



PAKISTAN CIVIL AVIATION AUTHORITY
(SAFETY & INVESTIGATION BOARD)



SERIOUS INCIDENT TO M/S. SCHON AIR CESSNA – 172
AIRCRAFT, REG. # AP-BJK
ON 01 OCTOBER 2009
AT JINNAH INTERNATIONAL AIRPORT
KARACHI

FINAL REPORT

ACCIDENT OF M/S. SCHON AIR CESSNA-172 AIRCRAFT SR # 66610 REG. NO. AP-BJK AT JIAP, KARACHI ON 01-10-2009

SYNOPSIS

Refer Director General Civil Aviation Authority Memorandum No.HQCAA/1901/333/SIB dated 1st October 2009. On 01st October 2009, at 011506 LT, a scheduled local circuit / landing flight of Cessna-172, Reg. No. AP-BJK of Schon Air, took off for training flight. During takeoff roll the aircraft drifted towards left side. Aircraft managed to gain 20-30 feet of height and reached well towards left of runway. Immediately after getting airborne the aircraft impacted ground, between taxi way Foxtrot and Delta on unprepared surface, about 50 feet from the left edge of Runway 25L. Aircraft was severely damaged. No fire was observed and all the four occupants came out unhurt.

1. FACTUAL INFORMATION

- 1.1 **History of the Flight:** Karachi Local circuit / landing Basic Instrument Training Flight.
- 1.2 **Injuries to Persons:** Minor bruises.
- 1.3 **Medical fitness:** Blood tests results of Instructor Pilot (IP) as well as the Student Pilot (SP) indicated no abnormality.
- 1.4 **Damage to Aircraft:** Both wings, propeller, fuselage, cockpit cabin, ailerons, front firewall, engine mount and LH side door were found badly damaged, whereas nose wheel found broken and separated. Wing tip pieces, tips lights and other damaged parts were found scattered in a confined area.
- 1.5 **Crew Information:**
 - 1.5.1 Capt. Nawaz Raja Instructor Pilot (Captain of aircraft).
 - 1.5.2 Fatima Syed Student Pilot (Pilot flying)
- 1.6 **Passenger Details:**
 - 1.6.1 Fahad Khan Passenger (Observer Student Pilot)
 - 1.6.2 Sana Khan Passenger (Observer Student Pilot)
- 1.7 **Aircraft Information:**
 - 1.7.1 **Aircraft type:** CESSNA - 172
 - 1.7.2 **Engine type:** Lycoming, 0-032-E2D Engine
 - 1.7.3 **Propellers type:** McCauley
 - 1.7.4 **Life component:** No life component was due for inspection / replacement.
 - 1.7.5 **C of A validity :** Valid, approved by CAA Pakistan
 - 1.7.6 **Empty mass and Balance:** 676.7 Kg and corresponding C.G is 40.28 with in limit and approved by CAA.
- 1.8 **Flight Recorder / CVR:** The aircraft was not equipped with FDR / CVR.
- 1.9 **Weather Information:** Weather reported and observed was fair with no abnormality. Surface wind at the time of take off was 240 degrees 10-12 kts.
- 1.10 **Impact Information:** Impact pattern reveals low speed, low height, drag & hit impacts on soft ground. Post impact debris was found scattered with in 120 feet of aircraft in circular pattern and some pieces of wing tip were found at a distance of 244 feet towards right side of the aircraft. No debris were found beyond 120 feet from nose of the aircraft towards left wing side .The aircraft impacted ground in three phases before coming to halt. The first impact was at a distance of 230 feet

from runway edge where right wing tip touched the ground and dragged about 6 to 9 feet while aircraft engine was running, and the propeller tips touched and dug the ground. On second impact the propeller tips were bent at an angle of 180 degree. The third and final impact was the main impact where aircraft hit the ground from front section breaking the nose landing gears and at the same time left wingtip (front section) also impacted the ground.

2. ANALYSIS

2.1 Technical Analysis

2.1.1 The investigation of aircraft systems, aircraft instruments, record of life components & inspections, complete aircraft history, weight and balance validity, C of A validity indicates that aircraft systems were serviceable; all instruments were secured and functional. Except, a fire extinguisher is suspected unsecured as it was found in the middle of the rudder pedals of left occupants. The documentations were intact with no abnormality found, no inspection was due and all certificates (Weight & Balance and Certificate of Airworthiness) were valid.

2.1.2 Initial inspection and physical operation test of aircraft flight control system reveals that; aircraft control systems were functioning normal. However the breakage and bending pattern of rudder actuators and other components could not be determined due to declination by M/s. Schon Air to support tests and analysis.

2.2 Conclusion

There was no technical malfunction of any component or system flight controls which could be analysed to have attributed towards causation of the accident.

2.3 Operational Analysis

2.3.1 The sortie was scheduled as Basic Instrument Flying training for Student Pilot (SP). Captain of the aircraft, also the Instructor Pilot (IP), allowed two additional student pilots who had completed their ground schooling but not yet started their flying training to sit as observers in the passenger / baggage compartment.

2.3.2 Student Pilot was under the hood for take off. During takeoff roll the aircraft started drifting to the left mainly because of the insufficient rudder input to cater for the propeller effect during acceleration. All this while aircraft changed heading to the left considerably and SP remained completely unaware. IP, though advised SP to apply opposite rudder to correct the yaw effect, the response remained insufficient. At the time of un-stick, the aircraft was not only yawing to the left, but had left the runway prepared surface.

2.3.3 The aircraft had 04 persons on board causing extra weight. Though weight was within limits but sufficient to cause slight shift in backward CG. There was tail wind of 08-10 kts, and the aircraft was in un coordinated flight conditions. Unaware of these facts, when Air Speed Indicator reached 60 kts, SP under the hood observed nose coming up due to ground effect, and started the rotation to get airborne. By the time aircraft was to get airborne, it had developed sufficient heading change and was fast approaching left edge of the runway. IP at this stage tried to take control of the situation, but it was a late attempt as there was no runway surface left. The aircraft momentarily got airborne due to ground effect, however, as it gained few feet of height, and the speed was not enough to sustain the flight with 04 persons onboard, it stalled after gaining a height of 05-10 feet approximately.

2.3.4 Aircraft got airborne with at least 30 degrees away from the heading of runway. Immediately after take off the aircraft had reached over unprepared surface. IP did try to correct the yaw by applying right rudder and lowering the nose in an attempt to come back over the prepared surface, but as there was not much height and speed available for it to come over the runway surface, the aircraft continued to deplete its airspeed, entered into right wing tip stall and impacted unprepared ground surface almost 50 feet short of left edge of R/W 25L.

3. CONCLUSION

Aircraft got airborne under premature conditions (inadequate air speed, cross controlled / un-coordinated flight) vis-à-vis extra weight of two passengers and tail wind. Student Pilot was not aware of visual cues like aircraft attitude and its behaviour as she was under hood. IP could not react timely to take control of the situation.

3.1 Findings

- 3.1.1 Impact pattern, post impact evidences, technical evidences (documents inspection and investigation of instruments, control surfaces operation safety security & serviceability checks) and initial investigation revealed that aircraft was airworthy.
- 3.1.2 There was 08-10 kts of tailwind for Runway 25L.
- 3.1.3 There was not enough briefing conducted for this flight in general and for hood takeoff covering the techniques of instrument take off and the responsibilities of pilot flying and pilot monitoring / instructor pilot in particular.
- 3.1.4 Under the hood, SP remained unaware of developing change in the heading during take off roll, actual attitude and behaviour of the aircraft with respect to actual horizon, and any other visual cues to apply appropriate correction.
- 3.1.5 Instructor Pilot (IP) was late in taking over the control of aircraft.
- 3.1.6 Instructor Pilot (IP), however, did manage to succeed in having a softer ground impact which helped minimize injuries to the occupants and damage to aircraft.
- 3.1.7 Practice for hood take off during training flight is not an authorized practice.
- 3.1.8 As per Rule 235 of CARs, 94, carrying of passengers in local circuit / landing training sorties is prohibited.
- 3.1.9 There exists lack of required supervision.

3.2 Observations

Fire extinguisher under the seat have plastic clamps which had lost the springiness and griping was found loose due to which it got released from the clamp on impact and found strangled with the student rudder paddles.

3.3 Cause of Occurrence

Violation of SOPs by IP and display of inadequate instructional skills caused the occurrence.

4. SAFETY RECOMMENDATIONS

- 4.1 Greater emphasis of Company is required on strict adherence to CAA / Company SOPs, Rules and Regulations.
- 4.2 Aircrew, Instructor Pilots be provided with training, as deemed necessary by DFS, to overcome instructional shortcomings (Already implemented).
- 4.3 Positioning / fixing of fire extinguisher may be modified / replaced to avoid any further occurrence.