

Case 2 of wake turbulence (close call incident)

The aircraft became engulfed by wake turbulence from the preceding aircraft immediately after takeoff

Time of takeoff

- Took off following a large aircraft when departing from Haneda Airport
- Received impact of what is believed to be wake turbulence from the preceding aircraft

Time of ascent

- Entered a significant right bank while in autopilot mode soon after takeoff
- Impression was a considerably fast roll rate (how an aircraft tilts) and the start of tilt that was larger than usual
- When an attempt to use the aircraft's monitor was made, it suddenly over banked (an excessive bank angle) and the bank angle alarm rang at the same time. It seemed that the autopilot mode fell into the roll mode through manual control.
- As the roll rate began to become controlled, the monitor was continued, and autopilot was slowly released
- HDG SEL (course selection) was ordered once more
- As autopilot went into over banking just like that, the threat of wake turbulence was recognized once more

This case was introduced on the ATEC website (Page 3, 05).

<http://www.jihatsu.jp/news/feedback/FEEDBACK%202014-02.pdf>

(Only available in Japanese)

As wake turbulence circumstances change depending on the impact of factors such as the presence and strength of wind in that airspace, it would be difficult for pilots to accurately assess wake turbulence conditions in advance.

As it is also stated in the accident investigation report that "it has been recognized that an interval sufficiently exceeding the minimum interval was secured," it is believed that there was no big difference in the operations conducted by both pilots in response to wake turbulence. Moreover, while there was a person injured as a result of the shaking of the aircraft, the pilot of the aircraft involved in the accident properly conducted recovery operations in response to the abnormal positioning.

It is believed that what can be said for these two incidents is that firstly it is important to remain faithful to the basics in operations, and to also pay attention to changes in the surrounding situation with the recognition that it's impossible to know what might happen during flight and to always respond calmly when an unexpected situation occurs.

※Case of small aircraft that landed becoming grounded by wake turbulence from a large aircraft

Ownership: Individual

Model: Piper PA-46-350P

Time and date of occurrence: around 12:37 on August 5, 2003

Location of occurrence: Nagoya Airport (at that time)



An privately-owned Piper PA-46-350P was boarded by a total of four people including the captain on August 5, 2003 (Tuesday) in order for personal move and took off from Yao Airport. When it landed at Runway 34 of Nagoya Airport, after touching the earth the aircraft body flew up and touched down at around 12:37, and the landing gears were broken and stopped on the ground.

There was no passenger injured, medium level damage was caused to the aircraft, and no fire occurred.

It is assumed that this accident was caused by the aircraft encountering wake turbulence upon landing occurring from the left wing of the departing aircraft that departed earlier. The aircraft touched down once, flew up, and touched down again, at which time both main landing gears were broken, the rear spar near the end of the left main wing was bent, and the body of the aircraft was damaged.

(Reference)

Regulations concerning wake turbulence in air traffic control standards (excerpt)

(1) When establishing a minimum control interval (in the case of the same runway)

a. Separation between landing aircraft:

Preceding aircraft	Following aircraft	Minimum separation
Heavy aircraft	Heavy aircraft	2 minutes
Heavy aircraft	Medium aircraft	2 minutes
Heavy aircraft/ Medium aircraft	Light aircraft	3 minutes

b. Separation between departing aircraft:

Preceding aircraft	Following aircraft	Minimum separation
Heavy aircraft	Heavy aircraft/ Medium aircraft/ Light aircraft	2 minutes

(2) When providing information

Preceding aircraft	Following aircraft
Heavy aircraft	Aircraft in a visual approach
Departing heavy aircraft	Aircraft landing in less than 2 minutes
Landing heavy aircraft	(1)Landing visual flight rule aircraft with less than the minimum separation in a. above
Landing medium aircraft	Landing light aircraft
Other aircraft deemed necessary the issuance of advisory information on wake turbulence, for safety reasons	

(Note) Types of aircraft wake turbulence

Aircraft	The maximum takeoff weight
Heavy aircraft	300,000lb(136t) or above
Medium aircraft	15,500lb(7t) to 300,000lb(136t)
Light aircraft	less than 15,500lb(7t)

The investigation report of this case is published on the Board's website (issued on July 30, 2004)
<http://www.mlit.go.jp/jtsb/aircraft/rep-acci/AA2004-2-1-JA4200.pdf>
 (Only available in Japanese)