PRELIMINARY INVESTIGATION REPORT

ACCIDENT OF CESSNA 172 REG. NO AP-BLO OPERATED BY ASKARI FLYING ACADEMY CRASHED NEAR IIAP ISLAMABAD, PAKISTAN ON 16-08-2025

TABLE OF CONTENTS

ACKNOWLEDGEMENT

Airport Management teams of IIAP, Islamabad for their close coordination, provision of necessary resources, timely facilitation, safe recovery of the crew, ensuring security at the wreckage site for assisting BASIP investigation team during the occurrence.

Administrative support provided by Local `police and CSO IIAP to facilitate BASIP investigation team daily crash site visits, for provision of security and safe recovery of wreckage.

Expeditious conduct of initial medical examination and toxicology testing by PAA Medical team.

Airport Security Force (ASF), Pakistan Civil Aviation Authorly (PCAA) and Pakistan Airports Authority (PAA) for provision of all out support to BASIP investigation during the course of investigation.

SCOPE OF INVESTIGATION

This safety investigation is being conducted by Bureau of Aircraft Safety Investigation Pakistan (BASIP) in accordance with Annex-13 to the ICAO Convention and Pakistan Air Safety Investigation Act 2023**. The sole objective of this safety investigation is the prevention of accidents and incidents of similar nature without apportioning blame or liability.** Accordingly, it is inappropriate to use BASIP preliminary investigation report to assign fault or blame or determine liability, since neither the investigation nor the reporting process has been undertaken for that purpose. This information is published for aviation industry and the public about the general circumstances of this event. It is in line with ICAO Annex-13 para 7.1 and 7.5. Extracts of this preliminary report may not be further published without permission from BASIP. **All timings are mentioned in UTC.**

PRELIMINARY REPORT

ACCIDENT OF CESSNA 172, REG. NO. AP-BLO, OPERATED BY ASKARI FLYING ACADEMY NEAR IIAP, ISLAMABAD ON 16-08-2025

Brief Description

1. On 16 August 2025, a Cessna 172 R aircraft, registration AP-BLO, operated by Askari Flying Academy (AFA), departed from Islamabad International Airport (IIAP) on an Instrument Flying (Day/Night) training flight. The purpose of the sortie was to practice Instrument Landing System (ILS) approaches at IIAP, subject to air traffic. Shortly after take-off from Runway 28R, at approximately 275 feet above ground level (AGL), the aircraft experienced an engine failure. The instructor pilot conducted a forced landing in an agricultural field adjacent to the airport, during which the aircraft toppled and came to rest in inverted position. Both pilots survived with no serious injuries and there was no fire or damage on the ground except agriculture crop.

2. The day's training schedule included four missions involving two instructor pilots and four trainee pilots. The accident flight was the fourth sortie, flown by one instructor pilot and one trainee pilot. The aircraft had been operated earlier in the day for the first training mission by the same instructor. The flight plan was filed for two hours duration with 4.5 hours fuel endurance.

3. Following completion of the instructor's earlier sortie, the mishap flight commenced preparations at the flight lines. A brief and informal pre-flight briefing was conducted before departure. Start-up clearance was obtained at 131647 hours, and the aircraft taxied from the state apron at 132410 hours. The ground controller issued take-off clearance at 132923. The aircraft took off at 133101 hours, with the trainee pilot as Pilot Flying (PF) and the instructor as Pilot Monitoring (PM).

4. At approximately 270 ft AGL (2033 ft Ind), just after flap retraction, the aircraft lost engine power. The instructor immediately took over controls and MAYDAY call was made at 133151 hours, and ATC confirmed both runways were available. Assessing insufficient altitude to return to the runway, the instructor selected a nearby agricultural field for forced landing. The IP attempted four engine restarts within 35 seconds and all were unsuccessful The aircraft touched down at approximately 44 knots, rolled about 70 feet, and overturned due to uneven raised ground, coming to rest inverted approximately 4785 feet (0.79 NM) from the threshold of RW 10L.

5. After the aircraft came to rest, the instructor exited, observed fuel leakage, and re-entered to secure fuel and electrical systems. The trainee pilot, initially trapped by a jammed harness, was subsequently assisted out by IP. No fire occurred and both pilots escaped without major injuries.

6. The Airport Management, Rescue and Firefighting Services (RFFS), and Airport Security Force (ASF) responded promptly, secured the wreckage, and provided medical and toxicological examinations to both crew members.

Flying Operations

7. The Cessna-172 R Skyhawk was manufactured in the year 2007. It was owned by Askari Flying Academy (AFA) and used for training purposes, at IIAP, Islamabad. The accident flight was the fourth mission of the day.

Timeline for Accident (UTC)

8. **095802**. Mishap Instructor pilot enters IIAP, Islamabad premises via labour gate.
9. **115820**. Mishap Trainee pilot of the day reached Terminal 1 parking at IIAP.
10. **120136**. Mishap Trainee pilot submitted the flight plan at Pre-flight Information unit, located at Terminal 1.
11. **122446**. After the security checks, Mishap trainee pilot reached the state apron (AFA flight lines) via Stand 21.
12. **130103.** Aircraft entered state apron via Kilo taxiway.
13. **130132**. Aircraft parked at state apron
14. **130236**. Mishap IP and 3rd trainee pilots exited out of aircraft and left for flight lines.
15. **131547**. AP-BLO requested start-up for training sortie for RW 28.
16. **131647**. Ground controller gave start up clearance to AP-BLO.
17. **131744**. Instructor and Trainee pilot reached aircraft for pre-flight.
18. **132329**. AP-BLO requested taxi clearance. Ground controller gave Taxi clearance to AP-BLO to holding point 28R via **Taxiway Kilo, Juliet.**
19. **132410**. AP-BLO Taxied out from state apron.
20. **132453**. AP-BLO turned for Kilo taxiway for holding point RW 28R
21. **132521**. AP-BLO was cleared for MOXIT and back. The aircraft was instructed to join left hand circuit after airborne and initial altitude 4500 ft was cleared.
22. **132805**. Ground controller re-cleared AP-BLO to proceed via **Taxiway Kilo, Golf**.
23. **132923**. Ground controller gave AP-BLO line up clearance and acknowledged by AP-BLO.
24. **133012** Ground controller gave take off clearance to AP-BLO for RW 28R.
25. **133101.** Aircraft commence rolling for take-off.
26. **133142**. AP-BLO was observed climbing at 240 ft AGL.
27. **133145**. AP-BLO was observed climbing at 275 ft AGL.
28. **133148** AP-BLO engine failure occurred.
29. **133151**. Instructor pilot gave call **"MAYDAY MAYDAY MAYDAY ENGINE FAILURE MAYDAY MAYDAY MAYDAY ALO ENGINE FAILURE GOING AHEAD FOR STRAIGHT FORWARD".** Slight zoom was observed and aircraft gained max altitude of 333 ft AGL.
30. **133154.** Ground controller acknowledged **"ALO ROGER AND SIR BOTH RUNWAYS ARE AVAILABLE REPORT LANDED".**
31. **133157.** Instructor pilot gave call **"UNABLE WE ARE FOR THE FIELD, UNABLE UNABLE"**.
32. **133214.** Aircraft commenced **left turn** for sighting field for landing.

33. **133233.** Aircraft commenced **right** turn after selection of field.

34. **133315**. AP-BLO force landed in left bank on left main tyre.

35. **133402**. 02 crash tenders from the Main Fire Station and 01 from the North fire station proceeded towards the Approach Path RW 10L for rescue.

36. **133610.** PAA Ambulance along with 02 follow-me vans, followed the fire-vehicles.

37. **134210.** The fire vehicles finding no aircraft within Airport premises left the airport premises via the labour gate along with 02 follow-me vans, 01 ambulance and 01 fire-tender, to reach the crash site.

38. **135500.** Airport rescue and fire-fighting vehicles reached the crash site. The area was cordoned off by PAA vigilance and ASF. The pilots were shifted to Trauma center IIAP for medical examination.

Meteorological Information

39. METAR – OPIS 161330Z 15004KT 6000 FEW 040 32 / 27 Q1000 NOSIG

Accident Site

40. Accident site is located at a bearing of 286° 0.79 NM (4785 ft) from RW 10L threshold, at an Altitude of 1624 ft. The Cessna's fuselage was positioned at N 33° 33′ 24.25104″ E 72° 47′ 28.43124″.

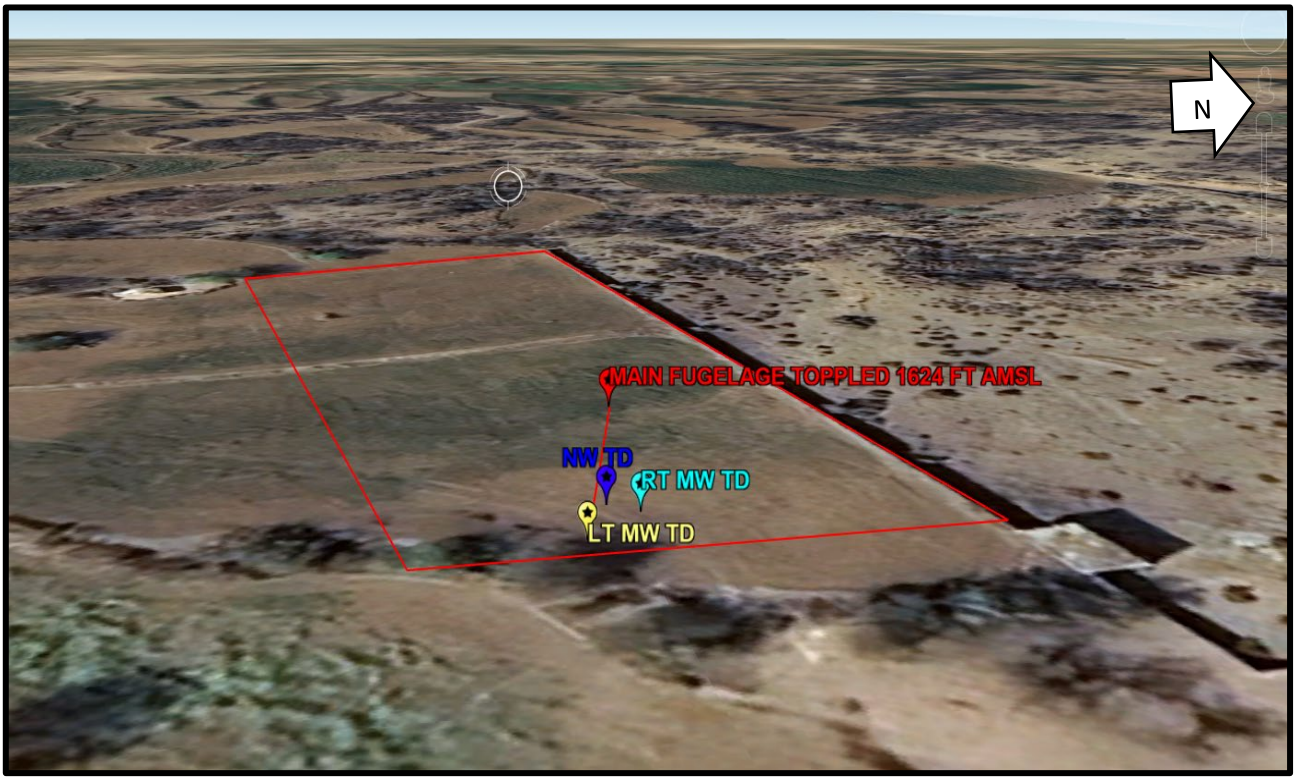


Figure 1 - Accident Crash site (Google View)

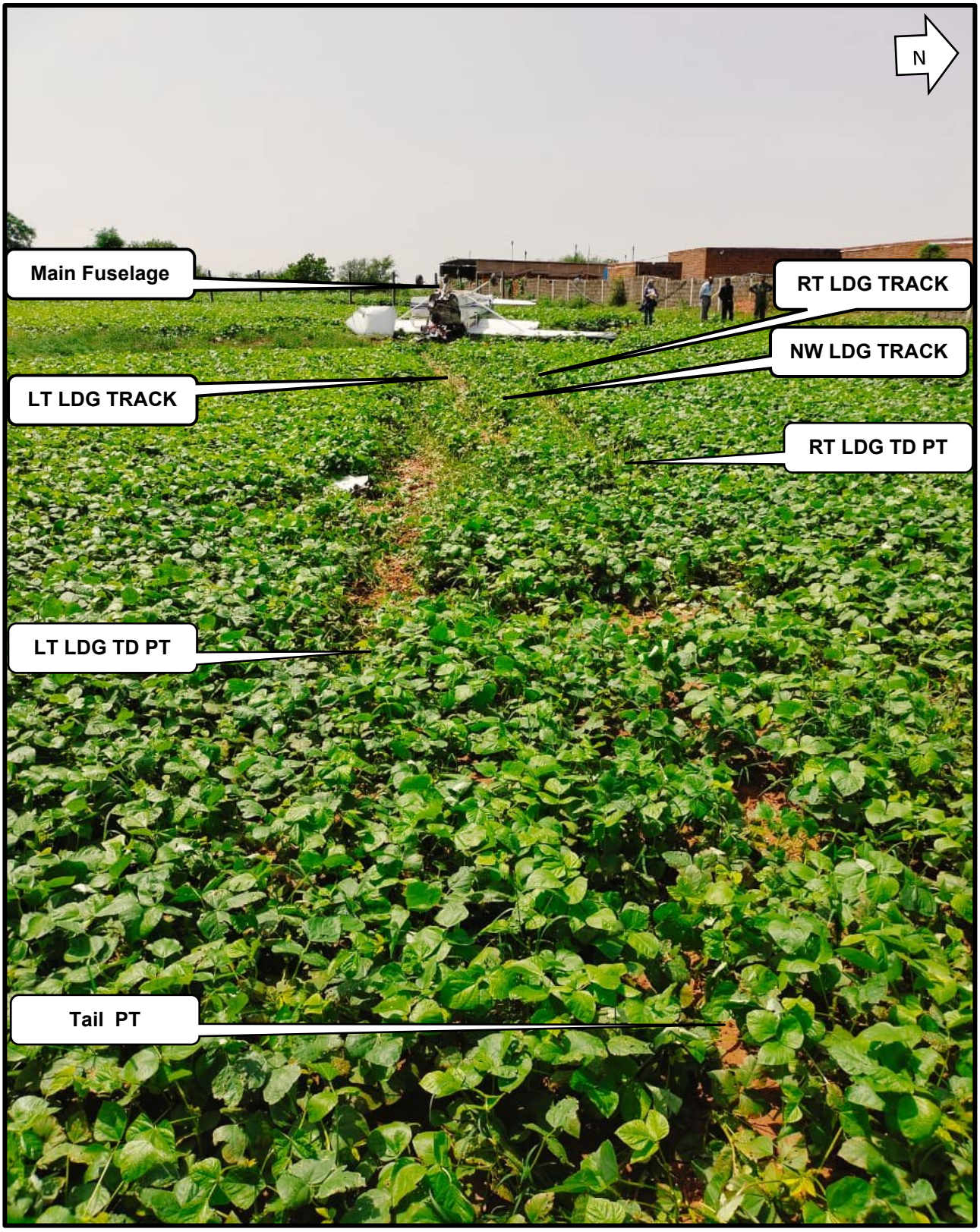


Figure 2 - Accident Crash site (Actual View)

Site Visits

41. **16 August 2025**. BASIP investigation team reached site at 2000 hours visited crash site, collected aircraft documents and conducted initial interview with both pilots at AFA flight lines.

42. **17 August 2025**. Investigation team visited the crash site, collected fuel samples from both wings and engine oil sample. The team carried out survey in daylight and collected evidences.

43. **18-19 August 2025**. No work due heavy rain.

44. **20 August 2025**. Engine (along with accessories) and Propeller were removed from the aircraft by AFA maintenance officials under the supervision of investigation team and transported to HQ BASIP.

45. **21 August 2025**. Remaining fuel and lubricants from the aircraft were drained out at safe location. Moreover, aircraft both wings were removed and placed safely.

46. **22 August 2025**. The aircraft (fuselage) was straightened with the help of crane. Pakistan Aeronautical Complex (PAC), Kamra structure team visited crash site and conducted damage assessment of the aircraft in presence of Investigation In charge. The glass cockpit accessories and other instruments were removed from the aircraft and transported to HQ BASIP, whereas the remaining wreckage parts (fuselage and wings) were shifted to the Askari Flying Academy Headquarters.

Wreckage Damage

47. The examination of the accident site revealed **extensive structural damage** to the aircraft. The **nose frame was completely destroyed**, with the **engine separated from its mounts** and the **nose wheel mount ruptured and tilted**. The **propeller was damaged** and part of the **left aileron was detached from the wing**. **Buckling was noted on the wings and tail section**, including a **ruptured vertical stabilizer**. The **front windshield was shattered**, and **evidence of heavy ground impact**, including **scraping of both wingtips**, was observed. Moreover, **PAC Kamra structure team has also declared the aircraft structure unfit for flying**.

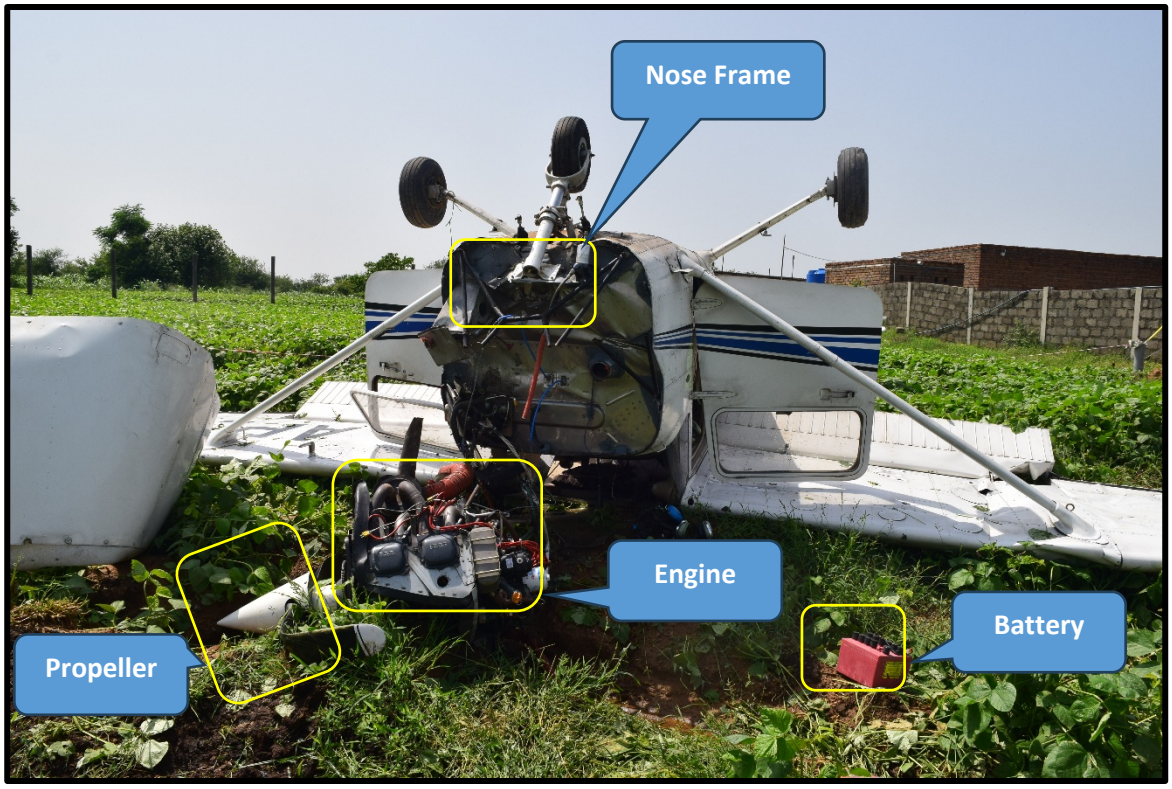


Figure 3 - Engine and Propeller Detached From Nose Frame

Figure 4 - Portion of Left Aileron Broken

Figure 5 - Buckling on Right Wing Flaps

Figure 6 - Buckling observed on Fuselage and Tail Section

Figure 7 - Damaged Vertical Stabilizer & Rudder

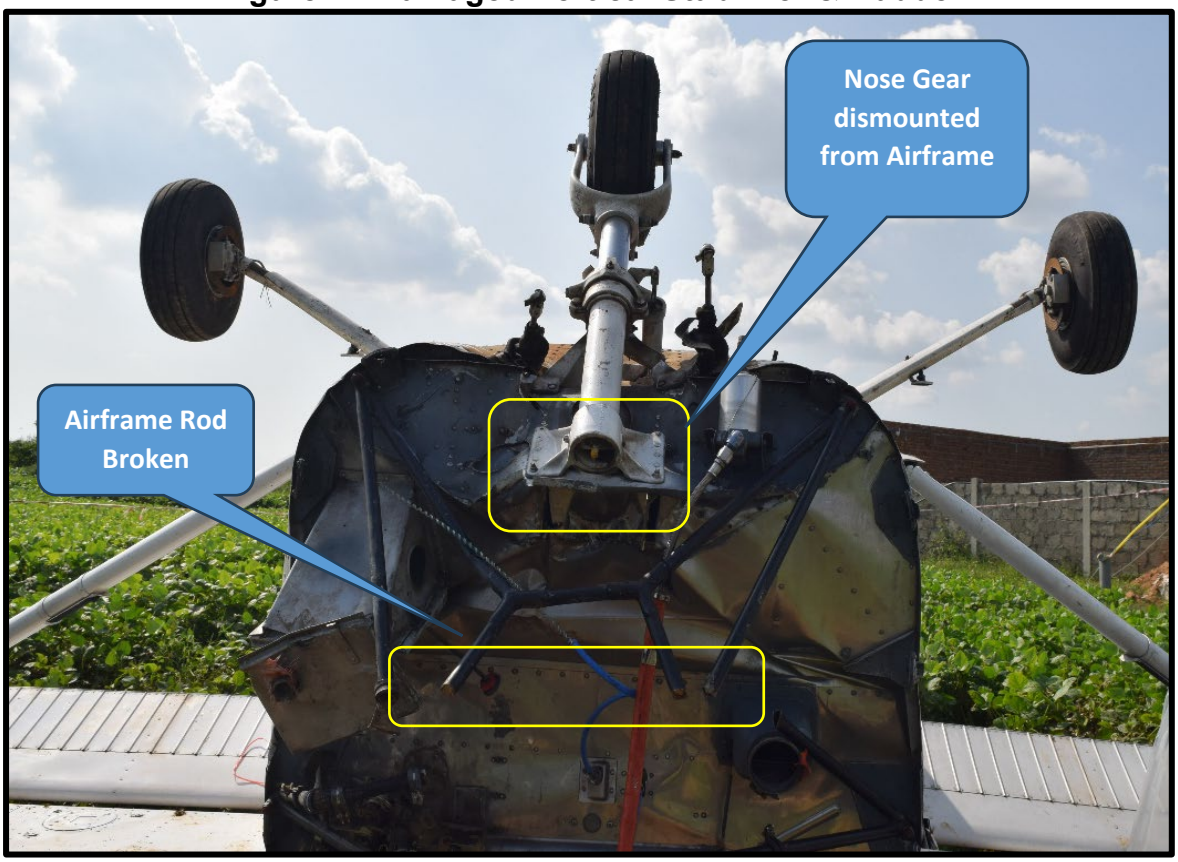


Figure 8 - Nose Wheel Mount Detached from Nose Frame

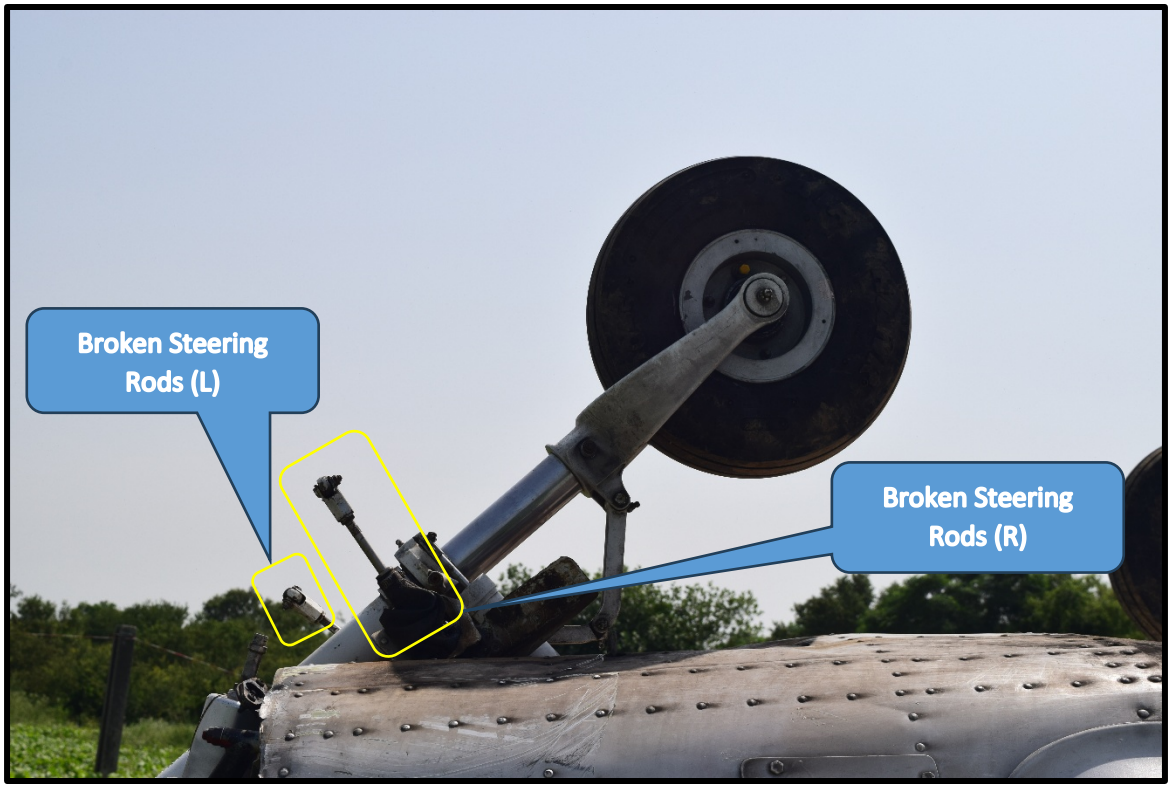


Figure 9 - Damaged Nose Wheel Steering Rods (Left/Right)

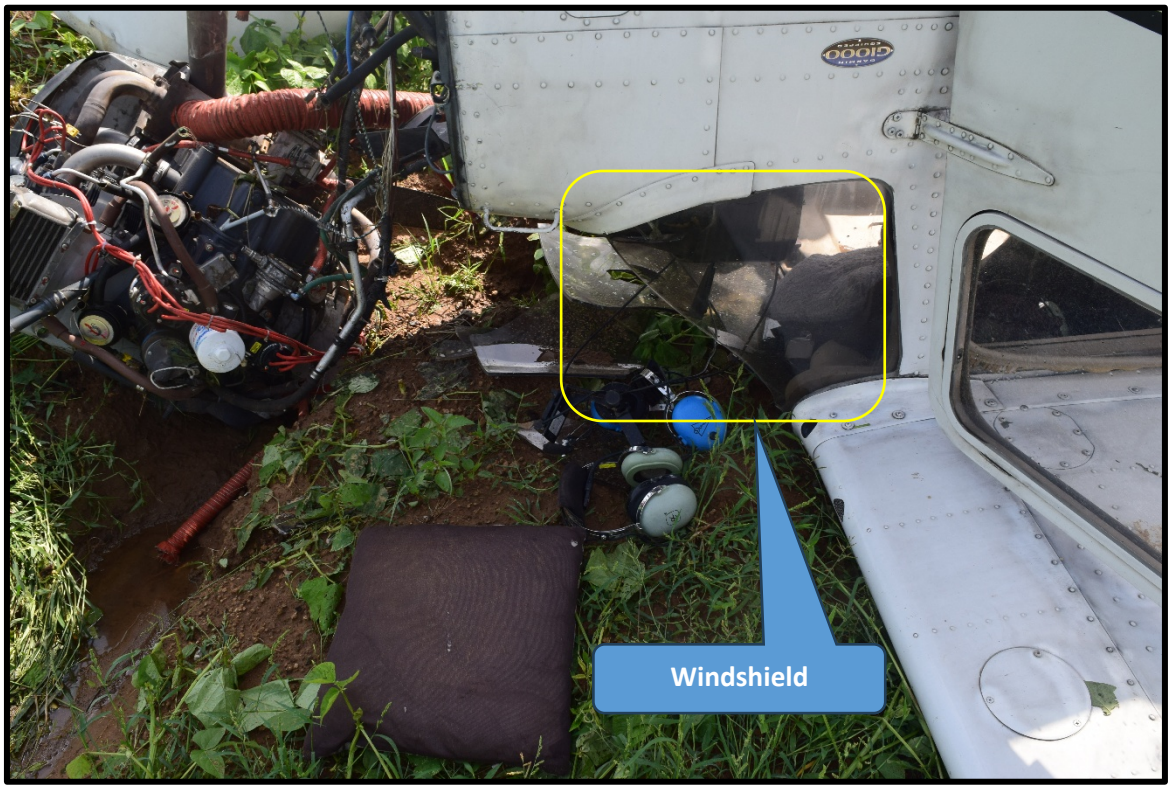


Figure 10 - Broken Windshield

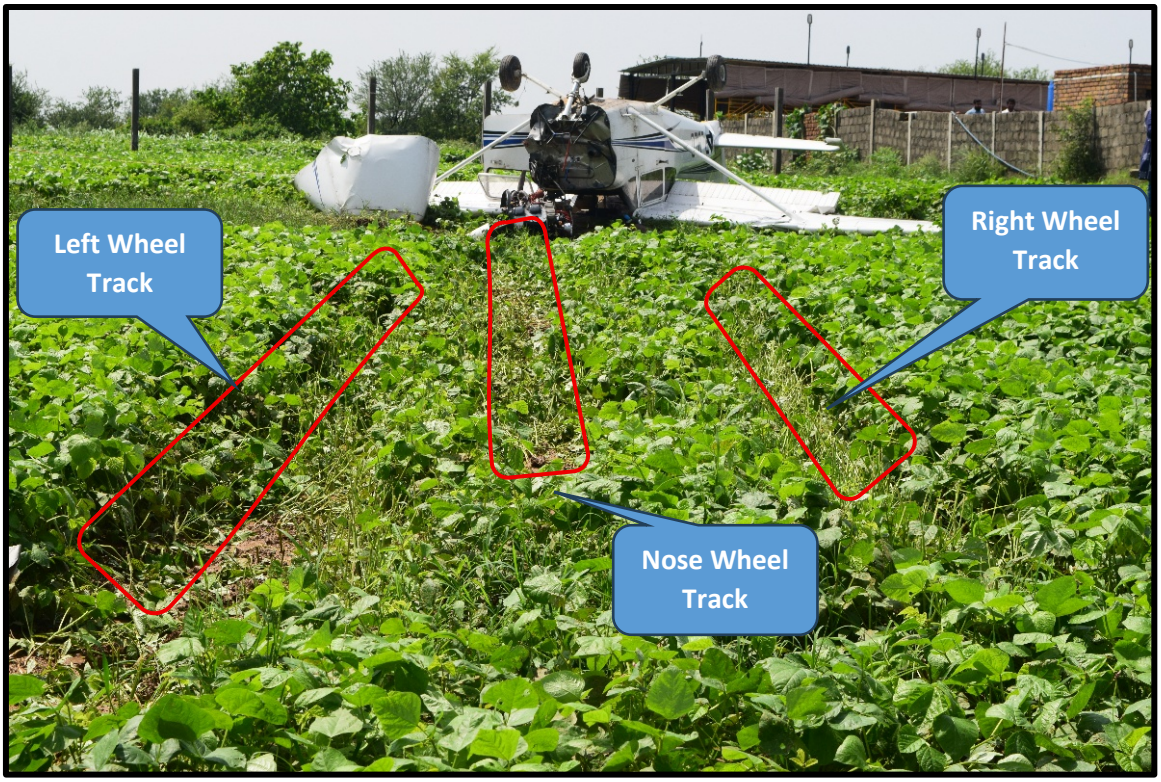


Figure 11 - Ground track short of aircraft topple

Figure 12 – Nose Wheel Mount

Figure 13 – Right Wing

Figure 14 – Left Wing

Figure 15 – Engine & Propeller

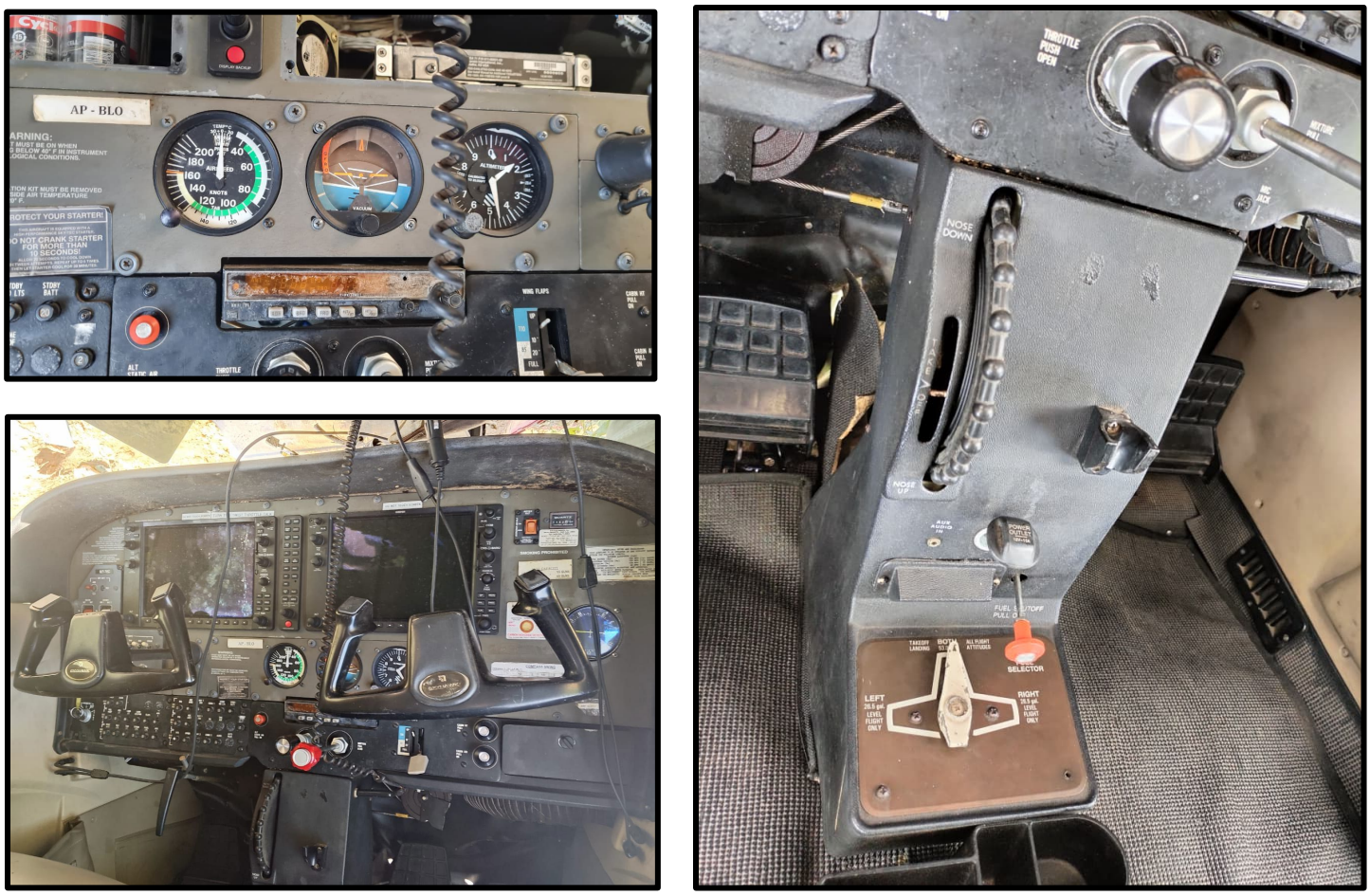


Figure 16 – Cockpit

Figure 17 – Fuel Bouser without Danger & No Smoking Sign

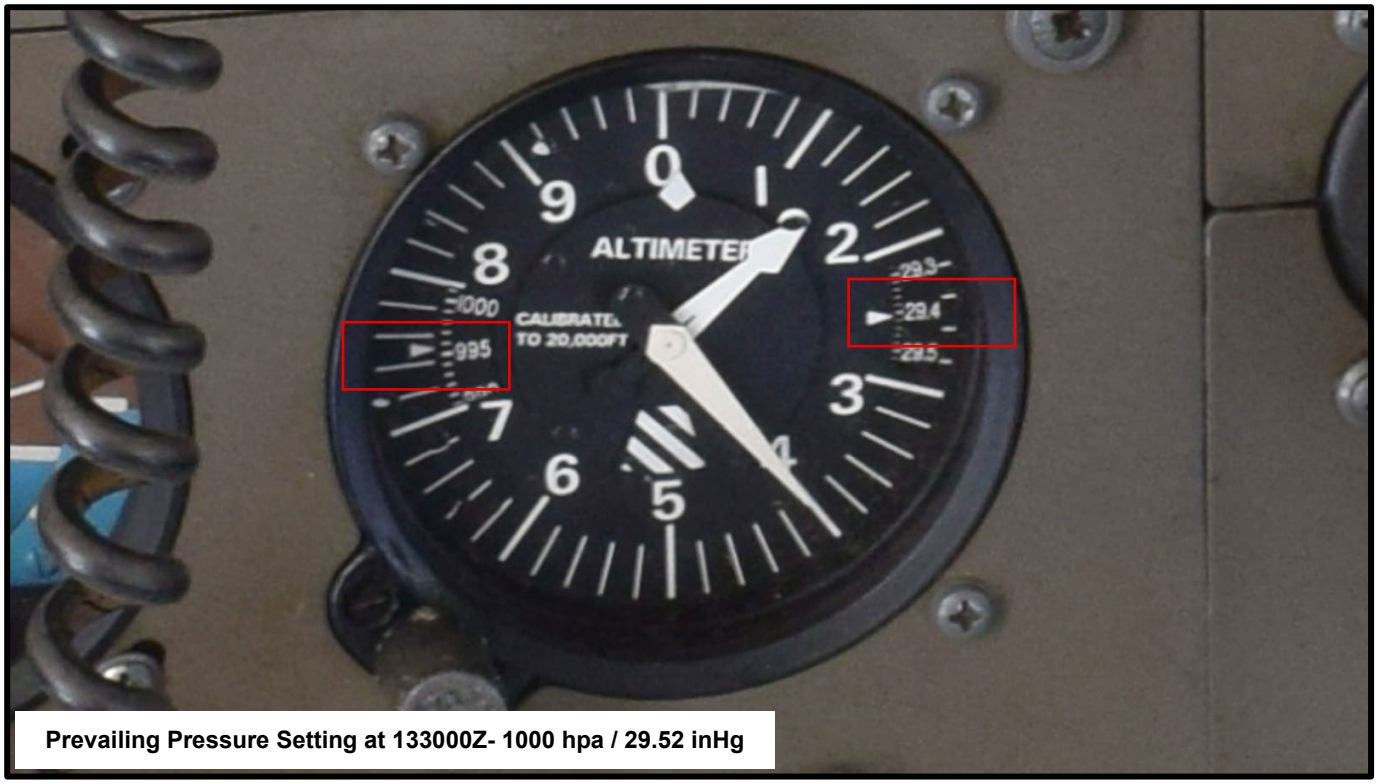


Figure 18 – Stand By Altimeter

Figure 18 A – Expire items place in tech store Shelves

Wreckage Recovery

48. The wreckage from the crash site has been recovered and engine and propeller has been placed at HQ BASIP for strip / teardown examination from the OEM. The aircraft fuselage was handed over to Askari Flying Academy.

Figure 19 – Loading of Wreckage at Crash Site

FDR / CVR / G1000 ICS / Radar & IFF Tracing / CCTV

49. There is no FDR or CVR installed on AP-BLO Cessna 172 aircraft.

50. G1000 ICS, **02 SD** cards have been extracted and both found in **write protected position**. Data of **01 flight from June 2022** from one of SD card has been extracted, however, the second memory card was found corrupted. It is noteworthy that Askari Flying Academy (AFA) had not utilized these SD cards for maintenance monitoring or mission debriefing since their installation. All flight and engine parameters can be downloaded directly from the SD cards in CSV or Excel format, allowing for effective aircraft health monitoring and comprehensive mission debriefing, without the requirement of specialized software. However, images of both SD cards have been forwarded to subject matter OEM experts for detailed examination and data retrieval.

51. Radar, IFF tracing & CCTV data have been utilized to build flight path and analysis purposes.

Medical Examination

52. Medical examination of both flight crews were conducted along with the toxicological screening. Both pilots were found conscious at the accident site with no major injuries. Toxicological and bio-chemical screening of both flight crew members following the occurrence showed no evidence of alcohol or illicit drug use. Random blood glucose values for each pilot were within the normal reference range.

Fuel Testing

53. Fuel samples from both wings and the engine oil sample were collected and sent for laboratory analysis. Heavy rainfall the night before might have caused possible fuel contamination. However, fuel test reports have been declared fit by lab and oil reports are awaited.

Search and Rescue

54. ELT was found transmitting at the crash site; however, distress data was not being displayed on SUPARCO Search & Rescue system (COSPAS SARSAT) installed at Rescue Sub Center (RSC). Same data was shown on RSC on **19 August after a gap of 03 days** and well offset by **approx 5-6 NM from exact location**.

Figure 20- Location of ELT Signal received at RSC IIAP

55. After the crash, the Approach Controller instructed APBIX another Cessna aircraft operating in the vicinity to conduct a visual search for the aircraft by giving vectors. Meanwhile, during search, a call received from AFA official that AP-BLO crashed landed and pilots are safe. At the same time AP-BIX also informed about location of aircraft. Furthermore, IIAP ATC unit also contacted Qasim Base for Search and Rescue (SAR) operations in the area.

Preliminary Findings

56. As per ICAO Standards and Recommended Practices (SARPs), the National Transportation Safety Board (NTSB), representing the United States as the State of Manufacture and Design, would facilitate the conduct of engine teardown examination at the Original Equipment Manufacturer (OEM) facility in the USA under the supervision of BASIP. The BASIP investigation team remains in close coordination with the NTSB Accredited Representative for subject matter expert consultation. **The exact cause of the occurrence will be determined following the OEM's detailed teardown examination**. However, based on preliminary review of available documentation and personnel interviews, the following initial findings have been observed.

Technical Aspects

57. Engine **Serial No. RL-33823-51E** was **cannibalized from aircraft AP-BLL to AP-BLO on 26-07-2025**. It is pertinent to mention that the same engine had previously **experienced an engine failure during landing** on **aircraft AP-BLL on 15-04-2025**. Upon scrutiny of the maintenance documentation for both aircraft, the following observations and findings have been recorded separately.

Cessna Aircraft Reg No AP-BLL (Engine Serial # RL-33823-51E)

58. The Engine Serial # RL-33823-51E was removed on 10-01-2024 for overhauling (due to completion of TBO). The engine was overhauled on 06-09-2024 by Aerotec Engine Ltd, Canada instead from Lycoming Engines, USA and was installed on AP-BLL aircraft 19-12-2024.

59. The engine performance remained satisfactory till 15-04-2025 on AP-BLL aircraft.

60. On 15-04-2025, during flare out for full stop landing after Flight Standardization Check mission, engine failure occurred and aircraft block the runway.

61. Both aircrews tried 4-5 restart attempts, however, the engine did not start. The aircrew informed ATC of engine failure on mobile phone rather than transmitting on Radio frequency.

62. Airport services and AFA maintenance officials were directed to RW 10R for recovery of aircraft. The RW was cleared within 10 mins and aircraft was manually towed back to State Apron tarmac. Moreover, fuel leakage was observed during towing back from the drain, it might be due to over priming.

63. In compliance with BASIP's directive to conduct a SMS investigation, Askari Flying Academy (AFA) constituted a Board of Inquiry (BOI) comprising the Chief Operating Officer (COO), Chief Engineer, Flight Safety Officer, and an Instructor Pilot. An unsigned SMS Investigation Report was subsequently submitted to BASIP and PCAA via email on 02-06 2025, despite the stipulated submission deadline of 16 May 2025. Furthermore, another unsigned SMS report pertaining to the tyre burst incident of aircraft AP-BLO dated 13 February 2025 was submitted to BASIP and PCAA via email on 14-03-2025. The absence of signatures on both

reports renders the documents unauthenticated and raises concerns regarding the credibility and validity of the SMS investigation process.

64. It was further observed that the Chief Engineer, who was also a witness to the occurrence, was designated as a member of the BOI, which is inconsistent with the principles of impartial board composition.

65. Additionally, an email correspondence attached with the SMS investigation report indicated that a query was forwarded to the Original Equipment Manufacturer (OEM) from the official email account of the Chief Engineer, seeking precautionary maintenance guidance regarding the subject engine failure. However, no response has been received till date.

66. It is noteworthy that the Chief Engineer does not personally operate his official email account. Instead, he prepares a draft for the COO's review, and upon approval, the designated staff of the COO dispatches the email using the Chief Engineer's official account. Same is noted for Assistant CAMO & Store department emails.

67. The Engine failure cause of occurrence has been attributed due to high prevailing outside air temperature (OAT) **36º C with +2º C** environmental condition, thereby assuming actual temperature of **38º C**. Moreover, the query arises, if the temperature was high, why the operator has scheduled the aircraft for flying and secondly why the engine startup was performed on ground at tarmac immediately after the incident at such high temperature.

68. Based on the actual metrological parameters of 15-04-2025 at 093900Z landing time (temp 35/15ºC, RH 30% wind 13006 pressure 1009hpa)] & 100000Z Startup at Tarmac (temp 36/14ºC, RH 28% wind 13008 pressure 1009hpa), it has been analysed that the actual temperature conditions were **35.1º C & 35.7º C respectively** at take-off and landing respectively, which are well within the operating limits of aircraft.

69. The cause of occurrence might have been attributed to some other factors ie faulty spark plugs, magnetos, fuel injectors, ignition coil, fuel vaporization, fuel filter, fuel starvation, Engine throttle rigging and lean/rich mixture setting, which have not been clearly identified in SMS investigation except in findings with no maintenance work documentation on aircraft documents. Furthermore, such finding does not co-relate with maintenance work performed as no such documentation is available against such findings and its unauthenticity is questionable. Additionally, ground adjustment of Engine idle RPM on 15-08-2025 to cater for winter cold temperature was not conducted as it was recommended in SMS investigation of AP-BLL aircraft.

70. In this regard, thorough analysis was conducted by BASIP investigation team and conducted interviews of Supervisors, Technical and operational official of AFA. The observations on AP-BLL, SMS investigation revealed following: -

(a) During the occurrence of aircraft **AP-BLL**, the **runway remained blocked** following an **engine failure during landing**. It was noted that the **aircrew informed Air Traffic Control (ATC)** of the situation **via mobile phone** after attempting **four to five engine restarts**, instead of declaring the emergency through the **radio telecommunication (RT)** system as required.

(b) This deviation from standard communication procedures **delayed ATC awareness and emergency response coordination**. The investigation further suggests that the **failure to declare the engine malfunction on RT** may have been an intentional act to **avoid formal disclosure of the incident**, thereby **circumventing the requirement for an official entry** in the **aircraft technical and maintenance documentation**.

(c) Chief Engineer after verbal discussion with Chief Pilot, attempted startup which was successful while the Chief Pilot was either seating in cockpit or standing beside aircraft. There was **no external power utilized and aircraft started up in first crank** and all parameters were found within limits. The Chief Engineer did not consult any Aircraft and Engine Maintenance Manuals and neither seen tech log entry made by pilots before startup. Moreover, he is **completely unaware, when pilot defect entry related to engine failure was made on tech log**.

(d) During interviews, it has been observed and seems that the engine failure entry in the tech log was made by the aircrew after successful startup by Chief Engineer at State Apron.

(e) Post Engine failure, following maintenance were carried outs without any documentation: -

(i) Idle RPM has been adjusted to 850 RPM from 750 RPM well above idle parameters defined by OEM.

(ii) Spark plugs and injectors were cleaned. (picture shared in SMS report only).

(iii) Fuel contamination was carried out visually; however, no fuel contamination test was carried out from any laboratory. (picture shared in SMS report only).

(iv) Engine oil 8.5 liters have been changed as per entry made on separate register in placed in Tech store on 19-04-2025. Engine oil change entries neither document on aircraft log books nor on tech store Performa's.

(v) Engine oil filter has been changed.

(vi) It has been observed that above maintenance work were performed but were neither documented on aircraft various logbooks nor highlighted in SMS report. Moreover, no maintenance work sheet was devised.

(vii) All above maintenance works had been performed as per instructions of COO being the supervisor of AFA.

(viii) The aircraft test sortie has been conducted by 02 instructors on the instructions of COO & CFI on 28-04-2025. It is noteworthy that the test flight was carried out without the **clearance of the engine failure entry** recorded on 15-04-2025, which has not been cleared by Chief Engineer till date.

(f) Aircraft flew last sortie on 19-07-2025.

(g) On completion of engine hours of AP-BLO Engine serial # L-33957-51E hours, AFA management decided to cannibalize the AP-BLL Engine serial # RL-33823-51E on AP-BLO aircraft.

(h) The AP-BLL aircraft was grounded for temporary storage on 21-07-2025 whereas AP-BLL engine serial # RL-33823-51E was removed on 25-07-2025.

(i) Number of entries on AP-BLL aircraft maintenance log books and related tech store Performa's **were made in lead pencil** or have been **overwritten by ink pen** which is clear violation of PCAA instructions.

(j) There are only 02 pilot defect entries made on AP-BLL tech log since 02-01-2023. Out of which one related engine failure of 15-04-2025 and has not **been completed on tech log by maintenance officials till date**.

Cessna Aircraft Reg No AP-BLO (Engine Serial # RL-33823-51E)

71. As engine serial # L-33957-51E installed on AP-BLO has completed 2400 engine hours after extension. Engine serial # RL-33823-51E installed on AP-BLL was cannibalized on AP-BLO dated 26-07-2025. The engine tests and adjustments were conducted on 28-07-2025.

72. Immediately after engine installation on AP-BLO aircraft, the aircraft was cleared for flying by AFA maintenance team on 28-07-2025. The first sortie after engine change was a trainee sorties conducted on 31-07-2025 without any functional check flight.

73. During interviews, with various Instructors and trainee pilots, after installation of engine serial # RL-33823-51E on AP-BLO, the aircraft exhibited poor climb performance and under power aircraft. However, no pilot defect entries were made on tech log, regarding poor performance of aircraft.

74. During scrutiny of AP-BLO documents following were observed: -

(a) Number of entries on AP-BLO aircraft maintenance log books and related tech store Performa's were made in lead pencil, overwritten by ink pen on few lead pencil entries, correction with white ink erasers and overwriting without any authorized signature, which is clear violation of PCAA instructions.

(b) Error found in hours calculations on Engine and tech log book.

(c) There are only 03 pilot defect entries made on AP-BLO tech log since 25-03-2024. 02 entries relate to main tyre failure and 01 entry related to PTT button intermittent. Till date, **01 tyre change entry on tech log has not been cleared by maintenance officials**. Moreover, it has been observed, a lot of maintenance work is being conducted on verbal entries.

(d) During Certificate of Airworthiness, number of observations were highlighted by Airworthiness inspector, which were subsequently made on tech log and were cleared. These entries as highlighted by inspector should have been made by either aircrew or maintenance official as they were part of daily routine maintenance and flying.

75. The Daily Check list formulated is confusing and haphazard which may lead to missing steps. The check list is unsafe to follow as it may lead to damage to either aircraft or personnel during the said inspection.

76. Chief Engineer is also performing the role of CAMO and has to manage two offices one at Rawalpindi Headquarters and the other at IIAP.

77. Maintenance personnel are performing maintenance tasks by memory rather than following the work packages / AMM.

78. Technicians without B1/B2 certification were given training after induction but lacked formal authorization (documentation) to work at flight lines.

Operational Aspects

79. The Cessna-172 aircraft Reg. AP-BLO y for training purposes at Islamabad International Airport. The mission scheduling was done a day in advance. Both instructors and trainee pilots reported AFA flight lines at IIAP at designated time.

80. The accident flight was a Instrument Flying (Day/ Night) training sortie with one instructor pilot and one trainee pilot on board.

81. Time between 3rd mission switch off at state apron to 4th sortie start up call is **13 mins & 11 sec**. Appox, it took 01 min walk from aircraft to flight lines thus leaving appox **12 mins**.

82. Time available to debrief 3rd sortie trainee pilot, briefing to 4th sortie training pilot and refreshment within 12 mins. However, 3rd trainee pilot was instructed to wait at flight lines for debrief after 4th mission. Due to paucity of time, a nonstandard briefing was conducted for the 4th mission. Moreover, as per IP statement, mission brief was conducted on available charts pasted in briefing room included taxi, take off, exercise, ILS practices and emergencies. However, there is no ILS chart available in briefing room and emergencies were not briefed. Furthermore, briefing room is in totally in shabby condition.

83. Following entries on authorization books, pilot log books and tech log wrongly documented: -

(a) A single sortie flown by Instructor and trainee pilot has been converted to Dual and Solo missions on tech log, authorization book and pilot log books without conducting full stop landing and flown on single flight plan as per ATC record.

(b) Solo missions of trainee pilots are being supervised by instructor pilot while on board in the aircraft during flying, however, are being marked as solo missions in tech log, authorization book and Pilot log books.

(c) It has been observed that after the conduct of 02 Flight Standardization Check, the missions have been converted to CPL renewal missions of PCAA flight inspector as agreed by AFA management. Moreover, another Nav flight standardization check mission was flown by PCAA flight inspector from OPIS to OPLA including a full stop landing at OPLA. This mission has been documented from OPIS to OPIS in authorization book, tech log and pilot flying log books. Moreover, the Nav mission flown by trainee pilot from OPLA to OPIS has also been documented as OPIS to OPIS. ATC record confirms both sorties.

84. During interviews with Instructor Pilots (IPs) and trainee pilots, it was observed that their understanding of basic aircraft systems and emergency procedures was below the expected standard. In addition, they exhibited inadequate familiarity with the topography surrounding IIAP, which is critical for situational awareness and terrain utilization during emergency operations.

85. Start-up clearance from ATC is obtained from RT set placed at flight lines.

86. The investigation determined that barometric settings on the standby altimeter were not being consistently adhered to. During the subject occurrence flight, a discrepancy was noted between the actual prevailing pressure (29.56 inHg) and the altimeter setting in use (29.40 inHg), indicating non-compliance with standard operating procedures and altimeter setting practices.

87. During investigation it has been observed that the Time-Bar Training syllabus is not being fully implemented by the organization, indicating a gap in the execution of the approved training program and oversight of instructional compliance.

88. It was further noted that GDU 1040 (Garmin Display Unit) data was not being extracted or utilized for post-mission debriefs, reflecting inadequate use of available flight data for performance monitoring and safety analysis.

Flight Safety Aspects

89. The flight safety is conducted by supervisors with minimal participation of trainee pilots and technical staff. Furthermore, the trainee pilots and technical staff are unaware of flight safety meeting leading to limited situational awareness and communication gap in organization.

90. The fuel bouser for 100 LL fuel is parked within 20 ft of the flight line container during the day and under a shed during night, violating the 50-ft safety bubble. No “Inflammable” or “No Smoking” warning markings were not displayed on the bouser.

PCAA Audit Report

91. During the review of PCAA audit reports, it was observed that the audit findings were generalized and did not address several significant deficiencies. In particular, no observations were recorded concerning following:-

(a) Lead pencils are being utilized for entries in aircraft and technical documentation.

(b) Uncleared aircraft defect entries in technical logbooks.

(c) Expired consumable items retained in the technical store.

(d) Missing or altered entries (including lead pencil use) in technical store Performa’s.

(e) Improper supervision of solo missions, including instances where single sorties were converted into dual or solo flights without proper authorization.

(f) Flight Safety Meetings were found to be conducted primarily by supervisors, with minimal participation from trainee pilots and maintenance technicians, thereby limiting engagement in safety management practices.

92. An in-depth and meaningful PCAA audit process is recommended to identify organizational shortcomings for safe flying operations.

Air Traffic Services Aspects

93. Administrative delays were observed in the processing and renewal of airport entry passes. Air Traffic Controllers reported that short-validity passes require frequent re-application and involve extended processing times.

94. On the day of the occurrence, the on-duty Aerodrome Controller arrived at the airport at 0300 UTC (0800 PST) for the morning shift but was unable to proceed to the operational area due to an expired airport entry pass. He had to wait for the issuance of a temporary one-day pass.

95. In order to avoid a recurrence of similar inconvenience the following day, the duty Air Traffic Controller voluntarily extended his duty hours by mutually exchanging the afternoon shift with another controller, who agreed to compensate the duty on the subsequent day. Both controllers performed extended duty hours with the consent and approval of the Chief Operations Officer (COO).

96. Shortage of ATCOs within the ATC unit at IIAP led to informal duty exchanges to manage leave requirements, resulting in extended duty hours and increased likelihood of stress and fatigue.

97. The ground controller provided start-up clearance and taxi instructions, and also issued the take-off clearance on the ground frequency. The aircraft was not transferred to the aerodrome (tower) frequency, and no coordination was recorded with the Approach Controller or the Team Leader regarding combining the ATC positions or the use of a single frequency.

98. Emergency checklists, were not prominently displayed / placed at the ATC units. As a result, controllers relied on recalling procedures from memory, increasing the risk of critical steps being omitted during time-sensitive situations. It was also observed that most of the emergency actions were being reiterated to the Aerodrome & Ground Controllers by the duty Approach Controller, indicating a probable lack of knowledge, familiarity, or timely execution of the prescribed emergency procedures.

99. Information regarding the aircraft accident was relayed to BASIP by Ministry of Defence rather than being directly communicated by the IIAP authorities.

100. An independent Team Leader position has been established at ACC IIAP; however, it is not being effectively utilized by the IIAP authorities. Instead, the senior-most controller on duty is routinely designated as the Team Leader. Assigning dual responsibilities—that of duty controller and team leader—may adversely affect situational awareness and compromise the safe and effective management of air traffic operations.

101. During the occurrence, Air Traffic Control (ATC) established contact with Qasim Base, the designated Search and Rescue (SAR) facility. Simultaneously, the Approach Controller instructed another civil training flight (Cessna AP-BIX) to conduct a visual search for the missing aircraft. Such tasking of uninvolved civil aircraft does not conform to ICAO-approved Search and Rescue (SAR) procedures, and may expose uninvolved aircrew to unnecessary operational and safety risks.

102. All navigational aids at IIAP were serviceable and no GPS anomalies were reported.

103. Communications between the crew and ATC were clear and no irregularities in radiotelephony were noted.

104. The aircraft's Emergency Locator Transmitter (ELT) was found transmitting; however, no signal was displayed on the SUPARCO Search & Rescue (COSPAS-SARSAT) system at the Rescue Sub-Centre until three days later, with a positional offset of approximately 5-6 NM from the crash site.

105. Duty ground controller at the time occurrence, basic ATC knowledge was below average and require refresher training.

106. Delays / cancellation of flying club operations were observed due to airspace management constraints at IIAP, requiring improved coordination to facilitate flying club activities.

Administrative Aspects

107. The investigation team noted that **CCTV cameras had been installed at the AFA flight lines**; however, upon inquiry by BASIP, it was revealed that the cameras had been removed—most likely immediately following the AP-BLO incident. It was further observed that while most **maintenance and administrative personnel were aware of the existence of these cameras, they were unaware of the circumstances and timing of their removal**, indicating a lapse in administrative transparency and oversight.

108. It was observed that only a **single washroom** facility was available at the flight lines for **both male and female personnel**, which is inadequate and not in accordance with standard workplace provisions.

109. The investigation identified **delays in the transportation** arrangements between the terminal and the flight lines hampers mission briefing and flight operations.

110. Administrative delays were also observed in the processing and renewal of airport entry passes. Such delays **caused operational disruptions** for AFA officials and ATCOs, resulting in **avoidable gaps in flying schedules** and **extended duty hours for air traffic personnel**.

Crash Flight Analysis

111. A total of four training missions were scheduled for the day, involving two instructor pilots (IP) and four trainee pilots (TP). The first two missions were conducted by one instructor with two trainee pilots, while the subsequent two missions were schedule with second instructor pilot (IP).

112. As per the filed flight plan, there were two persons on board (01 IP & 01 TP) on the mishap flight. The plan departure time was **123000** hours for **02** hours trainee flight having fuel endurance of **4.5** hours. However, actual departure time was **133100** hours.

113. The instructor pilot reported for duty at the AFA flight lines at approximately **1000** hours and commenced his first training mission with 3rd trainee pilot of the day at **113500** hours in aircraft AP-BLO.

114. The 4th trainee pilot of the day arrived at the airport at approximately **120000** hours, submitted the flight plan at the Pre-Flight Information Unit (PFIU), and thereafter proceeded to the flight lines at around **122500** hours and waited at flight lines as the instructor pilot was still airborne on his first sortie of the day.

115. The instructor pilot, after completing his first mission returned to the state Apron at **130132** hours, and left aircraft at **130236** hours and reached flightlines at **130330** hours. He took a break and also conducted informal mission brief within 12 mins. Due to paucity of time, 3rd trainee pilot was directed to wait till end of flight and a nonstandard briefing was conducted with 4th trainee pilot. Moreover, as per IP statement, mission brief was conducted on available charts pasted in briefing room included taxi, take off, exercise, ILS practices and emergencies. However, there is no ILS chart available in briefing room. It seems that no formal briefing was conducted for the 4th mission.

116. The trainee pilot requested start-up at time **131547** hours from the **RT set available at flight lines** and start up clearance was given at **131647** hours by ATC. After obtaining start up clearance, instructor and trainee pilot left flight lines for aircraft to conduct pre-flight at **131744** hours. Taxi clearance was obtained at **132329** hours and aircraft taxied out at **132410** hours from state apron for holding point RWY 28R.

117. The aircraft was given line up and **take off clearance on ground control frequency** by ground controller at **132923** hours (assuming no traffic in the vicinity and without the permission of aerodrome controller, who was busy in taking tea in the tower at his control position). The aircraft took off at **133015** hours on ground control frequency with trainee pilot as PF and instructor as PM.

118. The aircraft plan was to climb to 4500 feet after takeoff, however, shortly just after airborne at **133148** hours at **275 ft AGL** (2033 ft ind) after raising flaps, both pilots experienced engine failure with RPM windmilling and the aircraft **ground speed dropped from 80 to 69 knots** and **altitude from 275 to 240 ft AGL.**

119. At **133149 hours**, the Instructor Pilot (IP) immediately assumed control of the aircraft and executed a **slight zoom**, while simultaneously transmitting a **"MAYDAY" call at 133151 hours**. Air Traffic Control (ATC) responded that **both runways were available** for an emergency landing.

120. Assessing that the aircraft had reached the end of the runway and that **a turn-back was not feasible due to insufficient altitude**, the IP initially **turned left by approximately 16°** to

search for a suitable landing area on the left side of the flight path. Observing **no suitable open field**, the IP then **selected a nearby agricultural field** located **to the right of the extended runway**, beyond the **airport perimeter fence**, and subsequently **turned twice towards right by approximately 48° (22° + 26°)** to align itself with the field for a forced landing.

121. During the zoom maneuver, the aircraft **attained a maximum altitude of 333 ft AGL (2084 ft indicated)** at **133158 hours**, i.e., **within 11 seconds of engine failure**. The **ground speed decreased to 69 knots**. At the **apex of the zoom (133158 hours)**, a **distinct nose-down attitude** was observed, indicating that the **airspeed had reduced below the recommended glide speed of 65 KIAS (flaps up).**

122. At **133214 hours**, the **glide path began to shallow**, resulting in an **altitude loss of approximately 103 ft**. At this time, the aircraft was **1081 ft from the beginning of Runway 10L**, at an altitude of **250 ft AGL** (**368 ft AGL relative to the crash site elevation of 1624 ft AMSL**). The **ground speed gradually decreased from 69 knots to 44 knots** till touchdown.

123. During the zoom and subsequent descent, the Instructor Pilot **attempted 04 engine relights within 35 seconds**, all of which were **unsuccessful**, and the **engine did not restart**.

124. Once sure of landing, full flaps were taken and concentrated on force landing. The agriculture field was wet and soft due to recent rainy spells. The aircraft touch down in **left bank with left main wheel at 44 knots (ground speed)** followed by the **right main wheel approximately 12.9 feet later**. During landing roll, aircraft bounced alternately on the left and right main wheels as per wheel tracks marks and fragments of wing tips were found along the track. After travel of **70 ft** on landing roll within **1.88 second**, the aircraft toppled due raised ground and nose wheel tilted rearward and arrested within **04** feet **(total 74 ft from first touchdown)**.

125. The instructor pilot egressed out of aircraft and seeing the fuel leakage, re-entered the cockpit and carried out safety checks by switching off electrical and fuel supplies. During this period, the Trainee Pilot (TP) remained strapped inside the cockpit due to a **jammed harness** lock. After completing the safety checks, the Instructor Pilot assisted the Trainee Pilot in evacuating the aircraft.

126. **No fire** was observed during flight and post-impact.

127. Both pilots were found conscious at the accident site with no major injuries. Toxicological screening showed no evidence of alcohol or illicit drug use. There were no fatalities or injuries to any person or animals on the ground.

Observations on Operational Assessment

128. It has been observed that engine failure immediately after take-off and the forced landing (emergency landing without engine power) checklist was not fully executed.

129. At the time of the engine failure **(133148 hour)**, occurring at **275 ft AGL with 69 kts (ground speed)**, the remaining runway length ahead of the aircraft was **4321 ft**. With additional **400 ft** of prepared undershoot, the total length available to conduct effective forced landing was **4721 ft**.

130. Keeping in view the uncertainties in pilot technique, runway surface condition, and braking efficiency, the aircraft, which zoomed after engine failure and was approximately **240 ft AGL at 69 kt (groundspeed)** at that time, could have achieved a full-stop landing (glide plus ground roll) within **2,100–3,700 ft** of horizontal distance had the pilot immediately executed the **POH "Engine**

Failure Immediately After Takeoff" forced-landing procedure. The calculation assumes initiation from **240–275 ft AGL** in either **flaps-up** or **flaps-30°** configuration. Therefore, the available runway length, including the **prepared 400-ft undershoot area**, was sufficient to bring the aircraft to a complete stop.

Figure 21- RW LENGTH AVAILBLE

131. Moreover, the aircraft touched down with the fuel and ignition switches remaining in the **'ON' position**, thereby exposing both pilots to a potential fire hazard. Furthermore, during post-accident interviews, both pilots demonstrated inadequate familiarity with the safety checks (memory items) prior to forced landing procedures prescribed in the Pilot Operating Handbook (POH).

132. Additionally, it was noted that **emergency egress procedure** is not formally practiced in AFA and are also not being consistently emphasized during mission briefings.

133. It has also been observed that both pilots were not in prescribed flying uniform at the time of the occurrence. The Trainee Pilot was found to be wearing loose clothing and sandals during the flight while the IP was wearing Tea shirt and jeans with joggers.

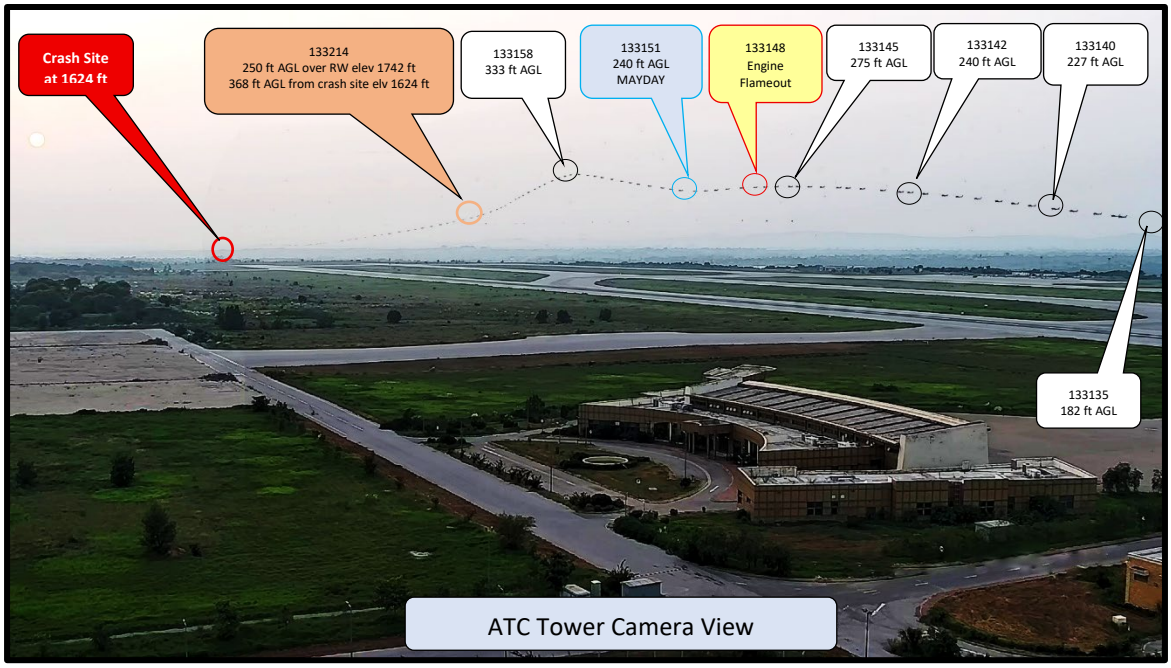
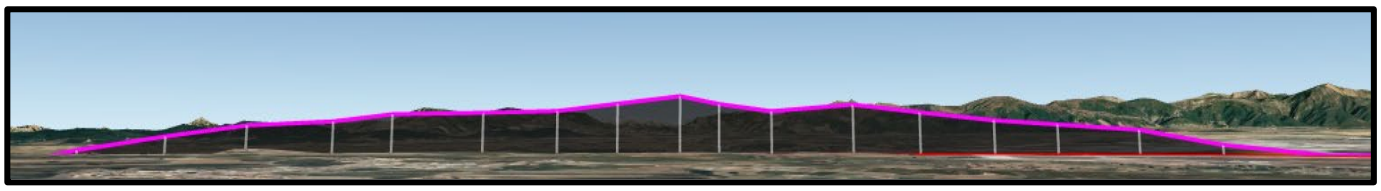


Figure 22- CCTV footage of AP-BLO during Take-off



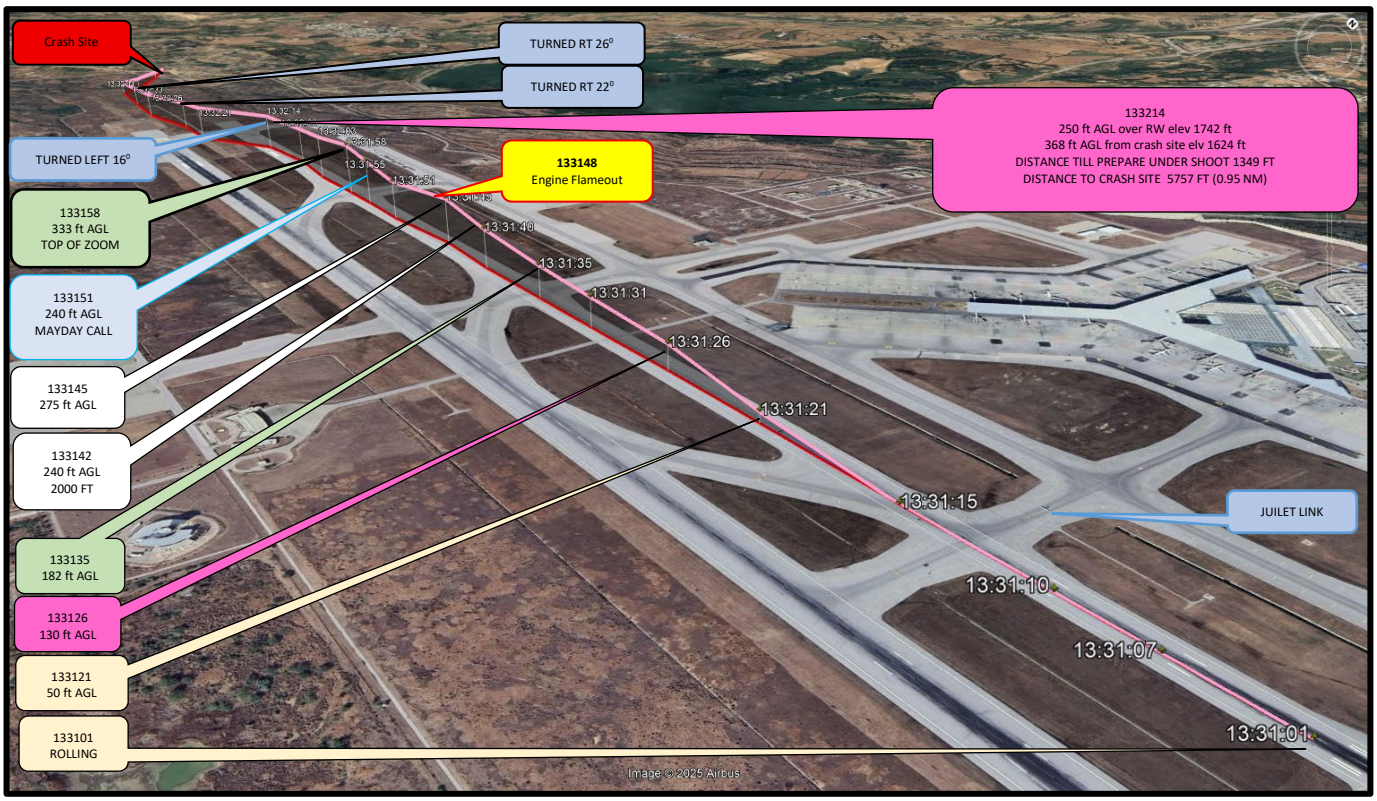


Figure 23- AP-BLO Flight Path trajectory (3D)

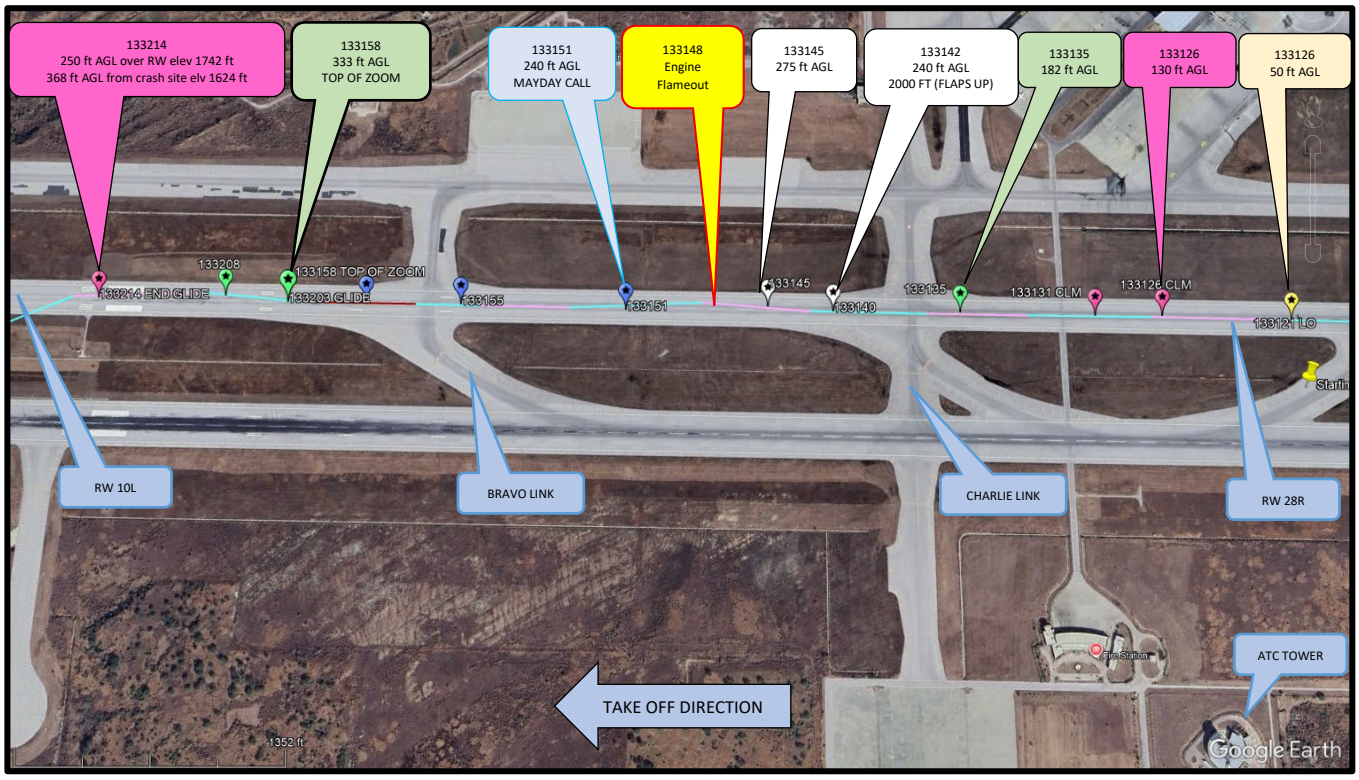


Figure 24- AP-BLO Flight Path trajectory (2D)

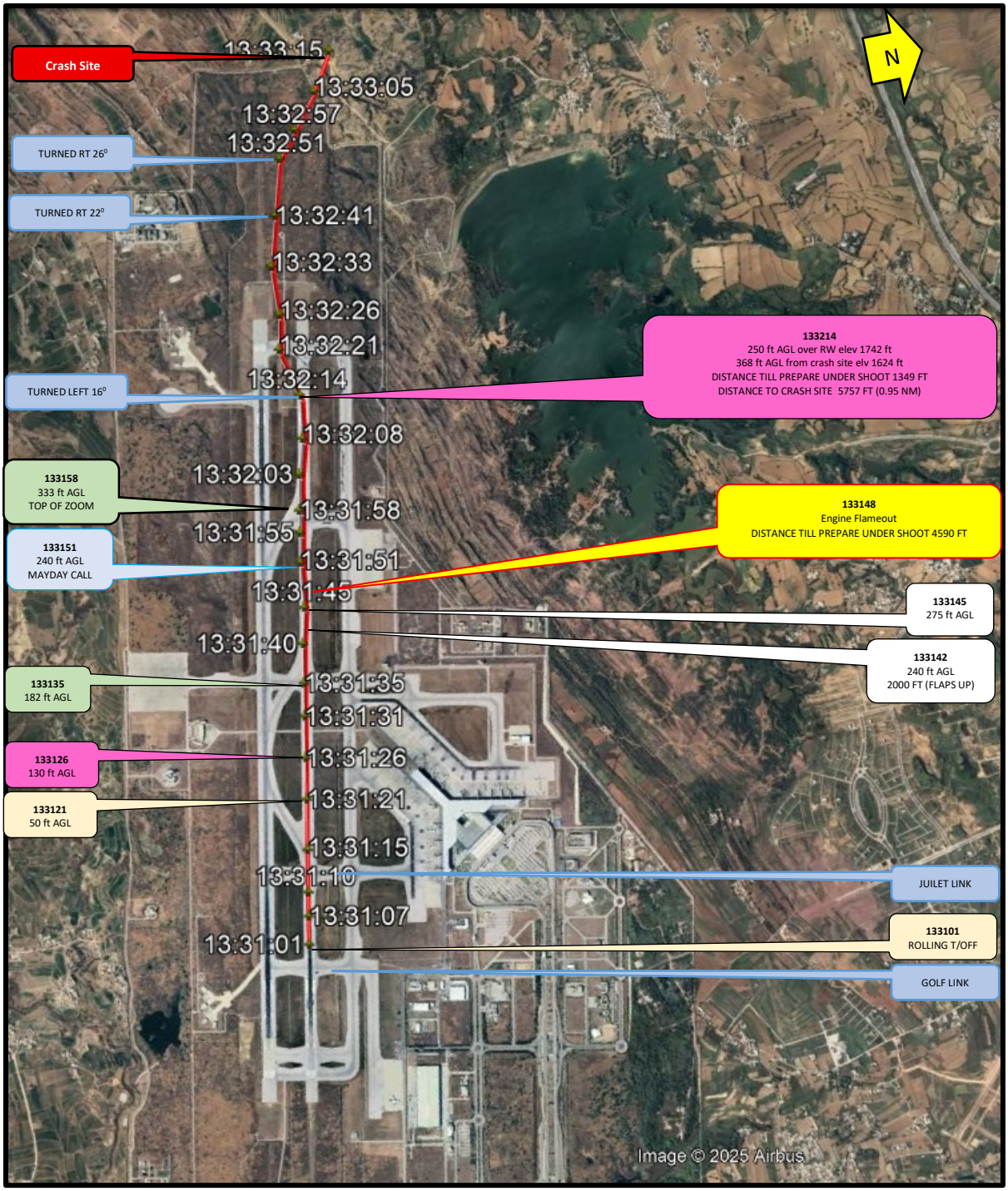


Figure 25 - AP-BLO Flight Path trajectory (Take-off to Crash Landing)

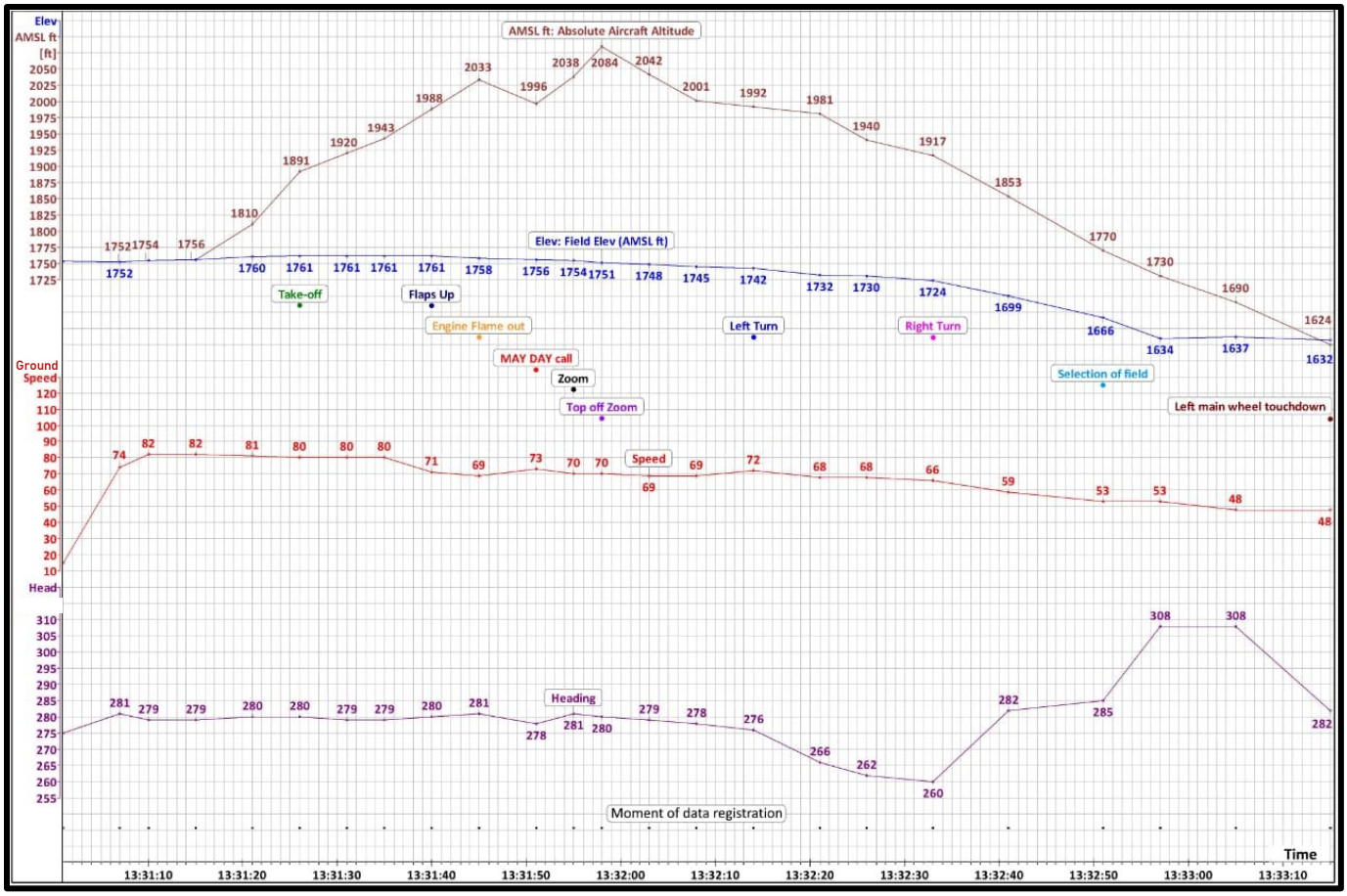


Figure 26 - AP-BLO Flight Path Parameters (Take-off to Crash Landing)

Safety Analysis

Technical

134. The engine change entries were initially made in pencil and later overwritten in pen.

135. Aircraft documentation revealed lead pencil entries in both aircraft engine logbooks and tech store Performa's constituting a clear violation of PCAA regulations.

136. Examination of the aircraft technical logs showed incorrect flight entries (departure/arrival) and very few recorded malfunction entries, suggesting possible administrative pressure on pilots and maintenance crew to avoid recording technical issues, thereby undermining defect tracking and timely maintenance.

137. The daily inspection checklist lacked a defined sequence and was not practically implemented.

138. Technicians without B1/B2 certification were inducted and provided informal training but lacked formal authorization.

139. No functional check flight was conducted after engine change and the aircraft was released for training flying.

140. Chief Engineer is also performing the role of CAMO and has to manage two offices one at Rawalpindi Headquarters and the other at IIAP.

141. The fuel bowser for 100LL fuel was parked within 20 ft of the flight line container during the day and under a shed at night, contrary to the required 50 ft safety clearance. No “Inflammable” or “No Smoking” markings were displayed on the bowser.

Operational

142. Ground training of student pilots was found unsatisfactory. Trainee pilots lack application knowledge of trim sheet, safety checks prior to force landing, basic knowledge of aerodynamic forces and etc.

143. Start-up calls were sometimes made from outside the aircraft instead of from within the cockpit, contrary to standard operating procedures.

144. Mission briefing and ground training practices were inconsistent and lacked standardization.

145. A single sortie flown by Instructor and trainee pilot has been converted to Dual and Solo missions on tech log, authorization book and pilot log books without conducting full stop landing and flown on single flight plan.

146. Solo missions of trainee pilots are being supervised by instructor pilot while on board in the aircraft, however, are being marked as solo missions in tech log, authorization book and Pilot log books.

147. Flight Safety meeting conducted in isolation among supervisors.

Air Traffic Management

148. The ground controller provided start-up, taxi, and take-off clearance on the same (ground) frequency. The aircraft was never transferred to the aerodrome (tower) frequency.

149. Emergency checklists were not displayed prominently at ATC units, resulting in reliance on memory and increasing the risk of omission of critical actions.

150. An independent Team-Lead position has been established at ACC IIAP but was not effectively being utilized.

151. During the occurrence, ATC contacted Qasim Base (the designated SAR facility) and concurrently instructed another training flight (Cessna) to conduct a visual search for the missing aircraft. **Such tasking of uninvolved civil aircraft may expose them to additional risk**.

152. The aircraft’s Emergency Locator Transmitter (ELT) was found transmitting; however, no signal was detected on the SUPARCO Search & Rescue (COSPAS-SARSAT) system until three days later, with a positional offset of approximately 5-6 NM from the crash site.

Organizational / Administrative

153. Administrative delays in the processing and renewal of airport entry passes.

154. Staffing shortages at the unit level led ATC controllers to arrange informal duty exchanges to manage leave requirements, **resulting in extended duty hours and increased fatigue risk**.

155. During the course of the investigation, it was observed that a representative of the Airworthiness Directorate was detailed to conduct an investigate / audit of Askari Flying Academy without prior coordination or approval from BASIP. This unplanned activity resulted in overlap and hindered the progress of the ongoing aircraft accident investigation being conducted by BASIP.

Way Forward

156. Further course of investigation includes **Engine tear down examination at OEM facility USA**, **wreckage analysis**, **decoding GDU 1040 (SD card data)**, **review of operational, maintenance records** and interview of witness(s) to determine the exact cause of occurrence. Subsequently preparation of draft and final investigation report for public release.

Summary

157. This Preliminary Report is issued in accordance with ICAO Annex-13 para 7.1 and 7.5. This report provides facts which have been determined up to the time of publication. It will be followed by advanced analysis into the root causes and a draft final investigation report shall be compiled, which would be further disseminated to the ACCREPs in accordance with the relevant provisions of the ICAO Annex-13. After the comments by the ACCREPs the Final Report shall be released.