

NO HQCAA/1901/269/SIB



CIVIL AVIATION AUTHORITY PAKISTAN

INCIDENT INVESTIGATION REPORT

ON

PIAC BOEING 737 - AP-BEH

OCCURRED ON 29TH DECEMBER 2001

AT

SUKKUR AIRPORT

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FINAL REPORT

INCIDENT TO PIAC'S B-737-300 AIRCRAFT REG # AP-BEH, FLT PK-390 AT SUKKUR ON 29TH DECEMBER 2001

Authority: Director General, Civil Aviation Authority
Memorandum # HQCAA/1901/269/SIB dated 31-12-2001.

Synopsis: On being notified of the incident related to PIAC B-737-300, Reg # AP-BEH, Flight PK-390 at Sukkur Airport on 29th December 2001, a team was composed to carry out investigation vide the memorandum cited above. The investigation team comprised Lt. Col (Retd) Saleem Khan, Investigation Incharge and Captain (Retd) Raheem Shah, Technical Member.

Brief Resume: PK-390 was a scheduled flight from Karachi-Sukkur-Lahore-Islamabad. The Pilot-in-Command was Captain S. Mumtaz and Co-Pilot was First Officer Umer Cheema. Owing to poor visibility at Sukkur, the aircraft was delayed on ground at Karachi. It departed for Sukkur at about 0928 hours on 29th December 2001. The flight from Karachi to overhead Sukkur was uneventful. Sukkur advised PK-390 on the weather and the aircraft was cleared for NDB let down runway 32. After one go around, the aircraft re-attempted to land using runway 32. It touched down in a crab and went off the prepared surface. It remained on the 'katcha' for about 800 feet before returning on the prepared surface. The pilot did not inform the ATC regarding the incident. Sukkur ATCO informed the President Safety Investigation Board on telephone about the incident, following which an investigation was ordered by the CAA.

1. FACTUAL INFORMATION:

1.1 HISTORY OF THE FLIGHT:

1.1.1 PK-390 was on a scheduled flight.

1.1.2 After landing on runway 32 at Sukkur the aircraft went off the prepared surface. (Eye sketch-Appendix 'C').

1.2 INJURIES TO PERSONS:

Nil.

1.3 DAMAGE TO AIRCRAFT:

The aircraft sustained minor damage. (Appendix 'D').

1.4 OTHER DAMAGE:

One runway light was broken as a result of being over run by the aircraft. (Appendix 'H'-1').

1.5 PERSONNEL INFORMATION:

1.5.1 Captain Sheikh Mumtaz, P-46563 was the Captain of the aircraft and was the pilot flying while landing at Sukkur. His personal details are as follows: -

- a. Age: 49 Years
- b. Validity of Licence: Valid ATPL # 709
- c. Rating: Valid B-737 rating
- d. Medical: Valid Class-I Medical
- e. Flying : **Total command hours on type 50**
- f. Grand Total: 16742 hours.

1.5.2 First Officer Omer Cheema, P-51762 was the Co-Pilot. His personal details are as follows:-

- a. Age: 29 Years
- b. Validity of licence: Valid ATPL # 1088A
- c. Rating: Valid 1st Officer rating on B-737
- d. Medical: Valid first class medical certificate.
- e. Flying: Total hours on type 2007.
- f. Grand total: 4738 hours.

1.6 AIRCRAFT INFORMATION:

The technical log showed that the aircraft was airworthy at the time of the incident. There was no reported snag in the aircraft during its flight from Karachi to Sukkur.

1.7 METEOROLOGICAL INFORMATION:

1.7.1 The reported met visibility was 1.6 KM by the control tower, while the pilot confirmed after landing that the visibility was 2 KM on finals.

1.7.2 The met report gave the present weather as 'mist' (Appendix 'E').

1.7.3 The visibility was generally restricted.

1.8 COMMUNICATIONS:

Two-way communication existed between the aerodrome and the aircraft. ATC tape extract- Appendix 'F'.

1.9 AERODROME INFORMATION:

1.9.1 Sukkur Airport is equipped only with an NDB.

1.9.2 Calibration of NDB at Sukkur Airport was carried out in July 2001 by the calibration aircraft of the CAA.

1.10 FLIGHT RECORDERS:

1.10.1 CVR data of the time when the incident took place was lost, as the CVR was not switched off immediately after the incident. The data available on the CVR indicates that the pilots and flight engineers were aware that the aircraft had gone off the runway.

1.10.2 DFDR data (relevant extract) is attached as (Appendix 'G'). DFDR analysis are at para 2.3.

1.11 WRECKAGE AND IMPACT INFORMATION:

1.11.1 Tyre marks of the initial impact indicate a crab to the left. The approximate direction of the aircraft was established as 309 degrees as against the runway direction of 320 degrees. The aircraft left wheels went off the prepared surface at 1150 feet from the threshold. The re-entry of the aircraft on the main runway was indicated by the tyre marks on the ground at 1950 feet from the threshold. The aircraft left wheels traveled on the unprepared surface (kuchtha) for about 800 feet. (Appendix 'H-1 to 3').

1.12 MEDICAL AND PATHOLOGICAL INFORMATION:

Results of the medical investigation of the cockpit crew indicate no abnormality and no drugs or alcohol intake. (Appendix 'J').

1.13 FIRE:

No fire occurred as a result of the incident.

1.14 SURVIVAL ASPECTS:

There was no injury to any person on board.

1.15 TEST AND RESEARCH:

Nil

1.16 ORGANIZATION AND MANAGEMENT INFORMATION:

1.16.1 PIAC management had recently changed its promotion policy, where by pilots in command of Fokkers (F-27) were to be converted as Captains on B-737 directly after their command on the former. A pilot in command of Fokkers converted on to B-737 would in some cases have slower reactions commensurate with their reflexes developed on a slower moving machine, specially during the landing phase. The number of hours of this conversion training i.e from Fokker captain to B-737 captain was 50 hours. Reportedly this was done in consultation with the regulatory authority.

2. ANALYSIS:

The following aspects were analyzed: -

- i. Visibility.
- ii. Training.
- iii. DFDR.
- iv. Flight: PK-390

2.1 VISIBILITY ANALYSIS:

Visibility reported by MET was 1.6 KM at 0400 UTC. The tower and pilot's observation was 2 KM. The visibility condition was deceptive beyond 2 KM as the pilot did approach an area assuming it to be the runway but found the runway on to his left side almost 30 degrees off. This indicates that visibility was poor and could impair judgment during a visual approach for landing. In a bid to make a landing, the pilot made an unsuccessful first attempt, went around and made a non-prescribed circuit pattern for a second attempt to land. Low visibility coupled with a non standard circuit pattern placed the aircraft too close to the runway, forcing him to make a sharp turn from the down wind to the final approach. Being very close to the runway threshold on the final approach, the captain did not find enough time to stabilize the approach and thus landed the aircraft in a crab. This resulted in the aircraft running off the runway on to the unprepared surface.

2.2 TRAINING ANALYSIS:

2.2.1 Analysis of training indicate the following:-

- 2.2.1.1 Captain Mumtaz has been an average pilot.
- 2.2.1.2 His renewal check on B-737 in July 1990 was unsatisfactory. With additional training he was, however, able to clear the renewal check.

- 2.2.1.3 His Standards Inspector Rating was withdrawn in January 1998, and re-awarded in August 2000.
- 2.2.1.4 Prior to his conversion as Captain on B-737, pilots in command of F-27 (Fokkers) were converted on B-747 and placed as first officers on them. After completion of their tenure as first officers on B-747s, these pilots were converted Captains on B-737.
- 2.2.1.5 In Captain S. Mumtaz's case the promotion policy was changed by PIAC Management and Captain Mumtaz, alongwith a few other pilots, were converted on B-737 and given command of the same aircraft on completion of their prescribed training.
- 2.2.1.6 This change in the promotion policy was reportedly done in consultation with the regulatory authority, which approved the change.
- 2.2.1.7 His conversion training consisted of 10 sessions of simulator training and 50 hours of type training on B-737 aircraft.
- 2.2.1.8 During the transition training imparted to Captain S. Mumtaz, he was not flown as Captain under supervision (U/S) on a B-737-300 in EFIS (glass cockpit) configuration.
- 2.2.1.9 The above observations indicate that the transition training would be more comprehensive if under supervision training in EFIS configuration is included in the B-737 transition-training syllabus. Consideration may also be given to increasing the number of flying hours on type from 50 to 100 if the present promotion policy is to be followed. Flight Standards Directorate may be approached for advice and approval.

2.3 DFDR ANALYSIS:

The DFDR reveals the following:-

- 2.3.1 About four minutes before touch down the aircraft descended to 351 feet (frame 52509 of DFDR) with flaps extended. After staying for about one minute in this configuration the

aircraft apparently pulled up and made a 180 degrees climbing turn to the right. It climbed to 600 feet and re-commenced a descend in the same right hand turn. The descending right hand turn at this stage was steep and the heading was consistently being manipulated till touch down.

2.3.2 The read out indicates an instable approach culminating in a landing.

2.3.3 Heading changes are apparent after the aircraft was on ground.

2.3.4 It can be concluded from the read out that a standard go around procedure was not adhered to and a landing was made from a destabilized approach. (Appendix 'G').

2.3.5 According to the pilot, this was a 'bad weather circuit' he flew, which is not documented in any manual pertaining to B-737.

2.4 FLIGHT ANALYSIS:

2.4.1 A critical look at the progress of the flight indicates the attitude of the PIC of PK-390. Not adopting a laid down go around procedure and calling it a 'bad weather circuit', which is not documented; not reporting an incident he knew had occurred and justifying the inordinate delay in reporting it (Appendix 'K-1' & 'N'), are indicators of unsafe practices. Such practices must not be allowed to go unchecked. The management needs to look at these aspects more closely and adopt measures to ensure that such recurrences are minimized, if not eliminated completely from the system.

2.4.2 Considering that the PIC was the pilot flying (PF), a left-hand circuit pattern should have been preferred to enable him to keep the runway in sight in such a poor visibility.

2.4.3 The co pilot displayed total in-action during the landing phase, when a suggestion to go around would have been conducive to safety.

3. CONCLUSION:

3.1 FINDINGS:

3.1.1 PK-390 was a scheduled flight from Karachi to Sukkur.

3.1.2 Its take off was delayed at Karachi due to poor visibility at Sukkur.

- 3.1.3 Flight up to Sukkur was uneventful before the approach phase.
- 3.1.4 The aircraft descended to 500 feet on to an area presumed to be the runway by the cockpit crew, while the MDA for Sukkur was 750 feet.
- 3.1.5 At this point the runway was sighted 30 degrees to the left of the aircraft position.
- 3.1.6 The aircraft was leveled off and flown towards the runway.
- 3.1.7 A de-stabilized approach, on runway 32, ensued.
- 3.1.8 A landing from this approach could not be made and the aircraft went around.
- 3.1.9 The aircraft pulled up to 600 feet (150 feet below the MDA) and the captain flew a non standard 'bad weather circuit' for a second attempt to land.
- 3.1.10 A comparatively tighter turn from the down wind to the final approach was made in an effort to align the aircraft with the runway center line.
- 3.1.11 The aircraft landed close to the center line in a crab to the left.
- 3.1.12 Before a correction could take effect the aircraft went off the prepared surface to the left of the runway.
- 3.1.13 It traversed on the unprepared surface for about 800 feet before re-entering the prepared surface.
- 3.1.14 No call was given to the ATC regarding the aircraft having left the prepared surface after landing.
- 3.1.15 The air traffic controller, suspecting that the aircraft had gone off the runway, inspected the runway to confirm his suspicion.
- 3.1.16 It was found that fresh tyre marks existed on the unprepared surface and a runway light was found broken.
- 3.1.17 Inspection of the aircraft revealed a broken landing light on the left wing and grass sticking to the left engine cowling with a few grass marks.
- 3.1.18 Sukkur ATC was informed of the incident by the aircraft crew approximately one hour after the incident.
- 3.1.19 The pilot did not pull out the CVR circuit breaker immediately after the incident, which caused the loss of valuable cockpit voice recording pertaining to the initial phase of the approach and landing sequence.
- 3.1.20 The retrieved CVR recording indicated that the engineers on board would have cleared the aircraft to resume its normal flight to its subsequent destinations without reporting the incident.

3.2 CAUSE:

The incident is attributed to display of over-confidence by a captain of comparatively less on-type-command experience while landing from a de-stabilized approach in restricted visibility conditions at Sukkur Airport.

4. SAFETY RECOMMENDATIONS:

- 4.1** The following actions by PIAC are recommended :-
 - 4.1.1 Re-emphasize on all pilots to use only the standard published procedures during landings and missed approaches.
 - 4.1.2 Remind pilots periodically to avoid landing from a de-stabilized approach.
 - 4.1.3 Direct the cockpit crew to report occurrences/suspected occurrences to the ATC immediately on R/T.
 - 4.1.4 Re-emphasize on the pilots that following an incident/suspected incident, the CVR recording must be 'frozen' by pulling out the CVR circuit breaker.
 - 4.1.5 Encourage co-pilots to call out a go around, when necessary.
- 4.2** Appropriate remedial measures for the cockpit crew, in consultation with the Chief Flight Standards, CAA be taken. (Action already taken vide Chief Flight Standard's letter # HQCAA/5264/20/FS/94 dated 29th January 2002).



INITIAL IMPACT - TOUCH DOWN-TYRE MARKS



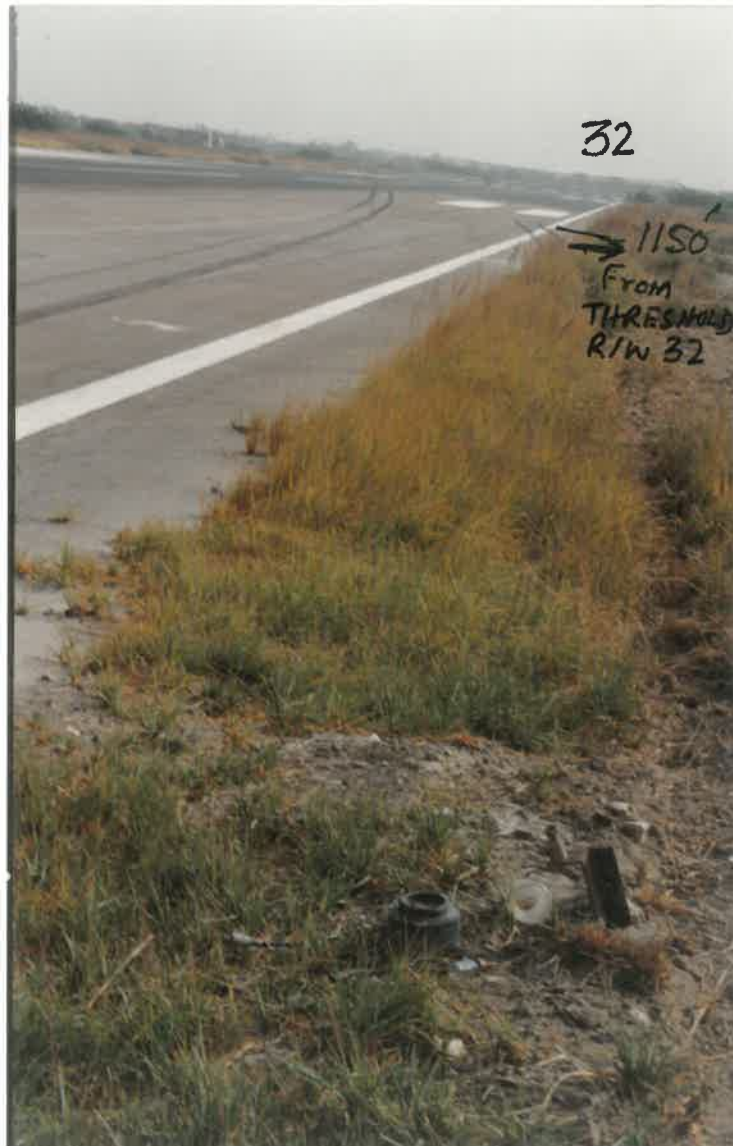
CRAB TO THE LEFT - RIGHT WHEELS IMPACTED FIRST
R/W DIRECTION 320° TOUCHDOWN DIRECTION 309° (APPROX)



A/C LEAVING PREPARED SURFACE AT 1150 FEET FROM THRESHOLD ^{R/W} 32



A/C REENTERING R/W AT 1950 FEET FROM THRESHOLD ^{R/W} 32



RIGHT LANDING GEAR TYRE MARKS VISIBLE
LEFT LANDING GEAR TYRE MARKS VISIBLE
BROKEN R/W LIGHT