NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Washington, D.C. 20594

July 9, 2020

Attachment 11 –American Airlines Dispatch Procedures Manual

[Excerpts]

OPERATIONAL FACTORS/HUMAN PERFORMANCE

DCA20CA043

AMERICAN AIRLINES

DISPATCH PROCEDURES MANUAL

REV 36 10/31/19

Suggested changes to this manual should be submitted through the Dispatcher Info Report system.

THIS MANUAL ASSIGNED TO

Name **Employee Number**

Section 1

Dispatcher Qualifications and Responsibilities

1. Flight Dispatcher Duties and Responsibilities

Reference: 14CFR: 121.533, 121.535, 121.551, 121.593, 121.597, 121.601, 121.629, IOSA DSP 1.5.8

1.1 Responsibilities

Reference: IOSA DSP 1.3.4, 1.3.6, 1.7.4

An American Airlines' Flight Dispatcher is an airman who holds an Aircraft Dispatcher Certificate. Each Dispatcher shall operate in accordance with applicable regulations and company policy listed in 14 CFR 121, Flight Operations Manual, this Dispatch Procedures Manual, FAA Operations Specifications, and other company policy references.

The Dispatcher is jointly responsible, with the pilot in command, for the preflight planning, delay, and dispatch release of assigned flights. The Dispatcher is responsible for monitoring the progress of the flight, issuing information or instructions necessary for the safety of the flight, and canceling or redispatching the flight (amending the release) if considered necessary for the safety of the flight (by either the Dispatcher or pilot in command).

Except when an airplane lands at an intermediate airport specified in the original dispatch release and remains there for not more than one hour, no person may start a flight unless an aircraft dispatcher specifically authorizes that flight. No person may continue a flight from an intermediate airport without redispatch if the airplane has been on the ground more than six hours

The Dispatcher shall provide the pilot-in-command all additional available information of meteorological conditions (including adverse weather phenomena such as CAT, thunderstorms and low level wind shear) as well as irregularities of facilities and services that may affect the safety of flight. Flights may not be dispatched 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

When planning a flight to specifically avoid hazardous weather, the flight plan should be locked out to discuss the planned route and avoidance strategy with the Captain so that he/she does not accept an ATC reroute into the area being avoided. This is particularly important with turbulence avoidance, therefore, it is mandatory that the flight plan be locked out when avoiding an area of moderate to severe (or greater) turbulence (indicators 5 or greater on the flight plan) to discuss the area fully with the Captain before departure.

A Dispatcher may conduct a pre or inflight redispatch (amended release) by recording the amendment on oral tape **and** in writing. The Captain may accept a pre or in-flight amendment over a radio by reading back the dispatch release message, recording the message in writing (including the Dispatcher's name/initials) noting the date and time and signing the entry.

Critical phases of flight include all ground operation up to 10,000ft (sterile flight deck period). Non-essential, non-operational related company communication is not authorized during the sterile flight deck period. To protect the sterile flight deck period, crew reassignment messages may not be sent within 20mins of the estimated ON time.

The Dispatcher has the authority to release, defer and cancel flights in accordance with regulations and company policies. With this authority comes responsibility and accountability for all decisions.

1.2 Dispatcher Electronic Signature

Reference: 121.663, AC 120-78, 8900.462

"The aircraft dispatcher may delegate authority to sign a release for a particular flight, but he may not delegate his authority to dispatch."

Dispatchers are responsible for all entires made from a workstation (all tools/automation) where that Dispatcher is the signatory of record. All requirements of electronic signature apply to Dispatch Releases issued for all 14CFR Part 121 Domestic/Flag/Supplemental operations.

- Dispatchers MUST sign out of DECS at shift change and the in-coming Dispatcher MUST sign into DECS with their unique employee number.
- A Dispatcher must sign all dispatch releases (and amendments) with their own name and must NEVER leave the name of the previous dispatcher in the JR when amending a flight plan. This includes re-routes using Fusion.
- Each Dispatcher must sign the dispatch release with a unique name/signature, therefore, in the case of the same last name those Dispatchers must use all or part of the balance of the name as it appears on their Dispatch Certificate.
- All releases and amendments must be issued from a computer (DECS or Fusion) of which the Dispatcher issuing the release is signed into.

- A Dispatcher in training must not sign a release with their name nor is it authorized to sign using both the Dispatcher of record's name along with the name or initials of the trainee.
- **When signing any release or amendment, the Dispatcher is affirming that he/she intended to sign the release and believes the flight can be "made with safety". Never sign or amend a release if safety is in doubt.**
- Dispatchers MUST sign all ACARS messages with their name, not just desk number

1.3 Reporting Potential Inflight Hazards

Flight Crews are required to notify Dispatch of encounters with potentially hazardous weather conditions such as Moderate/Severe Icing or turbulence. Crews are also required to notify ATC whenever they have encountered an irregularity in a ground facility or Navaid. If unable to relay this irregularity to the controlling ATC facility in a timely manner, the Crew may request that the Dispatcher relay the information to ATC for them.

1.4 Duties of Flight Dispatcher

Reference: IOSA DSP 1.5.2

A. Only those persons qualified as an American Airlines' Flight Dispatcher are able to perform the duties of that position. The duties of a Flight Dispatcher include:

1. Pre planning daily flight operations with primary emphasis on safety, efficiency, and economy consistent with passenger comfort and on-time performance. This includes checking and reviewing the results of all flight plan calculations during the assigned shift.
2. Keeping IOC on-duty management apprised of any delays over 45 minutes, other irregularities that affect flights (i.e., security), and airport issues that may affect continued operations. Use RF 5432A LATE to inform other Dispatchers of delayed flights.
3. Consulting/discussing with the Ops Coordinator when the need for a cancellation is apparent and assuring that appropriate station personnel and IOC management are informed of significant changes in a flight's status such as aircraft assignment, delays, diversions, cancellations, and other irregular operations.
4. Initiating operational flight information.
5. Assuring the availability of an aircraft and crew for each assigned flight.

- ✈ At least one of the usable runways must have an operational instrument approach procedure
- ✈ This exemption number must be listed in the dispatch release

1.3 Operational Control

Reference: IOSA DSP 1.3.1, 1.7.2

Responsibility for operational control (i.e., monitoring the progress of each flight, issuing necessary information for the safety of the flight, canceling or redispatching a flight) is listed in the following documents:

A. See FMI, Section 3 - Crew Qualification and Responsibility, Flight Dispatcher Responsibility

B. 14CFR: 121.533/121.535/121.537- Responsibility for Operational Control: Domestic/Flag/Supplemental

1.4 Release of Airworthy Aircraft

Each aircraft has extensive duplication in systems, components and communication, which are provided to ensure safety and reliability. The MEL manual contains a list of such items which will allow the flight to be conducted with specified equipment inoperative, while still preserving an acceptable level of safety.

- See MEL Introduction Section
- The Dispatcher receives initial and recurrent training for the MEL process of review interpretation and application

1.5 Dispatcher Qualification

Only current and qualified Dispatchers may be assigned to work a particular flight. See DPM Section 1.

1.6 Flight Plan Review

Reference: IOSA DSP 1.3.6, 3.2.5, 3.2.7

Each Dispatcher is required to make a final review, upon calculation, of the operational parameters used in building the Dispatch Release / Flight Plan. These parameters include ensuring each airport planned in the Dispatch Release is open and/or has personnel available at the expected time of arrival. (See RF 5432A xxx) Each crewmember is required to review the flight plan/release, attached messages and TPS.

The Captain and Dispatcher will independently analyze information necessary for the operation of each American Airlines' flight, however, the Dispatcher must lock out the flight plan to discuss any routing changes purposely done for moderate to severe (or greater) turbulence avoidance (where turbulence indicators of 5 or greater would appear on flight plan).

Both are required to sign the Dispatch Release / Flight Plan prior to departure. The Dispatcher's and Captain's (electronic) signatures certify that, in the judgment of each, the flight can be made safely as planned.

1.7 Conflict Resolution with Service Providers

The Dispatcher shall avoid conflictive action in all phases of a flight's operation with ATC, the Meteorological Service and Communication services. This does not mean that he Dispatcher cannot or should not question a direction, publication or communication from one of these services but that he/she shall coordinate all deviations.

1.8 Reporting Discrepancies

Each Dispatcher has a means of suggesting improvements or reporting discrepancies in the Dispatch Release / Flight Plan process including:

- ASAP reports (for safely related items)
- IOC Debriefs (Dispatcher reports)

1.9 Miscellaneous Taxi Release

Flight Crew Members may be requested by maintenance to start engines, reposition or do a maintenance check on an aircraft. This may be done with or without passengers on board.

Dispatch is required to issue a Miscellaneous Taxi Release to record the Crewmembers duty time and pay credit. Use outline stored in **RF 8000M TXI** to send the release to Pay Comp and others. Store the message in the Flight Record History (RH).

1.10 Mountainous Terrain Clearance Program (MTCP)

A complete explanation of the Terrain Clearance and/or Driftdown calculations can be found in the Dispatch Procedures Manual, Section 11.

4. Turbulence

4.1 Enhanced Weather Information Systems-EWINS

The Weather Company forecasts and products are outlined in the AA EWINS Manual. Turbulence products include:

- Turbulence Indicators (6.4)
- Flight Planning Guidance (6.7)
- SIGMETs (6.6)
- PIREPS (6.5)
- TAPS (5.3.6.4)
- Turbulence Advisories (TBCA) (6.8)
- RPM Turbulence (6.19)

4.2 Flight Plan Turbulence Indicators

AA uses a numerical indicator system to describe turbulence either through the flight plan or by a PIREP:

- 0 - Smooth (PIREP only)
- 1 - Ocnl Light (PIREP only)
- 2 - Cont Light (PIREP only)
- 3 - Light Ocnl Moderate
- 4 - Moderate
- 5 - Moderate Ocnl Severe
- 6 - Severe
- 7 - Extreme

ACARS Numerical Turbulence values are reported as a numerical value preceded with the letters TB. Ex, TB2 = (Continuous light)

Flight plans will display numerical values 3 and above in the main body and in the wind summary sections. These indices are derived based on forecast Flight Planning Guidance and SIGMET plotting done by TWC meteorologists.

Note:

1. When planning a flight to avoid moderate to severe (or greater) turbulence, (turbulence indicators of 5 or greater), the flight plan must be locked out to discuss the avoidance area with the Captain. This discussion will ensure that the Captain will not accept an ATC reroute into the turbulent area.

2. 0, 1 and 2's are replaced with a - (dash) since no flight planning consideration is required for those indices. Awareness of those

areas should be derived from Optima or Fusion during the flight planning phase.

4.3 Flight Planning Guidance

Flight planning areas are manually drawn by The Weather Company (TWC) meteorologists to depict forecast areas of potential light or light to moderate turbulence. When converted to text, these areas can have more points than can be manually plotted. Because of this, do not send FPG areas that contain more than 6 defining waypoints via ACARS as it is difficult to impossible for crews to plot. If you want to send an FPG area with more than 6 defining waypoints, manually describe the area as it relates to the flight plan.

Turbulence forecasts from The Weather Company (FPG's and SIGMETS) take into account the significant wind and temperature gradients associated with turbulence near a sharp tropopause break.

Tropopause Overview

The tropopause is a thin layer forming the boundary between the troposphere, characterized by decreasing temperature with height by and the stratosphere, where temps are either steady or slightly warm with height. Tropopause height varies from around 65,000 feet over the Equator to around 20,000 feet near the poles. The tropopause is not continuous but generally descends in steps (occurring in "breaks") from the Equator to the poles.

The strongest jet core winds often occur near sharp breaks between the Tropical tropopause and the Polar tropopause. These jet cores are associated with sharp temperature, wind speed gradients and possibly turbulence. If flight plan tropopause heights indicate significant changes in tropopause height over a relatively short distance and there are wind speed changes in direction and/or intensity, the flight path is likely in or near a jet core. When weather patterns are relatively quiet, it is quite likely that significant breaks do not exist.

4.4 Turbulence SIGMETS

Turbulence SIGMETs (SIgnificant METeorological advisory) can be issued by either a government agency such as the National Weather Service or The Weather Company for clear air turbulence (including Low Level Wind Shear and Mountain Wave episodes). Although Dispatchers must be aware, and consider, non-EWINS forecasts and reports of hazardous weather, EWINS approved weather sources (TWC) are controlling when considering enroute hazardous weather advisories. As such, applicable TWC SIGMETs must be relayed to all affected flights.

4.5 Turbulence Advisories (TBCA)

The EWINS manual describes the Turbulence Advisory (TBCA) as a short-term advisory to warn users that something unexpected has been reported. This is also a trigger for TWC to review the immediate area for SIGMET consideration.

A. TBCA boundaries

TBCA's are typically 50NM and +/- 1000ft around the event that triggered the advisory (TAPS or PIREP). The advisory default is for 30minutes but can be manually extended by TWC to 60 minutes if more time is needed to determine if a forecast change is needed (issue SIGMET, FPG, etc.)

B. TBCA Triggers

TCBA's are automatically triggered based on a turbulence event which is one turbulence category higher than the corresponding FPG or SIGMET. For example, if an FPG area is published for Light and a TAPS report of Moderate is detected, TWC software will automatically issue the TCBA. The EWINS manual specifically defines various scenarios (6.8.3.1).

C. TBCA Flight Planning Guidance

Since TBCAs are advisory based on a PIREP or TAPS event, it is not required to avoid any TBCA. Sending a TBCA via ACARS is optional but CFR 121.601 states that it is required to send all available current reports of meteorological conditions (including adverse weather phenomena, such as clear air turbulence, thunderstorms, and low altitude wind shear). This means that if the TBCA is not sent, the TAPS report or PIREP that generated it should be.

4.6 RPM Turbulence

RPM (Rapid Precision Mesoscale) turbulence is an automated forecast product which depicts areas of turbulence on either Fusion or Optima. The forecast is updated every 6 hours and provides up to 18 different altitude options.

As with The Weather Company forecasting (FPG's and SIGMETS), RPM turbulence forecasts have the diagnostics to detect turbulence associated with significant wind and temperature gradients associated with turbulence near a sharp tropopause break.

Using the Time and Altitude Sliders, you can adjust the layer depiction. A setting in My Preferences controls what altitude is set when the altitude slider is not used

5. Turbulence Auto PIREPS -TAPS

Turbulence Auto PIREP System (TAPS) is a process that turns suitably equipped aircraft (B737-NG, B757 and B767) into turbulence reporting platforms. The objective of the program is to:

- Augment subjective PIREPs with objective and precise turbulence measurements
- Improve timeliness from 30-45 minutes to near real-time
- Improve frequency from once per event to continuous until event passed.
- Improve location from nearest waypoint on flight plan to actual geospatial coordinate.

Dispatchers are required to notify Flight Crews when turbulence (greater than light) is expected. TAPS Event reports are an appropriate source of ride/turbulence data to communicate expected in-flight conditions to the Flight Crew.

5.1 TAPS Alerting

A TAPS equipped aircraft transmits two kinds of messages: HEARTBEAT and TAPS Events. The events are based on certain thresholds represented by Root Mean Square/G-force (RMS/G) values. Each turbulence reporting level (Ride Quality, Light, Moderate or Severe) are associated with specific RMSG values. These events are sent down via ACARS and processed by WSI and displayed on Fusion.

A. RMS/G VALUE - The avionics on board the aircraft determine turbulence in relation to G-force and report it as an RMS/G value. Each event is transmitted from the aircraft to a ground based program that computes a comparable turbulence value and sends the interpreted report to Fusion for display and alerting.

B. HEARTBEAT MESSAGES - These messages are sent every 20mins at any altitude. A Heartbeat message is sent whether an aircraft is in turbulence or not. It is an instantaneous report of conditions being experienced at the moment the message is transmitted. Heartbeats reports are a good indicator of no (or very light) turbulence.

C. TAPS EVENTS - TAPS events are generated when the aircraft is at/above 10,000ft (except a severe event will generate at any altitude). Once turbulence is detected the aircraft will send a TAPS Event report and will continue to send an event every 30 seconds until the turbulence decreases below the RMS/G value for Ride Quality (basically the ride becomes Smooth).

5.2 RMS/G Value and Equivalent Turbulence

The following table indicates the relationship of RMS/G values to more common turbulence indicators such as Smooth, Light, Moderate or Severe. Ride Quality is representative of a ride not quite smooth, but not considered Light Turbulence. It's more of a nuisance chop.

Table 1: RMS/G Value

Intensity	Hazard RMS/G Value	WSI Enroute Turb Index	Aircraft Reaction	Inside Aircraft
Smooth	<0.075g	No SIGMET or FPG Guidance TI = 0	No Turbulence	No impact
Ride Quality	0.075g to <0.1G	No SIGMET or FPG Guidance TI = 1 OCNL LGT	Causes little of no airspeed or altitude adjustment	Discomfort if exposed for more than 15mins.
Light	0.1g to <0.2g	No SIGMET or FPG Guidance TI = 2 LGT TI = 3 LGT OCNL MDT	Momentarily causes slight, erratic changes in altitude or attitude	Pax may feel slight strain against seatbelts.
Moderate	0.2g to <0.3g	SIGMET and FPG Guidance TI = 4 MDT TI = 5 MDT OCNL SVR	Similar to LGT turb but of greater intensity. Changes in altitude/attitude occur but aircraft in positive control	Definite strain against seatbelt. Food service and walking difficult. Objects are dislodged.
Severe	>0.3g	SIGMET and FPG Guidance TI = 6 SVR TI = 7 EXTM	Causes large, abrupt changes in altitude/attitude. Causes large variations in airspeed. Aircraft may become out of control.	Pax forced violently against seatbelts. Objects are tossed around. Food Service and walking not possible.

5.3 TAPS Reports to Flight Crews

TAPS events higher than RMS/G of 0.26 will automatically send a message to the aircraft which reported the Event. This message will indicate the flight information, location of the event, RMS value, maintenance flag threshold, and the range of the G value. It is important to note that the TAPS Event severity classification is different from the maintenance threshold in that the TAPS threshold relates to an RMS/G value and only correlates to the AIM description of turbulence. The maintenance threshold directly relates to G value and the aircraft

manuals definition of severe turbulence which would require an inspection. It is possible to have a severe TAPS Event which does not exceed the maintenance flight threshold and vice versa.

All messages will indicate the Flaps down maintenance threshold because the G load parameter is more conservative than the flaps up threshold. The flaps down g-load threshold are +2.0g/+0.0g.

This message is intended to assist the Captain in determining if a severe turbulence inspection is required. It is the Captain determination and entry in the logbook of a severe turbulence encounter which is controlling for the maintenance inspection.

Dispatch receives a copy of this message via Screen Printer.

```
FLIGHT AA1234 RPTS SEVERE TAPS EVENT.
A/C: B752
REPORTED: 27/0019Z
LOCATION: 50SSE ORL
ALTITUDE: FL100
RMS LOAD: 0.33
FLAPS DOWN MX FLAG THRESHOLD: NOT EXCEEDED PEAK LOADS: PLUS 1.358
/ PLUS 0.417
```