

(SAFETY & INVESTIGATION BOARD)
PAKISTAN CIVIL AVIATION AUTHORITY

AIRCRAFT ACCIDENT INVESTIGATION REPORT

CRASH OF CESSNA-172 AP-BFO NEAR SIALKOT ON 25 APRIL, 2004



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Authority Ministry of Defence Government of Pakistan letter # AT-8 (II)/2004 dated 12 May, 2004 (Appendix 'A').

Accident Notification

On notification of accident Director General Pakistan Civil Aviation Authority nominated investigators vide HQCAA/1901/291/SIB dated 30 April, 2004 (Appendix 'B').



Synopsis

1. On 25 April, 2004 privately owned Cessna-172 AP-BFO was proceeding from Walton, Lahore to Rajax Airfield, a private airfield of aircraft owner located 50 nm North of Lahore near Sialkot. It was the first aircraft operation to Rajax Airstrip; therefore, wide media coverage was organized by the aircraft owner. The owner of the aircraft / airstrip and newly hired Captain along with a technician were on-board the mishap flight. On arrival at Rajax Airstrip Captain made a low-go and then made two attempts to land till touch-down followed by go-round. After second touch-down and go-round the aircraft made a descending left turn with about 45° bank and impacted the ground after turning 60° at a distance of 1450 ft from airstrip. The occupant on the left seat, the owner of the aircraft / airstrip, was fatally injured in the crash and other two occupants suffered moderate injuries. The accident was video recorded and made available to SIB by a private television company.

Aircraft History

2. AP-BFO Cessna-172 was manufactured in 1956 and imported to Pakistan in June, 1998. At the time of import aircraft had flown 3623:00 hours and engine had done 356:00 hours. The aircraft had flown barely 10 hours since June, 2001. Only a day before the accident Certificate of Air worthiness was completed. During C of A test flights no major discrepancies were observed and minor snags were rectified before the mishap flight. The aircraft weight increase by 44 lbs after four years on second weighing without any add-on modification/ installation (Appendix 'C') .On the mishap flight the aircraft intercom was unserviceable. The aircraft documents show no accident history.

3. **Aircraft Details**

Registration # :	AP-BFO
Certificate of Air Worthiness :	24 April, 2004
Airframe Hours :	3719:10 hours
Engine Hours :	452:10 hours
McCanley VP Propeller Hours:	24:40 hours
Dry Empty Weight :	1425 lbs
Engine Type:	Continental O-300-A

4. **GENERAL DESCRIPTION CESSNA R-172.** Cessna Model R-172 Series aircraft is high-wing monoplane of all metal, semi-monocoque construction. The aircraft is equipped with a fixed tricycle landing gear with tubular spring-steel main gears struts. The nose gear steer is equipped with an air-hydraulic fluid shock strut. Standard seating accommodations consists of two reclining pilot and co-pilot seats and dual bench-type centre seats. A fold-up auxiliary rear seat is optional. A baggage area is provided aft of the centre seats when the auxiliary seat is folded up. This aircraft is powered by a Continental O-300-A six-cylinder, horizontally opposed, air-cooled, fuel injection engine, driving an all metal, constant-speed propeller. The aircraft features a swept back fin and rudder.

Gross weight:	2200 lb
Fuel capacity:	Total 42 gallons Usable 37gallons
Wing flap travel:	0-40 degrees
Elevator Travel:	Up: 28 degree Down: 23 degree

5. **Principal Dimensions**

Wing Span (with Strobe Lights):	35' 9"
Track Width (Tubular Spring):	8' 1.6"
Tail Span:	12' 3.14"
Length:	27' 3.14"

6. **Basic Performance**

a. **Stall Warning Indicator**, A stall warning indicator is mounted on the back of the glove compartment box, next to the firewall. This instrument gives C-172 full and complete protection from inadvertent stalls. It gives warning whenever a stall is approached regardless of speed, attitude, altitude, acceleration or other factors which change the stalling speed. The stall warning horn is adjusted to give an audible warning approximately 5 mph above the normal straight ahead stalling speed. Other attitudes and speeds provide a wider margin. Usually no warning will be evident on a properly executed landing because the Indicator takes the ground effect into consideration.

b. **Speeds**

Take off Speed Maximum Weight	69 mph IAS
Take off Distance Sea Level	725 ft
Take off Distance Sea Level 50ft Obstacle Clearance	1650ft
Landing Speed 2200 lbs 40° Flaps Sea Level	64 mph IAS
Landing Distance 40° Flaps Sea Level	680 ft
Landing Distance on Grass /gravel runway	40% Increases
Stalling Speed 2200 lbs 10° Flaps	58 mph TAS
Stalling Speed 2200 lbs 40° Flaps	52 mph TAS
Stalling Speed 2200 lbs 40° Flaps 40° Bank	59 mph TAS
Stalling Speed 2200 lbs 40° Flaps 60° Bank	73 mph TAS
Stall Horn Blows 5mph in 01 G and 5-10 mph in manoeuvre before Stall	

7. **General Description Of Engine Cont. O-300-A.** An air-cooled, wet-sump, six-cylinder, horizontally- opposed, Continental O-300-A engine, carburettor equipped fuel injection, is used to power the aircraft. The engine features include valves, with individual rocker box covers for each valve. The intake ports are located on the opposite side of the cylinders from the exhaust ports. An oil cooler is located at the rear (accessory case) end of the engine on

2-4-6 side. The subject engine does not comply with the requirements of Airworthiness Notice # 43 para 3.2 dated 01 September, 2003 i.e. complete history of engine life (Engine Tags) since new/ overhaul not available, yet, the engine was given 50 hours /06 month extension. There are no such provisions given by the engine manufacturer.

Model	Continental O-300-A
BHP at	145
Max RPM	2700 rpm
Number of cylinders	6-horizontally opposed
Displacement	360 Cubic Inches
Propeller Direction of Rotation	Counter clockwise.

8. **Maintenance Schedule.** Revised maintenance schedule of Cessna 172 series aircraft was approved by Director Airworthiness vide # HQCAA/2210/74/AW dated 03.11.2003. Last weighing of the aircraft was carried out on 27.12.2002, which is valid till 27.12.2004. Empty dry weight of the aircraft was 1425 Lbs. The MEL on the said aircraft is not approved. The PCAA file on aircraft history shows variations in aircraft dry weight for no apparent work and incorrect fuel capacities (Appendix 'C'). Further more, the Log Book maintained by the Operator has lot of discrepancies in write-ups, which seem only a copy of previous inspection readings and absence of actual inspections. So much so that the C of A forms of another aircraft were amended in pencil and placed in the documents of mishap aircraft (Appendix 'D'). The engine was given 50 hours /06 month extension, although, there are no such provisions given by the engine manufacturer and there is no such precedence in PCAA (Appendix 'E').

Crew Information

9. The Pilot in Command was Captain Yasir Munir. He completed initial flying training in USA and attained CPL and Instructor Rating with 350 hours flying experience when he received Pakistan Civil Aviation Certificate of CPL. During a

Flight Check for Instructor Rating of Captain Yasir in June, 2003, General Manager General Aviation made an observation "Captain Yasir Munir dropped speeds on final approach to dangerously low levels". (Appendix 'F'). Mr. Asif Mahmood Shiekh, owner of the aircraft occupied the left seat, held Student Pilot License, since 21 August, 1995; however, he was medically down-graded due to Cardiac problems in March, 2001. His flying hours record is neither available with PCAA, nor it could be ascertained from other sources.

Pilot in Command

CPL # 2521	Class- A
Total Flying	1150: 00 Hrs Approx
Type Flying	700:00 Hrs Approx
Instructor Rating	F1
Type Ratings	C-150, C-152, C-172

WRECKAGE REPORT

10. The aircraft was crumpled forward to rear due to left part of the nose taking the major impact in about left 40⁰ bank side-slip before coming to rest. The entire structure was in one piece except the glass window panes, however, nose landing gear and propeller separated due to coming in contact with the ground 40 feet and 30 feet respectively before the main impact. As the impact was at shallow angle and in about 40⁰ bank, therefore, left engine cowling took the main impact at 30-40⁰ angle in azimuth and 10-15⁰ in vertical. Resultantly, the engine mount broke and engine was moved in the cockpit at same angle.

Nose The 04 ft nose, housing the engine, was completely smashed and engine was exposed. Major portion of the engine and instrument panel had moved inside the Cockpit and rested on left seat.

Engine The propeller was detached from the engine after coming in contact with ground 40 ft before main impact. The oil sump was broken,

the main block was cracked and; fuel lines and carburettor was damaged.
The generator and electrical lines were damaged.



Fuel tanks. Both the fuel tanks had leaked due to the opening of welded-lining under impact force.

Wings. Left wing leading edge first came in contact with ground and wing tip was bent about 2 ft from the tip. However, due to the unlevelled ground the left leading edge also took the impact after the nose; and separated at half-chord length from the fuselage. During the cart-wheel impact motion right wing leading edge was also bent but it remained with the fuselage. Both the wings showed even-flaps deflation to 40° .

Fuselage All the frames and ribs of main fuselage had either bent/buckled or separated from the skin. The skin was wrinkled progressively towards tail, while front fuselage skin separated from different parts.





Control Links/surfaces All control cables were intact; however, levers' and pulleys' at transmission points from control columns were bent or separated. The ailerons, rudder and elevators had free movement until restricted by impact deformation of mounting frames.

Cockpit All the plexi-glass windows and wind screen were shattered. The nose of the aircraft i.e. engine and instrument panel had moved in at 45° angle into the Cockpit. The left pilot seat had shifted backward and Control Column had penetrated the occupant's chest. The right seat control column also moved but in at an out ward angle. The rudder pedals of both seats were dislocated from the cockpit floor.



11. **Injuries/Fatalities** The left pilot seat occupant suffered fatal injuries. The right pilot seat occupant suffered injuries on both legs and left arm along with bruises and cuts on face and both hands. The third occupant on passenger seat had left arm fracture and many bruises/cuts on the face and body.

Organisation / Training

12. The mishap aircraft was used for private operations only by the owner. The aircraft was being maintained by Lahore Flying Club; however, flying operations were conducted independently on the discretion of the owner who did not have aviation background. During the period of ownership since June 1998 several pilots were hired to fly the aircraft as instructor / captain by the owner. The Captain of mishap flight was employed only three days before the accident, however, no record of employment / contract was signed. Captain Yasir, the PIC of mishap flight, was an instructor pilot in Rawalpindi Flying Club before this employment.

Flight Planning

13 A day before the accident PIC of mishap flight flew test flights for C of A with another Pilot of Lahore Flying Club. In those flights Captain Yasir practiced a number of short landings at Walton, Lahore, which is a paved runway. Before the mishap flight Captain Yasir also visited Rajax airstrip by road. He oriented himself with the surroundings and briefed the personnel manning Rajax airstrip owned by Mr. Asif Sheikh. He planned to use last 850 ft length of runway on an otherwise 1250 ft length. The decision was taken due to inadequately compacted surface in the beginning. In view of shorter runway length available for landing and stopping the aircraft, the Captain practiced short landing at Walton airport a day earlier at the end of two flights for C of A. PIC assumed that he stopped the aircraft in 500-550 ft, however, witnesses' accounts give 700-800 ft runway length in bringing the aircraft to a full stop at an elevation of about 650 ft.

14. Flight Plan was filed and meteorological briefing was obtained before the mishap flight in early morning hours. It was planned to be a round trip Lahore-Rajax-Lahore. It included one hour stop at Rajax Airfield. The time of flight for the round trip was 2:00 hours for an endurance of 4:00 hours. There were three souls on board, including PIC. The estimated time of departure was 0600 hours.

15. **Landing Performance.** At sea level and standard atmosphere the landing roll distance as given in performance charts, is 680 ft on paved surface. Furthermore, 50 ft obstacle at the beginning of the runway increases the runway length requirement to 1115 ft and landing roll increases by 40% on grass/field runways i.e. 950 ft and 1560 ft with 50 ft obstacle in the undershoot. These details are worked out for 40° flaps and no wind conditions (Appendix 'G').

16. **Take off Performance** In maximum all up weight at sea level and standard atmosphere the paved runway length required for take off is 725 ft and for a 50 ft obstacle clearance the requirement increases to 1650 ft with 600 ft/min rate of climb at 75 MPH IAS. The speeds and desired rate of climb can be achieved with zero flaps only. The take off roll increases by 50 ft with each 10°C higher than standard temperature. Furthermore, take off from dry grass/field runway increases the ground roll by 15% (Appendix 'H').

Flight Profile

17. The departure from Lahore was delayed by 45 minutes due to intercom failure. The snag could not be rectified and it was decided by the Captain to proceed without intercom. The communication in Cessna-172 Cockpit is possible without intercom during flight. Captain opted to fly from the right seat and the aircraft owner Mr. Sheikh, holder of Student Pilot License, occupied the left seat. As planned, aircraft took off 0643 and climbed to FL 045 and proceeded to destination via Gujranwala. At 0719 mishap aircraft descended to FL 035 and then FL 025 with ATC clearance and, this was the last radio communication with Lahore. The radar recording shows that aircraft was at FL 045 when 12 nm out

of Lahore at 0653 PST and radar contact was lost at 0701 PST when 23 nm. At 0713 PIC inquired for confirmation of position over Gujranwala and the ETA for destination to be 0735; after 2 minutes aircraft reported 44 nm out of Lahore.

18. The Aircraft approached over Rajax Airfield about 10 minutes earlier than estimated. First, an orbit over Rajax Airfield was executed at about 200-300 feet and then approach was made on RW 34. A go-around was initiated due to high approach resulting for not selecting the flaps, and a left hand circuit was flown for another approach. In the second approach, the aircraft touched down about 250 feet down the planned point and executed a go-round. On the third approach the touch down was again about 250-300 ft down, therefore, a go around was executed. Before the end of the RW a left turn was initiated at 40-50 ft AGL. After few seconds the bank started to increase and aircraft started losing altitude till it impacted the ground 1400 ft from end of the Runway. The impact heading was 280° on contact with ground, the drag direction remained 280° for about 60 feet, indicating that aircraft was in a bank but not turning. First the left wing touched the ground in a shallow dive followed by nose landing gear breaking after about 20 ft, and then the propeller separated after another 10 feet. Finally aircraft nose left cowling hit the ground, resulting in a cart-wheel movement and aircraft came to a stop opposite to the direction of flight path.

19. **Weight and Balance** The aircraft dry weight on last C of A was 1425 lbs. The fuel on board mishap flight was 252 lbs and oil was 08 lbs. The front occupants weighed 350 lbs, while rear passenger weighed 130 lbs. In addition, there was a weight of about 40 lbs in Cargo Compartment, including aircraft documents. On take off the aircraft was 2200 lbs i.e. maximum take off weight and weight distribution was within CG limits. However, the first C of A gives fuel weight 222 lbs and 270 lbs on different documents, which have been endorsed by Airworthiness Directorate on every C of A contrary to actual fuel. At the time of accident the mishap aircraft had flown for about 45 minutes i.e. fuel consumed in take off/ cruise about 50 lbs, therefore, aircraft weighed 2150 lbs.

Rajax Airstrip

20. The Rajax Airstrip was licensed for VFR day operations only by Mr. (late) Asif Mahmood Sheikh. It is a unpaved mud compacted surface situated at N 322915 E 742316 and 58nm on bearing 360^0 from Lahore. The operations were permitted and license was issued on 09 June, 2003 after inspection by Licensing Branch, P CAA. The approval was granted by the PCAA Inspector for Ultra-light and Sports category aircraft only, however, final approval communicated to the owner included Single Engine aircraft also (Appendix 'J'). The airfield extension was permitted by 200 ft in overruns by Licensing Branch, PCAA in June, 2004. However, the extension of 400 ft was made on runway 16 overrun only, which is not well compacted. Landing was permitted on RW 34 and take off from RW 16 directions.

RW Direction	34/16
Length	1250 ft
Width	50 ft
Elevation	775' AMSL
Surface	Unpaved field RW

21. **Airstrip Layout.** Since licensed on 09 June, 2003 no aircraft had operated from the airstrip until the mishap flight. The airstrip is located in the middle of cultivated land (Appendix 'K').. A 15 ft high embankment of Upper Chenab Canal is passing at an angle of 45^0 at a distance of 50 ft in the North. In between the embankment and the end of the RW 34 there is 40-50 ft high tree line. Further North in line with RW direction, a HT Cable Tower (150' high) stands at a distance of 1100 ft. The HT Cables are almost 90^0 to RW 34. The undershoot RW 34 has a pole and a chimney almost in line with RW direction. The distance of two 39 ft and 45 ft high obstacles from beginning of the RW is 430 ft and 540 ft respectively. Furthermore, 40 ft from edge of the RW 34 beginning there is a clump of 30-40 ft high trees in the West.

Witnesses' Statements

22. There were a number of eye witnesses who saw the accident taking place. The GEO Television Network was invited to cover the event. The video clip of the aircraft, after go-round and till it disappeared behind the trees before crash, was made available to the investigators. The account of crash witnesses is in conformity with the aircraft technician travelling as passenger. The course of events till crash has already been discussed. The PIC has not given account of whole episode over Rajax Airstrip because he does not remember anything after he visually acquired the airfield and set-up for approach till the accident. The PIC was given six month recovery period, yet he maintained initial position.

23. **Witness # 1.** Mr. Abdul Jabbar, an aircraft technician was travelling as passenger on the mishap flight. He is working as aircraft technician since last 12 years. He has been flying on General Aviation aircraft as passenger and understands the flying operations well. His account of the event is as follows:

- a. PIC Capt. Yasir Munir was on aircraft controls from take off at Walton and did so without any verbal or physical interference from left seat till the aircraft crashed.
- b. The intercom was unserviceable, therefore, PIC and Mr. Sheikh did not talk to each other during flight, however, PIC had serviceable radio communication.
- c. The first approach was overshooting as PIC had not lowered the flaps, therefore, go around from 30-40 ft was executed.
- d. In second approach the touch down was 200-300 ft down and pilot executed the go-around and set-up for third approach.

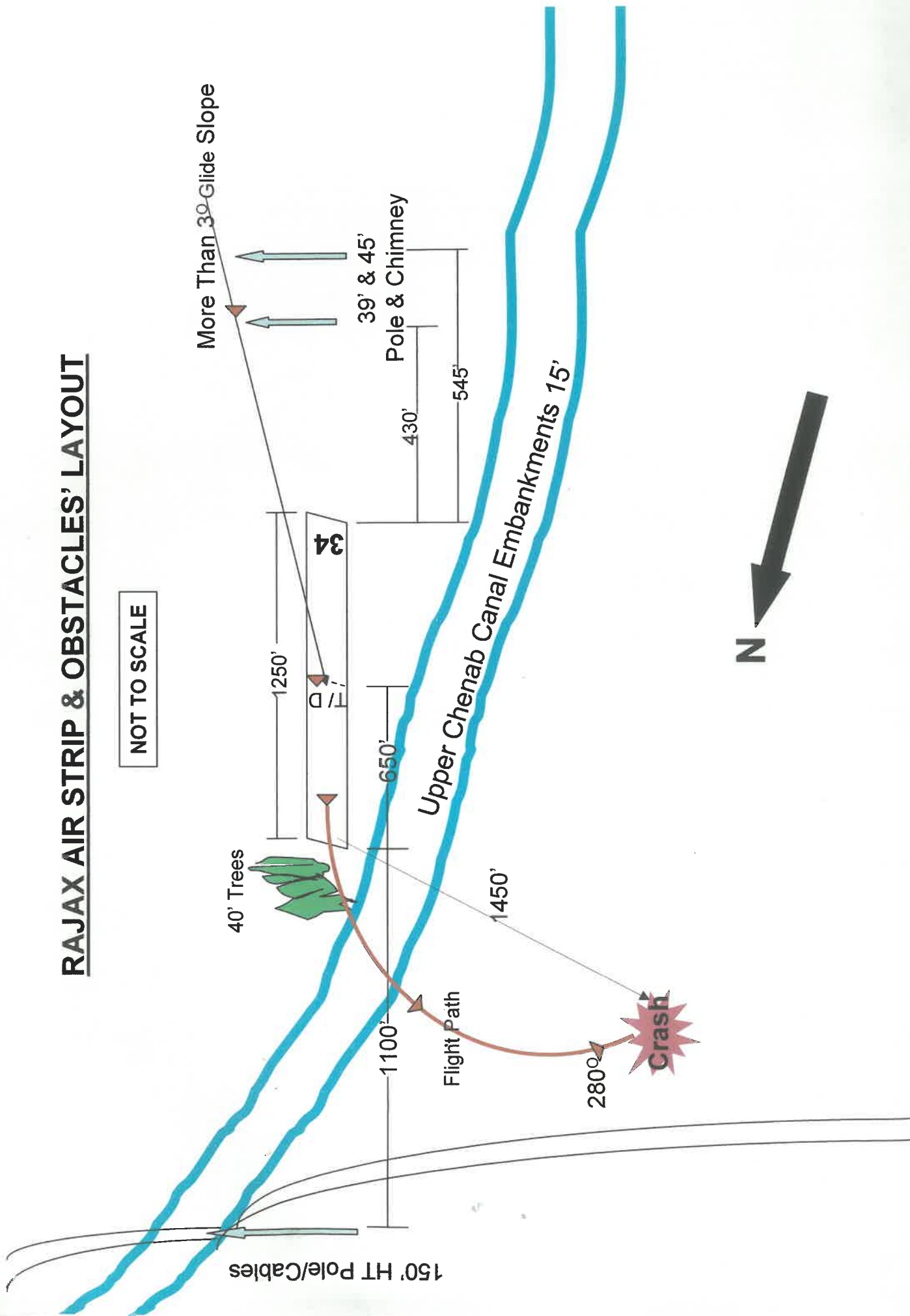
- e. In the third approach aircraft again touched down 200-300 ft down and pilot executed a go-around with full power and on that go-round the stall horn started sounding.
- f. After the go around as soon as aircraft started turning it started to lose height with stall horn continuously blowing.
- g. In this go-round full flaps remained down.

24. **Witness # 2 (Pilot in Command).** PIC does not remember the accident sequence; however, he seems to remember account of all the details before the accident and whatever was communicated to him after the accident by eye witnesses in the hospital. The salient aspects of PIC's interview are as follows:

- a. The aircraft was serviceable in all respects except its intercom was unserviceable on the mishap flight.
- b. PIC occupied right seat in the mishap flight.
- c. PIC practiced short landings at Walton airport a day earlier and observed that aircraft was stopping within 500 ft.
- d. Rajax Airfield was visited twice by PIC by road for planning and observations.
- e. The landing roll on paved surface would be more as compared to grass/unpaved runway.
- f. The flaps reduce the stall speed and thus the take off roll. Flaps also facilitate obstacle clearance after take off due to lower stalling speed.
- g. An obstacle of 50 ft clearance after take off requires 700 ft long runway.

RAJAX AIR STRIP & OBSTACLES' LAYOUT

NOT TO SCALE



- h. Stall speed decreases in bank.
- j. Last 850 ft of Runway was selected from 1250 ft length due to better compact surface and obstacles on the approach. Furthermore, aircraft could be stopped within 500 ft at Rajax airstrip.
- k. Cessna-172 stop distance at sea level is 675 ft.

ANALYSIS

25. The cause of accident is analysed on operational factors only as the aircraft was serviceable before crash. The operational factors include runway suitability vis-à-vis Cessna-172 landing performance and, knowledge of PIC on aircraft handling characteristic and landing performance.

Airstrip Suitability vis-à-vis Landing Performance

26. The Rajax Airstrip has obstacles on both ends of the Runway; however, landing direction was restricted to Runway 34 only and take off Runway 16 only, due to the obstacles. First 400 ft of 1250 ft Runway is not compacted properly. The obstacles of 39 ft and 45 ft height in undershoot of Runway 34 at a distance of 430 ft and 540 ft respectively prevent touch down in the beginning of 1250 ft long runway. These obstacles force a glide slope of more than 5.2° as against 2.5° normal glide slope for landing in the beginning. A glide slope of 2.5° i.e. just clearing the obstacle, would take the touch down point beyond 900 ft on 1250 ft long Runway or a maximum 3° glide slope would result in a touch down point beyond 750 ft. It means that only 350 ft Runway would be available to stop the aircraft on a landing roll with 2.5° glide slope and 500 ft with a maximum glide slope of 3° . Furthermore, a go-round after touch down would force a pre-mature take off to avoid 40-50 ft high trees in the overshoot. On Rajax Airstrip elevation on standard day, Cessna-172 required 700 ft to stop on landing roll as against

680 ft at sea level on a paved runway. The landing roll on unpaved surface increases by 40%, therefore ground roll after touch down on correct speeds required about 1000 ft at Rajax airstrip. These parameters indicate that landing on Rajax airstrip was not possible by C-172. The three approaches of mishap aircraft before crash, as available on the Video, also support the evaluation, though, aircraft was brought on higher glide slopes and touch down were achieved about middle of 1250 ft long runway. The video clip also shows a straight run of 06 seconds after touch down at less than 55 mph i.e. about 500 ft, straight run and turn on to cross wind for avoiding end of the Runway obstacles. On both touch down and go-rounds the turn out off traffic is almost at same point.

Knowledge of Aircraft Performance & Handling Characteristics

27. The obstacles and ground features surrounding Rajax Airstrip, it seems, were not considered before granting certification by PCAA. The PIC of mishap aircraft also did not study the obstacles for take off and landing. Furthermore, inadequate knowledge of aircraft landing performance committed PIC to take a decision of landing at Rajax Airstrip after visiting the Airstrip by road. The important aspects over looked in approval /planning of Rajax Air Strip were the approach clearance from obstacles for $V_{MC} 2.5^0-3^0$ glide slope and landing performance of single engine aircraft on an unpaved 850 ft long Airstrip.

28. On the mishap flight PIC realized the problems of landing Cessna--172 on Rajax Airstrip on three approaches where he was forced to touch down at or beyond mid-point of the Airstrip. The flight was being covered by electronic media and presence of employer in the Cockpit, therefore, suppressed the thought of abandoning the flight and returning back to Lahore. These factors when observed during approaches by PIC resulted in the mental-block leading to paralysis in decision making. Even if aircraft was landed and all efforts were made to stop the aircraft then aircraft would have gone in the obstacles in the overrun at substantially high speeds i.e. length available 600 feet and distance required to come to a stop 1000 ft.

29. On first two approaches the aircraft speed was relatively higher, while on third approach the speed was reduced below recommended approach speed as stall horn started to blow right after go-around. The blowing of stall horn at maximum engine power in wings level flight indicates that after go-round the aircraft speed was about 55 mph TAS or less than 55mph IAS as against 64 mph because stall horn blows 5 mph higher than 52 mph in 40^o flaps and throttle idle level flight. The aircraft had unserviceable inter-com system and PIC had his head-set on, therefore, he did not hear the stall horn. Furthermore, 40-50 ft obstacles at the edge of end of Runway and 150 ft HT tower/cables 1100 ft from Runway end required an early turn out of traffic. The close proximity of obstacles also forced the pilot to remain occupied with look-out and thus he did not raise the flaps. The aircraft was at almost maximum weight and full flaps; hence, it did not accelerate and remained at stall speed in spite of full engine power. The stalling speed of C-172 with full flaps and idle engine power in 40^o bank increases to 59 mph TAS and speed rises to 73 mph TAS in 60^o bank. As soon as the bank was introduced for turning, drag and stall speed increased and aircraft started losing height from 70-80 ft AGL till it crashed. An effort to remain well clear of HT cable outside the turn might have also increased the radial Gs and thus increasing the stall speeds further.

Findings

30. The board finds that:-

- a. The aircraft had a valid C of A and it was serviceable in all respects except unserviceable intercom.
- b. Lahore Flying Club provided the maintenance support to mishap aircraft and flying operations were conducted independently on the discretion of the owner who did not have aviation background.

- c. PIC held Instructor Rating and valid CPL with approximate 1200 hours flying experience. He had been observed by GM GA (HQ) for dropping speeds to dangerously low level on approach in a check mission.
- d. Rajax Airstrip, a private Airstrip, was approved by PCAA as Private Airstrip of 850x50 ft after inspection and later extension to 1250 ft was approved without physical inspection.
- e. Rajax Airstrip has 40-50 ft high trees on Runway 34 end and HT Tower at 1100 ft in line with Runway. In the undershoot there is a 45 ft Chimney and a 39 ft high a pole, which force a glide slope of more than 3° for touch down at or beyond centre of 1250 ft Runway.
- f. PIC visited the airstrip by road for observation/familiarization. His knowledge of aircraft landing performance was grossly wrong.
- g. The runway length was inadequate for landing Cessna-172 and available length was further reduced due to obstacles in undershoot.
- h. Print and electronic media was invited to cover the flying operations of an individually owned aircraft from private airstrip. A private TV channel provided the video clips of aircraft manoeuvres and its crash on Rajax Airstrip.
- j. the aircraft made three attempts to land, including a low-overshoot and two touch downs-overshoots. Both the touch downs were at same point from where available Runway was about 600 ft.
- k. In spite of high glide slope and late touch downs resulting in go-round due to obstacles in undershoot, PIC did not abandon landing

plan. The PIC suffered from decision paralysis due to the pressure of employer and media coverage.

- l. On the third approach, the aircraft was landed at 10 mph lesser than normal speeds, therefore, after go-around stall horn started sounding. Due to headset and unserviceable intercom PIC did not hear the stall horn.
- m. Pre-occupation with unusual approach/landing and obstacle avoidance manoeuvre after go-round within 5-6 seconds of touch down resulted in non-retraction of fully lowered flaps.
- n. Lower than normal go-round speed with full flaps prevented aircraft from accelerating. A climbing turn to avoid obstacles resulted in continuous loss of height due to stall and aircraft crashed after turning through 60°.
- o. The aircraft owner, a PPL holder, was fatally injured and other two occupant, including PIC, suffered moderate injuries.
- p. PIC does not remember the crash and preceding 15 minutes' events till finalization of report.
- q. The aircraft was destroyed in the crash.

Observations

31. During the course of investigation the following observations were made, which have not contributed towards the accident:

- a. C of A Log Book Entries are filled and corrected in erasable pencil with lot of over-writings.

- b. C of A Log Book Entries of following years are duplicates of first C of A, suggesting a paper inspection only.
- c. C of A documents indicate different fuel capacity of aircraft and none is accurate since first C of A.
- d. The aircraft weight increased by 44 lbs in second weighing after four years without any recorded maintenance work.
- e. The aircraft engine does not comply with the requirements of Airworthiness Notice # 43 para 3.2 dated 01 September, 2003 i.e. complete history of engine life (Engine Tags) since new/ overhaul not available, yet, the engine was given 50 hours /06 month extension. There are no such provisions given by the engine manufacturer.
- f. The owner of the aircraft/ airstrip, who died in the crash, was able to get the approval of non-standard and unsafe practices from PCAA.

Finalization

32.

Primary Cause. The accident is finalized as aircraft stalling after a go-round while attempting to land on a short airstrip.

Human Factor-Avoidable.

Contributory Cause.

- a. Wrong approval of private Air Strip by Licensing Branch.
- b. Inadequate knowledge PIC on aircraft landing performance.

Recommendations

33. The board recommends that:

- a. ANO on private airstrip be formulated and approval be given after physical inspection by a board which should have a member from Flight Standards, Operations and Licensing.
- b. Flying status of PIC may be reviewed by Flight Standard and Chief of Aviation Medicine in the light of memory lapse and cause of accident.
- c. Individually owned aircraft operations be supervised by an AOC holder i.e. Flying Club etc.
- d. Air Worthiness Directorate to ensure correct C of A documents.