

Around 16:55

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Cabin attendant (CA) reported to the PIC the situation observed in the cabin.

Around 16:56

The FO reported with company radio that the aircraft had encountered turbulence, and that several persons were injured.

Around 17:22

The PIC informed passengers over the Passenger Address (PA) system that the aircraft had encountered turbulence and it would not affect the scheduled flight.

Around 17:43

The aircraft landed at Tokyo International Airport.

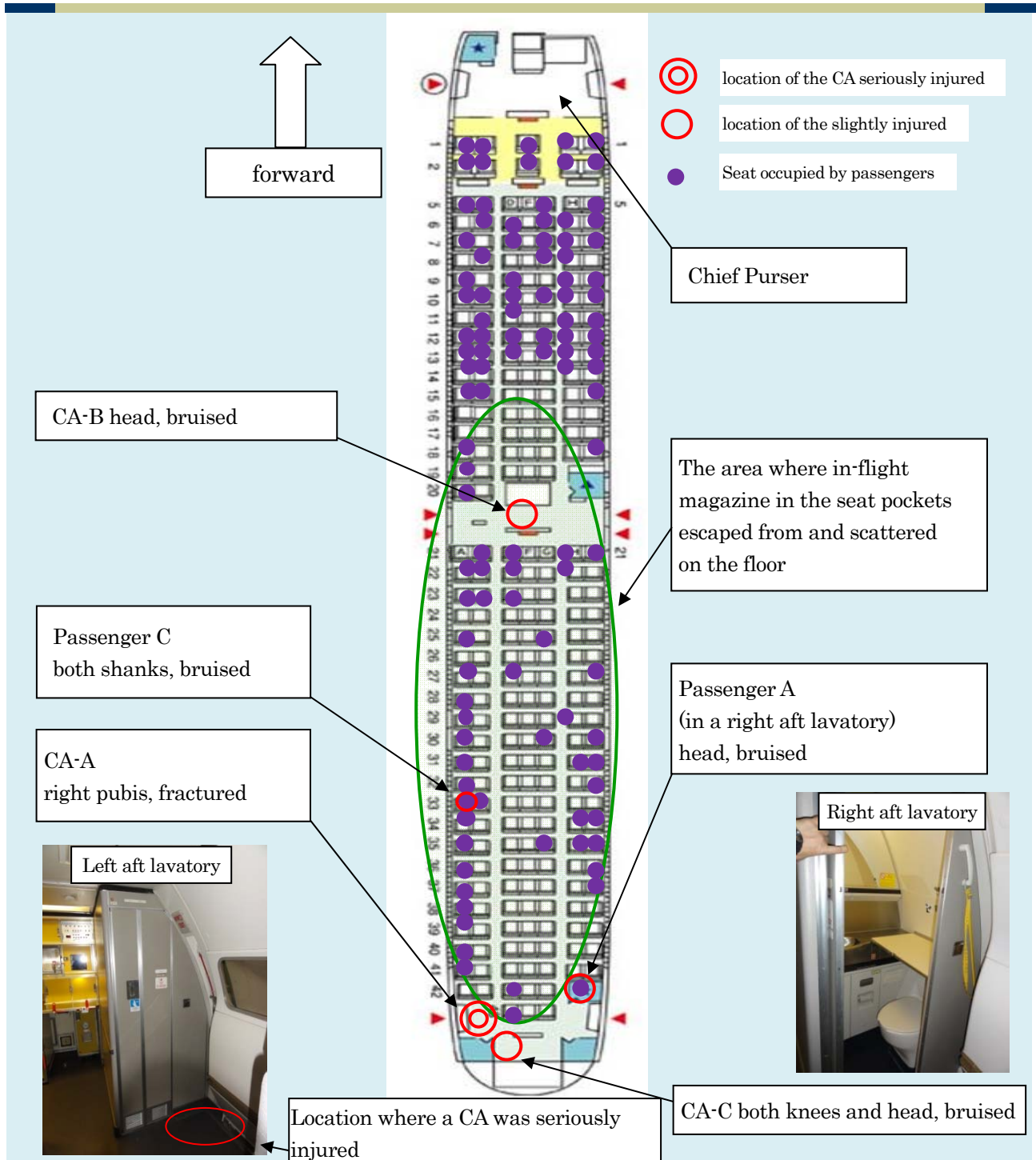
Statements of Cabin Attendants (Chief Purser)

She felt like she was lifted up very softly. Although the chief purser instantaneously grabbed a curtain in front of her, she was lifted up by 20 cm only to be dropped to the floor with the hem of the curtain over her arm. There was no report of damage observed in the cabin, though most of the in-flight magazines and headphone sets in the seat pockets were found scattered over the floor in the aft cabin.

Statements of Passengers (Passenger A)

Before the strong shaking she felt rolling and she anticipated another shaking in the aft lavatory, but her anticipation was betrayed by the pitching by which she was thrown upward to have her head hit against the ceiling, and was dropped on the floor.

Locations of injured persons



Causal Factors of the Accident

Convective Clouds

observing no clouds at their altitudes while flying between the thin cloud layers.

It is highly probable that the aircraft was not shaken by the influence of convective clouds judging.

Winds

The existence of layers in the accident airspace, whose temperature and atmospheric pressure values were different, accompanied by wind velocity difference (wind shear), generated the unsteady air conditions where turbulence was likely to occur near the layer boundary.

While the aircraft was flying in the vicinity of the boundary, it is possible that the unsteady airspace generated the turbulence and shook the aircraft with a downdraft, judging from the fact that at the moment of the turbulence.

The Turbulence

The aircraft gradually approached the frontal zone under the jet stream.

Nothing more than a weak vertical shear with 0 to 6kt was analyzed at the occurrence point.

The strong shaking lasted only for a very short period and ended without recurring.

The flight encountered it while flying through cloudless airspace.

It is highly probable that the aircraft encountered a local and temporary, strong CAT induced by wind shear judging from the findings.

The Shaking

The combination of the aircraft motion around the center of gravity caused by the increase in the pitch angle and the sharp descent of the aircraft by 80 ft gave the aft section of the aircraft a sudden lowering.

It is highly probable that the CA near the left aft lavatory flew up into the air and suffered a serious injury upon the fall to the floor.

Probable Causes : It is highly probable that the accident occurred as follows:

The aircraft encountered atmospheric disturbance all of a sudden during flight, and was shaken so severely that one of the cabin attendants in the aft section of the aircraft was seriously injured when she was thrown up in the air and fell on the floor.

It is possible that the atmospheric disturbance the aircraft encountered were CAT which was created locally and temporarily by a wind shear in the vicinity of frontal zone beneath a jet stream.

In order to Prevent Recurrence

- > It would be recommended to continue to examine the effectiveness of measures such as the installation of handrails at locations where passengers pass by and consider taking further safety measures to prevent accidents.
- > It is desired that the Company's adoption of such a procedure should be considered as advising passengers in advance of preventive measures in case of a shaking.
- > It would be recommended to promote studies on and development of an airborne Doppler light detection and ranging (LIDAR) to detect CAT.
- > It is expected that providing meteorological organizations with access to analyze more detailed information including accelerated velocity suffered by the aircraft involved in a turbulence of MODERATE intensity or more, will contribute to the improvement of more accurate CAT prediction.

The investigation report of this case is published on the Board's website (issued on Jun. 29, 2012).

http://www.mlit.go.jp/itsb/eng-air_report/JA8569.pdf

(This report is a translation of the Japanese original investigation report. The text in Japanese shall prevail in the interpretation of the report.)