



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Washington, D.C. 20594

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Attachment 8 – Delta Air Lines Flight Operations Manual [Excerpts]

OPERATIONAL FACTORS

DCA19CA208



Flight Operations Manual Delta Air Lines, Inc.

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Notification to Captain Prior to Takeoff

The flight leader/purser will verbally state to the captain (or designee), "Cabin is ready for takeoff," or signal via electronic means for applicable fleets. This signifies that:

- Cabins/galleys are secure and passenger seats (and in-seat/overhead videos) are in their upright and locked position
- All other flight attendants are seated with seat belt and shoulder harness fastened
- The Passenger Safety Briefing has been performed.

Seat Belt Sign Usage

In order to ensure that customers do not become complacent when the seat belt sign is on, it is important that the customers and flight attendants are made aware of, and continually updated on, the reason the seat belt sign is illuminated. To encourage customer compliance with seat belt sign illumination, ensure the seat belt sign is:

- On when conditions dictate and,
- Off when conditions no longer require its use.

Cabin Notification - Turbulence

Customers

When anticipating turbulence:

- Illuminate the seat belt sign
- Make a PA (see turbulence action chart)
- When making a PA, use "rough air." When speaking to flight attendants via interphone, use proper terminology (e.g., "light turbulence").
- If applicable, the Language of Destination (LOD) flight attendant will make the seat belt PAs in the appropriate languages immediately following the flight deck PA
- Notify customers of any attempts to get out of turbulence, such as altitude changes.

Flight Attendants

Cabin conditions (turbulence level) can be markedly different from what the flight deck is experiencing. Communicate with the flight leader to help assess actual cabin conditions. If flight attendants feel it is unsafe to continue service, support their decision to be seated and make the customer service PA.

Light Turbulence

For light turbulence, communicate to the flight leader/purser via interphone first and follow up with a PA as necessary (see sample PA in turbulence action chart). Communicate the following via the interphone:

- Estimated time remaining until turbulence is encountered and
- Estimated duration, if known
- Use proper phraseology when communicating via the interphone (e.g., “light turbulence” not “rough air”)

Moderate Turbulence

For moderate turbulence, communicate to the cabin crew via PA first (see sample PA in turbulence action chart), and then follow up via interphone with the flight leader/purser. Use proper phraseology (e.g., “moderate turbulence” not “rough air”) on the interphone.

Note: On the A330 during Class 1 Crew Rest, direct the flight leader/purser to make the moderate turbulence PA. This is to prevent crew rest disruption due to the inability to de-select the crew rest facility from the flight deck PA system.

Severe or Greater Turbulence

Severe or greater turbulence should be avoided if at all possible. If severe turbulence cannot be avoided, communicate to the cabin crew via PA first (see sample PA in turbulence action chart), and then follow up via interphone with the flight leader/purser. Use proper phraseology (e.g., “severe turbulence” not “rough air”) on the interphone.

Descent

If moderate or greater turbulence is expected on descent to destination, notify flight attendants of the type of turbulence to expect and ask them to do their final cabin check as early as possible (e.g., *We expect moderate turbulence on the descent, please do your final cabin check and be seated as early as possible.*) Include the request for flight attendants being seated earlier in the descent in the top of descent PA. Refer to Customer PAs, [Descent](#).

Turbulence Action Charts

These charts are common to the FOM and OBM. The flight attendant actions are taken directly from the OBM and are written for flight attendants. They are included here for pilot awareness.

Light Turbulence	
Aircraft Reaction	Slight, erratic changes in altitude and/or attitude.
Cabin Conditions	<ul style="list-style-type: none">• Liquids are shaking but not splashing out of cups.• Carts can be maneuvered with little difficulty.• Passengers may feel light strain against seat belts.
Pilot Actions	<ul style="list-style-type: none">• Ensure seat belt sign ON.• Via interphone advise flight leader/purser of LIGHT turbulence.• Ensure PA is made reinforcing need for passengers to be seated.• Sample PA - <i>Ladies and gentlemen, due to the rough air please return to your seats and fasten your seat belts.</i>
Flight Attendant Actions	<ul style="list-style-type: none">• Continue service with caution.• Use caution serving hot food/beverages.• Visually check passenger seat belts.

Moderate Turbulence	
Aircraft Reaction	Changes in altitude and/or attitude occur but with more intensity than light turbulence. Aircraft remains in control at all times.
Cabin Conditions	<ul style="list-style-type: none"> Liquids are splashing out of cups. Difficult to walk or stand without balancing or holding onto something. Carts are difficult to maneuver. Passengers feel definite strain against seat belt.
Pilot Actions	<ul style="list-style-type: none"> Ensure seat belt sign in ON. Immediately make PA directing FAs and passengers to be seated and service to be discontinued. <p>Note: On the A330 during Class 1 Crew Rest, direct the flight leader/purser to make the moderate turbulence PA. This is to prevent crew rest disruption due to the inability to de-select the crew rest facility from the flight deck PA system.</p> <ul style="list-style-type: none"> Sample PA - <i>Ladies and gentlemen, due to the rough air (that we expect in the next XX minutes), we need you to be seated and check the security of your seat belts. We are also requiring all flight attendants to discontinue their service and be seated until it is safe to continue. This is for their safety as well as yours.</i> Via interphone advise flight leader/purser of MODERATE turbulence and expected duration. Advise FAs when it is safe to resume their duties.
Flight Attendant Actions	<p>WARNING: Do not wait for guidance from flight deck crew if experiencing moderate turbulence.</p> <ul style="list-style-type: none"> Discontinue service and stow all carts. Stow galley equipment, time and conditions permitting. FAs secure themselves in jumpseats as soon as possible using seat belt and shoulder harness and contact the flight deck to relay status of carts and flight attendants. Visually check passenger seat belts en route to jumpseat. Flight leader/purser continues communication with flight deck on conditions in the cabin. Flight leader/purser calls all FA stations to ensure all passengers/crew are seated.

General

The suggestions and PAs contained in this section are not in any way intended to hinder your personal customer service style. Nobody has a scripted PA for every situation. The following are some general tips to allow you to make the PA in your own style. This section provides guidance for making PAs in the operation.

PA Quiet Hours

Between 10:00 p.m. and 8:00 a.m. (departure station), PAs should be made only for:

- Announcements required by FAR or Delta policy
- Safety considerations.

PAs not related to safety should be avoided:

- During cruise flight, between top of climb and top of descent, and flight time exceeds five hours
- When a significant number of customers are sleeping.

Required PAs

PAs made on every flight:

- Before Takeoff (required, AOM Vol. 1, Normal Procedures)
- Initial seat belt sign off (required, AOM Vol. 1, Normal Procedures)
- Descent: seat belt sign on, flight attendants prepare for arrival (required, AOM, Vol. 1, Normal Procedures)
- Turbulence, when encountered or anticipated
- After a Go-Around or Rejected Landing.

Recommended PAs

PAs usually made on every flight, workload permitting:

- Initial Welcome Aboard
- Notification of Relief Crewmembers
- Cruise: the route, flying time, and estimated arrival time
- Delta Shuttle Operations: When addressing customers over the PA, use "Delta Shuttle" instead of "Delta."

Initial Seat Belt Sign Release

This PA is required by FARs and must occur immediately after the seat belt sign is turned off for the first time. Though the PA may be made by any crew member, AOM Vol. 1 procedures state that the captain must ensure the PA is made.

Sample PA

Ladies and gentlemen, this is the first officer. We have turned off the seat belt sign, so you are free to get up if you need to. However, while you are in your seat, please keep your seat belt fastened as we do here in the flight deck, in case we encounter any un-forecasted rough air.

Cruise

If an Initial Welcome Aboard PA was not made, make it during cruise.

Complete the cruise PA after leveling off at cruise altitude when workload is light and you can provide a more accurate update on the flight's progress.

Sample PA

Ladies and gentlemen, this is your first officer. We are cruising at 33,000 feet and enjoying a smooth flight this morning. We have about 2 hours and 20 minutes left, which should have us landing on time. We'll check back in with you as we get closer to New York. Thanks.

Descent

Delta policy requires pilots to make the following top of descent PA in conjunction with the arrival phase of flight: "Flight attendants, please prepare the cabin for arrival." This PA should be made no later than five minutes prior to beginning descent to allow flight attendants to begin the process of finalizing their service.

If turbulence is expected on the descent, include in the PA to customers that you've asked that flight attendants discontinue service early due to turbulence in the descent.

Additional information may include:

- Updating anything relating to your arrival.
- Thanking our customers for flying Delta.
- Any noticeable landmarks on the way in.
- Arrival gate information, if customers will be making connections
- Delta sponsorships - the current [Sponsorship Portfolio \(web link\)](#) is available on Deltanet.

Turbulence Plot (TP)

Avoidance measures for both planned and enroute turbulence are based primarily on Turbulence Plot (TP) messages and upper air depiction charts issued by Delta Meteorology.

These products are based on forecasts and actual pilot reports from comparable aircraft types.

TPs are issued specifically for Delta operations. The nature of the turbulence, the availability of new data, and the degree of change expected over a given period of time dictate how often they are issued.

TP messages prevail over other sources, such as SIGMETs, Flight Weather Viewer (FWV), actual turbulence data, and other forecast products. TPs may also include volcanic ash information.

- I** Refer to Airway Manual, Weather, Weather Depiction Charts for expanded TP guidance.

Weather Briefings

Pilots may access weather briefing information at any time from a computer terminal or through a gate agent. A weather briefing is automatically generated when the dispatcher prints the flight plan, which provides the most reliable information available at the time of dispatch.

An Updated Weather Briefing is automatically printed when the Flight Attendant Departure Report is generated. It includes the current release number and the most current weather information subsequent to the Weather Briefing.

An Updated Weather Briefing (printed copy or verbally received via the dispatcher) is required.

The release numbers on the Updated Weather Briefing, if printed, and flight plan must match. Last-minute update and release verification may be accomplished verbally through the dispatcher.

Pilots can access updated weather information from the dispatcher or Meteorology through Atlanta radio. When asking for Meteorology, specify either "Surface" or "Upper Air," and include your dispatcher's desk number.

Flight Training & Standards Quarterly Continuing Qualification (QCQ)	Chapter 20 Section 7
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General

Quarterly Continuing Qualification (QCQ) training is high-frequency distance learning program for Fleet Common, Aircraft Operations, and Theater of Operations topics. Designed to fulfill regulatory training requirements, QCQ provides a vehicle for training topics identified in the live operation such as special emphasis safety items derived from industry accidents and updates to current security procedures and policies. QCQ also includes topics that merit attention on a seasonally recurring basis such as cold weather procedures and turbulence avoidance.

Distribution Schedule

QCQ training is published on the first day of the first month for each quarter:

- Quarter 1 - January 1
- Quarter 2 - April 1
- Quarter 3 - July 1
- Quarter 4 - October 1

QCQ content delivery instructions are available via the Quarterly CQ link on each Fleet page on Deltanet.

Completion Requirements

Administrative Deadline

QCQ training should be completed and certified by the last day of the second month for the current QCQ cycle:

- Quarter 1 - February 28
- Quarter 2 - May 31
- Quarter 3 - August 31
- Quarter 4 - November 30

Failure to comply with the Administrative Deadline will result in the pilots name being forwarded to their respective CPO. The CPO will initiate contact with the pilot to advise the need to expedite the completion and certification of the delinquent QCQ training.