



Office of Aviation Safety

National Transportation Safety Board

Washington, D.C. 20594

December 9, 2011

President, Safety Investigation Board
Pakistan Civil Aviation Authority Terminal-1,
Jinnah International Airport
Karachi – Pakistan

NTSB COMMENTS

Thank you for the opportunity to review the draft final report on the accident involving Airblue flight 202, an Airbus A321 with IAE V2500 engines, registration AP-BJB, which crashed during approach to Benazir Bhutto International Airport (OPRN), Islamabad, Pakistan, on July 28, 2010

As U.S. Accredited Representative, I reviewed the draft final report with my technical advisors regarding the engine and EGPWS information. Overall, we found the report to be clearly written and have only a couple minor comments that I have attached.

Please let me know if you have any questions or need clarification of any of the comments.

Best regards,

US Accredited Representative

Enclosures

- NTSB Comments
NTSB AP-BJB Draft Report Comments

Page 37, Appendix B

(IAE is a joint venture between Pratt & Whitney and Rolls Royce and the engines are certified in the US).

Suggest deleting “and manufactured” since the engines are not necessarily manufactured in the US.

Page 6, Section 4.2

Engine	Serial Number	Time Since New	Cycle Since New
Engine No 1	V10718	29324FH	11964FC
Engine No 2	V13039	6082FH	2389FC

Suggest that verifying the engine hours and cycles. These do not agree with the information provided to IAE.

IAE data indicate:

Engine #1 TSN = 31452 hours (29324 FH in report was actually the time at last overhaul at MTU), CSN = 12774 cycles.

Engine #2 TSN = 5113 hours, CSN = 1941 cycles.

Le Bourget, le 15 novembre 2011

**President Safety Investigation Board
& IIC of ABQ-202 accident of 28 July 2010**
HQs Pakistan Civil Aviation Authority,
Terminal 1
JINNAH International Airport
KARACHI, PAKISTAN

N°000979 /BEA/INV

Objet : BEA and Airbus Comments

V/réf : Your Draft Report « ABQ-202 Draft Report for Seeking Comments »

Thank you for having associated the BEA (Bureau d'Enquêtes et d'Analyses pour la sécurité de l'Aviation Civile) with the investigation into the accident to the Airbus A321, registered AP-BJB, and for the opportunity to make comments on the Draft Final Report. I would also like to reiterate our great appreciation for the spirit of cooperation that has permeated this investigation

It is in this same spirit, and with the interests of civil aviation safety in mind, that we hereby present you with the following observations. I hope that they will appear to you to improve the overall comprehension of the accident and that you will accept that they be included into your report. If this is not the case, I would be obliged if you would append this letter and appended observations to the report, in accordance with the provisions of Annex 13.

The BEA remains at your disposal for any further information that you may wish to obtain.

Yours sincerely,

French Accredited Representative

1. General comment

The BEA is pleased to note that our contribution document was useful to the PSIB.

However, some sections of the draft report use harsh words to describe the crew's behaviour. Annex 13, paragraph 3.1 states that the objective of the investigation is not to apportion blame or liability. This is also reminded in the chapter 2 of your draft report. Therefore, the BEA suggests re-wording some parts of the draft final in order to soften the criticism towards the crew.

2. Detailed comments

Number	Paragraph	Comment
1.	Chapter 1 Summary	The BEA suggests adding a note saying that all time references in the report are in UTC.
2.	5.1	The draft report states that the subsequent paragraphs explain all the requisite information. The BEA suggests changing " all " into " some of " or " the relevant ".
3.	5.2.5	The number " 9 " is inadvertently inserted in the sentence.
4.	5.3.2	To match the actual wording of FCOM volume 1, chapter 34, subchapter 70, change the descriptions of the EGPWS modes into the following: a. Mode 1: Excessive rate of descent, b. Mode 2: Excessive terrain closure rate, c. Mode 3: Altitude loss after takeoff, d. Mode 4: Unsafe terrain clearance, e. Mode 5: Too far below glideslope.
5.	5.3.4	As the EGPWS database is composed of both terrain and airports, modify 5.3.4.c into: c. "on-board terrain and airport database"
6.	5.3.5	The draft final report states: <i>"A global terrain database with 100% coverage is resident within the EGPWS. By using the input latitude, longitude, altitude as well as flight path angle, turn rate and groundspeed, the EGPWS can place the aircraft position within the terrain data and "look ahead" to potential conflicts with terrain. This eliminates the problem of abruptly rising terrain. It issues cockpit voice and visual annunciations approximately 60 seconds before predicted terrain conflict and provides a cockpit display of terrain relative to aircraft elevation as well."</i> As highlighted by this accident, the EGPWS can only be a help to the crew and will not eliminate the issue of abruptly rising terrain. As a consequence change the highlighted section into: "This mitigates the risk of impacting abruptly rising terrain"
7.	5.3.6	In order to avoid any confusion with the TCAS system, change: <i>"if the aircraft penetrates the caution area"</i> Into: <i>"If an obstacle penetrates the caution area"</i>

8.	5.3.7	<p>In order to avoid any confusion with the TCAS system, change: <i>“If the aircraft gets closer to the conflict terrain, and penetrates the warning area, ...”</i></p> <p>Into:</p> <p>“If the aircraft gets closer to the conflict terrain, and an obstacle penetrates the warning area, ...”</p>
9.	6.6.3 and 6.6.4	<p>Move the piece of sentence <i>“According to this same document, the”</i> at the end of 6.6.3 and place it at the beginning of 6.6.4.</p>
10.	8.1 and 8.2	<p>The time reference is local time, whereas it is in UTC for the rest of the chapter 8.</p> <p>The BEA suggests referring to UTC time only.</p>
11.	8.11 and 8.17	<p>These two sections deal with the CF point.</p> <p>The BEA suggests adding a reference to paragraph 5.2.5 at the first mention of “CF” in 8.11, in order to better understand what “CF” represents.</p> <p>Then, since CF is already defined in 8.11, the wording of paragraph 8.17 could be changed into the following : “At 0406:35, there were other discussions about another waypoint, called PBD-11 on a 026° radial from “CF” ”</p>
12.	8.27	<p>The draft final report states:</p> <p>The Captain <i>“decided to fly a managed approach on pre selected PBDs”</i></p> <p>As this is analysis rather than factual data, the BEA suggests changing the wording into:</p> <p><i>“The CVR recording and flight simulations show that the Captain probably decided to fly a managed approach on pre selected PBDs...”</i></p>
13.	8.38	<p>The draft final report states: <i>“In an attempt to turn the aircraft to the left, the Captain was setting the heading bug on reduced headings, but not pulling the HDG knob. Since the aircraft was in the NAV mode, it could not have turned left as was being commanded by Captain.”</i></p> <p>Since the aircraft could have turned if the correct action had been performed, change the highlighted section into:</p> <p><i>“Since the aircraft was in the NAV mode, the Captain was not performing the appropriate actions to turn the aircraft to the left.”</i></p>
14.	8.41	<p>This phase of flight comes after the AP disconnection.</p> <p>The BEA suggest moving this paragraph after 8.47, which is the time of AP disconnection (0440:46)</p>
15.	8.41	<p>The draft report states that: <i>“when the Captain put in 52 degrees of bank to turn the aircraft, due to aircraft flight controls limiters and auto throttle function in place, the nose pitched down, the engines spooled down, and the aircraft again started to descend at a high rate”</i></p>

		<p>The BEA disagrees that the “aircraft flight controls limiters” made the aircraft pitch down. DFDR analysis and simulations showed that the decrease of pitch is due to the Captain’s nose down inputs on his side stick, as stated in paragraph 8.49.</p> <p>In addition, this aircraft is equipped with an autothrust (not auto-throttle). It was set in SPEED mode, so while the aircraft descended and increased its speed, the engines spooled down to keep the airspeed on the target speed.</p> <p>Therefore, change paragraph 8.41 into: “During the last few seconds, the aircraft did climb to 3,090 feet. The Captain put in 52 degrees of bank to turn the aircraft and also made some nose down inputs. Therefore, the aircraft pitched down, the speed increased and autothrust commanded the engines to spool down to keep airspeed on the target speed. The aircraft started again to descend at a high rate.”</p>
16.	8.48	<p>The way the sentence is written may lead the reader to believe that at 0440:49, the Captain was still turning the HDG bug. In reality, the selected heading stopped changing at 0440:46 and remained at 025° until the end of the recording.</p>
17.	10.2	<p>Remove or modify the term “<i>raging</i>”, as its meaning was not understood by the BEA.</p>
18.	10.13	<p>The draft final report states:</p> <p><i>“(…) did not turn left to parallel the course.”</i></p> <p>The BEA suggests adding “of the runway” at the end of this sentence.</p>
19.	10.18	<p>The time of the first EGPWS is in local time and is off by 2 seconds.</p> <p>Change “0939:56” into a UTC time of “0439:58”, which will make it coherent with Appendix-C.</p>
20.	11.4	<p>The draft reports states:</p> <p><i>“Captain was heard to be confusing BBIAP Islamabad with JIAP Karachi while planning FMS, and Khanpur Lake (Wah) with Kahuta area during holding pattern”</i></p> <p>This is a new fact that appears in the conclusion. The BEA suggests mentioning it earlier in the report.</p>
21.	Appendix B	<p>The BEA is asking to please remove the names of the Accredited Representatives and Technical Advisers from the report.</p>
22.	Appendix C	<p>Line 16: move the word “<i>Auto</i>” in the next column.</p>