



PAKISTAN CIVIL AVIATION AUTHORITY
(SAFETY INVESTIGATION BOARD)



FINAL REPORT

M/S SHAHEED BENAZIR BHUTTO FLIGHT ACADEMY (PIAC)
CESSNA – 172 AIRCRAFT, REG # AP-BAJ, FATALLY INJURED
A PASSENGER AFTER DISEMBARKING AT SUKKER AIRPORT
ON 21ST FEBRUARY, 2013

CIVIL AVIATION AUTHORITY PAKISTAN

PROCEEDING OF INQUIRY INTO ACCIDENT IN WHICH CESSNA-172'S PROPELLER HIT A PASSENGER ON UPPER LEFT ARM, FATALLY INJURING THE PASSENGER

1. **Authority Ordering Inquiry :** Air Vice Marshal Junaid Ahmed Siddiqui Deputy Director
General Pakistan Civil Aviation Authority.
2. **Composition :**
 - a) Capt. Ghazanfar Hussain Investigation Incharge
GM General Aviation
 - b) Mr. Akhtar Ali Chaudhry ATS Investigator
GM ATS Investigation, SIB
 - c) Capt. Saleem Shujaat Ops. Investigator
M/s. PIAC
 - d) AD Mazhar Sherazi Co Opted Member
OC ASF, Sukkur Airport
3. **Terms of Reference :** To ascertain the cause of occurrence and suggest measures
(if any) to avoid recurrence in future.
4. **General Information :**
 - a) Date and time of accident : 21st February 2013 at 0723(UTC)
 - b) Place of accident : Bay No.3 at Sukkur Airport
 - c) Type of flying : Training Flight
 - d) Stage of flight : Parked after landing
5. **Aircraft Information :**
 - a) Owner of aircraft : M/s Pakistan International Airlines Corporation
 - b) Description of aircraft :
 - i) Type of aircraft : Cessna 172-N
 - ii) Dual or Single control : Dual
 - iii) Damage of airframe : Nil
 - iv) Number of engine : One
 - v) Damage to engine : Nil
 - vi) Was aircraft fit to fly : Yes
 - c) CG Limit : Within limit
6. **General Crew Information and Experience:**
 - a) Pilot-in-Command
 - i) Name : Captain Muqeeem Akhtar
 - ii) Duty at time of accident : Pilot-in-Command
 - iii) Where seated : Right seat
 - iv) Employer : M/s Pakistan International Airlines Corporation
 - v) Total flying hours : 1066:00
 - vi) Total instructional hours : 810:30
 - vii) P-1 hours of C-172 : 920:00
 - viii) Actual instrument hours : 35:50

- ix) Simulated instrument hours : 282:10
- x) Extent of injury : Nil

b) Student Pilot Information

- i) Name : Bilal Zafar
- ii) Duty at time of accident : Under Training Pilot
- iii) Where seated : Left seat
- iv) Student at : PIA Academy
- v) Total flying hours : 176:05
- vi) P-1 hours : 125:05
- viii) P-3 hours : 51:00
- ix) P-1 hours of C-172 : 125:05
- x) P-3 hours of C-172 : 51:00
- x) Extent of inquiry : Nil

7. Information on other personnel onboard :

- i) Person on board : Two
- ii) Names : Mr. Tanveer Ahmed
Mrs. Haseena
- iii) Employer : ASF person and mother of ASF official respectively.
- iv) Duty at time of accident : Passenger
- v) Extent of injury : One passenger, Mr. Tanveer Ahmed was fatally injured; other passenger did not suffer any injury.

8. Weather Observation : Refer to Appendix "B and C"

9. Was weather a factor : No

10. Was Serviceability of Nav aids a factor : No

11. Investigation and analysis : Refer Investigation and Analysis section

12. Analysis : Refer para 9

13. Findings : Refer para 11

14. Recommendation : Refer para 12

BRIEF DESCRIPTION

1. Cessna-172N Aircraft Registration No AP-BAJ of M/s PIAC's Shaheed Benazir Bhutto Flight Academy (SBBFA) Karachi, was scheduled for training cross country flight from Nawabshah to Sukkur and back to Nawabshah.
2. At Nawabshah, before take-off, Mr. Tanveer, Assistant Director Airport Security Force (ASF) at Nawabshah, requested Captain of the aircraft to take three passengers from Nawabshah to Sukkur. The Captain refused. However, Chief Flying Instructor (CFI) of SBBFA was approached by Mr Tanveer. The CFI permitted one passenger. However, at last minute Mr. Tanveer (AD ASF) insisted and also boarded the aircraft.
3. The aircraft took-off from Nawabshah at 0620UTC with four persons onboard i.e. one instructor, one student and two passengers (Mr. Tanveer & Mrs. Haseena). The aircraft landed at Sukkur at 0718UTC and was parked at Bay No.3 at about 0723UTC. Mr. Tanveer was occupying right passenger seat and got off from aircraft while engine was still running. Mr. Tanveer went about five to six feet to right, cleared wing strut (connecting aircraft wing with fuselage) under the wing and moved towards propeller, which was still running. At about 0725UTC, Mr. Tanveer's left arm (close to shoulder) hit tip of the running propeller. Mr. Tanveer did not fall on the ground and kept walking towards ASF staff (who had come to receive him) while profusely bleeding. At about 40 ft. in front of aircraft, other ASF personnel came to help him. Mr. Tanveer, with help of other personnel kept walking for 102 ft (from propeller of aircraft) and then collapsed. In mean time, CAA ambulance reached and Mr. Tanveer was shifted to the ambulance. While the ambulance was taking Mr. Tanveer to hospital in Sukkur city, paramedic also reached the scene but ambulance had already started going and paramedic was not picked by the persons on ambulance.
4. Mr. Tanveer was pronounced dead on arrival at hospital.

INVESTIGATION AND ANALYSIS

1. **Brief About Capt. Mugeem Akhtar (PIC):** Captain Mugeem Akhtar is qualified flight Instructor with CPL # 2138. He has valid IR and Flight Instructor rating. He has grand total of 1066:00 hours with 948:45 hours on C-172. His total instructional experience is 810:30 hours. He is employed as instructor pilot at PIA SBB Flight Academy.
2. **Brief About Mr. Bilal Zafar (Student Pilot):** Mr. Bilal Zafar is student pilot of PIA SBB Flight Academy. He is holder of valid private Pilot licence No. 3070. He has grand total of 176:05 hours with 125:05 P-1 hours on C-172.
3. **Legality for undertaking the Flight:** The aircraft is owned by M/s PIAC and is flown by PIA's SBB Flight Academy. M/s PIA SBB Flight Academy was legally authorized to undertake the training flight as they were meeting the following CAA requirements:
 - a) Is holder of valid Flight School License issued by Directorate of Air Transport (Appendix "D")
 - b) Is holder of valid Air Operator Certificate (AOC) for flying school from Directorate of Flight Standards (Appendix "E")
 - c) PIC of C-172 aircraft (AP-BAJ) and student pilot were holding valid CPL No.2138 and PPL-3070 respectively in accordance with Rule 35 & 39 of CAR 94 (Appendix "F" and "G").
 - d) Appropriate medical category (Appendix "H" and "I") in accordance with Rule 40 of CAR was held by PIC and Student Pilot.
 - e) PIC was meeting recent experience requirement in accordance with rule 42 of CAR 94 (Appendix "J").
4. **Accident Area Information:** The aircraft AP-BAJ was parked at Bay No 3 at Sukkur airport. The ASF staff at Sukkur airport was standing at apron, 1 O'clock to parked aircraft, at distance of about 110 feet, well clear of the aircraft. Mr. Tanveer got off from right side door, moved about 5 to 6 feet outboard to the right, to clear the strut and then turned left for unknown reason, in spite of the fact that reception party was standing slightly right of the nose of aircraft. After turning left, the tip of aircraft propeller hit left upper arm of Mr. Tanveer. Mr. Tanveer held left arm with right hand and kept walking, now towards right side where reception party of standing ASF personnel was present. He started bleeding profusely. He walked about 40 ft, all by himself, before other ASF personnel rushed towards him and helped him walk to a total of about 102 ft (from propeller of the aircraft). Mr. Tanveer collapsed at this point (102 feet from the propeller). The air traffic controller had seen the accident and had dispatched the ambulance, which arrived immediately after Mr. Tanveer collapsed on the ground. ASF personnel put Mr. Tanveer on the ambulance and drove away for the hospital, which is located in Sukkur city. The paramedic arrived at the scene when ambulance was already moving and ASF staff did not stop to pick up paramedic.
5. **Ordering of Inquiry:** At about 1500hrs on 21st February, 2013 Captain Ghazanfar Hussain was informed by Director Flight Standard (Captain Arif Majeed) that Competent Authority has detailed him as Investigation In-charge of the fatal accident. The initial discussion was held between investigation officer, Technical Member SIB & President SIB.
6. **Post Accident Action:** Airport Manager Sukkur took over possession of aircraft. His staff formally reported the accident to relevant persons (Appendix K and L). Initial statements (Witness no 1, 2 and 3 placed as Appendix 'AA', 'AB' and 'AC' respectively), photographs of aircraft (Appendix M), blood samples of both pilots (Appendix N, O, P and Q) were also taken. These were handed over to investigation officer on arrival. Investigation team took statement of two ASF officials (Witness no 4 and 5 placed at Appendix 'AD' and 'AE')

respectively), and cross examined statements of pilots. Statement of Chief Flying Instructor PIA SBB Flight Academy was also taken (Witness no 6 placed at Appendix 'AF').

7. **Weather at Time of Accident:** The weather at the time of accident was not a contributing factor and is attached as Appendix "B and C".
8. **Blood test of Aircrew:** Blood samples of aircrew were taken and test reports of PIC and Student Pilot are placed at Appendix "N, O, P and Q". All samples suggest that both pilots were fit to undertake flying duties at the time of accident.
9. **Analysis**
 - a. M/s. PIA's SBB Flight Academy is authorized by CAA Pakistan to undertake training of pilots, for issue of personnel license. On 21st February 2013, Captain Muqem, a flight Instructor, was scheduled for cross country IFR Navigation training flight from Nawabshah to Sukkur (witness 2 and 3 at Appendix No AB and AC). When the aircrew reached aircraft, Assistant Director (AD) Tanveer Ahmed Khan, OC ASF Nawabshah, approached aircrew and requested to carry two lady passengers along with an infant to Sukkur. The Captain (Muqem Akhtar) refused. AD Tanveer approached CFI (Captain Aamir Nadeem) and CFI approved carriage of one passenger (witness No 6 Appendix AF). Subsequently AD Tanveer came to aircraft and boarded the aircraft (witness No 2 Appendix AB) along with the lady passenger (later identified as Mrs Haseena, mother of another ASF person)
 - b. **Legality of Carrying Passenger during Training Flight:** In accordance with Rule-235 of Civil Aviation Rules – 1994 (CARs 94) passenger are not to be carried when flight instructions are imparted for issue of a license (Appendix "R"). Therefore, carriage of passengers on training flight was a violation of Rule-235 of CARs 94. The aircraft was found to carry two passengers namely AD Tanveer and Mrs Haseena.
 - c. **Carriage of Documents Onboard the Aircraft:** In accordance with Rule-253 of CARs 94 (Appendix "S") and Para-3 of Appendix 2 of ANO 91.001 (Appendix "T"), documents of aircraft were checked. It was found that passenger manifest, weight and balance (load and trim sheet) and ATC flight plan were not available (Answer to Q No 16 to witness No 2 Appendix AB). Operational flight plan was not prepared. However, a rough written plan, on page of paper, was produced as operational flight plan (Appendix "U")
 - d. **Disembarkation from Aircraft:** M/s PIAC's SBB Flight Academy is only a training organization and do not carry passengers as they do not hold Charter License and AOC. All the pilots (instructors as well as under training) are well versed with the procedure and they always disembark only after engine has been shutdown. In this particular case, Mr. Tanveer was occupying seat behind the instructor (right rear seat) while Mrs Haseena (second passenger) was occupying seat behind student pilot (left rear seat). When the aircraft stopped at Bay No. 3 at Sukkur airport, Mr. Tanveer opened the door on right side and disembarked, without permission of the captain of aircraft, as pilots were in process of carrying out the checklist actions/procedures for shutting down engine (Witness No 2 and 3 Appendix AB and AC). In order to verify whether passenger can disembark from rear right seat of C-172 aircraft, investigation team duplicated the situation. In that, Captain Muqem was asked to occupy right pilot seat, Captain Ghazanfar (investigation in-charge) occupied student seat and Captain Saleem Shujaat Khan (member investigation team) right rear seat. Captain Saleem Shujaat was having almost same built as of Mr. Tanveer. Captain Muqem was asked to adjust his seat in normal flying position. Captain Saleem Shujaat was asked to disembark from right door. Captain Saleem could disembark with very less effort. During this

exercise, it was noticed that it was not possible for passenger to disembark without touching his upper body with back of the pilot. All this exercise was undertaken without telling the pilot about the purpose of this exercise.

- e. In light of this exercise and keeping our social set up and norm of society in mind, it is not possible that lady (passenger on left rear seat) would have gotten out with pilots still occupying the seat. It is therefore, concluded and statement of pilot is supported which says that lady passenger got down after engine was shutdown (Answer to Q no 3 by witness No 2 Appendix AB). Lady passenger also stated in her statement (Witness no 7 Appendix AG) that when she got down, other passenger was found in injured condition. Which further strengthens statement of pilots that she disembarked after engine was shut down.
- f. **Why Passengers were Carried in the aircraft:** It was revealed during the investigation that it is normal practice that CAA personnel and ASF staff are carried in training flight (witness No 2 Appendix AB). Informal discussions were held with different General Aviation operators. All of them endorsed existence of this non standard and unauthorized practice. They all said that if they refuse to carry CAA or ASF personnel, their (operator) flying operations are adversely affected. In that from CAA side, different flying related clearance are either not given or delayed to the unacceptable limit. Similarly, ASF personnel do not let their aircrew enter the premises on different pretext, which results in unacceptable delay or cancellation of flight. However, nobody was ready to give this in writing to avoid repercussions.
- g. **Why Mr. Tanveer Went Towards Propeller:** In Cessna-172 aircraft, wing strut connects wing and main fuselage. The door opening is such, that passenger has to get down behind the strut. Thereafter, the passenger has to move out board, at least five to six feet, only then the passenger can move forward. Propeller diameter is maximum of 75 inches (radius 37.1 inch). Therefore, the edge of propellers is about 3 feet and 1.5 inches from longitudinal axis of aircraft. It is not logical and possible that a passenger would get down and move forward, going under the strut and cross over the main wheels of aircraft. Even this process would take the person to move outboard, at least four feet, before he moves forward. A normal passenger would have to go outboard for about five to six feet and then move forward (Appendix "V"). Therefore, it was not understood, as to why Mr Tanveer, after moving to right, crossing the wing strut, again moved to left towards the propeller.
- h. Only logical explanation, which could be thought of, for Mr Tanveer going to left, after crossing wing strut be that the ASF personnel at Sukkur, who had come to receive Mr Tanveer, were standing left of Bay-3, close to stairs of terminal building (Appendix "M"). As a result Mr Tanveer, after crossing wing strut, started walking towards left and was hit by the tip of the propeller. However, this logic was not supported by concrete evidence available. In that, the blood marks (after the accident) were seen going towards right of aircraft (Appendix "M"). It is natural that an injured person would move towards other people for help. Therefore, it can be convincingly deduced without any doubt that the reception party was to the right of aircraft. By all logics Mr Tanveer, after crossing strut, should have gone to right, instead of left. Hence reason for moving to left cannot be ascertained.

10. **Discussion on Accident**

- a. As discussed earlier, diameter of propeller of the aircraft is about 75 inches (37.1" radius). Therefore, tip of propeller is about 3 feet and 1 inch away from longitudinal axis of aircraft. When Mr Tanveer, moved to left, tip of the propeller hit left upper arm. The tip of the propeller broke part of bone of left upper arm and the piece of the bone was found lying on the ground close to propeller (Appendix "M-1"). Mr

Tanveer, after hitting propeller, kept walking all by himself. He met other ASF Staff around 60 feet down, walked another 42 feet with help of other ASF Staff and then became unconscious and collapsed on the ground (A total of 102 feet were measured between piece of bone and pool of blood stains where Mr Tanveer collapsed). All this indicated that Mr. Tanveer was hit only at upper arm otherwise he would have fallen down very close to aircraft. The propeller blade was closely examined. No damage to the tip or other part of propeller was observed. Even there was no blood stain on tip or any other part of the propeller.

- b. After Mr Tanveer become unconscious, the ambulance arrived and he was put on the ambulance. The paramedic on duty was not present in the ambulance. After ambulance moved, paramedic arrived on scene but he could not be carried (witness No 8 at Appendix AH).
- c. **Availability of Nursing Paramedic:** It is quite evident from discussion above that Mr. Tanveer got injured and started bleeding profusely. He did not receive any other injury except on upper left arm. It is further evident that Mr. Tanveer died because of loss of blood. Therefore, if bleeding could be stopped, a precious life could have been saved.
- d. In light of para above, the investigation team also looked into the aspect of availability of paramedic units with crash ambulance. In that Dr. Javed Ahmed Khan, GM Medical Management (Witness No 9 Appendix AI), very categorically stated that at Sukkur Airport, one doctor has been hired by CAA Pakistan on part time retainer ship basis. Two nursing paramedics have also been posted at Sukkur airport to provide first aid treatment to the passengers. The utilization of these personnel is left to local administration. He further pointed out that CAAO-003-HRMM-1.0 gives procedure for emergency medical assistance to passenger. CAAO-003-HRMM-1.0 was studied. Para C4 and C5 of the CAAO, very categorically makes DMR IMS responsible for periodic inspection and inputs to MR/DSQMS about the manner in which emergencies are handled at respective location (Appendix "W").
- e. DMR IMS, Mr Masood Alam Siddique was called by the inquiry team. (witness No 10 Appendix AJ). He produced report as required Vide para C-4 of CAAO-003-HRM-1.0 (Appendix "X"). However, when he was asked about checking of medical emergency handling, as per requirement of para C-5 of CAAO-003-HRM-1.0, he responded that there is no procedure to check for handling medical emergencies by DMRs (Answer to Q. No.3 of Witness No 10 Appendix AJ). This very clearly indicated that medical emergencies were not checked, by IMS team, at any airport of Pakistan in violation of Para C-5 of CAAO-003-HRMM-1.0.
- f. The procedure for availability of nursing paramedic, in crash ambulance, was further studied. CFRO Sukkur, Mr Tariq Agha (Witness No. 11 Appendix AK) was questioned. It was revealed that nursing paramedic is not available with crash ambulance as his primary place of duty is MI Room (Answer to Q. No.2 by witness No. 11 Appendix AK). He further quoted para D4.2 of CAAO-003-HRM-1.0 (Appendix "W") which states "as and when need arises, DTM/DAPO, facilitation working at Airport will immediately call for paramedic and ambulances" (Answer to Q. 3 by Witness No 11 Appendix AK). Furthermore, it was also revealed that there is no prescribed procedure for calling paramedic in emergency. This was evident from answer to Q.4 of witness No.11 that paramedic was called through personal cell phone by the driver of SVD and official telephone by DATCO. This is supported by statement of paramedic Mr Abdul Rasool (Witness No 8 Appendix AH) where he stated that he was working at MI room at the time of accident. In answer to Q.4, Mr Abdul Rasool (Paramedic on duty) further stated that he got

further delayed to reach place of accident due to ASF procedure for entry into airside (Witness No 8 Appendix AH).

- g. Detailed study of different procedures, for handling medical emergencies, was carried out. No procedure was produced by CFRO or any medical staff, where nursing paramedic was to be available with the ambulance. In March 2013, undersigned along with Acting Director APS paid surprise visit to crash bay at Islamabad Airport. The site had ambulances with one driver available but no paramedic was present. Thorough examination of all document at the site was conducted by DAPS and investigation in-charge. There was no procedure defined for location of nursing paramedic.

11. Findings

- a. M/s PIAC Shaheed Benazir Bhutto Flight Academy was legally authorized to undertake training flights.
- b. The instructor pilot and student pilot were holding valid license and medical certificates to undertake the said training flight.
- c. At time of accident, both pilots were medically fit.
- d. Weather at the time of accident was good and was not a contributory factor to accident.
- e. The passengers carried by the aircraft, was violation of Rule 235 of CARs-94.
- f. All required documents were not carried by pilot in command, in violation of Rule 253 of CARs-94 and ANO.91.001.
- g. Mr Tanveer disembarked from right door of the aircraft before engine was switched off.
- h. Mr Tanveer disembarked from right door of aircraft without permission of captain of aircraft.
- i. Ms Haseena (second passenger) disembarked after engine was shut down.
- j. The ASF staff, who had come to received Mr Tanveer, was at the airport, approximately at a distance of over 100 feet and were well to right of the nose of aircraft.
- k. Mr Tanveer, after moving to right about five to six feet, crossed wing strut and for unexplained reason started moving to the left, towards propeller.
- l. Tip of the propeller hit upper left arm of Mr Tanveer.
- m. Mr Tanveer walked, without assistance, for about 60 feet and with assistance additional about 42 feet before he collapsed.
- n. Ambulance arrived immediately after Mr Tanveer had collapsed.
- o. No first aid was provided to Mr Tanveer due to non availability of trained paramedic / doctor at the scene of accident.
- p. Mr Tanveer bled to death, en-route to hospital which is located at Sukkur City.
- q. There is no written procedure for defining the positioning of paramedic staff at airport.
- r. At Sukkur airport, only two paramedics were posted whereas the doctor is on part time retainer ship basis.
- s. Due to shortage of manpower it is not possible for local authorities to simultaneously attend ambulance and MI Room.
- t. The routine medical inspection schedule, as required by CAAO-003-HRMM-1.0, was not being followed by CAA Pakistan concerned directorate.
- u. CAA Pakistan concerned directorate did not perform duties required by para C-5 of CAAO-003-HRM-1.0.
- v. CAA Pakistan and ASF personnel request and avail unauthorized travel from one airport to another during training flights.

12. **Recommendations**

- a. Flight Standards Directorate to evolve a mechanism for ensuring carriage of all required documents onboard the aircraft during a flight.
- b. Flight Standards Directorate to ensure that proper operational flight plans are made for all flights.
- c. CAA Pakistan is to review CAAO-003-HRMM for inclusion of detailed instructions indicating positioning of nursing paramedic during scheduled and non-scheduled flights operations at all airports.
- d. CAA Pakistan is to ensure adequate manpower at all airports to effectively handle medical emergencies.
- e. Directorate of SQMS to ensure compliance with all relevant clauses for CAAO-003-HRMM.
- f. CAA Pakistan is to provide communication equipment (e.g. serviceable walkie talkie) to nursing paramedic on duty for effective communication purposes.
- g. CAA Pakistan is to devise and document formal procedure for proper coordination between DATCO and medical staff, in case of medical emergencies.
- h. CAA Pakistan is to ensure strict implementation of Medical emergency handling procedures, as per requirement of Para C-5 of CAAO-003-HRMM.
- i. All CAA Pakistan personnel be strictly advised not to request for boarding any training flight.
- j. All Operators to be advised to prepare flight documents as per CAA Pakistan Rules and regulations.
- k. DG ASF to issue instruction for all ASF personnel not to request for boarding any training flight.

Appendix "M" TO
M/s PIAC C-172 (AP-BAJ)
Accident on 21st Feb, 2013



