



PAKISTAN CIVIL AVIATION AUTHORITY
(SAFETY & INVESTIGATION BOARD)



**SERIOUS INCIDENT TO M/S. AIR BLUE AIRCRAFT, A-321,
MSN-1199, FLIGHT # ED-502, REG. # AP-BJA
ON 4TH MAY 2008
AT
QUETTA AIRPORT**

(TAIL STRIKE DURING TOUCH DOWN)

FINAL REPORT

SERIOUS INCIDENT TO M/S AIR BLUE AIRCRAFT A-321, FLIGHT # ED-502, MSN-1199, REG. # AP-BJA ON 4TH MAY 2008 AT QUETTA AIRPORT

Authority: Director General Civil Aviation Authority Memorandum
No.HQCAA/1901/323/SIB dated 17 May 2008 (**Appendix 'A'**).

SYNOPSIS

On 4th May 2008 Air Blue A-321, Registration Number AP-BJA was scheduled to operate Flight # ED-502 from Karachi to Quetta. For the sector from Karachi to Quetta, First Officer was pilot flying and captain was performing the duties as Pilot Not Flying (PNF). On arrival, the ATC gave weather and crew decided to carry out VOR approach for R/W 13 followed by visual circle to land at R/W 31. However, during final approach ATC gave wind as "light and variable", on which Captain decided to land on R/W 13. On touchdown, the aircraft bounced followed by another touch down which lead to tail striking the ground at approximately 2000' from threshold of Runway 13. Scratches on tail of aircraft were reported in the initial report. However, later the aircraft structure was found stressed and aircraft was required to be repaired at Toulouse, France.

1. FACTUAL INFORMATION

1.1 History of the Flight: Flight No. ED-502 from Karachi to Quetta

1.2 Crew Information:

1.2.1 Pilot in Command

(a)	Name	:	Syed Muzaffar Ali Zaidi
(b)	Date of Birth	:	06-09-1965
(c)	Type of Licence held & No.	:	ATPL – 1025
(d)	Medical Date with Status	:	16-07-2008 (Class-I)
(e)	Type Ratings	:	F-27, C-172, BN2A
(f)	Type Current	:	A-319/320/321
(g)	Grand Total Hours	:	3120 hrs
(h)	Total in Command	:	1380 hrs
(j)	Total in Command on the	:	594 hrs
	Type accident / incident occurred		

- | | | |
|-----|----------------------------------|------------|
| (k) | Where Trained | Dubai, UAE |
| (l) | Date of joining the organisation | 03-05-2006 |

1.2.2 Co-Pilot

- | | | |
|-----|--|--------------------------------|
| (a) | Name | Shehryar Bin Aman Mufti |
| (b) | Date of Birth | 21-08-1967 |
| (c) | Type of Licence held & No. | CPL – 2111A |
| (d) | Medical Date with Status | 30-06-2008 (Class-I) |
| (e) | Type Ratings | A - 320 |
| (f) | Type Current | A - 320 |
| (g) | Grand Total Hours | 3000 hrs |
| (h) | Total in Command | -- |
| (j) | Total in Command on the
Type accident / incident occurred | -- |
| (k) | Where Trained | Tunisia |
| (l) | Date of joining the organisation | 01-12-2005 |

1.3 **Injuries to Persons:** Nil.

1.4 **Damage to Aircraft:** Aircraft structure damaged, aircraft repaired by Airbus Industries at Toulouse, France.

1.5 **Impact Information:** See photographs at **Appendix 'G'**.

1.6 **Fire:** No fire damage

2. ANALYSIS

2.1 DFDR:

2.1.1 DFDR analysis confirmed the event reported by Air Blue on A-321 on 4th May 2008. Analysis shows that aircraft performed a landing with bounce in Quetta on R/W 13 followed by a tail strike and hard landing.

2.1.2 The FDR has recorded following events with corresponding severity in the final approach phase. **See Appendix 'B'**:

- (a) High rate of Descent in approach less than 500 ft Altitude above field elevation with medium severity.
- (b) Roll excursions below 100 ft AFE (Altitude above field elevation) with low severity.
- (c) Significant tail wind at landing with high severity.

- (d) High acceleration at touch down with high severity.
- (e) Pitch high at touch down with high severity.
- (f) High pitch rate at landing with high severity.
- (g) Late thrust reduction at landing with low severity.

2.2 DFDR Analysis by Airbus

2.2.1 The DFDR raw data was despatched to Airbus for their comments. The report received from Airbus is attached as **Appendix 'C'**. The Airbus analysis confirms our findings. It further states that the anomalies in weight and balance would not have changed the findings. The conclusions from Airbus report are reproduced here:

- (a) First touchdown carried out with A/T on climb which led to engine thrust increase.
- (b) A/T was put to idle during the bounce led to the ground spoiler activation and consequently a hard landing at second touch down (+2.45G).
- (c) 10 – 15 feet of damage due tail strike during landing.
- (d) Significant aircraft pitch angle (+9.8°) at time of second touchdown led to tail strike.
- (e) No system misbehaviour highlighted.
- (f) Pilot handling is the cause of bounce and tail strike.

2.3 Weight and Balance

2.3.1 During the course of inquiry serious anomaly in weight and balance calculation were observed as CG of aircraft was shown significantly forwarded without any significant change in weight of the aircraft. The operating crew of the Air Blue also reported that aircraft has a tendency of premature airborne during take off roll.

2.3.2 The statement of person in-charge of weight and balance in Air Blue Mr. Khawaja Ahad also states that there was error in calculating the weight and balance. However, after the accident, the weight and balance was ammended via report No. 11 dated 11th May 2008. See **Appendix 'D'** for Weight & Balance Bulletin and **Appendix 'E'** for Trim

Sheet. The matter was referred to Airbus and the comments of their expert are:

“Two weightings of the aircraft were accomplished in 2007 and 2008. There are discrepancies between associated weighting reports which cannot be explained by paper work history. Verbal reports from operating crews indicated that aircraft had a tendency to lift-off early during take off.”

2.3.3 The above two independent sources of information suggested an uncertainty in data on centre of gravity. Hence it was recommended to carry out the “weighing of the aircraft” before planned ferry flight to Hamburg.

2.3.4 It must also be noted that an in-accurate DOCG may lead to an inaccurate THS setting at take off and consequently a risk of tail strike on take off not on landing”.

2.4 Observations

2.4.1 Cargo cabins of two flights immediately after landing at Karachi were inspected by SIB. It was observed that the nets were not installed between the various Cargo Compartments in Cargo Cabin; thereby leaving the luggage pieces to move forward and backward during different phases of flight.

2.4.2 In the absence of net, the cargo is bound to move rear wards in case of a hard landing and resulting bounce.

2.4.3 The frequent changes in weight reports and verbal reports of aircraft getting premature airborne by air crews created lack of confidence in air crew. This was revealed during cross questioning the air crew.

2.4.4 A Weight and Balance card was examined during interview of operator responsible for preparing weight and balance sheet for flights. It was observed that “Proficiency Certificate for Weight and balance“was issued by General Manager Operations Control. **See Appendix ‘F’**. There is no authority given by CAA for issuing such certificates by operators.

2.5 Aircrew Medical Examination

2.5.1 Following the incident on 4th May 2008 at Quetta, Blood and Urine samples of both Captain and First Officer were taken by Aga Khan Lab. Urine samples of First Officer indicated high levels of "Cannabinoids" (**Appendix 'G'**).

2.5.2 Hence F/O was referred to Medical Board of CAA and further referred for two independent Psychiatric Evaluation. The one i.e. Dr. Unaiza Niaz MD gave final opinion as follows:-

"Presently he is fit for flying duties. Three monthly check ups for substance abuse (urine and blood analysis) for six month."

The second Psychiatric opinion by Mr. Naeem Sadiq contains significant remarks i.e.:

- (a) Mr. Mufti emotionally and low level of stress tolerance makes him vulnerable in dealing with stressful circumstances. Helping Mr. Mufti develop his self esteem and more productive coping mechanism would be beneficial to his mental health.
- (b) I advised him to repeat his Urine on the same day i.e. 27th May 2008. He gave the sample on 2nd June 2008 for drug screen which came out negative.

2.5.3 In the light of forgoing, it is important for AOC holders to devise medical test procedures to detect presence of drugs including Cannabis on blood / urine of aircrew. The F/O Mr. Mufti must be put under observation and surprise checks be conducted on all air crew to determine their habit patterns / health state.

2.6 Conclusion

2.6.1 From the analysis of the available data, interviews with various flight crew, observation by Air Bus and medical condition of PF, it is concluded that :

"The aircraft bounced in a tail wind condition, the cargo apparently shifted towards the rear, throttles were retarded to idle; therefore ground spoilers were activated resulting in rear ward movement of CG. PF could not control the pitch angle increase resulting in +9.8° on landing which resulted in tail strike. PNF did not assist PF in taking correct check list actions when the aircraft bounced".

3. FINDINGS

3.1 The board finds that the primary cause of the occurrence is improper handling by Pilot Flying (PF) after bounce.

3.2 Captain failed to resume control of aircraft after the bounce.

3.3 He neither guided nor warned PF of tail wind condition or increasing pitch angle after bounce.

3.4 The PNF did not touch the controls till the time aircraft came to stop on runway.

3.5 Aircrew flying experience data reveals that the experience level of PIC at the time of up grading to Captain was bare minimum (2500 hrs) with inadequate jet experience before flying A-320.

Contributing Factors

3.6 The wind reported by ATC at all the times was favourable for landing at R/W 31. The crew had also planned and briefed to land on R/W 31.

3.7 When ATC announced the wind as "light and variable", at final stage; the captain decided to land on R/W 13. However, the DFDR reveals that aircraft landed with tail wind of about 10 - 15 Kts on R/W 13.

3.8 Presence of high levels of cannabinoids in urine sample indicates PF to be under the influence of drugs which could result in improper pilot action during such a critical stage as a bounce on landing.

3.9 In the absence of cargo nets between various compartments, it is most likely the cargo would shift back on a bounce thereby further aggravating the situation.

Cause of Occurrence

Improper handling of aircraft by Pilot Flying (PF)
Lack of CRM by Pilot Not Flying (PNF).

Finalization

Human Factor – Avoidable - Aircrew

3. RECOMMENDATIONS

4.1 Both the pilots should be put under observation. The captain should not be allowed to act as PIC till the time his professional level is raised to a level where he should be able to handle the situation in accordance with the required company standards.

4.2 The next simulator checks of both the pilots should be monitored by CAA.

4.3 The weight and balance bulletin be made by a qualified and independent operations engineer certified by CAA and should be cross signed by another qualified person.

4.4 All Air Blue aircraft be fitted with cargo nets.

4.5 Proper procedure be developed by M/s. Air Blue to monitor all pilots for any use of bound medicine / drugs.