



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Washington, D.C. 20594

April 7, 2020

Attachment 8 – PSA Airlines Dispatch Standard Process Manual [Excerpts]

OPERATIONAL FACTORS

DCA20CA071



**Dispatch
Standard Process
Manual**

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Chapter 4: Dispatch Routine

4.1 Overview

This chapter serves as a guideline for daily dispatch procedures and covers topics such as:

- Shift acceptance
- Dispatch programs
- Flight release procedures

4.2 Shift Acceptance

Each dispatcher should be familiar with and adhere to the policies set forth in [Chapter 2](#) of this manual before assuming control of any dispatch desk for a given shift.

In the event that delayed or irregular operations are in progress or imminent at, or near the time of turnover, the oncoming Dispatcher must evaluate their ability to “spool-up” quickly, and avoid being overloaded. Should circumstances dictate, the oncoming Dispatcher should coordinate with the OCC Coordinator and off-going dispatcher to provide sufficient coverage as needed until any irregular situation stabilizes. Depending upon the nature of the irregular operations, or emergency situation, it may warrant the off-going Dispatcher remaining on-duty until the situation is resolved.

4.3 Pre-planning Considerations

Source: IOSA DSP 1.4.2

Before beginning the dispatch release process, each dispatcher should perform a self briefing and become familiar with such things as:

Routing

- Extended overwater operations prohibited. No PSA flight may operate at a distance beyond 50NM to the nearest shoreline.

Airports

- Authorized airports for Domestic operations are listed in the Operations Specifications under C070 - airports Authorized for Scheduled Operations.
- The Dispatcher will ensure that he/she has reviewed all available NOTAMS and field conditions for the airport to determine suitability for takeoff/landing.
- PSA Operations specifications A012 allows international flights to be dispatched under the same Part 121 rules for the following airports only.

Table 1 - Airports Outside of the 48 Contiguous United States (Excluding Alaska)

ICAO Identifier & Airport Name
CYYZ; TORONTO/LESTER B. PEARSON INTL, ONT.
CYOW; OTTAWA/MACDONALD-CARTIER INTL, ONT.
CYUL; MONTREAL/PIERRE ELLIOTT TRUDEAU INTL, QUE.
MYEF; GEORGE TOWN/EXUMA INTL, EXUMA I.
MYGF; FREEPORT/INTL, GRAND BAHAMA I
MYNN; NASSAU/INTL, NEW PROVIDENCE I

Weather

- Do the METARs match conditions called for in the TAFs?
- Does radar indicate approaching storms to where an alternate may be desirable even though forecasts do not indicate one is needed?
- Are there areas of severe turbulence that may affect safety of flight or passenger comfort?

Maintenance

- Are any aircraft out of service that may jeopardize a flight departing on time if a substitution is not made?
- Do any aircraft have MELs that may restrict the flight's ability to carry the projected number of passengers?
- Do any aircraft have MELs that may restrict the flight's ability to fly safely to its scheduled destination?

ATC

- Are there any flow programs to a given airport that may dictate a flight's ability to depart on time as indicated by the FAA OIS page?
- Are there any preferred ATC routings in place as indicated by the FAA OIS page?
- Are there AFPs (Airspace Flow Programs) in place that may call for planning a given flight at a lower altitude as to avoid the shelf limits of that AFP?

Altitude

Selection of route altitude is determined by several factors.

- If the destination is to an airport not normally served by PSA, altitude will be based upon direction of flight and/or limited by the ATC Preferred Route List.
- If the destination is to a current or past destination, route and altitude are based on known ATC preferences and has been verified via the various associated ARTCC's as well as Mainline American Airlines route/altitude master list.
- All CRJ200 routes are capped at FL330
- All CRJ700 routes are capped at FL410
- All city pairs have capped altitudes based on ATC demands
- The computer will select the preferred altitude based on winds aloft. The dispatcher then has the discretion to raise or lower that altitude based upon known conditions, and length of flight.
- When RVSM is deferred, the altitude must be filed at or below FL280.

6.6.3 Enroute Weather

Dispatch Policy

Flights will not dispatch or operate through areas of reported or forecast hazardous weather unless these hazards can be avoided by:

- changing routing or altitude,
- delaying takeoff or landing,
- holding, or
- landing at an alternate.

WARNING

Remain safely clear of hazardous weather regardless of ATC requirements.

WARNING

No PSA flight will be dispatched into known or forecast severe icing/turbulence.

6.6.4 Destination and Alternate Weather.

Source: 121.619, IOSA DSP 4.1.4

The alternate(s) selected must be designated on the release.

An alternate destination airport must be designated unless the destination weather will be at least a ceiling of 2,000 feet and 3 statute miles of visibility for a period of at least one hour before and one hour after the ETA at the destination airport. If, at the estimated time of arrival at the destination airport, the weather is reported or forecast to be at the published minimums for the approach expected to be used AND, at the estimated time of arrival at the first alternate, the weather is reported or forecast to be at the alternate minimums authorized by the Operations Specifications, a second alternate must be designated. Fuel planning must then be predicated on a flight from the departure airport to the destination, then to the most distant alternate.

Destination weather must be at or above the lowest authorized landing minima, compatible with aircraft type, at ETA.

• Note •

Lower weather conditions listed as “Conditional” may be restrictive for dispatch.

Use of Alternate Airport Weather Minima.

Alternate weather minima are required for dispatch purposes; a flight diverting to an alternate airport may utilize regular approach minima on arrival.

Determining Alternate Weather Minima.

Source: 121.625

Whenever an alternate airport is required for a departure or destination airport, the weather for the alternate selected must meet the Alternate Minimums authorized by the Company's Operations Specifications.

The required Alternate Weather Minima are determined by applying the criteria which are specified in the Operations Specifications. These criteria are described in the table below.

Prior to applying the table to an airport to be used as an alternate, determine that restrictions do not prohibit use of the airport as an alternate, that the appropriate NavAids are operational, and that the applicable runway(s) are available and adequate for use.

- **Monitor vertical flight path instruments.** If any significant deviations from normal indications are detected, the PM should immediately announce the deviation.

Example: “Vertical speed 1200 down”, “Airspeed 115 kts decreasing”, “Glideslope one dot low.”

- **Know recognition guidelines.** See “Windshear Recognition Guidelines.”.

Windshear Recognition Guidelines¹

Flight Phase	Indications
Takeoff	• +/- 15 KIAS • +/- 500 FPM vertical speed • +/- 5° pitch attitude
Approach	• +/- 15 KIAS • +/- 500 FPM vertical speed • +/- 5° pitch attitude • +/- 1 dot glideslope displacement • Unusual thrust setting for extended period

¹ These values are guidelines *only*. Exact criteria can not be established. It may be necessary to initiate recovery before any of the above criteria are exceeded in some instances. Brief excursions due known or anticipated local winds may not indicate significant hazards. The PF or Captain will assess the situation and determine the safest course of action.

Accomplish Windshear Recovery If You Encounter Windshear.

The objective of the recovery procedure is keeping the aircraft flying until it exits the windshear. The crew may have only a few seconds to initiate a successful recovery, so avoidance and early detection play critical roles.

Refer to applicable Pilot Operating Handbook for aircraft-specific windshear recovery procedures.

Report Encounter.

As soon as possible, report the encounter to ATC--seconds may save lives! The windshear encounter PIREP should contain the following information:

• Note •

Use the term PIREP to ensure rebroadcast to other aircraft.

- maximum airspeed gain/loss
- altitude at which shear was encountered
- location of shear in respect to runway in use
- aircraft type
- any other critical remarks (e.g., maximum thrust required, almost contacted the terrain, etc.)

6.8.4 Thunderstorms.

Thunderstorms present significant hazards; avoid thunderstorm activity.

Radar Use.

Use large scales on weather radar to keep “big picture.” Use smaller scales as necessary to assist in avoidance.

Radar and Turbulence in Thunderstorms.

Consider the turbulence level of the entire cell to be that of the most intense portion of the radar return (e.g., when an echo contains green, yellow, and red intensity levels, the turbulence level of the entire cell is red).

Enroute Lateral Separation.

Lateral separation is preferred for avoiding thunderstorm activity. Contact ATC as early as possible for deviations. Use distances in the following table for minimum lateral separation:

Minimum Lateral Thunderstorm Avoidance Criteria

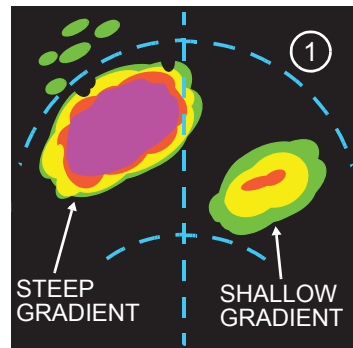
Echo Type	Description	Avoidance Minima
Convective Shower	• Lightning possible • Round/oval shape • Symmetrical gradient • Radar tops $\leq 30,000$ ft • Isolated cell • NWS VIP ≤ 4 • Echo containing magenta turbulence echo or yellow and/or red precipitation echo	— Avoid visible clouds — Avoid displayed precipitation echo (including green echo)
Intense	Contains red echo <u>and</u> any of the following: • Irregular shape (notches, hooks, pendant shape, etc.) • Asymmetrical gradient • Radar tops $>30,000$ ft • Southern-most cell in a line • NWS VIP level 5/6 • Prominent shadow • Magenta precipitation echo	SAT $>0^{\circ}\text{C}$ (32°F) — Avoid flight into and below visible clouds. — Avoid all displayed. precipitation by 10 nm in upwind quadrants/20 nm in downwind quadrants SAT $\leq 0^{\circ}\text{C}$ (32°F) — Avoid flight into and below all visible clouds by 5 nm. — Avoid displayed precipitation from echo (including green echo) by 20 nm.

VIP - An acronym for Video Integrator and Processor. This processor was used on the WSR-57 and WSR-74C radars to indicate rainfall rates. It is still used occasionally on WSR-88D radar products. This processor contours radar reflectivity (in dBZ) into six VIP levels.

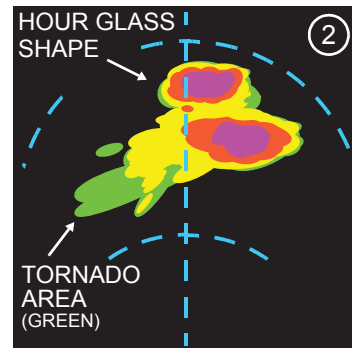
VIP Levels - Categorized intervals of reflectivity which are computer processed by a Digital Video Integrator Processor (D/VIP). These intervals were very important before the installation of the 88-D Radar network. Some of the 88-D Radar products still have these intervals on them. The following table illustrates the various rainfall rates associated with VIPs:

VIP Level	Precipitation Description	Rainfall Rate (inches/hour)	
		Stratiform	Convective
VIP 6 (>57 dBZ)	Very heavy rain and hail; large hail possible		7.10" or more
VIP 5 (50-57 dBZ)	Very heavy rain; hail possible		4.50" - 7.10"
VIP 4 (44-50 dBZ)	Heavy rain		2.20" - 4.50"
VIP 3 (38-44 dBZ)	Moderate to heavy rain	0.50" - 1.00"	1.10" - 2.20"
VIP 2 (30-38 dBZ)	Light to moderate rain	0.10" - 0.50"	0.20" - 1.10"
VIP 1 (18-30 dBZ)	Light precipitation	0 - 0.10"	0.05" - 0.20"

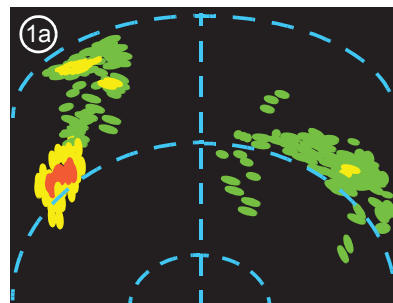
Storm Shapes



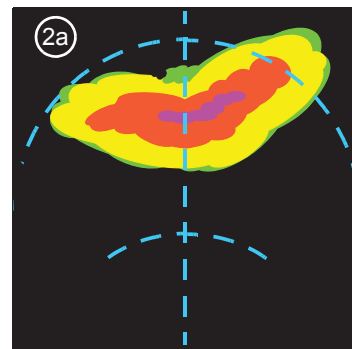
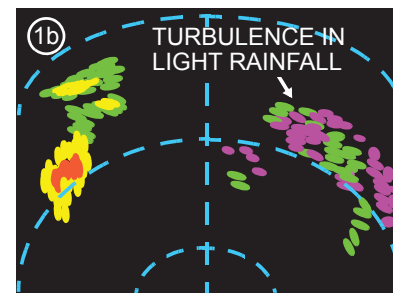
Round Or Oval



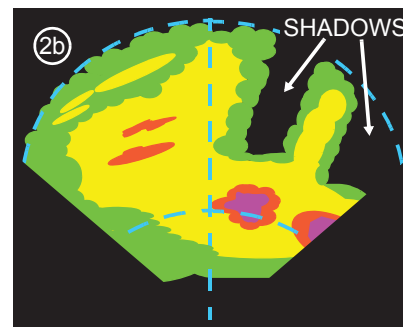
Asymmetrical Gradient



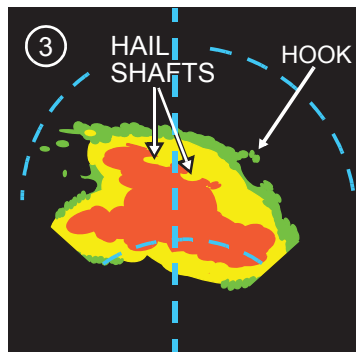
In this WX mode avoid the cell to the left.

Crescent Shape
(Intense, shadow- producing storm)

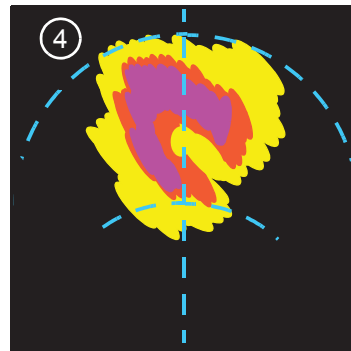
In the WX+ Doppler mode the turbulence occurring in the light rain to the right can be seen. Avoid this area. (If the Doppler echoes were not present, the green stratus area on the right could be penetrated.)



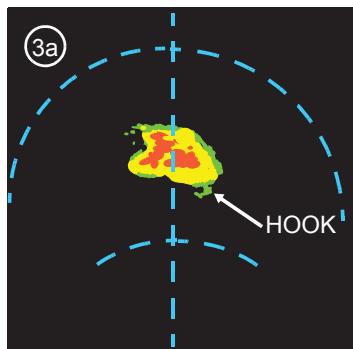
Shadows



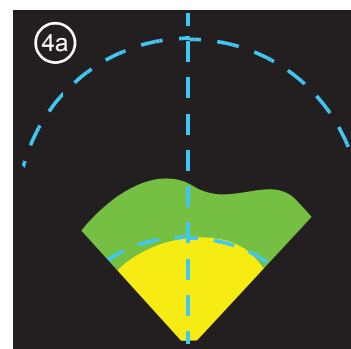
Pendant shape with scallops (hail shafts) along far edge of red on 3-color radar.



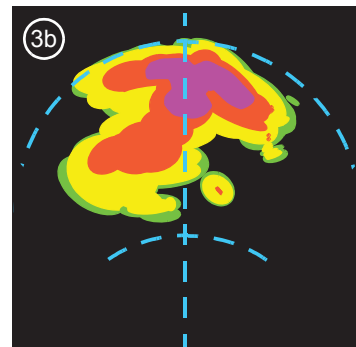
Classic U - Shaped Notch



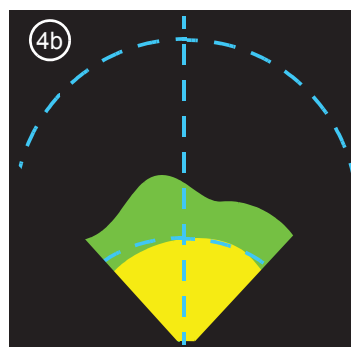
Same pendant cell with gain reduced. Red still remains, it's a level 5 or 6 storm. (Note hook)



Dip



Note finger on far side (hail); and classic hook on left.



Bulge

Factors Increasing Thunderstorm Hazards.

The following factors increase hazards associated with thunderstorms. Consider these factors when choosing a course of action; multiple factors may increase hazards exponentially.

- significantly unstable atmosphere,
- dewpoint >10°C,
- temp/dewpoint spread >16°C,
- storm movement >10 kts,
- southern-most cell in a line.

Overflight Avoidance.

Avoid hazardous weather laterally if possible. In IMC, clear cell tops by at least 20 percent of radar cell height; in VMC, visually clear cell tops by at least 5,000 ft.

Anvil Circumnavigation.

The downwind side of a thunderstorm may contain hail and severe turbulence above or below the anvil. A good rule of thumb is to avoid the downwind (anvil) side of the main body of the cells by at least one mile for every knot of wind at that altitude (e.g., If the winds aloft at the altitude of the anvil are 270° at 60 kts, avoid the downwind side of the main body by 60 nm).

Caution

Be alert for hail. Severe hail has been encountered as much as 20 mi downwind of large thunderstorms.

Thunderstorm Penetration.

If all attempts to avoid hazardous weather fail and thunderstorm penetration is unavoidable:

- Tighten safety belt and fasten shoulder harness; advise the Flight Attendant(s) as soon as possible.
- Use all available resources including ATC, weather radar, and visual observations to select a straight course that passes through the least intense area of the storm.

WARNING

Do not penetrate radar shadows. Fly away from crescent shapes or dips in display; fly towards bulges.

Radar beam attenuation can cause areas of heavy precipitation to appear as clear areas or radar shadows.

- Avoid altitudes near the freezing level. Greatest probability of severe turbulence and lightning strikes exists near the freezing level.
- Once inside a cell, continue on a straight course. Expect very large fluctuations in pitot static instruments; use gyro-stabilized instruments for flight indications.
- Refer to Chapter 8: Adverse Weather in the applicable Pilot Operating Handbook for specific instructions.

6.8.5 Turbulence.

See the following table for turbulence definitions, and crew actions during turbulence encounters.

Turbulence Encounters			
Intensity	Airplane Reaction	Cabin Reaction	Crew Action
Light Chop	No appreciable changes in altitude/attitude. Slight, rapid and somewhat rhythmic bumpiness occurs.	Occupants may feel a slight strain against seat belts. Unsecured objects remain stable. Coffee is shaking slightly, but not splashing out of cup. No difficulty in walking.	Flight Deck Crewmember: - Illuminate the seat belt sign (at Captain's discretion). - Make PA instructing passengers to be seated. <i>"Ladies & Gentlemen, as turbulence is not always anticipated, please keep your seatbelts fastened while seated."</i> Flight Attendant(s): - Verify passenger (including infants/children) seat belts are securely fastened. - Secure unattended carts and stow loose cabin & galley items. - Continue cabin service with caution.
Light	Momentary, slight, erratic changes in altitude and/or attitude.	Walking and cart maneuvering may be difficult. Coffee is shaking, but not splashing out of cup.	
Moderate Chop	Rapid bumps or jolts without appreciable changes in altitude or attitude.	Occupants feel definite strain against seat belt. Unsecured objects move about. Coffee is splashing out of cup. Very difficult to walk and maneuver carts.	Flight Deck Crewmember: - Illuminate the seat belt sign. - Make PA instructing passengers to be seated. - Report turbulence encounter to the controlling Dispatcher. Flight Attendant(s): - Discontinue cabin service. - Communicate with Captain. - Attempt to stow cart or set cart brakes but leave cart in present location. - Cover coffee pots or place on floor. - Sit down in nearest passenger seat or jumpseat. If seat is unavailable, sit on floor and hold on.
Moderate	Changes in altitude/attitude and airspeed fluctuations occur, but the airplane remains in positive control.		
Severe	Large, abrupt changes in altitude/attitude occur. Usually large airspeed fluctuations occur. Airplane may be momentarily out of control.	Occupants forced violently against seat belts. Unsecured objects tossed about or lifted from floor. Walking or standing without holding on to something for support is impossible.	Flight Deck Crewmember: - Ensure seat belt sign is on. - Make a PA instructing passengers and Flight Attendant(s) to be seated. - Report turbulence encounter to the controlling Dispatcher. - Maintenance write-up and airplane inspection required. Flight Attendant(s): - Discontinue cabin service. - Command passengers to sit down and fasten seat belts, if flight deck is unable to make PA. - Sit down and hold on. If seat is unavailable, sit down on the floor. - Communicate with Captain (if practical). - Inspect cabin and report damage/injuries to the Captain.
Extreme	Airplane tossed violently about. Practically impossible to control. May cause structural damage.		
Frequency Definition	Occasional: Occurring less than 1/3 of the time.	Intermittent: Occurring 1/3 - 2/3 of the time.	Continuous: Occurring more than 2/3 of the time.

Clear Air Turbulence (CAT).

Initiate flight level or course change when encountering jetstream turbulence with direct headwinds or tailwinds. Jetstream turbulence encountered in a crosswind is normally in a narrow band across the wind. When crossing the jetstream, climb with rising temperature and descend with a dropping temperature if necessary.

Mountain Wave Turbulence.

If the ratio of the wind speed 6,000 feet above the ridge to the winds at ridge top level is 1.6 or less, the probability of moderate or greater turbulence increases. This turbulence can exist at all altitudes. If the ratio of the wind speed 6,000 feet above the ridge to the wind at ridge-top level is greater than 2, turbulence is likely to be confined to lower altitudes.

Example.

If the wind speed at 18,000 feet is 50 knots and the wind speed at 12,000 feet is 35 knots, the ratio is 1.4. Moderate or greater turbulence may exist up to high altitudes.

Turbulence and Thunderstorms.

Expect moderate or greater turbulence within thunderstorms, or in the vicinity of thunderstorm tops, wakes, downbursts, and gust fronts.

Severe or Extreme Turbulence Encounter.

Do not plan flight into severe/extreme turbulence. If encountered, make a maintenance logbook write up to ensure a special aircraft structural inspection is accomplished.

Flight Attendant and Cabin Notification of Turbulence.

When moderate or greater turbulence is anticipated, illuminate the fasten seatbelt sign and make a PA announcement instructing passengers to be seated.

Notify the Flight Attendant(s) via the interphone to be seated. Inform the Flight Attendant(s) via the interphone when it's safe to resume duties.

6.8.6 Windshear.

Avoid windshear activity. Pilots will use all available resources to keep abreast of forecast or reported windshear conditions for departure, arrival, and enroute flight segments.

WARNING

Do not takeoff, land, or make an approach when there is a “Microburst Alert” for the takeoff/landing runway, or when it is not possible to maintain at least 3nm horizontal separation from severe weather when the aircraft is $\leq 1,000$ feet AGL.

See also [6.8.3 Hazardous Convective Wx During Departure/Arrival](#).

Terminal Weather Information for Pilots (TWIP).

TWIP is generated using weather data from Terminal Doppler Weather Radar (TDWR) or the Integrated Terminal Weather System (ITWS).

TWIP provides the following information via an ACARS uplink when an ACARS weather request is sent for a designated airport:

- descriptions of microburst alerts,
- windshear alerts,
- significant precipitation,
- convective activity within 30 NM of the terminal area, and
- expected weather impacting airport operations.

When available at a designed airport, “TWIP” is annotated on the header portion of the applicable Airport Advisory page.