

ASRS Database Report Set

Wake Turbulence Encounters

Report Set Description.....A sampling of reports from flight crews encountering, or affected by, turbojet wake turbulence.

Update Number.....21.0

Date of UpdateNovember 29, 2018

Number of Records in Report Set.....50

Number of New Records in Report Set48

Type of Records in Report Set.....For each update, new records received at ASRS will displace a like number of the oldest records in the Report Set, with the objective of providing the fifty most recent relevant ASRS Database records. Records within this Report Set have been screened to assure their relevance to the topic.

National Aeronautics and
Space Administration

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Moffett Field, CA 94035-1000



TH: 262-7

MEMORANDUM FOR: Recipients of Aviation Safety Reporting System Data

SUBJECT: Data Derived from ASRS Reports

The attached material is furnished pursuant to a request for data from the NASA Aviation Safety Reporting System (ASRS). Recipients of this material are reminded when evaluating these data of the following points.

ASRS reports are submitted voluntarily. Such incidents are independently submitted and are not corroborated by NASA, the FAA or NTSB. The existence in the ASRS database of reports concerning a specific topic cannot, therefore, be used to infer the prevalence of that problem within the National Airspace System.

Information contained in reports submitted to ASRS may be clarified by further contact with the individual who submitted them, but the information provided by the reporter is not investigated further. Such information represents the perspective of the specific individual who is describing their experience and perception of a safety related event.

After preliminary processing, all ASRS reports are de-identified and the identity of the individual who submitted the report is permanently eliminated. All ASRS report processing systems are designed to protect identifying information submitted by reporters; including names, company affiliations, and specific times of incident occurrence. After a report has been de-identified, any verification of information submitted to ASRS would be limited.

The National Aeronautics and Space Administration and its ASRS current contractor, Booz Allen Hamilton, specifically disclaim any responsibility for any interpretation which may be made by others of any material or data furnished by NASA in response to queries of the ASRS database and related materials.

A handwritten signature in cursive script, appearing to read "B. Hooey".

Becky L. Hooey, Director
NASA Aviation Safety Reporting System

CAVEAT REGARDING USE OF ASRS DATA

Certain caveats apply to the use of ASRS data. All ASRS reports are voluntarily submitted, and thus cannot be considered a measured random sample of the full population of like events. For example, we receive several thousand altitude deviation reports each year. This number may comprise over half of all the altitude deviations that occur, or it may be just a small fraction of total occurrences.

Moreover, not all pilots, controllers, mechanics, flight attendants, dispatchers or other participants in the aviation system are equally aware of the ASRS or may be equally willing to report. Thus, the data can reflect **reporting biases**. These biases, which are not fully known or measurable, may influence ASRS information. A safety problem such as near midair collisions (NMACs) may appear to be more highly concentrated in area “A” than area “B” simply because the airmen who operate in area “A” are more aware of the ASRS program and more inclined to report should an NMAC occur. Any type of subjective, voluntary reporting will have these limitations related to quantitative statistical analysis.

One thing that can be known from ASRS data is that the number of reports received concerning specific event types represents the **lower measure** of the true number of such events that are occurring. For example, if ASRS receives 881 reports of track deviations in 2010 (this number is purely hypothetical), then it can be known with some certainty that at least 881 such events have occurred in 2010. With these statistical limitations in mind, we believe that the **real power** of ASRS data is the **qualitative information** contained in **report narratives**. The pilots, controllers, and others who report tell us about aviation safety incidents and situations in detail – explaining what happened, and more importantly, **why** it happened. Using report narratives effectively requires an extra measure of study, but the knowledge derived is well worth the added effort.

Report Synopses

ACN: 1586689 *(1 of 50)*

Synopsis

Embraer Regional Jet First Officer reported difficulty navigating the Stadium Visual approach into EWR, and encountered wake turbulence in trail of a B737.

ACN: 1586608 *(2 of 50)*

Synopsis

B737NG First Officer reported the Captain took control of the aircraft on short final for unknown reasons.

ACN: 1585593 *(3 of 50)*

Synopsis

B737 NG Captain reported a Flight Attendant was injured during an encounter with turbulence, possibly wake-related, on descent into LAS.

ACN: 1584444 *(4 of 50)*

Synopsis

E175 flight crew reported failure to climb to assigned altitude when they were distracted by a wake turbulence encounter departing DCA.

ACN: 1584359 *(5 of 50)*

Synopsis

Embraer jet flight crew reported a wake turbulence encounter combined with a complex departure resulted in failure to retract flaps on schedule.

ACN: 1583793 *(6 of 50)*

Synopsis

Learjet First Officer reported encountering wake turbulence departing BUR in trail of a B737.

ACN: 1583449 *(7 of 50)*

Synopsis

B737-800 Captain reported encountering "severe" wake turbulence departing PHX in trail of an A321.

ACN: 1581620 *(8 of 50)*

Synopsis

G-550 flight crew reported encountering wake turbulence in trail of an Airbus on approach to SFO and a subsequent failure to contact Tower.

ACN: 1581617 *(9 of 50)*

Synopsis

C182 pilot reported the aircraft was damaged following a wake turbulence encounter with a C-17 in the vicinity of EDF.

ACN: 1581462 *(10 of 50)*

Synopsis

B767 FO reported encountering wake turbulence on arrival into EGLL in trail of a B777-200.

ACN: 1581441 *(11 of 50)*

Synopsis

Air carrier Captain reported encountering wake turbulence on arrival into RJAA.

ACN: 1581032 *(12 of 50)*

Synopsis

C152 Instructor Pilot reported encountering wake turbulence on approach to AUS when the air carrier aircraft preceding him executed a go-around.

ACN: 1580993 *(13 of 50)*

Synopsis

CRJ-900 Captain reported encountering wake turbulence departing DTW in trail of a B757.

ACN: 1579909 *(14 of 50)*

Synopsis

CRJ-200 First Officer reported encountering wake turbulence climbing through FL210 12 miles in trail of an A330.

ACN: 1579183 *(15 of 50)*

Synopsis

PA-28 Instructor Pilot reported encountering wake turbulence from the preceding C172 in the pattern at OCF.

ACN: 1578147 *(16 of 50)*

Synopsis

CRJ-200 Captain reported encountering wake turbulence departing ORD in trail of an A319.

ACN: 1578142 *(17 of 50)*

Synopsis

CE-560XLS flight crew reported encountering severe wake turbulence on arrival into PBI 7 miles in trail of a B737-800.

ACN: 1578090 *(18 of 50)*

Synopsis

B737NG Captain reported a tight turn to final at LAS led to some procedural errors.

ACN: 1577812 *(19 of 50)*

Synopsis

B777 First Officer reported deviating left off track on their trans-Pacific route to avoid wake turbulence, but failed to ask ATC for approval.

ACN: 1577654 *(20 of 50)*

Synopsis

EMB-175 Captain reported multiple EICAS system failures were annunciated following a wake turbulence encounter departing LAX in trail of a B787.

ACN: 1577255 *(21 of 50)*

Synopsis

B737-800 flight crew reported a Flight Attendant was injured during a wake turbulence encounter on approach to PHX in trail of an A321.

ACN: 1577244 *(22 of 50)*

Synopsis

A321 Captain reported encountering wake turbulence on arrival into PHX 10 miles in trail of a B747 that descended through his altitude.

ACN: 1577020 *(23 of 50)*

Synopsis

CRJ-200 First Officer reported a clearance misunderstanding which resulted in an altitude overshoot during arrival into ATL.

ACN: 1576977 *(24 of 50)*

Synopsis

A321 Captain reported a passenger complained of an injury following wake turbulence during landing.

ACN: 1576898 *(25 of 50)*

Synopsis

B737NG flight crew reported landing without clearance following a wake turbulence encounter. Fatigue was cited as a contributing factor.

ACN: 1576639 *(26 of 50)*

Synopsis

B767 First Officer reported encountering moderate wake turbulence while on descent 15 miles in trail of an A330.

ACN: 1574607 *(27 of 50)*

Synopsis

RV9A pilot reported encountering wake turbulence from a B737 while transiting a MSP arrival area.

ACN: 1574356 *(28 of 50)*

Synopsis

B737-800 flight crew reported breaking off the approach to MCO when a wake turbulence encounter contributed to a track deviation during localizer intercept.

ACN: 1574268 *(29 of 50)*

Synopsis

Beech 1900 Captain reported returning to departure airport after experiencing an unusual vibration that may have been related to an earlier wake turbulence encounter.

ACN: 1571213 *(30 of 50)*

Synopsis

CE-560XL flight crew reported failing to make a crossing restriction on descent into BOS, citing a late clearance and a wake turbulence encounter.

ACN: 1571161 *(31 of 50)*

Synopsis

B737NG Captain reported encountering wake turbulence 7 miles in trail of another B737 on descent into MCO that rolled the aircraft into a 40 degree bank.

ACN: 1570966 *(32 of 50)*

Synopsis

Embraer Regional Jet First Officer reported an altitude deviation occurred when they encountered wake turbulence in the landing pattern at EWR.

ACN: 1570189 *(33 of 50)*

Synopsis

B787 First Officer reported encountering wake turbulence on approach to EGLL 3 miles in trail of a B747.

ACN: 1569918 *(34 of 50)*

Synopsis

DPA Local Controller stated a C560XL reported encountering wake turbulence on approach in trail of a Falcon 7X.

ACN: 1569873 *(35 of 50)*

Synopsis

SR22 pilot landing #6 in a flight of 7 reported encountering "very significant" wake turbulence during the landing flare.

ACN: 1569067 *(36 of 50)*

Synopsis

B737 Captain and ZME Controller reported a wake turbulence encounter ten miles in trail of a B747 at FL350.

ACN: 1567901 *(37 of 50)*

Synopsis

CE-560XLS Captain reported encountering wake turbulence on arrival into SFO in trail of a B737-800.

ACN: 1567615 *(38 of 50)*

Synopsis

B737-800 Captain reported encountering wake turbulence on approach to MEM in trail of a heavy widebody aircraft.

ACN: 1567243 *(39 of 50)*

Synopsis

C525 Captain reported failing to meet a crossing restriction during avoidance maneuvers related to a wake turbulence encounter in trail of a B737-900 on arrival into SEA.

ACN: 1567231 *(40 of 50)*

Synopsis

King Air 350 Captain reported encountering wake turbulence on arrival into ORD.

ACN: 1567021 *(41 of 50)*

Synopsis

B777 First Officer reported encountering wake turbulence during cruise flight.

ACN: 1566755 *(42 of 50)*

Synopsis

CRJ-900 Captain reported encountering wake turbulence departing CLT from the preceding A321.

ACN: 1565948 *(43 of 50)*

Synopsis

B737NG flight crew reported a hard landing and subsequent go-around occurred following a wake turbulence encounter just before touchdown.

ACN: 1564921 *(44 of 50)*

Synopsis

B737 Captain reported a Flight Attendant was slightly injured during a wake turbulence encounter on arrival into LAX following an A380.

ACN: 1561736 *(45 of 50)*

Synopsis

B737NG Captain reported two Flight Attendants suffered minor injuries as a result of a wake turbulence encounter at FL340 apparently from another aircraft crossing their path at FL360.

ACN: 1561673 *(46 of 50)*

Synopsis

MD-11 Captain reported encountering wake turbulence on arrival into OMDB.

ACN: 1560938 *(47 of 50)*

Synopsis

G200 First Officer reported encountering wake turbulence in the Dallas area in trail of a B737-800.

ACN: 1560596 *(48 of 50)*

Synopsis

B737-800 flight crew reported encountering wake turbulence at FL260 10 miles in trail of an A380.

ACN: 1523407 *(49 of 50)*

Synopsis

EMB-175 Captain reported encountering wake turbulence departing SEA in trail of an Airbus A320.

ACN: 1522558 *(50 of 50)*

Synopsis

B757 Captain reported a momentary flap overspeed resulted following an encounter with a wind gust or wake turbulence.

Report Narratives

Time / Day

Date : 201810
Local Time Of Day : 1201-1800

Place

Locale Reference.Airport : EWR.Airport
State Reference : NJ

Aircraft : 1

Reference : X
ATC / Advisory.TRACON : N90
Aircraft Operator : Air Carrier
Make Model Name : Embraer Jet Undifferentiated or Other Model
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Flight Phase : Initial Approach
Route In Use : Visual Approach
Airspace.Class B : EWR

Aircraft : 2

Reference : Y
ATC / Advisory.TRACON : N90
Aircraft Operator : Air Carrier
Make Model Name : B737 Undifferentiated or Other Model
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Flight Phase : Initial Approach
Airspace.Class B : EWR

Person

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : First Officer
Function.Flight Crew : Pilot Flying
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Instrument
Qualification.Flight Crew : Multiengine
ASRS Report Number.Accession Number : 1586689
Human Factors : Situational Awareness
Analyst Callback : Attempted

Events

Anomaly.Deviation - Track / Heading : All Types
Anomaly.Deviation - Procedural : Published Material / Policy
Anomaly.Deviation - Procedural : Clearance
Anomaly.Inflight Event / Encounter : Wake Vortex Encounter
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Took Evasive Action

Assessments

Contributing Factors / Situations : Environment - Non Weather Related
Contributing Factors / Situations : Human Factors
Contributing Factors / Situations : Procedure
Primary Problem : Ambiguous

Narrative: 1

Doing the Stadium Visual for the first time at night as assigned by Approach, RWY 29 into EWR, winds were 310/16G25, fully configured by GIMEE. I was having difficulty identifying points after the stadium, specifically the cemetery, [and] we flew into the wake of the 737 that landed before us, causing a loss in altitude and an obstacle announcement. We corrected, added power, turned over the railway, climbed and then landed without any further [issues]. There were no queries from ATC at any time during the event. There were other aircraft requesting ILS 22L, but because we had already briefed the approach and programmed it into the box I did not want to change the approach during a critical phase of flight. In hindsight I should have requested the ILS into 22L and dealt with x-wind when Approach originally advised us of the Stadium Vis Approach. I am quite familiar with this, I do it often and it would have been comfortable.

Synopsis

Embraer Regional Jet First Officer reported difficulty navigating the Stadium Visual approach into EWR, and encountered wake turbulence in trail of a B737.

Time / Day

Date : 201810

Local Time Of Day : 0601-1200

Place

Locale Reference.Airport : EWR.Airport

State Reference : NJ

Altitude.MSL.Single Value : 5000

Environment

Flight Conditions : VMC

Aircraft

Reference : X

ATC / Advisory.Tower : EWR

Aircraft Operator : Air Carrier

Make Model Name : B737 Next Generation Undifferentiated

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 121

Flight Plan : IFR

Mission : Passenger

Flight Phase : Final Approach

Airspace.Class B : EWR

Person

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Air Carrier

Function.Flight Crew : First Officer

Function.Flight Crew : Pilot Flying

Qualification.Flight Crew : Air Transport Pilot (ATP)

Experience.Flight Crew.Last 90 Days : 45

Experience.Flight Crew.Type : 4880

ASRS Report Number.Accession Number : 1586608

Human Factors : Confusion

Human Factors : Situational Awareness

Events

Anomaly.ATC Issue : All Types

Anomaly.Inflight Event / Encounter : Wake Vortex Encounter

Detector.Person : Flight Crew

When Detected : In-flight

Result.Flight Crew : Became Reoriented

Assessments

Contributing Factors / Situations : Human Factors

Primary Problem : Human Factors

Narrative: 1

All SOPs were followed to the best of my ability and knowledge. Just west of TEB on a heading, speed, altitude of 5,000 [feet], Approach issued a clearance of speed 180 then descend to 3,000 [feet]. The aircraft was on autopilot B. MCP speed 180 flaps to 5, speed 195 and slowing. I called for flaps 10 and level change, [extended the] speed brake and as aircraft started descent, ATC [assigned] speed 180 then descend. The aircraft was 185 to 180 when call answered. Clearance of a heading to intercept 22L and speed 170. ATC was very busy and no approach clearance was received as we flew past the FAF. The Captain stated for me to "start down". I stated we did not receive approach clearance. Captain switched to Tower and asked if we were cleared to land. Tower gave us clearance to land, because of the uncertainty but logical transfer of Tower giving us the clearance to land, I followed the Captain's demands. I uncoupled the autopilot, requested gear down, flaps 15, then 25 as I approached 1,500 [feet], slowing aircraft on flaps schedule while assessing the traffic ahead. Flaps 30, [on] target, on path and speed at 1,300 feet. Because of the uncertainty I again requested a response [from] the Captain for landing clearance on short final. To make the 35 [feet] over the RWY I stated to the Captain I would bring the aircraft to three pink over the end. The preceding aircraft wake turbulence was evident but minimal. I was straight down the runway centerline, with 1 to 4 degrees of left, then right aileron etc, (no rudder) to compensate [for] the wake. The aircraft started to balloon once and was immediately smoothly arrested on profile. For no apparent reason, at approximately 20 feet the Captain abruptly called "I have the aircraft" and commandeered the plane. I immediately took my left hand off the throttles but never saw the Captain cover the throttles until he hit the pavement. His command of the aircraft was no different in aileron control. While braking the Captain stated hold short of 22R. I did not hear any transmission from Tower until we were already holding at 22R and acknowledged to hold at 22R for the next two aircraft.

Synopsis

B737NG First Officer reported the Captain took control of the aircraft on short final for unknown reasons.

Time / Day

Date : 201810
Local Time Of Day : 1801-2400

Place

Locale Reference.Airport : LAS.Airport
State Reference : NV
Relative Position.Angle.Radial : 360
Relative Position.Distance.Nautical Miles : 10
Altitude.MSL.Single Value : 24000

Environment

Light : Night

Aircraft : 1

Reference : X
ATC / Advisory.TRACON : L30
Aircraft Operator : Air Carrier
Make Model Name : B737 Next Generation Undifferentiated
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Flight Phase : Descent
Airspace.Class B : LAS

Aircraft : 2

Reference : Y
Make Model Name : Any Unknown or Unlisted Aircraft Manufacturer

Person

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : Pilot Not Flying
Function.Flight Crew : Captain
Qualification.Flight Crew : Air Transport Pilot (ATP)
Experience.Flight Crew.Last 90 Days : 130
Experience.Flight Crew.Type : 9400
ASRS Report Number.Accession Number : 1585593

Events

Anomaly.Flight Deck / Cabin / Aircraft Event : Illness
Anomaly.Inflight Event / Encounter : Weather / Turbulence
Anomaly.Inflight Event / Encounter : Wake Vortex Encounter
Detector.Person : Flight Crew

When Detected : In-flight

Result.General : Physical Injury / Incapacitation

Assessments

Contributing Factors / Situations : Environment - Non Weather Related

Primary Problem : Environment - Non Weather Related

Narrative: 1

On our descent into LAS, out [of] FL240 we encountered a short pocket of moderate chop, maybe light turbulence. It didn't last more than a second, maybe two. Before we started down, I asked for ride reports into LAS. ATC replied "no adverse reports on the descent." We just left the thunderstorms in the LA area, and even though LAS had high clouds, you could see clear all the way into the airport. The turbulence came out of nowhere; it might have been someone's wake. The C Flight Attendant called, and told us that the B Flight Attendant got injured, she was sitting in the cabin, and she was going to stay there for arrival. The C Flight Attendant was going to take her position (on the jump seat). She didn't require medical attention. Because that injury prevented her from performing her duties, I decided to call the EMT's so they could make sure that she was ok. Truly, the only thing that could've prevented this was having the Flight Attendants sit throughout the whole flight. But there were no reports of turbulence on the descent. The flight through the desert was smooth. They sat through the departure part of the flight, and got up when it got smooth. There was not a single piece of information to have them sitting down.

Synopsis

B737 NG Captain reported a Flight Attendant was injured during an encounter with turbulence, possibly wake-related, on descent into LAS.

Time / Day

Date : 201810
Local Time Of Day : 1201-1800

Place

Locale Reference.Airport : DCA.Airport
State Reference : DC
Altitude.MSL.Single Value : 5000

Aircraft : 1

Reference : X
ATC / Advisory.TRACON : PCT
Aircraft Operator : Air Carrier
Make Model Name : EMB ERJ 170/175 ER/LR
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Flight Phase : Climb
Airspace.Class B : DCA

Aircraft : 2

Reference : Y
Make Model Name : Any Unknown or Unlisted Aircraft Manufacturer
Flight Phase : Climb
Airspace.Class B : DCA

Person : 1

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : Pilot Flying
Function.Flight Crew : First Officer
Qualification.Flight Crew : Air Transport Pilot (ATP)
ASRS Report Number.Accession Number : 1584444
Human Factors : Distraction
Human Factors : Situational Awareness

Person : 2

Reference : 2
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : Captain
Function.Flight Crew : Pilot Not Flying
Qualification.Flight Crew : Air Transport Pilot (ATP)
ASRS Report Number.Accession Number : 1584449

Human Factors : Distraction
Human Factors : Situational Awareness

Events

Anomaly.Deviation - Altitude : Undershoot
Anomaly.Deviation - Procedural : Clearance
Anomaly.Inflight Event / Encounter : Wake Vortex Encounter
Detector.Person : Flight Crew
Detector.Person : Air Traffic Control
When Detected : In-flight
Result.Flight Crew : Became Reoriented
Result.Air Traffic Control : Issued New Clearance

Assessments

Contributing Factors / Situations : Environment - Non Weather Related
Contributing Factors / Situations : Human Factors
Contributing Factors / Situations : Procedure
Primary Problem : Human Factors

Narrative: 1

Just after departure during aircraft cleanup, we received a complex clearance with direct-to fix, speed restriction, and altitude assignment. As I was selecting the airspeed, we encountered significant wake turbulence and I guarded the controls, subsequently missing the altitude assignment while we searched for the fix. We eventually leveled at 5000 [feet] per the SID when ATC reissued the FL190 clearance mentioning that he thought he had passed it [to us] earlier. We received vectors for the climb and continued without further incident. I should have prioritized the altitude setting and queried the controller when we reached 5000 feet since I had a feeling that we may have missed it.

Narrative: 2

We departed DCA and on the climb out were given a clearance with multiple instructions, a speed restriction, a fix to go direct to, and an altitude. At about this same time, we hit some wake turbulence that surprised us. The First Officer (FO), the pilot flying, first guarded the controls while we went through the wake, then adjusted the speed, and then we were looking for the fix in the box that we were told to go direct to, at first I must have passed it in the MCDU. I couldn't find it and had to refer to the SID on my iPad to see which fixes it was between. I then found it in the MCDU and we started going to the fix. By this point I had forgotten that along with those clearances we were also given a climb to FL190, my FO had never heard that part of the instruction in the group of instructions we were given at once. It wasn't until ATC queried us about why we were not climbing to FL190 that I remembered the climb. We were still at 5000 [feet]. We were given vectors for the climb and there was no further incident. I should have made sure the altitude was set before anything else, but had been distracted by the unexpected wake turbulence.

Synopsis

E175 flight crew reported failure to climb to assigned altitude when they were distracted by a wake turbulence encounter departing DCA.

Time / Day

Date : 201810

Local Time Of Day : 1801-2400

Place

Locale Reference.Airport : BOS.Airport

State Reference : NH

Altitude.AGL.Single Value : 500

Environment

Flight Conditions : VMC

Aircraft : 1

Reference : X

ATC / Advisory.Tower : BOS

Aircraft Operator : Air Carrier

Make Model Name : Embraer Jet Undifferentiated or Other Model

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 121

Flight Plan : IFR

Mission : Passenger

Flight Phase : Initial Climb

Airspace.Class B : BOS

Aircraft : 2

Reference : Y

ATC / Advisory.Tower : BOS

Aircraft Operator : Air Carrier

Make Model Name : B757 Undifferentiated or Other Model

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 121

Flight Plan : IFR

Flight Phase : Climb

Airspace.Class B : BOS

Person : 1

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Air Carrier

Function.Flight Crew : Captain

Function.Flight Crew : Pilot Flying

Qualification.Flight Crew : Air Transport Pilot (ATP)

ASRS Report Number.Accession Number : 1584359

Human Factors : Distraction

Human Factors : Situational Awareness

Human Factors : Workload

Person : 2

Reference : 2
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : First Officer
Function.Flight Crew : Pilot Not Flying
Qualification.Flight Crew : Air Transport Pilot (ATP)
ASRS Report Number.Accession Number : 1584360
Human Factors : Situational Awareness

Events

Anomaly.Deviation - Speed : All Types
Anomaly.Deviation - Procedural : Published Material / Policy
Anomaly.Deviation - Procedural : Clearance
Anomaly.Inflight Event / Encounter : Wake Vortex Encounter
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Became Reoriented

Assessments

Contributing Factors / Situations : Human Factors
Primary Problem : Human Factors

Narrative: 1

Prior to our takeoff, a B757, an A321 and a Q400 departed. We took off and immediately experienced wake turbulence associated with the previous departures. The RNAV SID calls for a nearly immediate and large course change to the east at 520 feet. At 500 feet I called for autopilot on to comply with best practices for RNAV SIDs. At acceleration altitude the Pilot Monitoring (PM) called acceleration altitude. Because the autopilot was on, we both reached for the FGC SPD button. I said, since the autopilot is on, I command the FGC. I called for flaps up. The First Officer (FO) subsequently ran the After Takeoff checklist. As the Pilot Flying (PF), I was saturated with flying the airplane as the departure has several short tight turning legs. Once we got up and out of the terminal airspace, I lowered the nose to accelerate the aircraft. At that time the aircraft wasn't accelerating normally. I scanned the cockpit and observed the Flaps were still in the 9 position. I observed our speed at that time to be 261 KIAS. I immediately reduced thrust to below 250 KIAS and retracted the flaps. We continued the flight and landed without incident. Made an AML entry. Cause: high workload and task saturation. This was an error that was made during a high workload time period and the associated confusion of who manipulates the FGC during an autopilot on departure for RNAV SID compliance. As such, a thorough debrief and review of the after takeoff checklist and flow is my suggestion. Also, highlighting the PF/PM duties and how they change depending on whether the autopilot is turn on at 500 feet or just the YD is turned on.

Narrative: 2

[Report narrative contained no additional information.]

Synopsis

Embraer jet flight crew reported a wake turbulence encounter combined with a complex departure resulted in failure to retract flaps on schedule.

Time / Day

Date : 201809

Place

Locale Reference.Airport : BUR.Airport

State Reference : CA

Altitude.AGL.Single Value : 4000

Environment

Flight Conditions : VMC

Light : Daylight

Aircraft : 1

Reference : X

ATC / Advisory.TRACON : SCT

Aircraft Operator : Air Taxi

Make Model Name : Bombardier Learjet Undifferentiated or Other Model

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 135

Flight Plan : IFR

Mission : Passenger

Flight Phase : Initial Climb

Route In Use.SID : SLAPP1

Airspace.Class C : BUR

Aircraft : 2

Reference : Y

ATC / Advisory.TRACON : SCT

Aircraft Operator : Air Carrier

Make Model Name : B737 Next Generation Undifferentiated

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 121

Flight Plan : IFR

Mission : Passenger

Flight Phase : Initial Climb

Airspace.Class C : BUR

Person

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Air Taxi

Function.Flight Crew : Pilot Not Flying

Function.Flight Crew : First Officer

Qualification.Flight Crew : Commercial

Qualification.Flight Crew : Flight Instructor

Qualification.Flight Crew : Instrument

Experience.Flight Crew.Total : 1010

Experience.Flight Crew.Type : 75
ASRS Report Number.Accession Number : 1583793

Events

Anomaly.Deviation - Track / Heading : All Types
Anomaly.Deviation - Procedural : Published Material / Policy
Anomaly.Deviation - Procedural : Clearance
Anomaly.Inflight Event / Encounter : Wake Vortex Encounter
Detector.Person : Air Traffic Control
When Detected : In-flight
Result.Air Traffic Control : Issued New Clearance

Assessments

Contributing Factors / Situations : Environment - Non Weather Related
Contributing Factors / Situations : Procedure
Primary Problem : Ambiguous

Narrative: 1

We departed Runway 15 from BUR. On the climb out, we encountered wake turbulence from a B-737. We initially remained left of the departure. Upon the initial call to Departure, we were told to turn right to a heading of 210. We complied, and joined the departure procedure with no terrain or traffic conflicts.

Synopsis

Learjet First Officer reported encountering wake turbulence departing BUR in trail of a B737.

Time / Day

Date : 201810
Local Time Of Day : 0001-0600

Place

Locale Reference.Airport : PHX.Airport
State Reference : AZ
Altitude.AGL.Single Value : 200

Environment

Flight Conditions : VMC

Aircraft : 1

Reference : X
ATC / Advisory.TRACON : P50
Aircraft Operator : Air Carrier
Make Model Name : B737-800
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Nav In Use : FMS Or FMC
Flight Phase : Initial Climb
Route In Use.SID : ZEPER 1
Airspace.Class B : PHX

Aircraft : 2

Reference : Y
ATC / Advisory.TRACON : P50
Aircraft Operator : Air Carrier
Make Model Name : A321
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Flight Phase : Initial Climb
Airspace.Class B : PHX

Person

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : Captain
Function.Flight Crew : Pilot Flying
Qualification.Flight Crew : Air Transport Pilot (ATP)
ASRS Report Number.Accession Number : 1583449
Human Factors : Situational Awareness
Analyst Callback : Attempted

Events

Anomaly.ATC Issue : All Types
Anomaly.Inflight Event / Encounter : Wake Vortex Encounter
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Took Evasive Action
Result.Flight Crew : Requested ATC Assistance / Clarification
Result.Air Traffic Control : Issued New Clearance

Assessments

Contributing Factors / Situations : Environment - Non Weather Related
Contributing Factors / Situations : Procedure
Primary Problem : Procedure

Narrative: 1

Takeoff Runway 25R PHX closely behind [an] A321. Waited for the A321's rotation before starting my takeoff roll. On initial climb at about 200 FT AGL started getting into severe wake turbulence. The turbulence felt like a punch with a sharp left roll. After about 5 shots asked Departure for a 10 degree left turn off the ZEPER 1. Cause: insufficient separation between departing aircraft. Suggestions: more spacing between departing aircraft.

Synopsis

B737-800 Captain reported encountering "severe" wake turbulence departing PHX in trail of an A321.

Time / Day

Date : 201809
Local Time Of Day : 1801-2400

Place

Locale Reference.Airport : SFO.Airport
State Reference : CA
Altitude.AGL.Single Value : 500

Environment

Flight Conditions : VMC
Weather Elements / Visibility.Visibility : 10
Light : Daylight

Aircraft : 1

Reference : X
ATC / Advisory.Tower : SFO
Aircraft Operator : Air Taxi
Make Model Name : Gulfstream V / G500 / G550
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 135
Flight Plan : IFR
Mission : Passenger
Flight Phase : Landing
Route In Use : Visual Approach
Airspace.Class B : SFO

Aircraft : 2

Reference : Y
ATC / Advisory.Tower : SFO
Aircraft Operator : Air Carrier
Make Model Name : Airbus Industrie Undifferentiated or Other Model
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Flight Phase : Final Approach
Airspace.Class B : SFO

Person : 1

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : Captain
Function.Flight Crew : Pilot Flying
Qualification.Flight Crew : Air Transport Pilot (ATP)
Experience.Flight Crew.Total : 12000
Experience.Flight Crew.Last 90 Days : 70

Experience.Flight Crew.Type : 600
ASRS Report Number.Accession Number : 1581620
Human Factors : Distraction
Human Factors : Communication Breakdown
Communication Breakdown.Party1 : Flight Crew
Communication Breakdown.Party2 : ATC
Analyst Callback : Attempted

Person : 2

Reference : 2
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Taxi
Function.Flight Crew : First Officer
Function.Flight Crew : Pilot Not Flying
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Instrument
Qualification.Flight Crew : Multiengine
Experience.Flight Crew.Total : 2950
Experience.Flight Crew.Last 90 Days : 65
Experience.Flight Crew.Type : 225
ASRS Report Number.Accession Number : 1581618
Human Factors : Distraction
Human Factors : Communication Breakdown
Communication Breakdown.Party1 : Flight Crew
Communication Breakdown.Party2 : ATC

Events

Anomaly.Deviation - Procedural : Landing Without Clearance
Anomaly.Inflight Event / Encounter : Wake Vortex Encounter
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Requested ATC Assistance / Clarification
Result.Air Traffic Control : Provided Assistance
Result.Air Traffic Control : Issued New Clearance

Assessments

Contributing Factors / Situations : Environment - Non Weather Related
Contributing Factors / Situations : Procedure
Primary Problem : Ambiguous

Narrative: 1

We encountered some wake turbulence behind an Airbus, that we reported and then requested and received a vector to vacate. In the process of approach (behind that aircraft) we were broken off the 28L visual and given the 28R ILS, which we accepted (greatly increasing our workload - specifically on the account of our discussing the wake turbulence aircraft immediately in front of us and our avoidance techniques thereof). We checked in with what we thought was the Tower, and at this very busy airport on this very busy day, and during the landing roll out did a radio check after re-entering the Tower frequency and were told to contact Ground, which we did, and taxied to the ramp normally. Upon landing neither crew member was able to positively recall acknowledging the landing clearance.

Narrative: 2

[Report narrative contained no additional information.]

Synopsis

G-550 flight crew reported encountering wake turbulence in trail of an Airbus on approach to SFO and a subsequent failure to contact Tower.

Time / Day

Date : 201809

Local Time Of Day : 1801-2400

Place

Locale Reference.Airport : LHD.Airport

State Reference : AK

Altitude.MSL.Single Value : 1100

Environment

Light : Dusk

Ceiling : CLR

Aircraft : 1

Reference : X

ATC / Advisory.Tower : LHD

Aircraft Operator : Personal

Make Model Name : Skylane 182/RG Turbo Skylane/RG

Crew Size.Number Of Crew : 1

Operating Under FAR Part : Part 91

Flight Plan : None

Mission : Personal

Flight Phase : Initial Approach

Route In Use : Visual Approach

Airspace.Class D : LHD

Aircraft : 2

Reference : Y

ATC / Advisory.Tower : EDF

Aircraft Operator : Military

Make Model Name : Globemaster (C-17)

Flight Phase : Final Approach

Person

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Personal

Function.Flight Crew : Pilot Flying

Function.Flight Crew : Single Pilot

Qualification.Dispatch : Dispatcher

Qualification.Flight Crew : Private

Experience.Dispatch.Dispatch : 28

Experience.Flight Crew.Last 90 Days : 45

ASRS Report Number.Accession Number : 1581617

Analyst Callback : Attempted

Events

Anomaly.Aircraft Equipment Problem : Critical
Anomaly.Inflight Event / Encounter : Wake Vortex Encounter
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Became Reoriented
Result.Aircraft : Aircraft Damaged

Assessments

Contributing Factors / Situations : Environment - Non Weather Related
Contributing Factors / Situations : Procedure
Primary Problem : Ambiguous

Narrative: 1

I was returning to Lake Hood strip when I contacted LHD Tower. They informed me of a C17 on approach to Elmendorf AFB, caution wake turbulence. At that point I called the Tower and requested a 360 for separation which is standard practice entering LHD airspace. I made a 180 and flew north for a bit admiring the view of Denali then continued the turn toward LHD. I crossed the north shore of Cook Inlet just west of Point Mackenzie at 1100 ft, 3.6 miles behind the C17 according to radar data. About mid-channel I hit the wake turbulence from the C17. It was the most violent turbulence I have ever experienced. May have lasted for a second but caused substantial damage to the aircraft. Both bottom wing skins are wrinkled and spars are cracked. I was light, 1 passenger and 20 gallon gas onboard. If I was at gross I don't believe we would be having this discussion. I have been flying out of LHD for over thirty years without incident. Is the C17 to blame or does the approach need to be changed, I don't know.

Synopsis

C182 pilot reported the aircraft was damaged following a wake turbulence encounter with a C-17 in the vicinity of EDF.

Time / Day

Date : 201809

Local Time Of Day : 0601-1200

Place

Locale Reference.ATC Facility : EGLL.TRACON

State Reference : FO

Altitude.MSL.Single Value : 4000

Environment

Flight Conditions : VMC

Light : Daylight

Aircraft : 1

Reference : X

ATC / Advisory.TRACON : EGLL

Aircraft Operator : Air Carrier

Make Model Name : B767 Undifferentiated or Other Model

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 121

Flight Plan : IFR

Mission : Passenger

Flight Phase : Final Approach

Aircraft : 2

Reference : Y

ATC / Advisory.TRACON : EGLL

Make Model Name : B777-200

Crew Size.Number Of Crew : 2

Flight Plan : IFR

Flight Phase : Final Approach

Person

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Air Carrier

Function.Flight Crew : Pilot Not Flying

Function.Flight Crew : First Officer

Experience.Flight Crew.Type : 2167

ASRS Report Number.Accession Number : 1581462

Events

Anomaly.Inflight Event / Encounter : Wake Vortex Encounter

Detector.Person : Flight Crew

When Detected : In-flight

Result.Flight Crew : Requested ATC Assistance / Clarification

Result.Flight Crew : Took Evasive Action

Result.Air Traffic Control : Separated Traffic
Result.Air Traffic Control : Issued New Clearance

Assessments

Contributing Factors / Situations : Environment - Non Weather Related
Contributing Factors / Situations : Procedure
Primary Problem : Ambiguous

Narrative: 1

While being vectored for 27L at EGLL we experienced wake turbulence events. Two of them were unable to be corrected for by the autopilot and had to be manually corrected. The second one exceeded 30 degrees in bank. Both of these events were a hard roll. I asked ATC what kind of aircraft we were following and they told us it was a 777-200. They then allowed us to slow to 150kts to increase the separation between us. We were advised that we had .2 miles from the minimum recommend separation at the time. There was zero wind at 4000 ft and the surface winds were calm.

Synopsis

B767 FO reported encountering wake turbulence on arrival into EGLL in trail of a B777-200.

Time / Day

Date : 201809

Local Time Of Day : 0601-1200

Place

Locale Reference.ATC Facility : RJAA.TRACON

State Reference : FO

Altitude.MSL.Single Value : 3000

Environment

Flight Conditions : VMC

Weather Elements / Visibility : Rain

Aircraft : 1

Reference : X

ATC / Advisory.TRACON : RJAA

Aircraft Operator : Air Carrier

Make Model Name : Large Transport, Low Wing, 2 Turbojet Eng

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 121

Flight Plan : IFR

Mission : Passenger

Nav In Use.Localizer/Glideslope/ILS : Runway 16L

Flight Phase : Final Approach

Aircraft : 2

Reference : Y

ATC / Advisory.TRACON : RJAA

Make Model Name : Any Unknown or Unlisted Aircraft Manufacturer

Flight Plan : IFR

Person

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Air Carrier

Function.Flight Crew : Pilot Not Flying

Function.Flight Crew : Captain

Qualification.Flight Crew : Air Transport Pilot (ATP)

Experience.Flight Crew.Type : 1291

ASRS Report Number.Accession Number : 1581441

Human Factors : Situational Awareness

Events

Anomaly.Inflight Event / Encounter : Loss Of Aircraft Control

Anomaly.Inflight Event / Encounter : Wake Vortex Encounter

Detector.Person : Flight Crew

When Detected : In-flight

Result.Flight Crew : Regained Aircraft Control

Assessments

Contributing Factors / Situations : Environment - Non Weather Related

Contributing Factors / Situations : Procedure

Primary Problem : Ambiguous

Narrative: 1

This report is being submitted to report a low altitude wake turbulence encounter and provide feedback for assistance with tracking the performance of the new Upset Recovery Training program. On arrival to RJAA [we] encountered wake turbulence at approximately 3000 ft MSL and 200 KTS with autopilot B engaged and flaps 1 set.

The flight had just broken into VMC conditions with light rain, solid cloud layers above and some SCT cloud layers below. RJAA Radar was vectoring the flight on a left base leg (heading west) to join final for RJAA ILS-Y 16L with the FO performing PF duties while the CA was PM. As the Controller issued a speed reduction the aircraft began to rapidly but lightly bounce, pitch and roll around its axis for a few seconds before rolling abruptly to the left. The "BANK ANGLE - BANK ANGLE" aural alert sounded and the PF immediately executed the upset recovery procedure as the aircraft was approximately 45 degrees angle of bank left wing down.

Scanning the Pilot Direction Indicator for recovery, the CA thought the lateral Flight Mode Annunciator switched to Control Wheel Steering just before the autopilot was disconnected. After the autopilot and auto throttle were disconnected, the FO/PF pushed the nose down slightly and rolled wings level rapidly, checked airspeed and recovered to level flight; airspeed did not vary by more than 5-10 knots during the event. The CA/PM reset the Mode Control Panel and the autopilot and auto throttle were reengaged afterward. Following this upset recovery event the crew made sure everything was okay, evaluated the situation, and the flight then joined the ILS final and safely landed on RWY 16L.

Synopsis

Air carrier Captain reported encountering wake turbulence on arrival into RJAA.

Time / Day

Date : 201809

Place

Locale Reference.Airport : AUS.Airport

State Reference : TX

Altitude.AGL.Single Value : 500

Aircraft : 1

Reference : X

ATC / Advisory.Tower : AUS

Aircraft Operator : Personal

Make Model Name : Cessna 152

Crew Size.Number Of Crew : 1

Operating Under FAR Part : Part 91

Mission : Training

Flight Phase : Final Approach

Airspace.Class C : AUS

Aircraft : 2

Reference : Y

ATC / Advisory.Tower : AUS

Aircraft Operator : Air Carrier

Make Model Name : Commercial Fixed Wing

Crew Size.Number Of Crew : 2

Flight Plan : IFR

Flight Phase : Landing

Airspace.Class C : AUS

Person

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Personal

Function.Flight Crew : Instructor

Function.Flight Crew : Pilot Not Flying

Qualification.Flight Crew : Instrument

Qualification.Flight Crew : Commercial

Qualification.Flight Crew : Flight Instructor

Experience.Flight Crew.Total : 13000

Experience.Flight Crew.Last 90 Days : 60

Experience.Flight Crew.Type : 9000

ASRS Report Number.Accession Number : 1581032

Events

Anomaly.Inflight Event / Encounter : Wake Vortex Encounter

Detector.Person : Flight Crew

When Detected : In-flight

Result.Flight Crew : Requested ATC Assistance / Clarification
Result.Flight Crew : Took Evasive Action

Assessments

Contributing Factors / Situations : Environment - Non Weather Related
Contributing Factors / Situations : Procedure
Primary Problem : Ambiguous

Narrative: 1

Early this summer I was with a primary student on approach to land behind an airliner. Suddenly the airliner, for no apparent, reason decided to go around. Of course following close behind I had instructed my student to stay high and land past the point that the airliner was going to touch down. When the airliner decided to go around it created a tremendous wake event. I alerted the Tower that I would need to take immediate evasive action and turned ninety degrees to avoid the wake. In over twenty years of flying I have never had this happen and it made me think that this is not something we teach students. I think this should be an issue that is included in textbooks. I certainly will alert my students to this possibility in the future.

Synopsis

C152 Instructor Pilot reported encountering wake turbulence on approach to AUS when the air carrier aircraft preceding him executed a go-around.

Time / Day

Date : 201809
Local Time Of Day : 1201-1800

Place

Locale Reference.Airport : DTW.Airport
State Reference : MI
Altitude.AGL.Single Value : 250

Aircraft

Reference : X
ATC / Advisory.Tower : DTW
Aircraft Operator : Air Carrier
Make Model Name : Regional Jet 900 (CRJ900)
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Flight Phase : Initial Climb
Airspace.Class B : DTW

Person

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : Captain
Function.Flight Crew : Pilot Flying
Qualification.Flight Crew : Air Transport Pilot (ATP)
ASRS Report Number.Accession Number : 1580993
Human Factors : Situational Awareness
Analyst Callback : Attempted

Events

Anomaly.ATC Issue : All Types
Anomaly.Inflight Event / Encounter : Wake Vortex Encounter
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Took Evasive Action
Result.Flight Crew : Requested ATC Assistance / Clarification
Result.Air Traffic Control : Issued New Clearance

Assessments

Contributing Factors / Situations : Environment - Non Weather Related
Contributing Factors / Situations : Procedure
Primary Problem : Procedure

Narrative: 1

Given takeoff clearance from 21R in DTW behind a 757 before the aircraft had finished rotating. I turned on continuous ignition in case of wake turbulence encounter. We got a small jolt of wake turbulence at 200-300 ft AGL. At less than 1000ft, we encountered significant wake turbulence requiring full deflection of roll controls at least 3 times. I saw the 757 had turned left and told the First Officer (FO) to ask for runway heading to get out of the turbulence. When the FO advised the Tower, the reply was "there is no wake turbulence." I informed the controller that we had been full deflection on the flight controls to counter the turbulence. He then gave us runway heading. The Tower no longer [provides] wake turbulence separation on 757s. Provide wake turbulence separation on 757s.

Synopsis

CRJ-900 Captain reported encountering wake turbulence departing DTW in trail of a B757.

Time / Day

Date : 201809

Local Time Of Day : 1201-1800

Place

Locale Reference.ATC Facility : ZOB.ARTCC

State Reference : OH

Altitude.MSL.Single Value : 21000

Environment

Flight Conditions : VMC

Light : Daylight

Aircraft : 1

Reference : X

ATC / Advisory.Center : ZOB

Aircraft Operator : Air Carrier

Make Model Name : Regional Jet 200 ER/LR (CRJ200)

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 121

Flight Plan : IFR

Mission : Passenger

Flight Phase : Climb

Airspace.Class A : ZOB

Aircraft : 2

Reference : Y

ATC / Advisory.Center : ZOB

Aircraft Operator : Air Carrier

Make Model Name : A330

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 121

Flight Plan : IFR

Mission : Passenger

Flight Phase : Climb

Airspace.Class A : ZOB

Person

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Air Carrier

Function.Flight Crew : First Officer

Function.Flight Crew : Pilot Not Flying

Qualification.Flight Crew : Instrument

Qualification.Flight Crew : Multiengine

Qualification.Flight Crew : Air Transport Pilot (ATP)

Qualification.Flight Crew : Flight Instructor

Experience.Flight Crew.Total : 1807

Experience.Flight Crew.Last 90 Days : 100
Experience.Flight Crew.Type : 304
ASRS Report Number.Accession Number : 1579909
Analyst Callback : Completed

Events

Anomaly.Deviation - Altitude : Excursion From Assigned Altitude
Anomaly.Deviation - Track / Heading : All Types
Anomaly.Inflight Event / Encounter : Wake Vortex Encounter
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Took Evasive Action
Result.Flight Crew : Requested ATC Assistance / Clarification
Result.Air Traffic Control : Issued New Clearance

Assessments

Contributing Factors / Situations : Environment - Non Weather Related
Contributing Factors / Situations : Procedure
Primary Problem : Procedure

Narrative: 1

[We] were behind an A330 with approximately 12 miles of in trail separation, based on my recollection from the range rings on TCAS. We were flying the same route [from departure airport] and had departed behind this aircraft. We had at least 5 miles of separation between us and the A330 when we departed. While climbing through FL210 we began to experience a buffet that I initially thought was light chop. Within a few seconds after that, the aircraft had slowly begun to bank right, and the Captain and I both thought that perhaps we were losing aileron control. However, when the aircraft reached approximately 30 degrees of right bank and the autopilot failed to correct the problem, my Captain correctly disengaged the autopilot and attempted to hand fly the aircraft back into a level flight attitude. It was then that we began getting rocked with left and right banks as we apparently encountered wake turbulence from the A330. After regaining control of the aircraft, we started climbing again. Then, at FL230 or so, we began to experience the same symptoms yet again, only more violently. At this point, and after consulting with the Captain, I asked for a reroute around the A330, which was authorized. No further instances of turbulence occurred after this point. The FAA may need to re-examine wake turbulence separation criteria for the enroute environment. 12 miles was simply not enough at this altitude. The CRJ-200 handles turbulence quite well, but had we been in a CRJ-700 or CRJ-900, the encounter could have been even more violent (assuming the larger wingspan of those airframes would have still subjected it to wake turbulence).

Synopsis

CRJ-200 First Officer reported encountering wake turbulence climbing through FL210 12 miles in trail of an A330.

Time / Day

Date : 201809

Place

Locale Reference.Airport : OCF.Airport

State Reference : FL

Altitude.AGL.Single Value : 400

Environment

Flight Conditions : VMC

Weather Elements / Visibility.Visibility : 10

Light : Daylight

Ceiling.Single Value : 12000

Aircraft : 1

Reference : X

ATC / Advisory.Tower : OCF

Aircraft Operator : Personal

Make Model Name : PA-28 Cherokee/Archer/Dakota/Pillan/Warrior

Crew Size.Number Of Crew : 1

Operating Under FAR Part : Part 91

Flight Plan : None

Mission : Training

Flight Phase : Initial Climb

Aircraft : 2

Reference : Y

ATC / Advisory.Tower : OCF

Aircraft Operator : Personal

Make Model Name : Skyhawk 172/Cutlass 172

Crew Size.Number Of Crew : 1

Operating Under FAR Part : Part 91

Flight Plan : None

Flight Phase : Initial Approach

Person

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Personal

Function.Flight Crew : Instructor

Function.Flight Crew : Pilot Not Flying

Qualification.Flight Crew : Flight Instructor

Qualification.Flight Crew : Commercial

Experience.Flight Crew.Total : 375

Experience.Flight Crew.Last 90 Days : 40

Experience.Flight Crew.Type : 100

ASRS Report Number.Accession Number : 1579183

Analyst Callback : Attempted

Events

Anomaly.Inflight Event / Encounter : Wake Vortex Encounter
Anomaly.Inflight Event / Encounter : Loss Of Aircraft Control
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Regained Aircraft Control

Assessments

Contributing Factors / Situations : Environment - Non Weather Related
Primary Problem : Environment - Non Weather Related

Narrative: 1

While conducting a VFR local cross country practice flight as acting flight instructor with my client/student, I believe our PA-28-181 experienced wake turbulence from a departing C172. [We were] closed traffic 36 Ocala. Upon our second touch-and-go we were in the upwind at 400 ft AGL, following a C172 that had departed prior and was 600 ft AGL feet turning right on a southeast departure. At this time the wake turbulence was experienced. My student was passing through 400 ft prior to our left crosswind turn, the aircraft banked 30-40 very quickly to the right then rolled left uncontrolled again, this time 20-30 degrees with a raising pitch attitude (not sure actual pitch degree). My student panicked on the first uncontrolled roll, let go of controls, and I took [over] as the aircraft rolled left. He claims he did nothing to controls and as I viewed the first roll it seemed he was not banking at all. I believe wake turbulence was the cause and due to the calm winds it perhaps lingered in the upwind, as we were following 30-40 seconds behind him. I feel silly as I never thought a 172 could affect our flight control authority. Operating out of ZZZ I deal with a large amount of wake turbulence awareness with the high density of turbojet traffic in and out of ZZZ, but never suspected a light single could do this.

Synopsis

PA-28 Instructor Pilot reported encountering wake turbulence from the preceding C172 in the pattern at OCF.

Time / Day

Date : 201809

Local Time Of Day : 0001-0600

Place

Locale Reference.Airport : ORD.Airport

State Reference : IL

Altitude.AGL.Single Value : 150

Environment

Light : Daylight

Aircraft : 1

Reference : X

ATC / Advisory.Tower : ORD

Aircraft Operator : Air Carrier

Make Model Name : Regional Jet 200 ER/LR (CRJ200)

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 121

Flight Plan : IFR

Mission : Passenger

Flight Phase : Initial Climb

Airspace.Class B : ORD

Aircraft : 2

Reference : Y

ATC / Advisory.Tower : ORD

Make Model Name : A319

Crew Size.Number Of Crew : 2

Flight Plan : IFR

Flight Phase : Initial Climb

Airspace.Class B : ORD

Person

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Air Carrier

Function.Flight Crew : Captain

Function.Flight Crew : Pilot Flying

Qualification.Flight Crew : Air Transport Pilot (ATP)

ASRS Report Number.Accession Number : 1578147

Human Factors : Situational Awareness

Analyst Callback : Attempted

Events

Anomaly.ATC Issue : All Types

Anomaly.Inflight Event / Encounter : Wake Vortex Encounter

Detector.Person : Flight Crew
When Detected : In-flight
Result.General : None Reported / Taken

Assessments

Contributing Factors / Situations : Environment - Non Weather Related
Contributing Factors / Situations : Procedure
Primary Problem : Procedure

Narrative: 1

We were departing out of Runway 22L. We were given line up and wait after an A319. After the A319 lifted off we were given clearance to take off with a turn to the south. The configuration of the airplane was Flaps 8 and no flex. Everything was normal until we reached 150-200ft. That's when we caught the wake turbulence of the A319. At that point we were getting a stall shaker. I was maintaining my attitude as close as possible to the flight director and we exited the wake turbulence at about 400 to 500 feet. I think that Chicago needs to better separate the aircraft on takeoff especially depending on the size of the aircraft.

Synopsis

CRJ-200 Captain reported encountering wake turbulence departing ORD in trail of an A319.

Time / Day

Date : 201809
Local Time Of Day : 1201-1800

Place

Locale Reference.Airport : PBI.Airport
State Reference : FL
Altitude.MSL.Single Value : 7000

Environment

Flight Conditions : IMC
Weather Elements / Visibility : Turbulence

Aircraft : 1

Reference : X
ATC / Advisory.TRACON : PBI
Make Model Name : Citation Excel (C560XL)
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 135
Flight Plan : IFR
Mission : Passenger
Flight Phase : Initial Approach
Route In Use.STAR : WLACE 4
Airspace.Class E : PBI

Aircraft : 2

Reference : Y
ATC / Advisory.TRACON : PBI
Aircraft Operator : Air Carrier
Make Model Name : B737-800
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Flight Phase : Initial Approach

Person : 1

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Function.Flight Crew : Pilot Flying
Function.Flight Crew : Captain
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Multiengine
Qualification.Flight Crew : Instrument
ASRS Report Number.Accession Number : 1578142
Analyst Callback : Completed

Person : 2

Reference : 2
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Function.Flight Crew : Pilot Not Flying
Function.Flight Crew : First Officer
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Instrument
Qualification.Flight Crew : Multiengine
ASRS Report Number.Accession Number : 1578144

Events

Anomaly.Deviation - Altitude : Excursion From Assigned Altitude
Anomaly.Deviation - Procedural : Published Material / Policy
Anomaly.Inflight Event / Encounter : Wake Vortex Encounter
Anomaly.Inflight Event / Encounter : Loss Of Aircraft Control
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Took Evasive Action
Result.Flight Crew : Requested ATC Assistance / Clarification
Result.Flight Crew : Regained Aircraft Control
Result.Flight Crew : Executed Go Around / Missed Approach
Result.Air Traffic Control : Issued New Clearance

Assessments

Contributing Factors / Situations : Environment - Non Weather Related
Contributing Factors / Situations : Procedure
Primary Problem : Ambiguous

Narrative: 1

While on approach into PBI, we were at 7000 FT MSL and given a clearance to cross GULLO at 3000 FT. As we started the descent, we hit turbulence, then rolled hard to the right. The autopilot disconnected. I took [the] controls and started to level the aircraft when a second wave hit us harder and pitched the plane down and rolled hard right to about 45-60 degrees wing down. I tried to level the aircraft but it wouldn't roll back level. I tried to climb above the wake turbulence. After using excessive control I got the plane to roll level and climbed back to 7000 FT from about 6600 FT. We lost about 400 feet during the encounter. We asked ATC and they said we were 7 miles behind a 737-800. We took a vector out of the turbulence area and returned to another attempt to the approach.

Narrative: 2

Descending on the WLACE4 arrival into PBI just about to GULLO we encountered severe wake turbulence from aircraft in front of us. This resulted in a 45-60 degree right roll and nose down pitch attitude. Pilot flying was fighting aircraft to return to level flight. Passengers were in seat belts and were ok but scared. After recovering to level flight after 300 FT altitude loss I queried ATC as to climb back up to 7000 FT and reported the wake turbulence. [Controller gave] us a spacing vector and continued on arrival to 10L. She said it was a 737-800 seven miles ahead. Landed safe and wrote up airplane to be inspected.

Synopsis

CE-560XLS flight crew reported encountering severe wake turbulence on arrival into PBI 7 miles in trail of a B737-800.

Time / Day

Date : 201809

Local Time Of Day : 0601-1200

Place

Locale Reference.Airport : LAS.Airport

State Reference : NV

Environment

Flight Conditions : VMC

Aircraft : 1

Reference : X

ATC / Advisory.TRACON : L30

Aircraft Operator : Air Carrier

Make Model Name : B737 Next Generation Undifferentiated

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 121

Flight Plan : IFR

Mission : Passenger

Flight Phase : Final Approach

Airspace.Class B : LAS

Aircraft : 2

Make Model Name : Any Unknown or Unlisted Aircraft Manufacturer

Person

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Air Carrier

Function.Flight Crew : Captain

Function.Flight Crew : Pilot Not Flying

Qualification.Flight Crew : Air Transport Pilot (ATP)

Experience.Flight Crew.Total : 8359

Experience.Flight Crew.Last 90 Days : 221

Experience.Flight Crew.Type : 6757

ASRS Report Number.Accession Number : 1578090

Human Factors : Workload

Human Factors : Situational Awareness

Events

Anomaly.ATC Issue : All Types

Anomaly.Deviation - Procedural : Published Material / Policy

Anomaly.Inflight Event / Encounter : Weather / Turbulence

Anomaly.Inflight Event / Encounter : Wake Vortex Encounter

Anomaly.Inflight Event / Encounter : Unstabilized Approach

Detector.Person : Flight Crew

When Detected : In-flight
Result.Flight Crew : Became Reoriented

Assessments

Contributing Factors / Situations : Human Factors
Contributing Factors / Situations : Procedure
Contributing Factors / Situations : Weather
Primary Problem : Human Factors

Narrative: 1

On approach into LAS, RWY 26L visual. ATC turned us close behind preceding traffic. As we approached the FAF, our separation decreased to a point where ATC directed an S-turn on final for spacing. As we got really busy monitoring the turn altitude and airspeed in the S-turn, the 1000 foot and 500 foot call was late. As Pilot Monitoring, I inadvertently set Vref speed instead of approach. Pilot Flying caught and maintained extra speed. Airport conditions included gusty winds and wake turbulence on final.

Synopsis

B737NG Captain reported a tight turn to final at LAS led to some procedural errors.

Time / Day

Date : 201809

Local Time Of Day : 1801-2400

Place

Locale Reference.ATC Facility : ZAN.ARTCC

State Reference : AK

Environment

Flight Conditions : VMC

Weather Elements / Visibility : Turbulence

Aircraft : 1

Reference : X

ATC / Advisory.Center : ZAN

Aircraft Operator : Air Carrier

Make Model Name : B777-200

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 121

Flight Plan : IFR

Mission : Cargo / Freight

Flight Phase : Cruise

Route In Use.Airway : A590

Airspace.Class A : ZAN

Aircraft : 2

Reference : Y

ATC / Advisory.Center : ZAN

Make Model Name : Commercial Fixed Wing

Flight Plan : IFR

Flight Phase : Cruise

Airspace.Class A : ZAN

Person

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Air Carrier

Function.Flight Crew : First Officer

Function.Flight Crew : Pilot Flying

Qualification.Flight Crew : Air Transport Pilot (ATP)

ASRS Report Number.Accession Number : 1577812

Human Factors : Communication Breakdown

Human Factors : Distraction

Communication Breakdown.Party1 : Flight Crew

Communication Breakdown.Party2 : ATC

Events

Anomaly.Deviation - Track / Heading : All Types
Anomaly.Deviation - Procedural : Published Material / Policy
Anomaly.Deviation - Procedural : Clearance
Anomaly.Inflight Event / Encounter : Wake Vortex Encounter
Detector.Person : Flight Crew
Detector.Person : Air Traffic Control
When Detected : In-flight
Result.Flight Crew : Returned To Clearance
Result.Air Traffic Control : Issued Advisory / Alert

Assessments

Contributing Factors / Situations : Environment - Non Weather Related
Contributing Factors / Situations : Human Factors
Primary Problem : Human Factors

Narrative: 1

On A590, after crossing PASRO, we noticed an airliner directly above us and started encountering turbulence, which we believed was wake turbulence. In order to avoid the turbulence, we deviated left upwind one mile left of course. In the distraction of discussing where to avoid the turbulence, we failed to ask for clearance to deviate left of course. Control asked us about the deviation via CPDLC, and informed us we needed to ask to deviate left. We took out the offset, and returned to the track (the overtaking airplane was far enough ahead at this point). There were no other airplanes either visually or on TCAS that we were aware of, and we believe no separation issues were caused as a result of our deviation.

Channelized attention to our position relative to the overtaking aircraft led to a breakdown in contacting ATC.

Synopsis

B777 First Officer reported deviating left off track on their trans-Pacific route to avoid wake turbulence, but failed to ask ATC for approval.

Time / Day

Date : 201809

Local Time Of Day : 0601-1200

Place

Locale Reference.Airport : LAX.Airport

State Reference : CA

Altitude.AGL.Single Value : 200

Environment

Light : Daylight

Aircraft : 1

Reference : X

ATC / Advisory.Tower : LAX

Aircraft Operator : Air Carrier

Make Model Name : EMB ERJ 170/175 ER/LR

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 121

Flight Plan : IFR

Mission : Passenger

Flight Phase : Initial Climb

Airspace.Class B : LAX

Aircraft : 2

Reference : Y

ATC / Advisory.Tower : LAX

Aircraft Operator : Air Carrier

Make Model Name : B787 Dreamliner Undifferentiated or Other Model

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 121

Flight Plan : IFR

Mission : Passenger

Flight Phase : Initial Climb

Airspace.Class B : LAX

Person

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Air Carrier

Function.Flight Crew : Pilot Flying

Function.Flight Crew : Captain

Qualification.Flight Crew : Multiengine

Qualification.Flight Crew : Instrument

Qualification.Flight Crew : Air Transport Pilot (ATP)

ASRS Report Number.Accession Number : 1577654

Analyst Callback : Attempted

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Anomaly.Ground Event / Encounter : Loss Of Aircraft Control
Anomaly.Inflight Event / Encounter : Wake Vortex Encounter
Detector.Person : Flight Crew
When Detected : In-flight
Result.General : Maintenance Action

Assessments

Contributing Factors / Situations : Aircraft
Contributing Factors / Situations : Environment - Non Weather Related
Contributing Factors / Situations : Procedure
Primary Problem : Ambiguous

Narrative: 1

On takeoff from RWY 24L at LAX, full length of runway used, we were the second aircraft to depart behind a B787 heavy that had departed from same runway at least 4 minutes earlier. On climb out we encountered what could have only been the 787 wake vortices, as there was no wind shear reported or forecast. At approximately 200 to 300 feet AGL while hand flying, the aircraft rolled left and right in quick succession to approximately 40 degrees of bank, then again at 500 to 600 feet AGL. A master caution posted multiple EICAS messages. There was no loss of speed or pitch control during either event. Normal use of aileron and rudder was used to counteract the rolling motion, excessive control input not used nor warranted. At 400 feet the "NAV" mode was selected and at acceleration altitude "VNAV, speed FMS" was the mode called for on guidance panel. Once aircraft was stable in speed, pitch, roll, and yaw, the autopilot was engaged. I then assigned flying pilot duties to First Officer (FO), and proceeded to run QRH for the following faults: "Wind shear fail" "stall prot fail" "AOA limit fail", followed a couple of minutes later with "AT fail". [I] liaised with Dispatch via ACARS, agreed it was safe to continue in clear and smooth weather. Applied all necessary QRH factors and landed without further incident with a buttery smooth touchdown on the longest runway. On touchdown the EICAS messages all depopulated and were replaced with "ADS Probe 1,2,3,4, fail". Parked, [and] Contract Maintenance was summoned and a 10 minute power reset fixed the problem.

Synopsis

EMB-175 Captain reported multiple EICAS system failures were annunciated following a wake turbulence encounter departing LAX in trail of a B787.

Time / Day

Date : 201809
Local Time Of Day : 1801-2400

Place

Locale Reference.Airport : PHX.Airport
State Reference : AZ
Altitude.MSL.Single Value : 3000

Aircraft : 1

Reference : X
ATC / Advisory.TRACON : P50
Aircraft Operator : Air Carrier
Make Model Name : B737-800
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Flight Phase : Initial Approach
Route In Use : Visual Approach
Airspace.Class B : PHX

Aircraft : 2

Reference : Y
ATC / Advisory.TRACON : P50
Aircraft Operator : Air Carrier
Make Model Name : A321
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Flight Phase : Initial Approach
Airspace.Class B : PHX

Person : 1

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : Pilot Not Flying
Function.Flight Crew : First Officer
Qualification.Flight Crew : Air Transport Pilot (ATP)
ASRS Report Number.Accession Number : 1577255
Analyst Callback : Attempted

Person : 2

Reference : 2
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck

Reporter Organization : Air Carrier
Function.Flight Crew : Captain
Function.Flight Crew : Pilot Flying
Qualification.Flight Crew : Air Transport Pilot (ATP)
ASRS Report Number.Accession Number : 1577245

Events

Anomaly.Inflight Event / Encounter : Wake Vortex Encounter
Detector.Person : Flight Crew
When Detected : In-flight
Result.General : Physical Injury / Incapacitation

Assessments

Contributing Factors / Situations : Environment - Non Weather Related
Contributing Factors / Situations : Procedure
Primary Problem : Procedure

Narrative: 1

On approach to Runway 26, outside the final approach fix, with autopilot engaged at around 3000ft. The aircraft exhibited an uncommanded roll to the right followed by an immediate roll left which we attributed to wake turbulence from the preceding A321. Both rolls were excessive but I am uncertain of the bank angle that was reached. After the roll left the Captain as Pilot Flying disengaged the autopilot and continued the approach and landed without further incident. It was soon after landing that we were informed that the #2 Flight Attendant was out of her seat in the rear galley and was injured during the event. Wake turbulence is difficult to predict especially without sufficient warning. We discussed the fact that a quicker disconnect of the autopilot to arrest the roll sooner may have helped. Also we were surprised at the fact that a Flight Attendant would be standing at that point in the flight.

Narrative: 2

At approximately FAF, the aircraft banked sharply. I turned off the autopilot, leveled the wings and resumed the visual approach and landing. On taxi-in, the flight attendants called on the intercom and said that the a Flight Attendant was injured. We called Operations and requested paramedics meet us at the gate. We asked Tower what aircraft we followed and were told that it was an [A321] and that they sometimes have more wake turbulence than a heavy. Tower asked if we had the aircraft in front of us in sight. First Officer said that we did. We changed runway FMC data for the third time after being cleared for the visual approach. PHX Tower should plan on ILS approaches at night unless pilot requests a visual approach. This would increase safety and separation.

Synopsis

B737-800 flight crew reported a Flight Attendant was injured during a wake turbulence encounter on approach to PHX in trail of an A321.

Time / Day

Date : 201809

Local Time Of Day : 0601-1200

Place

Locale Reference.Airport : PHX.Airport

State Reference : AZ

Environment

Flight Conditions : VMC

Aircraft : 1

Reference : X

ATC / Advisory.Center : ZAB

Aircraft Operator : Air Carrier

Make Model Name : A321

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 121

Flight Plan : IFR

Mission : Passenger

Flight Phase : Cruise

Airspace.Class A : ZAB

Aircraft : 2

Reference : Y

ATC / Advisory.Center : ZAB

Aircraft Operator : Air Carrier

Make Model Name : B747 Undifferentiated or Other Model

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 121

Flight Plan : IFR

Flight Phase : Descent

Airspace.Class A : ZAB

Person

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Air Carrier

Function.Flight Crew : Captain

Function.Flight Crew : Pilot Not Flying

Qualification.Flight Crew : Air Transport Pilot (ATP)

Experience.Flight Crew.Total : 23000

ASRS Report Number.Accession Number : 1577244

Analyst Callback : Attempted

Events

Anomaly.ATC Issue : All Types
Anomaly.Inflight Event / Encounter : Wake Vortex Encounter
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Took Evasive Action
Result.Flight Crew : Requested ATC Assistance / Clarification
Result.Air Traffic Control : Issued New Clearance

Assessments

Contributing Factors / Situations : Environment - Non Weather Related
Contributing Factors / Situations : Procedure
Primary Problem : Procedure

Narrative: 1

At cruise FL340 on EAGUL6 arrival into PHX between Zuni and SLIDR when First Officer (F/O) and myself began to feel the aircraft vibrate and shudder. [We] then went into a roll to the left. Not sure if our bank exceeded 30 degrees or not but the F/O who was flying pilot turned off autopilot and rolled plane back level with little if any loss of altitude. I then asked ATC if they had a heavy in our area and they told us they had a B747 that they descended from FL380 in front of us but they were 10 miles ahead. [A B737] behind us reported the same wake turbulence at FL340. We then rearmed the autopilot and requested an offset to the right of course to avoid any further occurrences. I did speak with our flight attendants to let them know what had happened, and as we then started to descend into PHX while briefing the passengers on the current weather in PHX I mentioned that what they felt was the wake turbulence from another aircraft. We landed Runway 26 behind the 747 but slowed for more spacing and remained slightly above the glide path to avoid any further wake encounter. Failure of ATC to provide proper separation from heavy while descending him in front of us. Vector heavy to avoid same course as us or provide more separation.

Synopsis

A321 Captain reported encountering wake turbulence on arrival into PHX 10 miles in trail of a B747 that descended through his altitude.

Time / Day

Date : 201809
Local Time Of Day : 0601-1200

Place

Locale Reference.ATC Facility : A80.TRACON
State Reference : GA
Altitude.MSL.Single Value : 11000

Environment

Flight Conditions : VMC
Light : Daylight

Aircraft

Reference : X
ATC / Advisory.TRACON : A80
Aircraft Operator : Air Carrier
Make Model Name : Regional Jet 200 ER/LR (CRJ200)
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Flight Phase : Descent
Route In Use.STAR : SITTH2

Person

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : First Officer
ASRS Report Number.Accession Number : 1577020
Human Factors : Communication Breakdown
Communication Breakdown.Party1 : Flight Crew
Communication Breakdown.Party2 : ATC

Events

Anomaly.ATC Issue : All Types
Anomaly.Deviation - Altitude : Overshoot
Anomaly.Deviation - Procedural : Published Material / Policy
Anomaly.Deviation - Procedural : Clearance
Anomaly.Inflight Event / Encounter : Wake Vortex Encounter
Detector.Person : Flight Crew
Detector.Person : Air Traffic Control
When Detected : In-flight
Result.Air Traffic Control : Issued New Clearance

Assessments

Contributing Factors / Situations : Environment - Non Weather Related
Contributing Factors / Situations : Human Factors
Contributing Factors / Situations : Procedure
Primary Problem : Human Factors

Narrative: 1

We were filed and cleared via the SITTH 2 arrival into Atlanta. TCAS was deferred per MEL. Enroute ATIS for ATL was obtained and stated PRM approaches landing east were in use. After contacting Dispatch and consulting the Flight Manual, it was determined PRM approaches could not be conducted due to TCAS inoperative. ATL Approach Control was notified on initial contact and we were told to expect runway 9R. Approach then cleared us to descend via the SITTH 2 arrival. Shortly after, we received a runway change and were assigned runway 8L for landing and accomplished the required runway change items. Approach Control then cleared us direct GAASS (fix on SITTH 2 for 8L) and told us to descend and maintain 8000'. Both pilots acknowledged instruction and verified descent to 8000'. Approach Control handed us off to a different Approach frequency. Upon checking in on the new frequency, we were immediately told to stop our descent and climb to 11,000' and fly an assigned heading. We read back and complied with these instructions. We then explained to the Controller that the previous Controller had cleared us to descend to 8,000'. The Controller then cleared us direct KLOWD on the SITTH arrival. During downwind, we subsequently encountered moderate wake turbulence resulting in 40 degrees of bank left and right. ATC was notified of this event and no further turbulence was encountered. The arrival and approach were also completed with no further events.

TCAS inoperative prevented PRM approaches and required ATC modified clearances, which eventually resulted in ATC miscommunication. Wake turbulence was an unrelated event to the TCAS inoperative, but resulted in an [upset situation].

The MEL for TCAS does not indicate PRM approaches may be affected. Additionally, neither the approach plates nor PRM notice to all users page indicate TCAS is required for PRM approaches. Only after consulting Dispatch and the FOM were we able to determine that we could not conduct a PRM approach without TCAS. We suggest a note be added to the MEL that indicates PRM approaches are not authorized per the Flight Manual.

Synopsis

CRJ-200 First Officer reported a clearance misunderstanding which resulted in an altitude overshoot during arrival into ATL.

Time / Day

Date : 201808
Local Time Of Day : 1801-2400

Place

Locale Reference.Airport : LAX.Airport
State Reference : CA
Altitude.AGL.Single Value : 0

Aircraft : 1

Reference : X
ATC / Advisory.Tower : LAX
Aircraft Operator : Air Carrier
Make Model Name : A321
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Flight Phase : Landing

Aircraft : 2

Reference : Y
Make Model Name : Any Unknown or Unlisted Aircraft Manufacturer
Airspace.Class B : LAX

Person

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : Pilot Not Flying
Function.Flight Crew : Captain
Qualification.Flight Crew : Air Transport Pilot (ATP)
ASRS Report Number.Accession Number : 1576977
Analyst Callback : Attempted

Events

Anomaly.Flight Deck / Cabin / Aircraft Event : Illness
Anomaly.Ground Event / Encounter : Other / Unknown
Anomaly.Inflight Event / Encounter : Wake Vortex Encounter
Detector.Person : Passenger
Detector.Person : Flight Crew
Were Passengers Involved In Event : Y
When Detected : In-flight
Result.General : Physical Injury / Incapacitation

Assessments

Contributing Factors / Situations : Environment - Non Weather Related

Contributing Factors / Situations : Procedure

Primary Problem : Ambiguous

Narrative: 1

Landing at LAX, Runway 24R. We had a firm landing. I felt no need to enter anything in the aircraft log. No masks dropped. It was just a firm touchdown. Entered wake turbulence at about 40 ft AGL. Found out from my First Officer who was greeting passengers after flight that a male passenger complained of an injury due to landing. It's an everyday occurrence. Talk and plan.

Synopsis

A321 Captain reported a passenger complained of an injury following wake turbulence during landing.

Time / Day

Date : 201809
Local Time Of Day : 1201-1800

Place

Locale Reference.Airport : LAX.Airport
State Reference : CA
Altitude.AGL.Single Value : 2000

Environment

Flight Conditions : VMC

Aircraft : 1

Reference : X
ATC / Advisory.TRACON : SCT
Aircraft Operator : Air Carrier
Make Model Name : B737 Next Generation Undifferentiated
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Flight Phase : Final Approach
Route In Use : Visual Approach
Route In Use.STAR : HLYWD1
Airspace.Class B : LAX

Aircraft : 2

Reference : Y
ATC / Advisory.TRACON : SCT
Make Model Name : B737 Undifferentiated or Other Model
Flight Plan : IFR
Flight Phase : Final Approach
Airspace.Class B : LAX

Person : 1

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : Captain
Function.Flight Crew : Pilot Flying
Qualification.Flight Crew : Air Transport Pilot (ATP)
ASRS Report Number.Accession Number : 1576898
Human Factors : Communication Breakdown
Human Factors : Fatigue
Human Factors : Situational Awareness
Communication Breakdown.Party1 : Flight Crew
Communication Breakdown.Party2 : ATC
Analyst Callback : Attempted

Person : 2

Reference : 2
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : First Officer
Function.Flight Crew : Pilot Not Flying
ASRS Report Number.Accession Number : 1576901

Events

Anomaly.Deviation - Procedural : Landing Without Clearance
Anomaly.Inflight Event / Encounter : Wake Vortex Encounter
Detector.Person : Flight Crew
When Detected : In-flight
Result.General : None Reported / Taken

Assessments

Contributing Factors / Situations : Environment - Non Weather Related
Contributing Factors / Situations : Human Factors
Contributing Factors / Situations : Procedure
Primary Problem : Human Factors

Narrative: 1

LAX Approach Control cleared us to maintain 180 kias to LIMMA, cleared visual 25L. Tower frequency was preset on VHF #1 in standby mode and forgot to obtain landing clearance from LAX Tower. Attributing to our error was: not being told to contact Tower by Approach, encountering some wake turbulence from preceding 737 on final while Captain was hand flying/adjusting to a slightly higher glide path to avoid, possibly some fatigue from our 10hr duty day/7.5hr flight time/day 4 of the trip after a 12hr layover, following an [early] arrival the day before.

Narrative: 2

We landed 25L without clearance from LAX Tower. Approximately 10-12 miles from airport, SoCal Approach cleared us to "maintain 180 knots until Limma, cleared Visual Approach 25L." I didn't hear or read back the switch to Tower and was planning to query Approach if not switched by Limma (FAF). During the Arrival (HLYWD1) and Approach, we hit 4-5 pockets of pretty strong wake turbulence starting about 100nm from the airport. We hit 1-2 more pockets of wake turbulence between 10-20nm from airport and we briefed that the Pilot Flying (PF) (Captain (CA)) would fly 1/4-1/2 dot high on the glideslope to stay above the wake turbulence until touchdown. It was pretty bumpy below 1000' and I believe we were both focused on the wake turbulence and flying slightly high on glideslope and forgot to query Approach on the switch to Tower.

The runway was clear and it was an uneventful landing. We had made the callouts on final and at 1000' the CA (PF) stated cleared to land and I (First Officer (FO)/PM) didn't catch the mistake. When exiting the runway, Approach called us on the radio and asked us to switch Tower. We then noted that Approach was still the primary frequency and Tower was in standby. We were both monitoring Guard frequency and heard no calls. Tower gave us normal taxi instructions. We asked Tower if we needed to call him on the land line and he said no.

Regardless of the manual frequency push from Approach we made the mistake here and should have done better. I believe we were both tired. We were on day 4 of a 4 day trip, we had 7.5 hours of block time that day, a 10 hour duty day, and we were landing at our home base which made us more comfortable. That day, we had worked hard dodging thunderstorms. No excuses and want to own the mistake and learn from it.

Synopsis

B737NG flight crew reported landing without clearance following a wake turbulence encounter. Fatigue was cited as a contributing factor.

Time / Day

Date : 201809
Local Time Of Day : 1201-1800

Place

Locale Reference.ATC Facility : ZNY.ARTCC
State Reference : NY
Altitude.MSL.Single Value : 27500

Environment

Flight Conditions : IMC

Aircraft : 1

Reference : X
ATC / Advisory.Center : ZNY
Aircraft Operator : Air Carrier
Make Model Name : B767 Undifferentiated or Other Model
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Flight Phase : Descent
Route In Use.STAR : HYPER7
Airspace.Class A : ZNY

Aircraft : 2

Reference : Y
ATC / Advisory.Center : ZNY
Aircraft Operator : Air Carrier
Make Model Name : A330
Operating Under FAR Part : Part 129
Flight Plan : IFR
Flight Phase : Descent
Route In Use.STAR : HYPER 7
Airspace.Class A : ZNY

Person

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : First Officer
Function.Flight Crew : Pilot Not Flying
Qualification.Flight Crew : Air Transport Pilot (ATP)
Experience.Flight Crew.Total : 13000
Experience.Flight Crew.Last 90 Days : 200
Experience.Flight Crew.Type : 2422
ASRS Report Number.Accession Number : 1576639

Human Factors : Situational Awareness
Analyst Callback : Completed

Events

Anomaly.Inflight Event / Encounter : Wake Vortex Encounter
Detector.Person : Flight Crew
Were Passengers Involved In Event : Y
When Detected : In-flight
Result.Flight Crew : Requested ATC Assistance / Clarification

Assessments

Contributing Factors / Situations : Environment - Non Weather Related
Contributing Factors / Situations : Procedure
Primary Problem : Ambiguous

Narrative: 1

During enroute descent from FL280 to FL200 on HYPER7, encountered wake from an A330 that was also on HYPER7 approximately 15 miles ahead of us. The seatbelt sign had just been turned on (1 minute?) for the descent/arrival and the air was smooth. The wind was on the nose at 35 knots (noted after the encounter(s)). The aircraft went through brief (2-4 seconds) of "nibble"-like chop than 2 independent "corkscrew"-like movements. There was no time to issue any warning to the flight attendants then the event was over. I called back to Purser to inquire if anyone was hurt. No one was but he did say that folks did tumble. I told him that we had no warning. It was smooth for the remainder of the flight.

We asked ATC what we were following and they replied that it was a heavy Airbus. TCAS had it at 15 miles ahead. We were flying 290 knots (assigned). As I was talking with Purser, I believe the 2 flying pilots were inquiring if it was a Super or a Heavy as we had a short discussion after I reported to Captain that everyone was ok. No injuries.

The severity of the encounter was certainly enough to spill coffee, carts, flight attendants and passengers. The motion was uncoordinated with pitch, yaw and roll. I doubt if we exceeded 10 degrees of roll but the yaw was opposite (roll left, yaw right) and, I think, the other way for the second set of motion. As mentioned. We did get some wake "chop" shortly prior to the roll/yaw/pitch motions.

I would categorize [the encounter] as "moderate" in severity. It certainly could have tumbled passengers and flight attendants enough to cause injury. We got lucky.

Synopsis

B767 First Officer reported encountering moderate wake turbulence while on descent 15 miles in trail of an A330.

Time / Day

Date : 201808
Local Time Of Day : 1201-1800

Place

Locale Reference.Airport : MIC.Airport
State Reference : MN
Relative Position.Angle.Radial : 200
Relative Position.Distance.Nautical Miles : 8
Altitude.MSL.Single Value : 2700

Environment

Flight Conditions : VMC
Weather Elements / Visibility.Visibility : 10
Light : Daylight
Ceiling.Single Value : 5000

Aircraft : 1

Reference : X
ATC / Advisory.Tower : MIC
Aircraft Operator : Personal
Make Model Name : RV-9
Crew Size.Number Of Crew : 1
Operating Under FAR Part : Part 91
Flight Plan : None
Mission : Personal
Flight Phase : Cruise
Route In Use : Direct
Airspace.Class E : M98

Aircraft : 2

Reference : Y
ATC / Advisory.Tower : MSP
Aircraft Operator : Air Carrier
Make Model Name : B737 Undifferentiated or Other Model
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Nav In Use : FMS Or FMC
Flight Phase : Final Approach
Airspace.Class B : MSP

Person

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Personal
Function.Flight Crew : Single Pilot

Qualification.Flight Crew : Private
Experience.Flight Crew.Total : 2200
Experience.Flight Crew.Last 90 Days : 100
Experience.Flight Crew.Type : 2050
ASRS Report Number.Accession Number : 1574607

Events

Anomaly.Inflight Event / Encounter : Wake Vortex Encounter
Detector.Person : Flight Crew
Miss Distance.Horizontal : 3
Miss Distance.Vertical : 1000
When Detected : In-flight
Result.General : None Reported / Taken

Assessments

Contributing Factors / Situations : Environment - Non Weather Related
Primary Problem : Environment - Non Weather Related

Narrative: 1

I was in cruise flight at 2700 ft on a route [to] ANE. I was below the MSP Class Bravo. I could see a 737 landing at MSP about 1000 ft above us, 3-4 miles ahead about to cross our path at about a 90 degree angle. I thought we might hit some wake turbulence, and we did, about a 2.6G vertical jolt which woke up my [passenger].

Not sure what I could have done as I was capped to climb by the Bravo above me. Maybe could have circled back to FCM, but a steady stream of 737s and A320s were landing and we had to pass under them all.

Synopsis

RV9A pilot reported encountering wake turbulence from a B737 while transiting a MSP arrival area.

Time / Day

Date : 201809
Local Time Of Day : 0601-1200

Place

Locale Reference.Airport : MCO.Airport
State Reference : FL
Altitude.MSL.Single Value : 4000

Aircraft : 1

Reference : X
ATC / Advisory.TRACON : F11
Aircraft Operator : Air Carrier
Make Model Name : B737-800
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Nav In Use : FMS Or FMC
Nav In Use.Localizer/Glideslope/ILS : Runway 17L
Flight Phase : Initial Approach
Airspace.Class B : MCO

Aircraft : 2

Reference : Y
ATC / Advisory.TRACON : F11
Make Model Name : Commercial Fixed Wing
Crew Size.Number Of Crew : 2
Flight Phase : Initial Approach
Airspace.Class B : MCO

Person : 1

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : Pilot Flying
Function.Flight Crew : Captain
Qualification.Flight Crew : Instrument
Qualification.Flight Crew : Multiengine
Qualification.Flight Crew : Air Transport Pilot (ATP)
ASRS Report Number.Accession Number : 1574356
Analyst Callback : Attempted

Person : 2

Reference : 2
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier

Function.Flight Crew : Pilot Not Flying
Function.Flight Crew : First Officer
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Instrument
Qualification.Flight Crew : Multiengine
ASRS Report Number.Accession Number : 1574134

Events

Anomaly.Deviation - Track / Heading : All Types
Anomaly.Deviation - Procedural : Clearance
Anomaly.Inflight Event / Encounter : Wake Vortex Encounter
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Executed Go Around / Missed Approach
Result.Air Traffic Control : Issued New Clearance

Assessments

Contributing Factors / Situations : Environment - Non Weather Related
Contributing Factors / Situations : Procedure
Primary Problem : Procedure

Narrative: 1

During radar vectors to final approach ILS 17L MCO base leg encountered severe wake turbulence. Aircraft on a 90 degree base leg, assigned speed 210 KIAS, descending 4000 to 3000 ft, aircraft suddenly rocked side to side disengaging autopilot. I immediately determined we were going to overshoot localizer because [of the] angle to localizer. I am hand flying at this point trying to get aircraft back on localizer and not bust altitude. Controller noticed our difficulty and asked if we would want to do a 360 and try again. I told FO (First Officer) to report the wake turbulence to controller which he did. No traffic in our vicinity at the time of occurrence.

Too close to traffic ahead of us on same flight path. ATC should not be assigning a speed of 210 KIAS on a 90 degree angle to localizer when less than 2 miles from intercept.

Narrative: 2

On a short vector, 90 degrees to final approach course received a 210 degree heading to intercept final approach course on 17L at MCO. Upon starting turn, we hit significant wake turbulence that forced the auto pilot to disconnect and revert to CWS (Control Wheel Steering) in pitch and roll. PF (pilot flying) disconnected auto pilot and began course correction and as we started our turn we overshot final. Advised ATC of the issue and were vectored to approximately a 090 degree heading to circle back around and resume approach. No apparent conflict with other traffic was observed.

We were advised by ATC to keep speed up during approach so we were in a steeper and faster and closer to final approach than normal. This compounded the course intercept when the auto pilot disconnected due to the wake turbulence. Due to the phase when the disconnect happened, quick corrective action was needed to avoid further overshoot.

This was perceived to be a somewhat normal approach on a VMC day that was compounded by automation problems upon hitting wake turbulence. No suggestion for improvements at this time.

Synopsis

B737-800 flight crew reported breaking off the approach to MCO when a wake turbulence encounter contributed to a track deviation during localizer intercept.

Time / Day

Date : 201809

Local Time Of Day : 0001-0600

Place

Locale Reference.Airport : SDF.Airport

State Reference : KY

Altitude.MSL.Single Value : 3000

Aircraft

Reference : X

ATC / Advisory.TRACON : SDF

Aircraft Operator : Air Taxi

Make Model Name : Beech 1900

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 135

Flight Plan : IFR

Flight Phase : Climb

Airspace.Class B : SDF

Person

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Air Taxi

Function.Flight Crew : Captain

Qualification.Flight Crew : Air Transport Pilot (ATP)

ASRS Report Number.Accession Number : 1574268

Analyst Callback : Attempted

Events

Anomaly.Inflight Event / Encounter : Wake Vortex Encounter

Detector.Person : Flight Crew

When Detected : In-flight

Result.General : Maintenance Action

Result.Flight Crew : Landed As Precaution

Result.Flight Crew : Returned To Departure Airport

Assessments

Contributing Factors / Situations : Environment - Non Weather Related

Contributing Factors / Situations : Procedure

Primary Problem : Ambiguous

Narrative: 1

After departure from SDF, climbing through 3,000ft we hit what I suspected to be wake turbulence. Immediately the airplane developed a violent vibration. When leveling off at 4,000ft the vibration became rhythmic, but slightly less violent with a pronounced oscillation. It was unusual and significant enough that both the First Officer (FO) and I felt

like there was a possibility of aircraft damage and/or malfunction of some sort. We were still within a few minutes of the departure airport, so we performed an air return and precautionary landing. The FO [flew] the aircraft on the previous leg, and confirmed that the noise/vibration was a new development. We agreed it was significant enough to warrant a return for inspection by Maintenance rather than risk further damage or the creation of an emergency situation.

Synopsis

Beech 1900 Captain reported returning to departure airport after experiencing an unusual vibration that may have been related to an earlier wake turbulence encounter.

Time / Day

Date : 201808

Local Time Of Day : 0601-1200

Place

Locale Reference.ATC Facility : A90.TRACON

State Reference : NH

Altitude.MSL.Single Value : 12000

Environment

Flight Conditions : VMC

Light : Daylight

Aircraft : 1

Reference : X

ATC / Advisory.TRACON : A90

Aircraft Operator : Fractional

Make Model Name : Citation Excel (C560XL)

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 91

Flight Plan : IFR

Nav In Use : FMS Or FMC

Flight Phase : Descent

Route In Use.STAR : ROBUC 3

Airspace.Class B : BOS

Aircraft : 2

Reference : Y

ATC / Advisory.TRACON : A90

Make Model Name : Any Unknown or Unlisted Aircraft Manufacturer

Crew Size.Number Of Crew : 1

Flight Phase : Final Approach

Flight Phase : Descent

Airspace.Class B : BOS

Person : 1

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Fractional

Function.Flight Crew : Captain

Function.Flight Crew : Pilot Flying

Qualification.Flight Crew : Air Transport Pilot (ATP)

Qualification.Flight Crew : Instrument

Qualification.Flight Crew : Multiengine

ASRS Report Number.Accession Number : 1571213

Human Factors : Communication Breakdown

Human Factors : Distraction

Human Factors : Situational Awareness

Communication Breakdown.Party1 : Flight Crew
Communication Breakdown.Party2 : ATC
Analyst Callback : Attempted

Person : 2

Reference : 2
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Fractional
Function.Flight Crew : First Officer
Function.Flight Crew : Pilot Not Flying
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Multiengine
Qualification.Flight Crew : Instrument
ASRS Report Number.Accession Number : 1571215
Analyst Callback : Completed

Events

Anomaly.Deviation - Altitude : Undershoot
Anomaly.Deviation - Altitude : Crossing Restriction Not Met
Anomaly.Deviation - Procedural : Clearance
Anomaly.Inflight Event / Encounter : Wake Vortex Encounter
Detector.Person : Flight Crew
When Detected : In-flight
Result.General : None Reported / Taken

Assessments

Contributing Factors / Situations : Environment - Non Weather Related
Contributing Factors / Situations : Human Factors
Contributing Factors / Situations : Procedure
Primary Problem : Procedure

Narrative: 1

On ROBUC3 STAR into Boston Logan, ATC gave late descend via instruction, FMS failed to descend aircraft, we descended then in Vertical Speed mode to try and make PROVI intersection at 11,000 feet. We were crossing at 12,000 feet when ATC issued a turn and a lower altitude. Complicating the situation was a wake turbulence encounter and frequency saturation.

We did our best under the circumstances. In the future I will manually descend when well inside the STAR and issued a late descend via clearance.

Narrative: 2

On arrival into Boston Logan during the Captain's approach briefing I was given a descent via the Robuc3 arrival. During the descent I encountered significant wake turbulence. I immediately disconnected the autopilot and informed the Captain of the situation. After the aircraft was stabilized we transferred controls but due to the disruption we were unable to make the next crossing restriction at PROVI. We were approximately 1000 feet above the altitude. The controller issued instructions for a vector off of the arrival, we complied and the flight continued without event.

Synopsis

CE-560XL flight crew reported failing to make a crossing restriction on descent into BOS, citing a late clearance and a wake turbulence encounter.

Time / Day

Date : 201808

Place

Locale Reference.ATC Facility : F11.TRACON
State Reference : FL
Altitude.MSL.Single Value : 12000

Environment

Flight Conditions : VMC

Aircraft : 1

Reference : X
ATC / Advisory.ATC Facility : F11
Aircraft Operator : Air Carrier
Make Model Name : B737 Next Generation Undifferentiated
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Nav In Use : FMS Or FMC
Flight Phase : Descent
Route In Use.STAR : CWORLD
Airspace.Class B : MCO

Aircraft : 2

Reference : Y
ATC / Advisory.ATC Facility : F11
Aircraft Operator : Air Carrier
Make Model Name : B737 Undifferentiated or Other Model
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Nav In Use : FMS Or FMC
Flight Phase : Descent
Airspace.Class B : MCO

Person

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : Pilot Flying
Function.Flight Crew : Captain
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Instrument
Qualification.Flight Crew : Multiengine
ASRS Report Number.Accession Number : 1571161

Human Factors : Situational Awareness
Analyst Callback : Attempted

Events

Anomaly.ATC Issue : All Types
Anomaly.Inflight Event / Encounter : Wake Vortex Encounter
Anomaly.Inflight Event / Encounter : Loss Of Aircraft Control
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Took Evasive Action
Result.Flight Crew : Requested ATC Assistance / Clarification
Result.Flight Crew : Regained Aircraft Control

Assessments

Contributing Factors / Situations : Environment - Non Weather Related
Contributing Factors / Situations : Procedure
Primary Problem : Procedure

Narrative: 1

On the CWORLD Arrival to Orlando we were separated [from] another 737 by 7 miles. At CWORLD we encountered increasing intensity wake turbulence descending through 12,000' to MCO. At one point the aircraft rapidly rolled right approximately 40+ degrees of bank with the autopilot connected and LNAV and VNAV engaged. I promptly disconnected the autopilot and rolled wings level. During the upset the EGPWS (Enhanced Ground Proximity Warning System) announced bank angle but the upset was quickly corrected. After recovery I offset the arrival by .5 miles to the right of course for about 10 miles while we connected the autopilot again in HDG and Vertical Speed.

The alarming issue however was not so much the upset but the cavalier attitude of air traffic controllers. When we announced the lateral deviation due to wake turbulence they said we were "only" following a 737 and he was 7 miles ahead of us. They did not believe nor did they take seriously the fact that we encountered wake turbulence strong enough to roll us to 40+ degrees of bank rapidly by "just a 737".

Synopsis

B737NG Captain reported encountering wake turbulence 7 miles in trail of another B737 on descent into MCO that rolled the aircraft into a 40 degree bank.

Time / Day

Date : 201808
Local Time Of Day : 1801-2400

Place

Locale Reference.Airport : EWR.Airport
State Reference : NJ
Altitude.AGL.Single Value : 2500

Aircraft : 1

Reference : X
ATC / Advisory.TRACON : N90
Aircraft Operator : Air Carrier
Make Model Name : Embraer Jet Undifferentiated or Other Model
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Flight Phase : Initial Approach
Airspace.Class B : EWR

Aircraft : 2

Reference : Y
ATC / Advisory.TRACON : N90
Make Model Name : Commercial Fixed Wing
Flight Phase : Landing
Airspace.Class B : EWR

Person

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : First Officer
Qualification.Flight Crew : Multiengine
Qualification.Flight Crew : Instrument
ASRS Report Number.Accession Number : 1570966
Human Factors : Situational Awareness
Analyst Callback : Attempted

Events

Anomaly.Deviation - Altitude : Excursion From Assigned Altitude
Anomaly.Inflight Event / Encounter : Wake Vortex Encounter
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Returned To Clearance

Assessments

Contributing Factors / Situations : Environment - Non Weather Related

Contributing Factors / Situations : Procedure

Primary Problem : Ambiguous

Narrative: 1

During approach we were base to final cleared for the ILS approach. We were between TEB and GIMEE at 2500 feet. We encountered what we believe to be wake turbulence. It started to roll the aircraft in one direction then immediately flipped to the other. It was strong enough to disengage the autopilot. While we were recovering the aircraft attitude we dipped down to about 2300 feet MSL. While recovering we informed ATC of the wake and that we could continue visually. We were simultaneously intercepting the localizer, glidepath, and dealing with the upset. We may have dipped below glideslope. After the corrections were made we were able to continue the approach without further issues.

Synopsis

Embraer Regional Jet First Officer reported an altitude deviation occurred when they encountered wake turbulence in the landing pattern at EWR.

Time / Day

Date : 201808

Local Time Of Day : 0601-1200

Place

Locale Reference.Airport : EGLL.Airport

State Reference : FO

Altitude.MSL.Single Value : 1500

Environment

Flight Conditions : IMC

Light : Daylight

Aircraft : 1

Reference : X

ATC / Advisory.Tower : EGLL

Aircraft Operator : Air Carrier

Make Model Name : B787 Dreamliner Undifferentiated or Other Model

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 121

Flight Plan : IFR

Mission : Passenger

Flight Phase : Final Approach

Aircraft : 2

Reference : Y

ATC / Advisory.Tower : EGLL

Aircraft Operator : Air Carrier

Make Model Name : B747 Undifferentiated or Other Model

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 121

Flight Plan : IFR

Flight Phase : Final Approach

Person

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Air Carrier

Function.Flight Crew : First Officer

Function.Flight Crew : Pilot Flying

Qualification.Flight Crew : Air Transport Pilot (ATP)

Experience.Flight Crew.Total : 10669

Experience.Flight Crew.Last 90 Days : 120

Experience.Flight Crew.Type : 2910

ASRS Report Number.Accession Number : 1570189

Human Factors : Situational Awareness

Events

Anomaly.ATC Issue : All Types
Anomaly.Deviation - Speed : All Types
Anomaly.Deviation - Procedural : Clearance
Anomaly.Inflight Event / Encounter : Wake Vortex Encounter
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Took Evasive Action
Result.Air Traffic Control : Issued Advisory / Alert

Assessments

Contributing Factors / Situations : Environment - Non Weather Related
Contributing Factors / Situations : Procedure
Primary Problem : Procedure

Narrative: 1

Upon arrival to EGLL after one turn in holding we were given vectors close behind a heavy B747. Initially our turn toward the B747 was closer than three miles. We encountered wake turbulence and stayed about a half dot above the glide slope and we were still very close. We slowed to approach speed approximately 1-2 miles before instructed to do so out of concern for our proximity to the B747. Tower complained that B747 behind us was too close.

Synopsis

B787 First Officer reported encountering wake turbulence on approach to EGLL 3 miles in trail of a B747.

Time / Day

Date : 201808
Local Time Of Day : 1801-2400

Place

Locale Reference.ATC Facility : DPA.Tower
State Reference : IL

Aircraft : 1

Reference : X
ATC / Advisory.Tower : DPA
Make Model Name : Citation Excel (C560XL)
Crew Size.Number Of Crew : 2
Flight Plan : IFR
Flight Phase : Landing
Route In Use : Visual Approach
Airspace.Class D : DPA

Aircraft : 2

Reference : Y
ATC / Advisory.Tower : DPA
Make Model Name : Falcon 7X
Crew Size.Number Of Crew : 2
Flight Plan : IFR
Flight Phase : Landing
Airspace.Class D : DPA

Person

Reference : 1
Location Of Person.Facility : DPA.TOWER
Reporter Organization : Government
Function.Air Traffic Control : Local
Qualification.Air Traffic Control : Fully Certified
ASRS Report Number.Accession Number : 1569918
Human Factors : Other / Unknown

Events

Anomaly.ATC Issue : All Types
Anomaly.Deviation - Procedural : Published Material / Policy
Anomaly.Inflight Event / Encounter : Wake Vortex Encounter
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Executed Go Around / Missed Approach
Result.Air Traffic Control : Issued New Clearance

Assessments

Contributing Factors / Situations : Environment - Non Weather Related
Contributing Factors / Situations : Human Factors

Contributing Factors / Situations : Procedure
Primary Problem : Procedure

Narrative: 1

A C560XL was conducting a visual approach to Runway 2L. A Falcon 7X aircraft was also conducting a visual approach to Runway 2L in front of the C560XL. The data block for the C560XL indicated "VS", which meant that the aircraft had the Falcon it was following in sight and was maintaining visual separation. When the C560XL called the Tower on 120.9, I verified that the pilot had the Falcon in sight, which the pilot confirmed, then cleared him to land on Runway 2L #2. Upon crossing the numbers for Runway 2L, the pilot of the C560XL said that they were going around. I instructed the aircraft to enter left traffic for 2L and cleared him to land. The aircraft landed on 2L safely. After landing, when I asked the pilot the reason for the go-around, the pilot stated that it was wake turbulence behind the Falcon.

It is my understanding that when an IFR aircraft accepts a visual approach and visual separation from another IFR aircraft, and that aircraft requires a wake turbulence advisory, that the advisory is given by the Approach Controller, according to FAA Order 7110.65, 2-1-20 a2. Therefore I felt it was redundant to issue the wake turbulence advisory to the C560XL again.

In the future I will give wake turbulence advisories to aircraft that require them, regardless of whether or not the advisory may have been given by a previous controller. I should not have assumed that the advisory had already been given, and it would not have caused any harm other than frequency congestion to reissue the advisory to the Citation.

Synopsis

DPA Local Controller stated a C560XL reported encountering wake turbulence on approach in trail of a Falcon 7X.

Time / Day

Date : 201803
Local Time Of Day : 1201-1800

Place

Locale Reference.Airport : GMU.Airport
State Reference : SC
Altitude.MSL.Single Value : 1020

Environment

Flight Conditions : VMC
Weather Elements / Visibility.Visibility : 10
Light : Daylight

Aircraft : 1

Reference : X
ATC / Advisory.Tower : GMU
Aircraft Operator : Personal
Make Model Name : SR22
Crew Size.Number Of Crew : 1
Operating Under FAR Part : Part 91
Flight Plan : None
Mission : Personal
Flight Phase : Landing
Route In Use : Visual Approach
Airspace.Class D : GMU

Aircraft : 2

Reference : Y
ATC / Advisory.Tower : GMU
Aircraft Operator : Personal
Make Model Name : SR22
Crew Size.Number Of Crew : 1
Operating Under FAR Part : Part 91
Flight Plan : None
Mission : Personal
Flight Phase : Landing
Route In Use : Visual Approach
Airspace.Class D : GMU

Person

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Personal
Function.Flight Crew : Pilot Flying
Function.Flight Crew : Single Pilot
Qualification.Flight Crew : Instrument
Qualification.Flight Crew : Multiengine

Qualification.Flight Crew : Commercial
Qualification.Flight Crew : Flight Instructor
Experience.Flight Crew.Total : 4300
Experience.Flight Crew.Last 90 Days : 30
Experience.Flight Crew.Type : 900
ASRS Report Number.Accession Number : 1569873
Analyst Callback : Attempted

Events

Anomaly.Inflight Event / Encounter : Wake Vortex Encounter
Detector.Person : Flight Crew
When Detected : In-flight
Result.General : None Reported / Taken

Assessments

Contributing Factors / Situations : Environment - Non Weather Related
Primary Problem : Environment - Non Weather Related

Narrative: 1

Flying #6 in a formation of 7 Cirrus SR22s, executing an overhead landing pattern from trail formation. I completed the pitch-out with 5 second interval from the #5 aircraft and, on rolling out on downwind, observed him and the #4 aircraft in the descending final turn to landing. Maintaining normal formation spacing, I completed the final turn rolling out on final about 15 seconds behind #5. Adjusting to a normal stabilized approach, maintaining normal spacing on the upwind side of the runway, I reached the flare as the aircraft ahead was 4,000 feet ahead on the downwind side of the runway with direct left-hand access to the exit taxiway at the opposite end of the runway.

As I began the flare, I experienced severe wake turbulence that surprised me as I had attached that phenomenon to "large" aircraft. I learned that after 5 other flaring and landing Cirrus single-engine piston airplanes - each lightly loaded and occupied by only two crew - the turbulence over the landing zone can be significant. VERY significant. I managed to fight the effects and land without incident, but I will retain that lesson for a long time. I had plenty of experience in landing as #2 or #3 in formations of aircraft of this type (and even USAF jet fighters), but never as #6. The number of relatively high performance aircraft, and the specific wind and temperature conditions on this day added up to landing area turbulence not normally experienced. I will not be forgetting that about wake turbulence now regardless of the type aircraft being flown. It does not need to be "an airline load" to be dangerous.

Synopsis

SR22 pilot landing #6 in a flight of 7 reported encountering "very significant" wake turbulence during the landing flare.

Time / Day

Date : 201808
Local Time Of Day : 0601-1200

Place

Locale Reference.ATC Facility : ZME.ARTCC
State Reference : TN
Altitude.MSL.Single Value : 35000

Environment

Light : Daylight

Aircraft : 1

Reference : X
ATC / Advisory.Center : ZME
Aircraft Operator : Air Carrier
Make Model Name : B737-800
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Flight Phase : Climb
Airspace.Class A : ZME

Aircraft : 2

Reference : Y
ATC / Advisory.Center : ZME
Make Model Name : B747 Undifferentiated or Other Model
Crew Size.Number Of Crew : 2
Flight Plan : IFR
Flight Phase : Cruise
Airspace.Class A : ZME

Person : 1

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : Pilot Not Flying
Function.Flight Crew : Captain
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Multiengine
Qualification.Flight Crew : Instrument
Experience.Flight Crew.Last 90 Days : 338
ASRS Report Number.Accession Number : 1569067
Analyst Callback : Attempted

Person : 2

Reference : 2
Location Of Person.Facility : ZME.ARTCC
Reporter Organization : Government
Function.Air Traffic Control : Departure
Qualification.Air Traffic Control : Fully Certified
ASRS Report Number.Accession Number : 1568318
Human Factors : Situational Awareness

Events

Anomaly.Inflight Event / Encounter : Wake Vortex Encounter
Anomaly.Inflight Event / Encounter : Loss Of Aircraft Control
Detector.Person : Flight Crew
When Detected : In-flight
Result.General : Physical Injury / Incapacitation
Result.Flight Crew : Regained Aircraft Control

Assessments

Contributing Factors / Situations : Environment - Non Weather Related
Contributing Factors / Situations : Procedure
Primary Problem : Ambiguous

Narrative: 1

Climbing through FL350 enroute to ATL, we encountered suspected wake turbulence off a B747 10 miles ahead of us. We had momentary loss of control of the aircraft, banking in excess of 45 degrees to the right. Flight attendants were already taking drink orders and in the aisle when the encounter happened.

Through the upset recovery process, the flight attendants laid on the floor and one of the flight attendants injured her knee in doing so. No diversion was needed and we continued onto ATL.

We never saw that aircraft on TCAS until after the fact. And at 10 miles, we would have never thought of wake turbulence. But that being said, we might have the flight attendants stay seated until TOC (top of climb) when feasible.

Narrative: 2

Aircraft Y was in level flight en route to ATL at FL350. Aircraft X was climbing to FL390. Aircraft X asked what the a/c ten miles ahead was because they encountered moderate turbulence from it's wake. I advised it was a B747 Heavy. I asked if there were any injuries or damage to the a/c. He got back to me and initially said everyone was functional and the aircraft was okay, but he would keep me advised. Before switching the aircraft to sector 61, I asked again and he stated that it was almost a loss of control. I coordinated with 61 and told Aircraft X to change frequencies and advise if they needed any further assistance.

In this situation, I think better awareness of the extent of wake turbulence behind a heavy aircraft for another aircraft climbing vs level flight.

Synopsis

B737 Captain and ZME Controller reported a wake turbulence encounter ten miles in trail of a B747 at FL350.

Time / Day

Date : 201808

Place

Locale Reference.ATC Facility : NCT.TRACON
State Reference : CA
Altitude.MSL.Single Value : 8000

Environment

Flight Conditions : VMC
Light : Daylight

Aircraft : 1

Reference : X
ATC / Advisory.TRACON : NCT
Aircraft Operator : Air Taxi
Make Model Name : Citation Excel (C560XL)
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 135
Flight Plan : IFR
Mission : Passenger
Flight Phase : Initial Approach
Route In Use : Visual Approach
Airspace.Class B : SFO

Aircraft : 2

Reference : Y
ATC / Advisory.TRACON : NCT
Aircraft Operator : Air Carrier
Make Model Name : B737-800
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Flight Phase : Initial Approach
Airspace.Class B : SFO

Person

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Function.Flight Crew : Pilot Flying
Function.Flight Crew : Captain
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Instrument
Qualification.Flight Crew : Multiengine
ASRS Report Number.Accession Number : 1567901
Analyst Callback : Completed

Events

Anomaly.Inflight Event / Encounter : Wake Vortex Encounter
Anomaly.Inflight Event / Encounter : Loss Of Aircraft Control
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Took Evasive Action
Result.Flight Crew : Requested ATC Assistance / Clarification
Result.Flight Crew : Regained Aircraft Control
Result.Air Traffic Control : Issued New Clearance

Assessments

Contributing Factors / Situations : Environment - Non Weather Related
Contributing Factors / Situations : Procedure
Primary Problem : Ambiguous

Narrative: 1

At 8000 feet on the Tipp Toe visual to 28L over the EDDYY intersection, autopilot on, no warning, air was smooth, plane rolled left approximately 60-90 degrees, slightly nose down, auto pilot kicked off. I disconnected the yaw damp and began the recovery immediately, rolling wings level and limiting altitude loss. Lost about 300 feet of altitude. Informed ATC of the wake turbulence encounter, Approach said we were 8 miles in trail of a 737-800. Approach gave us a vector turn to 330 for spacing. We checked with passengers (to include two little girls in car seats) and all passengers were fine, seated, and buckled in. Seat belt sign was on at 10000 feet.

Synopsis

CE-560XLS Captain reported encountering wake turbulence on arrival into SFO in trail of a B737-800.

Time / Day

Date : 201808

Local Time Of Day : 0001-0600

Place

Locale Reference.Airport : MEM.Airport

State Reference : TN

Relative Position.Distance.Nautical Miles : 1

Altitude.AGL.Single Value : 300

Environment

Light : Night

Aircraft : 1

Reference : X

ATC / Advisory.Tower : MEM

Aircraft Operator : Air Carrier

Make Model Name : B737-800

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 121

Flight Plan : IFR

Mission : Passenger

Flight Phase : Initial Approach

Airspace.Class B : MEM

Aircraft : 2

Reference : Y

ATC / Advisory.Tower : MEM

Aircraft Operator : Air Carrier

Make Model Name : Widebody Transport

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 121

Flight Plan : IFR

Mission : Cargo / Freight

Flight Phase : Initial Approach

Airspace.Class B : MEM

Person

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Air Carrier

Function.Flight Crew : Captain

Function.Flight Crew : Pilot Flying

Qualification.Flight Crew : Air Transport Pilot (ATP)

Experience.Flight Crew.Last 90 Days : 364

Experience.Flight Crew.Type : 10400

ASRS Report Number.Accession Number : 1567615

Analyst Callback : Completed

Events

Anomaly.Inflight Event / Encounter : Wake Vortex Encounter
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Executed Go Around / Missed Approach
Result.Flight Crew : Requested ATC Assistance / Clarification
Result.Flight Crew : Took Evasive Action

Assessments

Contributing Factors / Situations : Environment - Non Weather Related
Contributing Factors / Situations : Procedure
Primary Problem : Procedure

Narrative: 1

We were cleared the Visual Approach to Runway 36L following a heavy widebody aircraft, who was approximately 3 NM in front of us. I briefed the First Officer that I would ride the glideslope slightly high to avoid wake turbulence. Winds on final were a left quartering tailwind of about eight knots and shifting left quartering headwind around 500' AGL. At around 300' AGL, we encountered wake turbulence with a significant right roll to at least 35 degrees of bank. I countered with left aileron and elected to go around, asserting that the deviation had resulted in an unstable approach on short final. The go-around and subsequent landing to 36L were uneventful.

With the shifting winds, at least five mile spacing behind the heavy widebody aircraft would have probably prevented the event. In fact, the subsequent approach was behind another heavy widebody aircraft and I assured 5 NM spacing resulting in a successful approach and landing with no wake turbulence.

Synopsis

B737-800 Captain reported encountering wake turbulence on approach to MEM in trail of a heavy widebody aircraft.

Time / Day

Date : 201808

Local Time Of Day : 1801-2400

Place

Locale Reference.ATC Facility : S46.TRACON

State Reference : WA

Altitude.MSL.Single Value : 15000

Environment

Flight Conditions : VMC

Weather Elements / Visibility.Visibility : 25

Light : Daylight

Ceiling.Single Value : 25000

Aircraft : 1

Reference : X

ATC / Advisory.TRACON : S46

Aircraft Operator : Corporate

Make Model Name : Citationjet (C525/C526) - CJ I / II / III / IV

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 91

Flight Plan : IFR

Mission : Passenger

Flight Phase : Descent

Route In Use.STAR : GLASR1

Airspace.Class E : S46

Aircraft : 2

Reference : Y

ATC / Advisory.TRACON : S46

Aircraft Operator : Air Carrier

Make Model Name : B737-900

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 121

Flight Plan : IFR

Mission : Passenger

Flight Phase : Descent

Airspace.Class E : S46

Person

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Corporate

Function.Flight Crew : Captain

Function.Flight Crew : Pilot Flying

Qualification.Flight Crew : Instrument

Qualification.Flight Crew : Multiengine

Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Flight Instructor
Experience.Flight Crew.Total : 14500
Experience.Flight Crew.Last 90 Days : 80
Experience.Flight Crew.Type : 275
ASRS Report Number.Accession Number : 1567243
Analyst Callback : Completed

Events

Anomaly.Deviation - Altitude : Undershoot
Anomaly.Deviation - Altitude : Crossing Restriction Not Met
Anomaly.Deviation - Procedural : Clearance
Anomaly.Inflight Event / Encounter : Wake Vortex Encounter
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Took Evasive Action

Assessments

Contributing Factors / Situations : Environment - Non Weather Related
Contributing Factors / Situations : Procedure
Primary Problem : Ambiguous

Narrative: 1

Failed to meet crossing restriction at WOODI intersection due to wake encounter and evasive action.

Inbound to SEA on GLASR1 STAR, cleared to "descend VIA GLASR1". We were flying a Citation CJ4, ten miles in trail of a 737-900. Shortly after passing JAKSN intersection, we began to encounter wake turbulence as buffeting and uncontrollable left/right rolling. I reduced our descent rate to remain above the path of the preceding 737-900. The buffeting and rolling stopped and we continued our descent, but were unable to make the "at or below 14000 feet" crossing restriction over the WOODI intersection. I believe we crossed WOODI about 1000' high. We reported the wake encounter to the controller and mentioned our lack of meeting the crossing restriction. The controller said nothing to us regarding the altitude deviation. The remainder of the STAR and approach continued behind the 737-900 with occasional wake buffeting.

We are experiencing wake turbulence more frequently, especially on STARs and approaches. My guess would be due to the accuracy of the GPS/RNAV equipment.

Synopsis

C525 Captain reported failing to meet a crossing restriction during avoidance maneuvers related to a wake turbulence encounter in trail of a B737-900 on arrival into SEA.

Time / Day

Date : 201808

Local Time Of Day : 0601-1200

Place

Locale Reference.ATC Facility : C90.TRACON

State Reference : IL

Altitude.MSL.Single Value : 8000

Environment

Flight Conditions : Mixed

Light : Daylight

Aircraft : 1

Reference : X

ATC / Advisory.TRACON : C90

Aircraft Operator : Corporate

Make Model Name : Super King Air 350

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 91

Flight Plan : IFR

Mission : Passenger

Flight Phase : Initial Approach

Route In Use.STAR : ERNNY 4

Airspace.Class B : ORD

Aircraft : 2

Reference : Y

ATC / Advisory.TRACON : C90

Aircraft Operator : Air Carrier

Make Model Name : Medium Large Transport, Low Wing, 2 Turbojet Eng

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 121

Flight Plan : IFR

Mission : Passenger

Flight Phase : Initial Approach

Airspace.Class B : ORD

Person

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Corporate

Function.Flight Crew : Captain

Function.Flight Crew : Pilot Flying

Qualification.Flight Crew : Instrument

Qualification.Flight Crew : Multiengine

Qualification.Flight Crew : Air Transport Pilot (ATP)

Qualification.Flight Crew : Flight Instructor

Experience.Flight Crew.Total : 14200
Experience.Flight Crew.Last 90 Days : 35
Experience.Flight Crew.Type : 225
ASRS Report Number.Accession Number : 1567231
Analyst Callback : Attempted

Events

Anomaly.Inflight Event / Encounter : Wake Vortex Encounter
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Requested ATC Assistance / Clarification
Result.Flight Crew : Took Evasive Action

Assessments

Contributing Factors / Situations : Environment - Non Weather Related
Contributing Factors / Situations : Procedure
Primary Problem : Ambiguous

Narrative: 1

While on the ERNNY 4 arrival we encountered wake turbulence at approximately 8000 feet in between clouds and in clear air. The aircraft pitched up and rolled to the left causing the autopilot to disengage. After the initial pitch and roll changes the aircraft encountered violent turbulence tossing cabin items and people, crew and passengers were all seat belted and no injuries. The First Officer reported the wake turbulence to Approach Control and then we were advised that we were 5 miles in-trail of [another aircraft] at the same altitude. He asked if there were any injuries and we reported no. I believe we encountered the wake of the [other aircraft] because he descended from a higher altitude to our altitude in front of us. Traffic was heavy and we were instructed to maintain 240 knots or greater when we encountered the wake turbulence. After reporting the event we were slowed down and vectored onto 9L ILS approach behind the same traffic, and we maintained a dot high on the glide slope to make sure we did not encounter wake turbulence again. I am not positive that the wake we encountered came from the traffic ahead or other traffic that may have crossed our path. After many years of flying heavy jets this was a real eye opener for me, encountering wake turbulence like this at low altitude would be a real challenge.

Synopsis

King Air 350 Captain reported encountering wake turbulence on arrival into ORD.

Time / Day

Date : 201808

Place

Locale Reference.ATC Facility : ZOA.ARTCC
State Reference : CA
Altitude.MSL.Single Value : 32000

Environment

Flight Conditions : VMC

Aircraft

Reference : X
ATC / Advisory.Center : ZOA
Aircraft Operator : Air Carrier
Make Model Name : B777 Undifferentiated or Other Model
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Flight Phase : Cruise
Airspace.Class A : ZOA

Person

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : Pilot Not Flying
Function.Flight Crew : First Officer
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Multiengine
Qualification.Flight Crew : Instrument
Experience.Flight Crew.Last 90 Days : 242
Experience.Flight Crew.Type : 12060
ASRS Report Number.Accession Number : 1567021

Events

Anomaly.Deviation - Track / Heading : All Types
Anomaly.Inflight Event / Encounter : Wake Vortex Encounter
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Took Evasive Action

Assessments

Contributing Factors / Situations : Environment - Non Weather Related
Primary Problem : Environment - Non Weather Related

Narrative: 1

During entry into Class II we encountered wake turbulence from an aircraft 23NM ahead and 1000' above. We executed SLOP (Strategic Lateral Offset Procedure) left 1NM in the FMC route page to avoid any more wake [and] some possible turbulence from the weather ahead. We returned to the right side approximately 10 minutes later.

Synopsis

B777 First Officer reported encountering wake turbulence during cruise flight.

Time / Day

Date : 201808

Local Time Of Day : 1801-2400

Place

Locale Reference.Airport : CLT.Airport

State Reference : NC

Environment

Flight Conditions : VMC

Light : Dusk

Aircraft : 1

Reference : X

ATC / Advisory.Tower : CLT

Aircraft Operator : Air Carrier

Make Model Name : Regional Jet 900 (CRJ900)

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 121

Flight Plan : IFR

Mission : Passenger

Flight Phase : Initial Climb

Airspace.Class B : CLT

Aircraft : 2

Reference : Y

ATC / Advisory.Tower : CLT

Aircraft Operator : Air Carrier

Make Model Name : A321

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 121

Flight Plan : IFR

Mission : Passenger

Flight Phase : Initial Climb

Airspace.Class B : CLT

Person

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Air Carrier

Function.Flight Crew : Captain

Function.Flight Crew : Pilot Flying

Qualification.Flight Crew : Air Transport Pilot (ATP)

ASRS Report Number.Accession Number : 1566755

Human Factors : Situational Awareness

Analyst Callback : Attempted

Events

Anomaly.Inflight Event / Encounter : Wake Vortex Encounter
Detector.Person : Flight Crew
When Detected : In-flight
Result.General : None Reported / Taken

Assessments

Contributing Factors / Situations : Environment - Non Weather Related
Contributing Factors / Situations : Human Factors
Contributing Factors / Situations : Procedure
Primary Problem : Ambiguous

Narrative: 1

Shortly after departure (below 1,000 feet AGL) while hand flying, encountered the wake turbulence of the A321 that departed ahead of us. Aircraft rolled left, then right. Did not lose control or have to deviate. I did advise ATC of the encounter. Continued flight without further incident. I did a flex takeoff and didn't recognize the A321 ahead and connect the dots. I should have done a no flex takeoff.

Synopsis

CRJ-900 Captain reported encountering wake turbulence departing CLT from the preceding A321.

Time / Day

Date : 201808

Local Time Of Day : 0601-1200

Place

Locale Reference.Airport : DEN.Airport

State Reference : CO

Altitude.AGL.Single Value : 0

Environment

Flight Conditions : VMC

Aircraft : 1

Reference : X

ATC / Advisory.Tower : DEN

Aircraft Operator : Air Carrier

Make Model Name : B737 Next Generation Undifferentiated

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 121

Flight Plan : IFR

Mission : Passenger

Nav In Use : FMS Or FMC

Flight Phase : Landing

Aircraft : 2

Reference : Y

ATC / Advisory.Tower : DEN

Make Model Name : Commercial Fixed Wing

Crew Size.Number Of Crew : 2

Flight Phase : Landing

Person : 1

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Air Carrier

Function.Flight Crew : First Officer

Function.Flight Crew : Pilot Flying

Qualification.Flight Crew : Multiengine

Qualification.Flight Crew : Air Transport Pilot (ATP)

Qualification.Flight Crew : Instrument

Experience.Flight Crew.Last 90 Days : 270

Experience.Flight Crew.Type : 10779

ASRS Report Number.Accession Number : 1565948

Human Factors : Situational Awareness

Analyst Callback : Attempted

Person : 2

Reference : 2
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : Captain
Function.Flight Crew : Pilot Not Flying
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Multiengine
Qualification.Flight Crew : Instrument
Experience.Flight Crew.Type : 7995
ASRS Report Number.Accession Number : 1565793

Events

Anomaly.Inflight Event / Encounter : Wake Vortex Encounter
Anomaly.Inflight Event / Encounter : Unstabilized Approach
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Executed Go Around / Missed Approach

Assessments

Contributing Factors / Situations : Environment - Non Weather Related
Contributing Factors / Situations : Human Factors
Contributing Factors / Situations : Weather
Primary Problem : Ambiguous

Narrative: 1

Approach was stable and uneventful through below 500 ft AGL. At that point, I let the aircraft dip below glideslope to capture three red PAPI. As the aircraft passed through 100 feet AGL, I noticed four red PAPI and began to adjust pitch and power.

As the threshold neared, the aircraft began to be affected by the previous arrival's wake, and required control inputs as aircraft crossed the threshold to maintain path and centerline. These inputs were more significant than any inputs on the approach and began rather suddenly.

My last look as we crossed the threshold had airspeed on target. I began to increase the back pressure for the flare, but the aircraft did not respond as I expected, never arrested descent, and contacted the runway before planned, resulting in a hard bounce.

With the power still up, the resulting bounce was high, and I immediately called for a go around. Go around was accomplished and subsequent landing was uneventful. Thankfully, we later heard from Maintenance the aircraft inspection showed all ok.

Narrative: 2

[Report narrative contained no additional information.]

Synopsis

B737NG flight crew reported a hard landing and subsequent go-around occurred following a wake turbulence encounter just before touchdown.

Time / Day

Date : 201807

Local Time Of Day : 0601-1200

Place

Locale Reference.ATC Facility : ZLA.ARTCC

State Reference : CA

Altitude.MSL.Single Value : 28000

Environment

Light : Daylight

Aircraft : 1

Reference : X

ATC / Advisory.Center : ZLA

Aircraft Operator : Air Carrier

Make Model Name : B737-700

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 121

Flight Plan : IFR

Mission : Passenger

Flight Phase : Descent

Airspace.Class A : ZLA

Aircraft : 2

Reference : Y

ATC / Advisory.Center : ZLA

Aircraft Operator : Air Carrier

Make Model Name : A380

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 121

Flight Plan : IFR

Mission : Passenger

Flight Phase : Descent

Airspace.Class A : ZLA

Person

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Air Carrier

Function.Flight Crew : Captain

Function.Flight Crew : Pilot Flying

Qualification.Flight Crew : Air Transport Pilot (ATP)

Experience.Flight Crew.Last 90 Days : 300

Experience.Flight Crew.Type : 12000

ASRS Report Number.Accession Number : 1564921

Analyst Callback : Attempted

Events

Anomaly.ATC Issue : All Types
Anomaly.Inflight Event / Encounter : Wake Vortex Encounter
Detector.Person : Flight Crew
When Detected : In-flight
Result.General : Physical Injury / Incapacitation
Result.Flight Crew : Requested ATC Assistance / Clarification
Result.Flight Crew : Took Evasive Action

Assessments

Contributing Factors / Situations : Procedure
Primary Problem : Procedure

Narrative: 1

We were enroute to LAX and beginning our descent on the STAR when we encountered wake turbulence from an Airbus 380, 16 miles ahead of us. I was the Pilot Flying (PF). I immediately maintained control of the aircraft while disengaging automation and reducing AOA and thrust. Roll was unstable until we descended below the wake, where we stabilized the roll and recovered to the desired flight path. I don't recall how much AOB we encountered but at least 20 degrees. We split up our duties and the Pilot Monitoring (First Officer) reported the encounter to ATC and then talked with the Flight Attendants (F/A's) and informed the passengers as to what had happened. The B F/A said she "may have" scraped her knee, the A and C were fine. After landing and passenger deplaning, we spoke with them to determine if she was hurt. She said she was fine, she looked fine and both the First Officer and I looked at her and her knees and there was nothing, they went on to their next flight. My biggest concern was if she was injured but she insisted she was ok, and wanted to operate the next flight. I think she was ok, or else I would have taken a different course of action with her. ATC did not inform us that we were following an A380, they had vectored us off course and slowed us but did not say why. Had we known, we would have sat the F/A's down.

Synopsis

B737 Captain reported a Flight Attendant was slightly injured during a wake turbulence encounter on arrival into LAX following an A380.

Time / Day

Date : 201807

Local Time Of Day : 1201-1800

Place

Locale Reference.ATC Facility : ZAU.ARTCC

State Reference : IL

Altitude.MSL.Single Value : 34000

Environment

Flight Conditions : VMC

Aircraft : 1

Reference : X

ATC / Advisory.Center : ZAU

Aircraft Operator : Air Carrier

Make Model Name : B737 Next Generation Undifferentiated

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 121

Flight Plan : IFR

Mission : Passenger

Nav In Use : FMS Or FMC

Flight Phase : Cruise

Airspace.Class A : ZAU

Aircraft : 2

Reference : Y

ATC / Advisory.Center : ZAU

Make Model Name : Any Unknown or Unlisted Aircraft Manufacturer

Crew Size.Number Of Crew : 2

Flight Plan : IFR

Flight Phase : Cruise

Airspace.Class A : ZAU

Person

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Air Carrier

Function.Flight Crew : Pilot Flying

Function.Flight Crew : Captain

Qualification.Flight Crew : Air Transport Pilot (ATP)

Qualification.Flight Crew : Instrument

Qualification.Flight Crew : Multiengine

Experience.Flight Crew.Type : 2548

ASRS Report Number.Accession Number : 1561736

Analyst Callback : Completed

Events

Anomaly.Inflight Event / Encounter : Wake Vortex Encounter
Detector.Person : Flight Crew
When Detected : In-flight
Result.General : Physical Injury / Incapacitation

Assessments

Contributing Factors / Situations : Environment - Non Weather Related
Contributing Factors / Situations : Procedure
Primary Problem : Ambiguous

Narrative: 1

In the clear. Reports from ATC were occasional light chop. Not near any convective activity. Suspect large brief jolt which was completely unexpected may have been crossing aircraft wake turbulence. I did not notice the aircraft but copilot did after the fact on TCAS. Aircraft was 2000' above and at about 8 [o'clock] position and 30 miles when copilot pointed it out to me. [One of our] FA's complained of back pain after incident. Also [another] FA complained of neck pain after incident. They were up in the aisle with the drink cart when jolt happened.

Synopsis

B737NG Captain reported two Flight Attendants suffered minor injuries as a result of a wake turbulence encounter at FL340 apparently from another aircraft crossing their path at FL360.

Time / Day

Date : 201807

Local Time Of Day : 0601-1200

Place

Locale Reference.Airport : OMDB.Airport

State Reference : FO

Altitude.MSL.Single Value : 9000

Environment

Flight Conditions : VMC

Weather Elements / Visibility : Turbulence

Aircraft : 1

Reference : X

ATC / Advisory.Center : OMAE

Aircraft Operator : Air Carrier

Make Model Name : MD-11

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 121

Flight Plan : IFR

Mission : Cargo / Freight

Nav In Use : FMS Or FMC

Flight Phase : Descent

Route In Use.STAR : IMPED 3C

Aircraft : 2

Reference : Y

Make Model Name : Any Unknown or Unlisted Aircraft Manufacturer

Person

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Air Carrier

Function.Flight Crew : Pilot Flying

Function.Flight Crew : Captain

Qualification.Flight Crew : Air Transport Pilot (ATP)

Qualification.Flight Crew : Instrument

Qualification.Flight Crew : Multiengine

ASRS Report Number.Accession Number : 1561673

Events

Anomaly.Deviation - Speed : All Types

Anomaly.Deviation - Procedural : Published Material / Policy

Anomaly.Inflight Event / Encounter : Wake Vortex Encounter

Detector.Person : Flight Crew

When Detected : In-flight
Result.General : None Reported / Taken

Assessments

Contributing Factors / Situations : Environment - Non Weather Related
Contributing Factors / Situations : Procedure
Primary Problem : Ambiguous

Narrative: 1

On a published section of the IMPED 3C STAR, near point DB520. We were descending to 8000 ft. and had slowed to 230 KIAS directed by ATC. Autopilot was engaged. Passing through 9000 ft., we encountered what felt like wake turbulence from a preceding aircraft.

The aircraft began an abrupt left bank, throttles were at idle. I thought the autopilot would correct the attitude, but when we reached about 30 degrees of bank, I disconnected the autopilot and began to roll right to wings level. I didn't catch it in time and the Pilot Monitoring (PM) noticed on his PFD that a momentary over bank warning displayed. At the time I began rolling back to wings level, the stick shaker momentarily activated. Our minimum clean wing speed was 210 KIAS and we were holding 230 KIAS. That did not make sense to me, but I simultaneously reduced pitch and increased power, but I failed to cross check my Angle of Attack indicator. I never believed we were airspeed critical and not sure why we had a momentary stick shaker.

Once I got the airplane back to wings level and back on course, autopilot was re-engaged and worked normally the rest of the flight. An aircraft behind us reported a similar event. Another reason for this report was that I failed to write up this event. We had 2 hot brakes after landing which we wrote up, and I forgot to check the FOM at the aircraft. Once at the hotel, I checked the FOM and realized my mistake. I tried calling the ramp, but couldn't get through, so I notified the chief pilot. I completed the write up over the phone with a maintenance representative. The aircraft had already departed Dubai.

Cause: Either high altitude windshear/turbulence or wake turbulence from preceding aircraft

Suggestions: I don't think a flying event like this can be eliminated because of environmental events. My mistake in not writing up this event had to do with not having time in a congested area to make a write up when it happened and then forgetting the event after landing. Probably a better personal discipline to research/recollect everything before leaving the aircraft.

Synopsis

MD-11 Captain reported encountering wake turbulence on arrival into OMDB.

Time / Day

Date : 201807
Local Time Of Day : 0001-0600

Place

Locale Reference.ATC Facility : D10.TRACON
State Reference : TX
Altitude.MSL.Single Value : 4000

Environment

Flight Conditions : VMC
Light : Daylight

Aircraft : 1

Reference : X
ATC / Advisory.TRACON : D10
Make Model Name : Gulfstream G200 (IAI 1126 Galaxy)
Crew Size.Number Of Crew : 2
Flight Plan : IFR
Flight Phase : Descent
Airspace.Class B : DAL

Aircraft : 2

Reference : Y
ATC / Advisory.TRACON : D10
Make Model Name : B737-800
Crew Size.Number Of Crew : 2
Flight Plan : IFR
Mission : Passenger
Nav In Use : FMS Or FMC
Flight Phase : Descent
Airspace.Class B : DAL

Person

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Function.Flight Crew : Pilot Flying
Function.Flight Crew : First Officer
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Instrument
Qualification.Flight Crew : Multiengine
ASRS Report Number.Accession Number : 1560938
Analyst Callback : Attempted

Events

Anomaly.Inflight Event / Encounter : Wake Vortex Encounter
Detector.Person : Flight Crew

When Detected : In-flight
Result.General : None Reported / Taken

Assessments

Contributing Factors / Situations : Environment - Non Weather Related
Contributing Factors / Situations : Procedure
Primary Problem : Ambiguous

Narrative: 1

Wake turbulence encounter. Just a few bumps initially but within 10 seconds it had disengaged the autopilot. Bank never exceeded 20 degrees [and] aircraft control was never compromised. Preceding aircraft was a 737-800.

Synopsis

G200 First Officer reported encountering wake turbulence in the Dallas area in trail of a B737-800.

Time / Day

Date : 201807

Local Time Of Day : 1201-1800

Place

Locale Reference.ATC Facility : ZLA.ARTCC

State Reference : CA

Altitude.MSL.Single Value : 26000

Environment

Flight Conditions : VMC

Light : Daylight

Aircraft : 1

Reference : X

ATC / Advisory.Center : ZLA

Aircraft Operator : Air Carrier

Make Model Name : B737-800

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 121

Flight Plan : IFR

Mission : Passenger

Nav In Use : FMS Or FMC

Nav In Use : GPS

Flight Phase : Cruise

Route In Use.STAR : ANJLL

Airspace.Class A : ZLA

Aircraft : 2

Reference : Y

ATC / Advisory.Center : ZLA

Aircraft Operator : Air Carrier

Make Model Name : A380

Flight Plan : IFR

Flight Phase : Descent

Airspace.Class A : ZLA

Person : 1

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Air Carrier

Function.Flight Crew : Pilot Not Flying

Function.Flight Crew : First Officer

Qualification.Flight Crew : Instrument

Qualification.Flight Crew : Air Transport Pilot (ATP)

ASRS Report Number.Accession Number : 1560596

Analyst Callback : Attempted

Person : 2

Reference : 2
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : Captain
Function.Flight Crew : Pilot Flying
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Multiengine
Qualification.Flight Crew : Instrument
ASRS Report Number.Accession Number : 1560603
Analyst Callback : Completed

Events

Anomaly.Inflight Event / Encounter : Wake Vortex Encounter
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Took Evasive Action
Result.Flight Crew : Requested ATC Assistance / Clarification
Result.Air Traffic Control : Issued New Clearance

Assessments

Contributing Factors / Situations : Environment - Non Weather Related
Contributing Factors / Situations : Procedure
Primary Problem : Procedure

Narrative: 1

A380 wake turbulence during cruise flight.

We were at FL260 on the ANJLL arrival into LAX when we encountered moderate wake turbulence. The aircraft rolled left 15 degrees bank and then back to the right 15 degrees bank. The autopilot remained on. ATC was notified and acknowledged we were 10 miles behind an A380 that had descended in front of us. We offset our course upwind and slowed the aircraft for additional spacing.

No passengers or crewmembers were hurt during the event.

After landing, ATC was called by phone and we spoke with a supervisor, [who] said [they] would investigate how the events occurred. Dispatch was also notified.

Suggesting a study be performed to provide ATC and crews on proper minimum spacing behind an A380.

Narrative: 2

Encountered wake turbulence 10 miles behind an A380. Aircraft bumped and rolled 15 degrees left. Then bumped and rolled 15 degrees right while on autopilot. Autopilot did not disconnect. No injuries with passengers or crew. Contacted ATC, slowed, and offset upwind. A380 was brought in [near] us and descended in front of us. Until the turbulence, we were not aware an A380 was near us. After landing contacted ATC by phone, called Dispatch and called flight safety.

Suggestions: Provide more spacing behind A380 aircraft. Notify other aircraft when following or crossing behind an A380.

Callback: 2

Reporter stated that wake encounters with the A380 seem to a bit different from other aircraft types, with no initial "nibble", just an immediate roll.

Synopsis

B737-800 flight crew reported encountering wake turbulence at FL260 10 miles in trail of an A380.

Time / Day

Date : 201803

Local Time Of Day : 1201-1800

Place

Locale Reference.Airport : SEA.Airport

State Reference : WA

Altitude.MSL.Single Value : 3200

Environment

Light : Daylight

Aircraft : 1

Reference : X

ATC / Advisory.TRACON : S46

Aircraft Operator : Air Carrier

Make Model Name : EMB ERJ 170/175 ER/LR

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 121

Flight Plan : IFR

Mission : Passenger

Flight Phase : Climb

Airspace.Class B : SEA

Aircraft : 2

Reference : Y

ATC / Advisory.TRACON : S46

Aircraft Operator : Air Carrier

Make Model Name : Airbus 318/319/320/321 Undifferentiated

Crew Size.Number Of Crew : 2

Flight Plan : IFR

Flight Phase : Climb

Airspace.Class B : SEA

Person

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Air Carrier

Function.Flight Crew : Pilot Flying

Function.Flight Crew : Captain

Qualification.Flight Crew : Air Transport Pilot (ATP)

ASRS Report Number.Accession Number : 1523407

Analyst Callback : Completed

Events

Anomaly.Inflight Event / Encounter : Wake Vortex Encounter

Detector.Person : Flight Crew

When Detected : In-flight
Result.Flight Crew : Took Evasive Action

Assessments

Contributing Factors / Situations : Environment - Non Weather Related
Contributing Factors / Situations : Procedure
Primary Problem : Ambiguous

Narrative: 1

On initial climb out of Seattle, I was given a 5 NM separation from the preceding Airbus A320 series aircraft. Despite that, at about 3200 ft MSL we encountered wake turbulence. I promptly adjusted my pitch attitude to avoid [it], but I was still in and out for a few hundred feet.

Synopsis

EMB-175 Captain reported encountering wake turbulence departing SEA in trail of an Airbus A320.

Time / Day

Date : 201802

Aircraft

Reference : X
Aircraft Operator : Air Carrier
Make Model Name : B757-200
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger

Person

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : Captain
Qualification.Flight Crew : Air Transport Pilot (ATP)
ASRS Report Number.Accession Number : 1522558

Events

Anomaly.Deviation - Speed : All Types
Anomaly.Inflight Event / Encounter : Wake Vortex Encounter
Detector.Person : Flight Crew
When Detected : In-flight
Result.General : None Reported / Taken

Assessments

Contributing Factors / Situations : Environment - Non Weather Related
Contributing Factors / Situations : Procedure
Primary Problem : Ambiguous

Narrative: 1

Momentary overspeed flaps 5 degrees due to gust or wake turbulence.

Synopsis

B757 Captain reported a momentary flap overspeed resulted following an encounter with a wind gust or wake turbulence.