an overhead check at 3000ft and visually inspected the runway. It was found to be satisfactory.
- After that, they prepared for final approach which was normal glide slope. Speed was 85 kts at 500 ft. and at threshold speed was 75kts. Landing location abeam wind sock runway 26 Runway surface. Touchdown and ground roll was normal.
- During ground roll, PIC told him to apply brakes but when applied brakes, it was ineffective. At that moment PIC took controls. The downhill of runway caused speed build up and the aircraft drifted to left side of the runway.
- Required runway length calculation before flight was not calculated because of sufficient runway length.

1.18.4 Video recording of the landing phase (made by security guard) and its analysis -

- One of the security guards positioned near the touchdown area of Chandrapur airport, video recorded the landing of the aircraft in his phone. Upon verifying the same, it was observed that the touchdown was done very late and was made after the taxi track. Also, as per one of the witnesses (guard), he felt that speed of the involved aircraft at touchdown was higher than the speed with which similar model aircraft normally lands at the airport.
- From the video recording, the relative time and visual clues were considered and compared with the references/measurements taken during the onsite visit. It has been established that the aircraft had covered almost 47 m (approx.) in one second after the touchdown. Thus, the approximate landing speed of aircraft VT-AHB is calculated to be 92 kts.

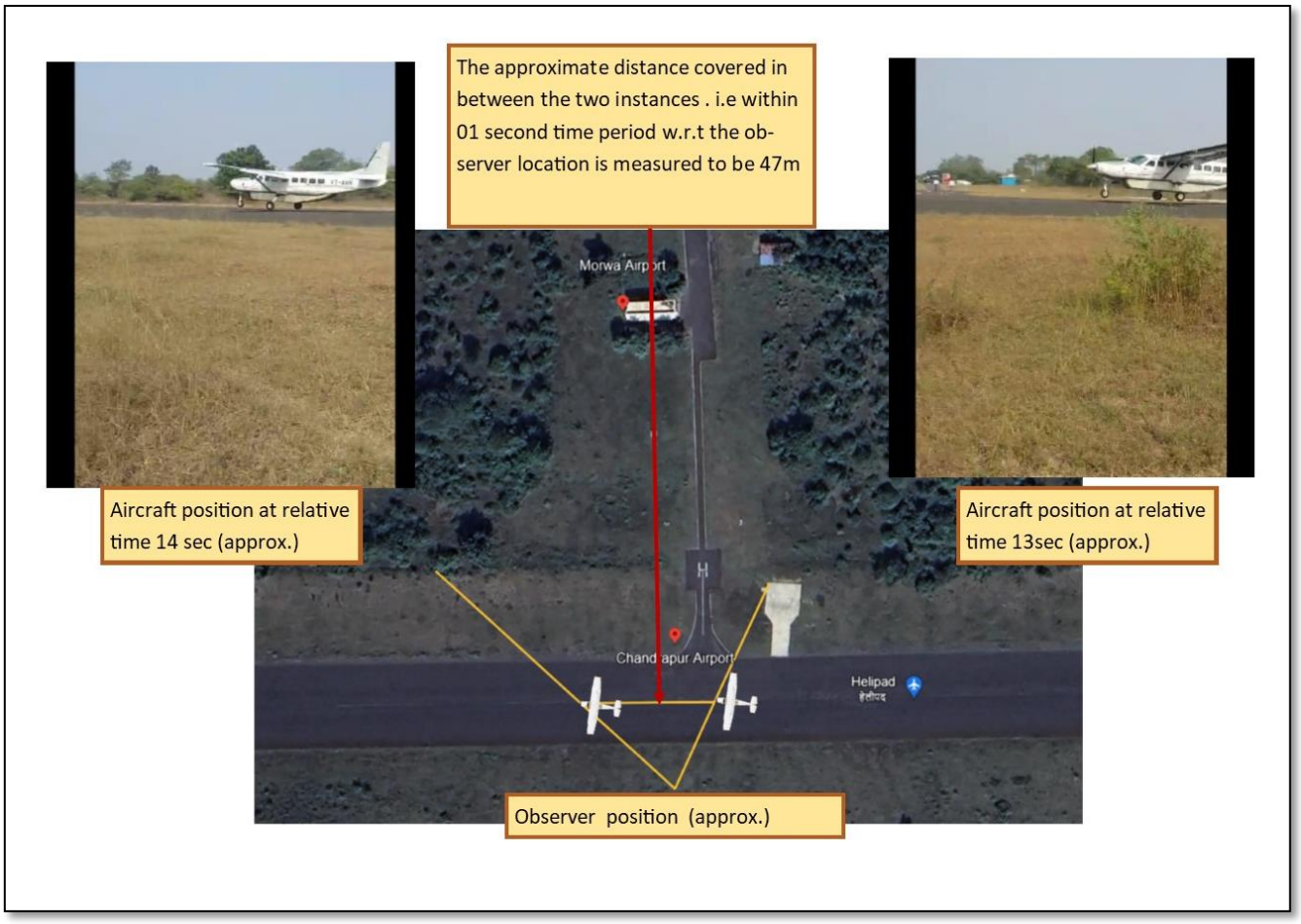

Fig. 13– Approximate distance traveled of aircraft VT-AHB in 1 Second

1.18.5 Speed limits and configuration of aircraft during landing-

Normal Landing as per POH-

Normal landing approaches can be made with power-on or idle power with any flap setting desired and the PROP RPM Lever set at 1900. Use of FULL flaps is normally preferred to minimize touchdown speed and subsequent need for braking. The conditions given in POH for normal landing are:

1. WING FLAPS Handle -	FULL
2. Airspeed -	75-85 KIAS
3. Touchdown -	MAIN WHEELS FIRST
4. POWER Lever -	BETA RANGE AFTER TOUCHDOWN
5. Brakes-	APPLY

1.19 Useful or Effective Investigation Techniques:

Nil

2. ANALYSIS:

2.1 Serviceability of the aircraft and maintenance aspects:

All the maintenance/airworthiness documents pertaining to the aircraft VT-AHB were valid at the time of the incident. No scheduled inspection was found due on the aircraft before the incident flight. The crew carried out pre-flight inspection before operating the incident flight and no abnormality was observed during the same. There were no reported snags in the last 10 days prior to the incident sector. Further, no snag was pending for rectification before the incident sortie. The Centre of Gravity was within limits.

All the required scheduled maintenance was found to have been performed on the aircraft by appropriately licensed/ authorized personnel. The aircraft's Airworthiness Review Certificate (ARC) was renewed on 20.12.2023 and it was valid at the time of the incident.

It was established during the site visit that the damages to the brake assembly and the associated leakages had occurred during the aircraft's movement on the unpaved area. Also it was established by the type trained engineer at the site that there were no abnormalities pertaining to the braking system of the aircraft. Therefore, the aircraft was considered airworthy at the time of the incident and the maintenance factor is ruled out.

2.2 Operational aspects/ aircraft handling by pilot:

The flight crew were medically fit, had a valid license, had adequate rest, and was found to be within FDTL limits. The crew had carried out Pre-Flight Breath Analyzer test and the result was negative.

The incident flight was the first flight of the aircraft on 11.01.2024 and also the first flight of the crew on that day. The flight plan was filed by the crew and the flight rule opted was VFR for landing into Chandrapur airport.

The crew did the preflight procedures at Raipur and also got the briefing from Operations department regarding the runway length and conditions of the Chandrapur airport, as both were landing there for the first time. The runway was visually inspected by the crew by overflying at 3000ft before the approach and found satisfactory. As the runway length was found sufficient by the crew, the runway length calculations were not made by the crew before/during the flight.

Upon reviewing the video recording of the landing phase made by the security guard, it is inferred that the aircraft was flying parallel to the runway at a very short height before making the touchdown. The touchdown was delayed due to this, resulting in a long landing. The touchdown of the aircraft was about to be 425.8m from the beginning of the Runway 26 threshold markings. From the analysis made with the help of references from the video recording and the measurements taken during the site visit, it is observed that the aircraft traversed a distance of approximate 47 meters in 1 second after its touchdown on the runway surface. This indicates that the speed of the aircraft during landing was approximate 92 knots, which was more than the prescribed landing speed of 75-85kts as per POH.

Even though the brakes were applied upon landing, it appeared too sluggish by the PIC and the F/O. The effectiveness of brakes was later verified during the investigation and found to be working normally and effectively. The condition of the Runway surface was found deteriorated with loose pebbles all over the surface. This condition is considered to have caused the less effectiveness of the brakes. In addition to that, the slope present after halfway to the Runway (0.99%) could have made minor contribution in aircraft speed not getting reduced even after full brakes were applied. The incident happened during day time and the visibility as observed from the video recording of the landing was found to be favorable.

As the aircraft continued to roll without reducing the speed, the chance of an overrun of runway was anticipated by the PIC. As the aircraft came closer to the threshold area of the opposite runway, the PIC veered the aircraft to left side of the runway to avoid the overrun. This resulted the aircraft run over the kutcha area which had bushes and small trees. The aircraft speed got reduced subsequent to its collision with a small tree and stopped safely thereafter. The aircraft got damages due to its collision with bushes and small trees while running over the kutcha area. Once the aircraft came to halt, after shutting down the engine and exiting the aircraft, the crew proceeded to rescue the seven passengers. However it was later observed during site visit that the crew missed to reposition the fuel shutoff valve to the shut-off position during the process of securing the aircraft. Thus the incorrect landing procedures followed by the crew is considered as a cause for the incident.

2.3 Aerodrome condition and non-compliance to CAR Section 4 Series B Part VI:

The condition of the runway surface was compromised by loose granules which was scattered across the entire span of runway. Though the length of the runway was sufficient, the presence of the loose granules/pebbles could have direct impact on the braking efficiency during landing roll. During the subject landing also, the braking was found ineffective by the crew due to the poor surface condition, which was also evident from the braking marks. Hence the condition of runway is considered as a contributory cause for the aircraft to not getting slowed while applying full brakes.

Additionally, the runway airport operator neglected to carry out bush cutting near the runway strip, affecting the vicinity of Runway 26 end. Furthermore, there was a lack of fencing along the airport boundary.

There were no windsocks available at the beginning of both Runways to get an estimate of wind speeds and direction. The available windsock which was near the Helipad/Taxi track was not visible from either ends of the Runway. Thus many minimum safety requirements for temporary/ unlicensed aerodromes as prescribed by CAR Section 4 Series B Part VI were not actually present at the airport. It is understood that the aircraft operator had not ensured these requirements prior to the operation.

3. CONCLUSION:

3.1 Findings:

3.1.1 Aircraft was certified airworthy at the time of incident. There were no reported snags in the last 10 days prior to the incident sector.

3.1.2 The crew had valid licenses and was medically fit at the time of incident. The crew had adequate rest before operating the incident flight. The crew had carried out Pre- and post Flight Breath analyzer test and the result was negative.

3.1.3 The PIC and Co-pilot had not landed at Chandrapur Airport before this flight. The crew had received briefing about the runway length and conditions of the airport before the flight.

3.1.4 The Co-Pilot has been flying with M/s Navdurga Aviation Pvt Ltd since 15th December 2023, under cross utilization policy.

3.1.5 The incident flight takeoff weight was 3959.1kg, which is below the maximum takeoff Weight (MTOW). The C.G was within the limits.

3.1.6 The incident flight was first flight of the aircraft on 11.01.2024 and also the first flight of the crew on that day.

3.1.7 The flight plan filed by the crew was VFR and the flight was on day time. The visibility during the landing was favorable.

3.1.8 The aerodrome doesn't have any CCTV recording provision covering the Runway/apron movements.

3.1.9 The aircraft is not equipped with Flight Data Recorder, Cockpit Voice Recorder or any other facility for recording operational parameters.

3.1.10 The runway was visually inspected by the crew by overflying at 3000ft before the approach and found satisfactory.

3.1.11 The stabilization criteria of the approach made on Runway 26 could not be verified due lack of evidences.

3.1.12 It is evident from the video recording of landing made by one of the security guards that the crew made a long landing before the touchdown as the touchdown was after a distance of approximately 425m from the beginning of runway 26 threshold marking. The length of the runway is considered enough with standard landing speed combined with effective braking.

3.1.13 The aircraft landing speed calculated based on the same video recording and local references was approximately 92 knots, which is more than the prescribed landing speed as per POH.

3.1.14 The crew applied heavy brakes during the landing roll however the aircraft speed could not be reduced. The degraded condition of the runway had effected the braking efficiency of the aircraft as there was no defect identified in the brake system during post incident inspection.

3.1.15 The PIC had consciously veered the aircraft to left side of the runway as the aircraft speed was not reducing and to prevent Runway overrun into bushes.

3.1.16 On the kutcha roll, propeller blades and RH landing gear got hit with bushes and small trees reducing the speed of aircraft and subsequently aircraft came to halt at a distance of 52.5m (nose gear) from the runway edge.

3.1.17 Subsequently, the PIC shut down the engine and both the crew came out of the aircraft unhurt. However, the fuel shutoff valve was not kept in OFF position.

3.1.18 The aircraft was inspected during the site visit and found flaps were in 30 deg.

Damage is limited to the propeller blades and RH main LG fairing. Few scratch marks were also seen on fuselage surface and cargo pod which are probably due to the obstacle impact on the kutcha area.

3.1.19 There was no fire or smoke from the aircraft. Also no fuel leak was observed.

3.1.20 Neither the passengers nor the crew suffered any injuries.

3.1.21 The aircraft operator had not ensured the minimum safety requirements at the landing airport prior to operation as required by CAR Section 4 Series B Part VI.

3.2 Probable Cause:

The long landing combined with high landing speed was the reason due to which the aircraft could not be stopped before the end of the Runway. The deteriorated Runway condition along with crew action post landing had contributed to the excursion.

4. SAFETY RECOMMENDATIONS:

4.1 Suitable Corrective training for the crew in view of the findings mentioned under para 3.1.12, 3.1.13 and 3.1.17.

4.2 Any other action as deemed necessary by DGCA HQ based on the above findings.

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Ajay Phule
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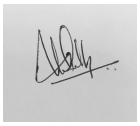
Ajay Dattatray Phule
Air Safety Officer
Member



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10.1.1

Vineeth S
Assistant Director of Air Safety
Investigator In-charge

Place: Mumbai
Date**:** 25.10.2024

----End of the report—