ASRS Database Report Set

Multi-Engine Turbojet Aircraft Upsets Incidents

Report Set Description.....A sampling of reports concerning turbojet uncommanded control surface movement and unusual aircraft attitudes.

Update Number.....29.0

Date of Update.....March 29, 2016

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

Number of New Records in Report Set 32

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

Ames Research Center
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. 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 amplified 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.

Linda J Connell

Linda J. Connell, 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: 1321647 *(1 of 50)*

Synopsis
EMB-145LR Captain reported the aircraft swerved suddenly during the takeoff roll possibly due to wake turbulence from a landing aircraft on an adjacent runway.

ACN: 1317768 *(2 of 50)*

Synopsis
A B757 flight crew experienced a dual generator failure during the takeoff roll and rejected the takeoff.

ACN: 1317459 *(3 of 50)*

Synopsis
B737-700 flight crew reported experiencing an uncommanded roll during flap extension on approach. Flight landed with flaps set to position 5.

ACN: 1317203 *(4 of 50)*

Synopsis
B757 First Officer reported a track excursion while on autoflight for unknown reasons.

ACN: 1316669 *(5 of 50)*

Synopsis
The B737 crew experienced an autopilot and autothrottle disconnect at glideslope intercept, which led to an unstable approach. The Captain elected to land.

ACN: 1313853 *(6 of 50)*

Synopsis
B777 flight crew reported two flight attendants were injured when they encountered probable wake turbulence at FL280 from a crossing aircraft at FL300.

ACN: 1312744 *(7 of 50)*

Synopsis
Air Cargo Captain reported speed and track deviations related to fatigue issues.

ACN: 1311216 *(8 of 50)*

Synopsis
G-V Captain reported a wake turbulence encounter at FL320 that resulted in an uncommanded 40 degree bank.

ACN: 1306332 *(9 of 50)*

Synopsis

B757-200 flight crew reported diverting to a nearby alternate when they experienced violent nearly uncontrollable rolls in climb at FL270 from a malfunctioning yaw damper.

ACN: 1305550 *(10 of 50)*

Synopsis

A CRJ-700 crew experienced an uncommanded rudder input at cruise and diverted as per the QRH. A Contract Mechanic and Company Maintenance Control diagnosed the system and concluded an autopilot fault. However, this autopilot has no rudder input.

ACN: 1304387 *(11 of 50)*

Synopsis

BAE125-850XP First Officer reported possible flight control icing, which led to an altitude excursion at FL400.

ACN: 1302352 *(12 of 50)*

Synopsis

CRJ-700 flight crew reported they deviated from cleared departure track out of LGA when they were distracted at a critical time.

ACN: 1300945 *(13 of 50)*

Synopsis

B767-300 flight crew experiences a sudden engine failure at 700 feet AGL after takeoff. The engine is shut down and the flight returns to the departure airport for an overweight landing. ARFF reports fluid leaking from the shut down engine and three of the four tires on that truck deflate due to temperature.

ACN: 1299693 *(14 of 50)*

Synopsis

A First Officer and Check Pilot reported a sudden, unexplained shutdown of the right engine on a CRJ-700 aircraft during the landing rollout on a training flight. The Check Pilot noted he never saw the FO pull the right engine shut-off trigger and only observed the First Officer's hand on top of the power levers.

ACN: 1297154 *(15 of 50)*

Synopsis

B777 Flight Crew experiences a catastrophic engine failure climbing through FL210. The engine is shut down and after dumping fuel the flight returns to the departure airport for an overweight landing. A fuel jettison pump failure during dumping caused some confusion

due to its nearly identical title to the jettison checklist on the electronic checklist. HYD QTY LOW L was also annunciated on the EICAS during approach.

ACN: 1296953 *(16 of 50)*

Synopsis

A319 Captain described an engine vibration that suddenly ceased, but included split engine parameters. Following a successful return to the field, Maintenance identified the loss of turbine blades.

ACN: 1296648 *(17 of 50)*

Synopsis

A CRJ-200 Captain reported encountering wake turbulence shortly after takeoff from DTW in trail of an A330 that resulted in up to 50 degrees of uncommanded roll. Reporter stated he felt ATC spacing could have been more generous.

ACN: 1294934 *(18 of 50)*

Synopsis

A B757 stopped short of the gate during taxi in because the autoparking and Marshaller gave conflicting directions. While waiting for a tow in, a another aircraft's ground crew pushed their aircraft to where it's winglet struck the B757's horizontal stabilizer.

ACN: 1294627 *(19 of 50)*

Synopsis

With the autopilot engaged, crew intercepted the localizer and glideslope (GS) to 10L at ORD. At approximately 2,700 MSL the aircraft pitched nose down. The autopilot did not correct the deviation and increased the downward pitch. As the downward pitch increased the Captain disconnected the autopilot and corrected the pitch attitude to a stable flight path and landing. Crew suspects that there was ground aircraft interference with the ILS/GS transmitter signal.

ACN: 1293076 *(20 of 50)*

Synopsis

Shortly after takeoff, a CRJ crew heard a loud bang accompanied by aircraft shutter/yawing and warning lights indicating possible deployment of the right thrust reverser. Appropriate QRH procedure was accomplished and a landing made at the departure airport. Post flight inspection revealed that the right engine's upper Cowl Core Panel was missing and the lower panel was damaged. Crew notified Maintenance of the aircraft damage and ATC of the missing airplane parts.

ACN: 1291760 *(21 of 50)*

Synopsis

EMB190 Captain experiences an autopilot anomaly during LOC and glide path capture of the ILS 22 at LGA. The autopilot initially seemed to capture the LOC then rolled wings level with increasing descent below the glide path and displaying ROLL and Flight Path Angle (FPA) in the FMA. The autopilot is disconnected and the approach continued manually. The First Officer informs the Captain that he has seen this anomaly occur several times during the ILS 22 to LGA over the last few months.

ACN: 1291392 *(22 of 50)*

Synopsis

ERJ-175 First Officer reported encountering wake turbulence at touchdown in MIA that resulted in a left and right roll so a go-around was executed.

ACN: 1288787 *(23 of 50)*

Synopsis

CRJ-200 Captain reported declaring minimum fuel when weather and reroutes increased his fuel burn. Reporter also cited increased workload from yaw damper failure that required hand flying the aircraft.

ACN: 1286770 *(24 of 50)*

Synopsis

The flight crew reported that, during a critical phase of their approach, the ILS glideslope signal was disturbed by an aircraft taxiing down the runway. The autopilot was quickly disengaged, however the aircraft momentarily descended below the glidescope, generating a terrain proximity warning from the control Tower. A timely correction was made and the approach and landing were completed successfully.

ACN: 1286392 *(25 of 50)*

Synopsis

Air carrier Captain reported encountering wake turbulence at FL340 when a Widebody Transport aircraft crossed their path 20 miles ahead of them that resulted in an uncommanded 45 degree bank.

ACN: 1286032 *(26 of 50)*

Synopsis

B737-700 Captain reported uncommanded 45 degree roll from preceding aircraft wake on approach to Runway 9R at ATL.

ACN: 1279800 *(27 of 50)*

Synopsis

B737 flight crew returned to the gate for maintenance troubleshooting when the elevator trim moved from the preset value of 4.97 to 5.50 without any pilot actuation of the control wheel trim buttons.

ACN: 1278467 *(28 of 50)*

Synopsis

A Challenger 300 Captain reported encountering severe turbulence in cruise flight at FL400 that resulted in a 35 degree roll and a 500 foot altitude excursion.

ACN: 1277194 *(29 of 50)*

Synopsis

A B-777 flight crew lost an engine while enroute. They ran appropriate checklists, dumped fuel, and returned to their departure airport and landed.

ACN: 1276375 *(30 of 50)*

Synopsis

The crew experienced three hard rolls to the right and vibrations. They disconnected the autopilot and returned to the departure airport.

ACN: 1270032 *(31 of 50)*

Synopsis

B737 Captain reported receiving an IAS Disagree warning. Crew followed procedures and flew a safe approach and landing.

ACN: 1270014 *(32 of 50)*

Synopsis

A Captain and First Officer describe the pitch oscillations their B767-300 aircraft experienced in smooth air about two hours after departure. The right elevator indicator on the EICAS status page was oscillating at the same rate that was consistent with what was felt in the back of the aircraft. The oscillations were more noticeable as the aircraft slowed and continued all the way to a diverted landing. Aircraft was ferried to a maintenance base.

ACN: 1268333 *(33 of 50)*

Synopsis

BAE-125-850XP Captain reported encountering wake turbulence in 6-mile trail of a B737 on approach to IAD.

ACN: 1268185 *(34 of 50)*

Synopsis

Captain reports an uncommanded Right Rudder hard over of approximately 15 degrees and roll had occurred on their MD-80 while climbing thru FL275. Descended to FL240; slowed to 280 knots. Followed QRH and turned Yaw Damper to 'Override'. Descended to FL240. Everything normal. Returned Yaw Damper to 'Normal' position. Landing normal. Maintenance found fault in the restricted rudder portion of the Rudder PCU and Rudder Limiter switch.

ACN: 1263575 *(35 of 50)*

Synopsis

A B737-400 landing gear extended uncommanded during descent through 9,000 ft as the aircraft was slowing to 210 kts. Safe indications resulted with the QRH execution.

ACN: 1262307 *(36 of 50)*

Synopsis

A B777 flight crew encounters turbulence at FL390 approaching a thunderstorm over South America. A sudden temperature increase and wind shift make FL390 untenable and a descent is requested. At FL370 the crew is able to maintain airspeed and altitude.

ACN: 1260211 *(37 of 50)*

Synopsis

An narrow body Airbus First Officer reported encountering wake turbulence very shortly after takeoff in trail of an A320 that resulted in a "sharp" roll to the left.

ACN: 1259814 *(38 of 50)*

Synopsis

A CRJ-900 Yaw Damper 1 (YD1) was MEL'ed. After takeoff, YD-2 was engaged which also apparently engaged YD-1. At cruise uncommanded yaw inputs occurred which were verified on the EICAS. The crew descended, completed the UNCOMMANDED YAW INPUT QRH procedure and disconnected both yaw dampers.

ACN: 1256155 *(39 of 50)*

Synopsis

B747 flight crew experiences severe turbulence at FL330 in the Tokyo FIR. Altitude deviations of 600-700 feet occur along with stick shaker and over speed warnings. The First Officer disconnects the autopilot and auto thrust to return the aircraft to stable flight. A second and third event of less severity occur over the next ten minutes. Flight continues to destination.

ACN: 1253644 *(40 of 50)*

Synopsis

An EMB-145 EICAS alerted SPOILER FAIL while at cruise, so the UNCOMMANDED SPOILER DEPLOYMENT IN FLIGHT QRH was completed and the flight diverted to a nearby airport. The aircraft control felt normal but after landing the crew determined this was a repeat anomaly.

ACN: 1253218 *(41 of 50)*

Synopsis

CRJ700 Captain reported passing FL180 experience erratic uncommanded rudder movement. With the aircraft yawing back and forth, no movement is visible on the EICAS flight control page. The crew elects to slow down, and return to the departure airport for an uneventful landing. After parking at the gate with the engines shut down but with the hydraulic pumps on the rudder was still moving back and forth.

ACN: 1252316 *(42 of 50)*

Synopsis

A B737-700 crew reported severe turbulence at FL390 which resulted in a stall recovery descent with both stick shaker and overspeed warnings. No injuries were reported but the aircraft was removed from service.

ACN: 1251949 *(43 of 50)*

Synopsis

B767 flight crew reported encountering wake turbulence at FL320 in trail of a B777 departing EGLL that resulted in injuries to a Flight Attendant.

ACN: 1251357 *(44 of 50)*

Synopsis

A B737-700 autopilot transitioned to Control Wheel Steering uncommanded, followed by the loss of both IRS, erratic airspeed, altimeter, pitch and bank indications as well as intermittent uncommanded rudder inputs. The flight returned to the departure airport where Maintenance suspected an IRS Transfer Switch Fault.

ACN: 1250242 *(45 of 50)*

Synopsis

B757 flight crew reported noticing uncommanded rudder inputs in cruise flight. Crew decided to continue to destination.

ACN: 1248456 *(46 of 50)*

Synopsis

A B737 flight crew experiences a sudden yaw at 100 knots during takeoff. The takeoff is rejected. Maintenance can find no apparent reason for the swerve and the flight is canceled.

ACN: 1245806 *(47 of 50)*

Synopsis

B777 flight crew on visual approach to Runway 28L at SFO experiences a TCAS RA with a B757 on approach to Runway 28R. The B757 had drifted slightly left of course and was slightly high and initiated a go around at the same time the B777 crew received their RA.

ACN: 1240481 *(48 of 50)*

Synopsis

CRJ-200 flight crew reported encountering wake turbulence in trail of a B747 on approach to ATL. Encounter resulted in a low altitude upset, with a bank angle in excess of 130 degrees.

ACN: 1239506 *(49 of 50)*

Synopsis

CRJ-200 flight crew reported encountering wake turbulence in trail of a Q400 on takeoff from LAX that resulted in a momentary stick shaker.

ACN: 1237849 *(50 of 50)*

Synopsis

EMB190 Captain reports several errors by his First Officer under training? during a night visual approach to Runway 12L at MSP. The First Officer inadvertently turned off the autopilot then selected an MCP altitude below field elevation then selected FLC. This resulted in decaying airspeed and flight below the glideslope before the Captain takes over.

Report Narratives

ACN: 1321647 *(1 of 50)*

Time / Day

Date : 201512
Local Time Of Day : 0601-1200

Place

Locale Reference.Airport : ORD.Airport
State Reference : IL
Altitude.AGL.Single Value : 0

Environment

Weather Elements / Visibility : Snow
Weather Elements / Visibility : Icing
Light : Daylight

Aircraft : 1

Reference : X
ATC / Advisory.Tower : ORD
Aircraft Operator : Air Carrier
Make Model Name : EMB ERJ 145 ER/LR
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Flight Phase : Takeoff

Aircraft : 2

Reference : Y
ATC / Advisory.Tower : ORD
Aircraft Operator : Air Carrier
Make Model Name : Commercial Fixed Wing
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Flight Phase : Landing

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 : 1321647

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Anomaly.Ground Event / Encounter : Other / Unknown
Detector.Person : Flight Crew
When Detected : In-flight
Result.General : Maintenance Action
Result.Flight Crew : Returned To Gate
Result.Flight Crew : Rejected Takeoff

Assessments

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

Narrative: 1

[We] encountered uncommanded swerving during the high speed regime of takeoff. Around 110kts, 24kts below V1, the plane experienced a higher than normal vibration possibly in the nose wheel and a sudden swerve to the right. I was pilot flying and called the abort. During the deceleration, control was regained and kept the plane returned to centerline. The procedure was performed as briefed and as previously practiced in the sim by complying with the immediate action items. Once stopped, we ran all appropriate checklists, coordinated with the cabin crew, and established a plan of action. The decision was made to not attempt to taxi with snow and ice covering taxiways. We requested to remain on the runway until a tug could pull our aircraft back to a gate. O'Hare Tower, Maintenance, Dispatch, Cabin crew and passengers were all kept in the loop and aware of the plan of action. It took about 40 minutes for a tug to hook up to the plane. We gate returned and had all luggage reloaded to a new aircraft that was available to use as a swap. The flight continued with the new aircraft with no other abnormal occurrences.

There was winter weather affecting operations. O'Hare tower when clearing us for takeoff requested [us to] expedite due to spacing with a landing aircraft on 28C. Other than the uncommanded swerving, there were no other signs of any mechanical issues that were obvious to the pilots. The swerving could have been caused by wake turbulence from the aircraft landing 28C. Unsure of the cause, I opted to be tugged back to the gate rather than taxi with snow and ice on taxiways.

Synopsis

EMB-145LR Captain reported the aircraft swerved suddenly during the takeoff roll possibly due to wake turbulence from a landing aircraft on an adjacent runway.

ACN: 1317768 *(2 of 50)*

Time / Day

Date : 201512
Local Time Of Day : 1801-2400

Place

Locale Reference.Airport : ZZZ.Airport
State Reference : US
Altitude.AGL.Single Value : 0

Environment

Flight Conditions : VMC
Light : Night

Aircraft

Reference : X
ATC / Advisory.Tower : ZZZ
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 : Cargo / Freight
Flight Phase : Takeoff

Component

Aircraft Component : AC Generation
Aircraft Reference : X
Problem : Failed
Problem : Malfunctioning

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 : 1317768
Human Factors : Confusion
Human Factors : Situational Awareness
Analyst Callback : Completed

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 : 1316603
Human Factors : Confusion
Human Factors : Situational Awareness

Events

Anomaly.Aircraft Equipment Problem : Critical
Detector.Person : Flight Crew
When Detected : In-flight
Result.General : Maintenance Action
Result.Flight Crew : Returned To Gate
Result.Flight Crew : Rejected Takeoff

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

During the takeoff roll, after calling "Standard Power set" and before the "80 Knots call" our aircraft experienced a sudden and simultaneous complete electrical failure except for the emergency/standby battery bus. All we heard in the cockpit was a 'clunk' followed by complete dark cockpit except for the standby ADI and left radio and one IRU. The Pilot Flying immediately performed a Rejected Takeoff (RTO) as I called the problems. Using the remaining radio I called tower and informed them we were aborting and asked if they could see us. They informed us we were completely 'dark'. As we came to a stop on the runway the Captain and I analyzed the situation and determined we should start the APU to get some taxi lights and outside visibility for safety. We accomplished this, got the utility bus back on line, and with the towers permission taxied back to the ramp area.

This event was caused by the simultaneous coming off line by both generators leaving battery power only. I have heard that there was a catastrophic failure of one Integrated Drive Generator (IDG) which caused a surge knocking the other generator off line.

Speaking to our fleet experts after the event I was informed that what we experienced was 'impossible' but yet it happened. If it had happened 10 seconds later we would have been airborne with no checklist procedures to follow. Prior to turning the APU on we confirmed we had no indication of fire with the tower and could not smell any smoke/fumes. However the maintenance personnel said there was indication of 'burning' electrical parts. Again, our experts have told us the chances of having a simultaneous dual gen failure with no warnings is 'impossible' but I would think exploring the art of the possible is perhaps needed.

Callback: 1

The First Officer expressed his concerns about the lack of a checklist procedure for a dual generator failure and the response that "it can't happen."

Narrative: 2

During the Takeoff roll on above 40 KIAS and below 80 KIAS we lost all electrical power simultaneously except for battery power. We were able to exit the runway safely after the

Rejected Takeoff (RTO). We started the APU and performed the applicable QRH procedures to include referencing the Brake Cooling Chart.

Synopsis

A B757 flight crew experienced a dual generator failure during the takeoff roll and rejected the takeoff.

ACN: 1317459 *(3 of 50)*

Time / Day

Date : 201512
Local Time Of Day : 1201-1800

Place

Locale Reference.Airport : ZZZ.Airport
State Reference : US
Altitude.MSL.Single Value : 2000

Environment

Flight Conditions : Mixed
Weather Elements / Visibility.Visibility : 5
Light : Dusk

Aircraft

Reference : X
ATC / Advisory.TRACON : ZZZ
Aircraft Operator : Air Carrier
Make Model Name : B737-700
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Flight Phase : Initial Approach
Airspace.Class B : ZZZ

Component

Aircraft Component : Trailing Edge Flap
Aircraft Reference : X
Problem : Malfunctioning

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)
Experience.Flight Crew.Last 90 Days : 131
Experience.Flight Crew.Type : 12000
ASRS Report Number.Accession Number : 1317459

Person : 2

Reference : 2
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)
Experience.Flight Crew.Last 90 Days : 181
ASRS Report Number.Accession Number : 1317698

Events

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

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

The flight was unremarkable until configuring the flaps [for] landing. We were cleared for an ILS approach to 4R. The aircraft was stabilized on glideslope and on course at 170 knots approximately eight miles from the runway. I was the Captain and the First Officer was the Pilot Flying. The aircraft was cleared to land and was configured with the flaps set to five and the landing gear down. The Pilot Flying (PF) asked for flaps 15. As I moved the flap lever from the five detent to 15, the aircraft experienced a sudden un-commanded roll to the right. The First Officer (FO) disconnected the autopilot as the aircraft rolled through 30 degrees of bank. At the same time I moved the flaps back to the five detent. The FO recovered to a wings level attitude and I informed Tower we needed a heading and altitude as we had to break off the approach. Tower told us to climb to 3000 feet and contact Approach Control.

Once the aircraft was climbing, we decided to raise the gear but keep the flaps down. I asked the FO to take over the radios and continue flying while I worked the QRH. We briefly discussed what we thought the problem was, and what could have caused the roll. We briefly considered wake turbulence, but decided it was more likely a flap malfunction or failure as we were not close to the preceding aircraft on final. It took me a few minutes to decide which checklist to run from the QRH. (Most of the excellent information that was in the old QRH is difficult to find as it is not tabbed by system.). I knew that the older model 737s have an un-commanded roll QRC checklist, but the -700 QRH does not address this. I did find a reference to un-commanded roll at the beginning of the Trailing Edge Flap Asymmetry Checklist. It was only one bullet point, but I decided this checklist was the best one to use for an un-commanded roll after flaps are moved. We ran all of the items for the checklist through the "Before Landing" portion. I also notified the Flight Attendants and Passengers, sent an ACARS message to Dispatch, [notified] ATC. The FO gave me control of the aircraft on a ten mile left downwind. He then reviewed the QRH to make sure everything was accomplished correctly. We finished configuring the aircraft and left the flaps at five for the landing.

I have never landed less than 30 flaps, except for in the simulator, so I was not sure what to expect. I used the HUD on final, and had to keep the thrust levers near idle to keep from getting fast on glidepath. The flare and touchdown didn't seem very different from a flaps 30 landing. We taxied clear and told Tower we did not need any further assistance.

We taxied to the gate and finished the shutdown and parking procedures like any other flight, except we opted to keep the flaps at five in case they were damaged. I did call Dispatch and Maintenance Control and entered the flap discrepancy in the logbook. One thing I did not do was pull the cockpit voice recorder circuit breaker. (I did not look at the event reporting chart until after I was at the hotel and did not realize I was supposed to.)

As far as prevention goes, I do not have a suggestion. However; training for the event and QRH guidance could be improved. It was very stressful trying to find un-commanded roll guidance in the -700 QRH. I did not feel it was appropriate to study the AOM while burning what little gas we had left with the flaps stuck down. Perhaps a blurb could be entered in the flight control tab directing the Pilot to various conditions that might cause the roll. Also if it is important for me to pull the circuit breaker on the CRV maybe Company could emphasize this during training, or have Maintenance Control and/or Dispatch help remind the pilots.

Narrative: 2

[Report narrative contained no additional information.]

Synopsis

B737-700 flight crew reported experiencing an uncommanded roll during flap extension on approach. Flight landed with flaps set to position 5.

ACN: 1317203 *(4 of 50)*

Time / Day

Date : 201512
Local Time Of Day : 1801-2400

Place

Locale Reference.Airport : LAX.Airport
State Reference : CA

Environment

Flight Conditions : Marginal
Light : Night

Aircraft

Reference : X
ATC / Advisory.TRACON : SCT
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
Mission : Passenger
Nav In Use : FMS Or FMC
Nav In Use.Localizer/Glideslope/ILS : Runway 24R
Flight Phase : Initial Approach
Route In Use.STAR : RIIVR 2
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 : First Officer
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Multiengine
Qualification.Flight Crew : Instrument
Qualification.Flight Crew : Flight Instructor
ASRS Report Number.Accession Number : 1317203

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Anomaly.Deviation - Track / Heading : All Types
Anomaly.Deviation - Procedural : Clearance
Detector.Person : Flight Crew
Detector.Person : Air Traffic Control
When Detected : In-flight
Result.Flight Crew : Overcame Equipment Problem
Result.Flight Crew : Returned To Clearance

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

I was the pilot monitoring. We flew the RIIVR 2 STAR and were cleared for the ILS to 24R into LAX. We were on a very long final having previously completed all our checklists and briefings and after we reviewed the waypoints in the FMS crosschecked with the charts. All of a sudden the aircraft rolled to the left with the autopilot on in a way that was deliberate. We were in LNAV and VNAV performing "VNAV to the feather." Prior to the roll we were centered on the lateral course and centered on the vertical path. I noticed that the aircraft banked to the left and I saw the "noodle" or white lateral course indicator curve in a circle to the left on the map display. I said something to the Captain and then almost immediately ATC asked us if we were on course. I replied that our RNAV system banked to the left on its own. Then the Captain went into heading mode and armed the localized to capture. That put us back on course and we continued the approach and landed normally. It all happened very quickly but I would guess that we were still "established" on the LOC course the entire time especially considering how far away from the runway we were.

I don't know why this occurred. The roll was not associated with an automation mode change and the FMS points had been verified using the appropriate charts. I was impressed by how fast ATC noticed a slight course change and asked us about it. It may have been wake but it was so smooth and deliberate of a roll that my impression is that this was not wake turbulence.

Synopsis

B757 First Officer reported a track excursion while on autoflight for unknown reasons.

ACN: 1316669 *(5 of 50)*

Time / Day

Date : 201512
Local Time Of Day : 1801-2400

Place

Locale Reference.Airport : ZZZ.Airport
State Reference : US
Altitude.AGL.Single Value : 500

Environment

Flight Conditions : Marginal
Light : Night

Aircraft

Reference : X
ATC / Advisory.Tower : ZZZ
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 XXL
Flight Phase : Initial Approach
Airspace.Class B : ZZZ

Component : 1

Aircraft Component : Autopilot
Aircraft Reference : X
Problem : Malfunctioning

Component : 2

Aircraft Component : Autothrottle/Speed Control
Aircraft Reference : X
Problem : Malfunctioning

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 : Air Transport Pilot (ATP)
ASRS Report Number.Accession Number : 1316669
Human Factors : Workload
Human Factors : Confusion

Human Factors : Distraction
Human Factors : Fatigue
Human Factors : Situational Awareness
Human Factors : Time Pressure

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)
ASRS Report Number.Accession Number : 1316678
Human Factors : Time Pressure
Human Factors : Fatigue
Human Factors : Confusion
Human Factors : Distraction
Human Factors : Workload
Human Factors : Situational Awareness

Events

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

Assessments

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

Narrative: 1

We were established on the localizer to the ILS approach. As we were approaching the FAF with the glide slope indication of a half dot above the aircraft, I as the Pilot Flying, called for gear down and flaps to 15. At the point that I thought the Pilot Monitoring lowered the gear, the autopilot and auto throttles suddenly disconnected. At that point, I tried to figure out why and didn't noticed that I went through the glide slope to being above the glide slope. I then applied correction to recapture the glide slope. When I adjusted pitch and power to capture glide slope, I then noticed that the flight director was not showing in the PFD. Having directional information still showing in the HUD and having clear sight of the runway, runway lights and approach light, I elected to continue with hand flying using the HUD and PAPI lights. I then began to notice that I was getting below the glide slope and began to correct too much and went above it again. By 1000 feet, I elected to continue because I still had the runway environment in sight and was correcting back to the glide slope. By 500 feet, I was still correcting to the glide slope that was below the aircraft, and because airspeed was under control and still in visual conditions, continued to correct pitch to catch glide slope and then got an aural "SINK RATE" announcement. Made necessary pitch adjustment, landed under better control in touchdown zone. I know, in hindsight, that I should have gone around on a couple of locations on the approach because I was not stable. I fully admit that my false sense of desire to salvage the unstable approach caused me to make the poor decision to not go around throughout the approach.

Narrative: 2

I was the Pilot-Monitoring in a B737. We were given a RNAV Arrival, and then we were vectored to intercept the LOC for the approach. Our set up for the approach was good and we were "in the green".

The Captain was the Pilot Flying at the time. Approaching the FAF we had the autopilot and the auto throttles on. Airspeed was approximately 180 KIAS with the flaps at 5. The LOC was captured and the Glideslope was alive. At 1/2 dot below the glideslope the CA called for "Gear Down" and just as I reached up to extend the gear, the autopilot and auto throttles disconnected, and the PFD flight director command bars went out of view. I extended the gear and we set the flaps to 15. I experienced the "swimming in glue" feeling of trying to understand what had happened to our well set up approach.

The CA continued flying raw data, hand flying the aircraft and throttles with no flight directors. I began calling out deviations, LOC tracking and airspeed were good, but glideslope tracking was problematic. I called "Glideslope" when initially we were slightly low (approx. 1/2 dot) and then called "Glideslope" again as we became one and then 2 dots high.

Our before landing checklist was complete and we were fully configured before 1000 feet AGL. We still did not have flight director guidance on the PFD's and the captain was hand flying the airplane and the throttles. The CA called for me to reset the flight director switches, but we still couldn't make the flight directors work for us. At this point we had the runway in sight and we were still too high. The captain called correcting but in hindsight I should have called for a go around. We were too high and we were descending too rapidly, it was not a stabilized approach.

Synopsis

The B737 crew experienced an autopilot and autothrottle disconnect at glideslope intercept, which led to an unstable approach. The Captain elected to land.

ACN: 1313853 *(6 of 50)*

Time / Day

Date : 201511
Local Time Of Day : 1201-1800

Place

Locale Reference.Airport : ZZZ.Airport
State Reference : US
Altitude.MSL.Single Value : 28000

Environment

Flight Conditions : VMC
Light : Daylight

Aircraft : 1

Reference : X
ATC / Advisory.Center : ZZZ
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 : ZZZ

Aircraft : 2

Reference : Y
ATC / Advisory.Center : ZZZ
Aircraft Operator : Air Carrier
Make Model Name : Commercial Fixed Wing
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Flight Phase : Cruise
Airspace.Class A : ZZZ

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 Not Flying
Qualification.Flight Crew : Air Transport Pilot (ATP)
Experience.Flight Crew.Total : 27000
Experience.Flight Crew.Last 90 Days : 160
Experience.Flight Crew.Type : 323
ASRS Report Number.Accession Number : 1313853

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 Flying
Qualification.Flight Crew : Air Transport Pilot (ATP)
Experience.Flight Crew.Total : 13750
Experience.Flight Crew.Last 90 Days : 214
Experience.Flight Crew.Type : 1254
ASRS Report Number.Accession Number : 1313850

Events

Anomaly.Inflight Event / Encounter : Wake Vortex Encounter
Anomaly.Inflight Event / Encounter : Weather / Turbulence
Detector.Person : Flight Crew
When Detected : In-flight
Result.General : Physical Injury / Incapacitation
Result.Flight Crew : Diverted
Result.Flight Crew : Landed As Precaution

Assessments

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

Narrative: 1

We were level at FL280 with a smooth ride. The seat belt sign was off with no complaints from any other traffic. Quite suddenly, we experienced a very slight roll momentarily, followed by a couple of sudden moderate jolts. I reached up as quickly as I could to turn the seat belt sign on. We were then immediately back to smooth air again. We told ATC of our encounter and if there were any complaints out there. He responded that there were no complaints all afternoon. We did notice that there was TCAS traffic about 17 miles ahead and 2,000 ft. above us in a crossing pattern. I can only surmise that we possibly encountered wake turbulence from that aircraft in front of us, as I have no other plausible explanation. I called the cabin to check on everybody and found that two flight attendants had been injured. Our Chief Purser headed to the back of the cabin to find out what happened. In a little while he called back to tell us that one flight attendant had bruised his arm or elbow during the event, and another flight attendant had a more substantive injury. During the turbulence encounter, one of the large serving carts fell over onto her foot creating an extremely painful injury.

Chief Purser then followed protocol and solicited onboard medical personnel. He wound up with a paramedic, a nurse, and of all things, a podiatrist. They began attending to the foot injury, while the Purser initiated a call to Medlink from the back cabin. As they were working the problem in the back, I was giving Dispatch a heads up on what was taking place. I advised that we were still waiting to find out about the seriousness of the problem, and to be prepared for a possible diversion.

We finally heard back from [Chief Purser] and was told that [the foot] injury could be some sort of fracture but really unsure of that. We were also told that she would definitely be out of commission for the rest of the flight, with having to keep her foot elevated with

ice application and ibuprofen for pain and swelling. The docs all had decided that it would probably be safe for continuing on to [destination].

I was concerned that such a long flight at high altitude could cause swelling issues and pain beyond necessary. [Chief Purser] questioned her a bit more about her uneasiness to continue, and found that she had just successfully battled cancer with a routine of chemotherapy. When the onboard docs heard that, they immediately changed their minds about continuing on. They didn't want to take any chances with possible blood clotting or other complications. That then made the decision to divert quite easy and prudent. After a quick call with Dispatch, we decided to divert to [a nearby airport].

Clearance was given right away to proceed direct to [the divert airport]. We proceeded with the diversion, and began following our own protocol with the FOM QRG Diversion Guide. We also made an announcement to our passengers about what was taking place and why. At this point, we were about 30 minutes or so from [landing], and began dumping fuel as we needed to lose 100,000lbs of weight to get down to max landing weight.

There was medical personnel standing by upon landing. We blocked at gate and medical personnel came aboard right away and headed back to attend to our injured flight attendants. Both flight attendants were taken off the aircraft for medical evaluation.

Many thanks to all involved for a successful outcome to this event.

Narrative: 2

[Report narrative contained no additional information.]

Synopsis

B777 flight crew reported two flight attendants were injured when they encountered probable wake turbulence at FL280 from a crossing aircraft at FL300.

ACN: 1312744 *(7 of 50)*

Time / Day

Date : 201511
Local Time Of Day : 0001-0600

Place

Locale Reference.Airport : ZGGG.Airport
State Reference : FO

Environment

Flight Conditions : VMC
Light : Night

Aircraft

Reference : X
ATC / Advisory.Center : ZGZU
Aircraft Operator : Air Carrier
Make Model Name : Light Transport
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Cargo / Freight
Flight Phase : Climb
Route In Use.SID : VIBOS1A

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 : 1312744
Human Factors : Fatigue
Human Factors : Situational Awareness

Events

Anomaly.Deviation - Speed : All Types
Anomaly.Deviation - Track / Heading : All Types
Anomaly.Deviation - Procedural : Published Material / Policy
Anomaly.Deviation - Procedural : Clearance
Detector.Person : Air Traffic Control
When Detected : In-flight
Result.Flight Crew : Returned To Clearance
Result.Flight Crew : Became Reoriented
Result.Air Traffic Control : Issued New Clearance

Assessments

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

Narrative: 1

This is two events that are rolled into one. It was the 9th day of an around the world trip. My pairing had just been revised and I was flying the first leg with a new first officer. Everything was going smoothly until all of the sudden we were behind when closing up the jet and getting ready for pushback. Prior to receiving the clearance I had entered the Vibos1g departure off of runway 01 at ZGGG and briefed it and made a mental note to verify that it was correct when we received the departure clearance. When we got the clearance we were given the Vibos1a and I guess I got confused and assumed that that was the one I had entered and briefed. After takeoff, the departure controller started asking us what departure procedure we were on and there were a couple of transmission before we figured out what he was asking. He said we were west of course, which didn't make any sense to us. By the time we figure out what he was saying to us it was too late and he started vectoring us.

We switched the FMS to the Vibos1a departure right as he started vectoring us. It was executed but never cleaned up so a disconnect was created after the first point on the Vibos1g - gg418. After it was executed, the speed restriction was deleted for the turn so the airplane started to accelerate. We cleaned it up as we passed gg418 and commenced the turn to the assigned heading of 270. As we passed gg418 and hit the disconnect, the aircraft reverted to v/s and was in a high enough nose attitude that as we raised the flaps we entered stick shaker. I disconnected the autopilot and recovered the airplane. We continued to climb the entire time but it took a few seconds before we got the flight directors off/on to get a pitch bar back. We went back on the autopilot and the rest of the flight was uneventful.

It was entirely my fault for entering and then not verifying the correct departure procedure. That led directly to a chain of events that caused the stick shaker activation. I made another mistake of going heads down to look at what was entered in the FMS and left the autopilot unattended at exactly the wrong time and missed the events unfold as we raised the flaps. I looked up just in time to see our airspeed deteriorate into the foot. Cumulative fatigue was involved as I do not sleep well on east bound around the world trips. I did not realize how tired I was until we got to the hotel and slept solidly for 4 hours but then tossed and turned for several more. I didn't think I was going to sleep at all when we first got there.

More attention to detail prior to closing up and taxiing. The sudden rush we experienced just prior to departure could easily have been prevented by just saying "slow down." Maybe then we would have caught the incorrect departure procedure. I will also not get complacent and go heads down when I'm the pilot flying - "like we are told repeatedly in training!" On the fatigue issue, I have been trying to just sleep whenever my body says too, but I'm still not doing well on east bound long haul trips. West bound I seem to do much better.

Synopsis

Air Cargo Captain reported speed and track deviations related to fatigue issues.

ACN: 1311216 *(8 of 50)*

Time / Day

Date : 201511
Local Time Of Day : 1201-1800

Place

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

Environment

Flight Conditions : VMC
Light : Daylight

Aircraft : 1

Reference : X
ATC / Advisory.Center : ZOA
Aircraft Operator : Corporate
Make Model Name : Gulfstream V / G500 / G550
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 91
Flight Plan : IFR
Mission : Passenger
Flight Phase : Cruise
Route In Use : Direct
Airspace.Class A : ZOA

Aircraft : 2

Reference : Y
ATC / Advisory.Center : ZOA
Make Model Name : Any Unknown or Unlisted Aircraft Manufacturer
Flight Plan : IFR
Flight Phase : Cruise
Airspace.Class A : ZOA

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 : Multiengine
Qualification.Flight Crew : Air Transport Pilot (ATP)
Experience.Flight Crew.Total : 14100
Experience.Flight Crew.Last 90 Days : 60
Experience.Flight Crew.Type : 4100
ASRS Report Number.Accession Number : 1311216

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

Were you aware of the other aircraft before the event? NO X

If so, how? Visual 0 ATC Traffic Advisory 0 TCAS 0 Other 0

What was the position of the OTHER AIRCRAFT, when you encountered wake turbulence?

Level
Flight Level Unknown?
Climbing
Descending
Opposite direction
Unknown Feet above?Unk Miles past
Same direction
Unknown Feet above?Unk Miles in front
Converging
Unknown Feet above?Unk Miles away
Crossing
Unknown Feet above ?Unk Miles in front

Briefly characterize the magnitude of the wake turbulence:

Moderate

Did you experience VERTICAL ACCELERATION?

?YES NO X

What was the change in ALTITUDE? No

What was the change in aircraft ATTITUDE? Estimate angle of change in:

?PITCH 0 ROLL 40 degrees right YAW 0

Was there buffeting? NO X

Was there stick shake? NO X

Was the autopilot engaged? YES X

Was the auto throttle engaged? YES X

Synopsis

G-V Captain reported a wake turbulence encounter at FL320 that resulted in an uncommanded 40 degree bank.

ACN: 1306332 *(9 of 50)*

Time / Day

Date : 201510
Local Time Of Day : 0001-0600

Place

Locale Reference.ATC Facility : ZZZ.ARTCC
State Reference : US
Altitude.MSL.Single Value : 27000

Environment

Flight Conditions : VMC
Light : Night

Aircraft

Reference : X
ATC / Advisory.Center : ZZZ
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 : Cargo / Freight
Flight Phase : Climb
Airspace.Class A : ZZZ

Component

Aircraft Component : Autoflight Yaw Damper
Aircraft Reference : X
Problem : Malfunctioning

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
Experience.Flight Crew.Total : 15000
Experience.Flight Crew.Last 90 Days : 90
Experience.Flight Crew.Type : 12000
ASRS Report Number.Accession Number : 1306332

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 : 1307191

Events

Anomaly.Aircraft Equipment Problem : Critical
Detector.Person : Flight Crew
Were Passengers Involved In Event : N
When Detected : In-flight
Result.Flight Crew : Landed As Precaution
Result.Flight Crew : Regained Aircraft Control
Result.Flight Crew : Diverted
Result.Flight Crew : Overcame Equipment Problem

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

Climbing through FL270 the aircraft started violently rolling left and right, uncommanded, and very near uncontrollably. There were no associated messages on the EICAS panel nor were there any lights illuminated on the overhead panel. What needs to be emphasized here is that it was very difficult to maintain control of the aircraft and there were no associated messages notifying us of a problem. We leveled off at FL270, slowed to 250 knots, notified ATC of our deviations and basically just worked to keep the aircraft straight and level. Quickly, the FO and I determined that the first thing we should do was to isolate the yaw dampers. After turning the right one off the problem persisted so we switched it back on and tried the left one. Once it was switched off the problem stopped. At that point, we notified ATC that we would be remaining at FL270 and would be returning to normal speed. I called maintenance control and Dispatch to bring them up to speed on our issue. Maintenance just told us to follow our QRH procedure of which there was none due to not having any associated EICAS message, and Dispatch asked us if we felt comfortable continuing on to [a nearby alternate], [to] which I replied yes because we were already halfway there and had 95 knots of wind on the tail. The rest of the flight was uneventful. Once on the ground, the mechanic meticulously followed his maintenance procedures inspecting the aircraft for stress and damage and informed us that maintenance engineering had pulled the data which apparently did not show a problem with the yaw damper nor were any exceedences recorded. He ended up deferring the left yaw damper and we pressed on to [destination].

Narrative: 2

[Report narrative contained no additional information].

Synopsis

B757-200 flight crew reported diverting to a nearby alternate when they experienced violent nearly uncontrollable rolls in climb at FL270 from a malfunctioning yaw damper.

ACN: 1305550 *(10 of 50)*

Time / Day

Date : 201510
Local Time Of Day : 1801-2400

Place

Locale Reference.Airport : ZZZ.Airport
State Reference : US
Altitude.MSL.Single Value : 26000

Environment

Flight Conditions : VMC
Light : Dusk

Aircraft

Reference : X
ATC / Advisory.Center : ZZZ
Aircraft Operator : Air Carrier
Make Model Name : Regional Jet 700 ER/LR (CRJ700)
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Flight Phase : Cruise
Airspace.Class A : ZZZ

Component

Aircraft Component : Autoflight Yaw Damper
Aircraft Reference : X
Problem : Malfunctioning

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)
ASRS Report Number.Accession Number : 1305550
Human Factors : Training / Qualification
Human Factors : Troubleshooting
Human Factors : Workload
Human Factors : Communication Breakdown
Communication Breakdown.Party1 : Flight Crew
Communication Breakdown.Party2 : Maintenance

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Anomaly.Deviation - Procedural : Published Material / Policy
Anomaly.Deviation - Procedural : Maintenance
Detector.Person : Flight Crew
When Detected : In-flight
Result.General : Maintenance Action
Result.General : Release Refused / Aircraft Not Accepted
Result.Flight Crew : Diverted
Result.Flight Crew : Landed As Precaution
Result.Flight Crew : Took Evasive Action
Result.Flight Crew : FLC complied w / Automation / Advisory

Assessments

Contributing Factors / Situations : Procedure
Contributing Factors / Situations : Company Policy
Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

Normal flight until we were level at FL260. We felt something that we weren't sure what it was. It felt like a yaw to the right, but we were in a turn to the left. We called the flight attendants and asked them if they felt anything weird in the back. They said "no" so we continued. About 10-12 minutes later we are in level cruise 320kts. The aircraft yawed 3/4 of the brick on the slip indicator to the right. This time the flight attendants felt it and we knew it was un-commanded yaw. We ran the immediate action item and complied with the QRH. Land at Nearest Suitable Airport. We [advised ATC] and proceeded to a nearby airport.

After getting safely on the ground talking to the CFR people and deplaning, we called maintenance (Mx) control. They in turn called out a local mechanic. He showed up to the plane with little or no idea of what he was there to do. He asked me if I would mind swinging the rudder full deflection from left to right using only one hydraulic system at a time. So, system 1 only on back and forth the same for 2 and then 3. I'm not sure if it's a coincidence or if he caused this problem by not referencing a task sheet so, I couldn't be sure if this was an approved procedure or not. But it caused several faults that weren't there before. Since there was no task sheet that the mechanic had for this procedure it was unclear if this was normal for this procedure or not, but now we have SSCU 1 and SSCU 2 fault status messages. He returns to the cockpit with "hey guys great news the rudder travel is free and clear. You're good to go." The mechanic performing the test of the rudder with no use of a task sheet made me a little suspicious. Now he has to deal with the SSCU faults. He is on the phone with MX control. They start performing SPOST test. The system will not test. They have tried doing this test 4 times. MX control tells the local mechanic to re-rack the SSCU boxes in the avionics bay. They shut the plane down, re-rack and restart. The system resets and test correctly. They are all patting themselves on their backs. Nothing has been done about the yaw damper at all. To be extra vigilant after one emergency and to prevent another. I ask the local mechanic if he minds showing me the task sheet that he was given by our company. There wasn't one. Nothing. In the name of safety, I asked him to please call maintenance control back and have him fax over the task sheet for testing the yaw damper. After a while he appears with it and proceeds to run the test on the yaw damper. Finally.

After all of this, I am informed that they tested okay and that they were going to defer the

autopilot system. I asked why? This is a 2 axis autopilot system. That's not going to correct the problem. We still have the FCC giving signals to the yaw damper servos. After learning what they are planning to with this aircraft I called [an expert] from [a division of a manufacturing company]. I called him to confer with him about the aircraft systems. Just to confirm my thoughts. He offered to speak with MX control to tell him that the route that he was taking was not the correct. MX control and [the expert] spoke. I then spoke with [the expert] and he said that he helped point the MX controller in the right direction. I thought that was the end of the issue. I then have the captain's phone given to me. It's MX control. He is still going to defer the autopilot against the recommendations of [the expert]. Then he explains how he had a conference call with someone in engineering, operations, and Quality assurance. He feels that his work is the best resolution.

At this time I have a major concern I feel like the maintenance controller has a very large educational gap of our aircraft systems and is trying to use his limited knowledge to try to strong arm us into flying an unsafe plane. I called [the expert] back he and I are on the same page he said that he would not take this plane if he were on it. I am of the same mindset. He then calls [company] and we decided to refuse the plane. [Company] called the Captain and told him he would back our decision not to operate the aircraft. We did accept the 2 hour extension to operate the relief flight, but scheduling gave that flight to the fresher inbound reserve pilots.

My question is why does maintenance think that deferring the autopilot (which does not disable the FCC's or YD's) would make it safe to dispatch an airplane that had already experienced a rudder hard over in flight? Shouldn't they have disabled the YD controller? The threat that mainly exposed itself was the fact that the person in maintenance control needs further education on the CRJ7/9 systems. I cannot say that this will or cannot happen again to an aircraft in our fleet. I do hope that this event has shown the weakness in some of our procedures. Maybe there can be something done about that.

Synopsis

A CRJ-700 crew experienced an uncommanded rudder input at cruise and diverted as per the QRH. A Contract Mechanic and Company Maintenance Control diagnosed the system and concluded an autopilot fault. However, this autopilot has no rudder input.

ACN: 1304387 *(11 of 50)*

Time / Day

Date : 201510
Local Time Of Day : 1201-1800

Place

Locale Reference.ATC Facility : ZDC.ARTCC
State Reference : VA
Altitude.MSL.Single Value : 40500

Environment

Light : Daylight

Aircraft

Reference : X
ATC / Advisory.Center : ZDC
Aircraft Operator : Air Taxi
Make Model Name : BAe 125 Series 800
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 135
Flight Plan : IFR
Mission : Passenger
Flight Phase : Cruise
Airspace.Class A : ZDC

Component

Aircraft Component : Aeroplane Flight Control
Aircraft Reference : X
Problem : Malfunctioning

Person

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Taxi
Function.Flight Crew : First Officer
Function.Flight Crew : Pilot Flying
Qualification.Flight Crew : Air Transport Pilot (ATP)
ASRS Report Number.Accession Number : 1304387

Events

Anomaly.Aircraft Equipment Problem : Critical
Anomaly.Deviation - Altitude : Excursion From Assigned Altitude
Anomaly.Deviation - Procedural : Clearance
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Overcame Equipment Problem
Result.Air Traffic Control : Issued New Clearance

Assessments

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

Narrative: 1

At FL400, two hours after takeoff, the First Officer's control stick began several forward and aft movements as it attempted to trim to maintain altitude. Suddenly, without the autopilot disconnecting, the nose pitched up and [the aircraft] began an immediate 1500 foot per minute climb. The First Officer disconnected the autopilot but the aircraft reached between FL404 and FL405 before the climb was stopped. We immediately notified ARTCC of the altitude diversion and requested a lower altitude to FL280 (out of the RVSM airspace). The autopilot was not reconnected.

We noticed the pitch trim to be extremely difficult to operate with "catches" in the control. Extreme stiffness and then a "catch" then stiff movement again. The aileron trim was not moveable, frozen in position. On landing we noticed the aileron trim seemed free, and the pitch trim was easily operated.

Speculation may lead to an iced control system. Weather in departure airport was light rain, overcast at 2100 feet, winds 180/15 with 10 miles visibility and 30.17 inches of mercury. We did encounter rain on the climbout, but had been clear at FL400 for over an hour. The temperature at FL400 was -40C.

Complete a maintenance inspection and determine the cause of the flight control/trim malfunction.

Synopsis

BAE125-850XP First Officer reported possible flight control icing, which led to an altitude excursion at FL400.

ACN: 1302352 *(12 of 50)*

Time / Day

Date : 201510
Local Time Of Day : 1801-2400

Place

Locale Reference.Airport : LGA.Airport
State Reference : NY

Environment

Flight Conditions : VMC
Light : Night

Aircraft

Reference : X
ATC / Advisory.Tower : LGA
Aircraft Operator : Air Carrier
Make Model Name : Regional Jet 700 ER/LR (CRJ700)
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 : Climb
Route In Use.Other
Airspace.Class B : LGA

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)
ASRS Report Number.Accession Number : 1302352
Human Factors : Situational Awareness
Human Factors : Distraction

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 Flying
Qualification.Flight Crew : Air Transport Pilot (ATP)
ASRS Report Number.Accession Number : 1302350
Human Factors : Situational Awareness

Human Factors : Distraction
Human Factors : Training / Qualification

Events

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

Assessments

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

Narrative: 1

We experienced a lateral deviation while departing LGA Runway 13 on the Whitestone Climb. We had just started a four day trip and since I had flown the first leg into LGA, this was the FO's leg as pilot flying. The FO was not familiar with LGA operations so there was a lot to discuss during our quick turn at LGA. Although our time was compressed, we discussed everything as thoroughly as possible at the gate.

We pushed back and I taxied slowly so we would have enough time to prepare for everything else that needed to be addressed. Since we hadn't reviewed the complex single engine-out procedure at the gate, it took quite a while to find and brief the procedure on the new EFB but all duties were completed before we reached the runway.

On takeoff the FO over-rotated which was alarming and caused a steep nose up attitude and possible tail strike situation. I called for a reduction in pitch and monitored the pitch angle. While my attention was being diverted the FO called for "NAV mode" and I mistakenly selected "heading" on the FMS control panel. While the FO was attempting to correct the pitch he called for "autopilot on". The autopilot was selected on but the pitch was still so high the trim runaway clacker sounded. I had never heard this warning before with the auto pilot on and this caused further concern.

During this time the aircraft remained on the 180 degree heading while climbing 2,500 feet per minute. This was happening while we were trying to get the pitch, v/s, flaps, and now increasing air speed under control. We should have been turning to a 40 degree heading but were still flying 180 degrees. The tower informed us of our mistake and then gave us a north bound vector.

There was no known conflict and the rest of the flight was uneventful.

Threats were:
- The unique operating environment that LGA presents.
- The fast pace of operations at LGA.
- Multiple complex procedures at LGA.
- The lack of the FO's experience and familiarity.

- My lack of recent experience flying with a new hire pilot.

Errors include:
- FMS entry mistake and lack of recognition by myself.
- Over rotation on takeoff and lack of experience by the FO.

Undesired state:
The aircraft remaining on a 180 degree heading instead of turning to 40 degrees.

LGA requires that both pilots bring their "A" game and operate at 100% all of the time. I will have to up my game when operating into LGA. I need to always select the correct modes on the FMS and I must be especially vigilant when flying with an inexperienced FO.

The company could possibly prevent this from happening by providing more training or exposure to new hires.

Narrative: 2

[Report narrative contained no additional information].

Synopsis

CRJ-700 flight crew reported they deviated from cleared departure track out of LGA when they were distracted at a critical time.

ACN: 1300945 *(13 of 50)*

Time / Day

Date : 201510
Local Time Of Day : 1801-2400

Place

Locale Reference.Airport : ZZZ.Airport
State Reference : US
Relative Position.Angle.Radial : 080
Relative Position.Distance.Nautical Miles : 1
Altitude.MSL.Single Value : 1600

Environment

Flight Conditions : VMC
Weather Elements / Visibility.Visibility : 5
Light : Night
Ceiling.Single Value : 5000

Aircraft

Reference : X
ATC / Advisory.Tower : ZZZ
Aircraft Operator : Air Carrier
Make Model Name : B767-300 and 300 ER
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Cargo / Freight
Flight Phase : Takeoff
Airspace.Class C : ZZZ

Component

Aircraft Component : Turbine Engine
Aircraft Reference : X
Problem : Failed

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 Not Flying
Experience.Flight Crew.Total : 10500
Experience.Flight Crew.Last 90 Days : 130
Experience.Flight Crew.Type : 95
ASRS Report Number.Accession Number : 1300945

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
Experience.Flight Crew.Total : 8000
Experience.Flight Crew.Last 90 Days : 100
Experience.Flight Crew.Type : 4000
ASRS Report Number.Accession Number : 1300947
Human Factors : Situational Awareness

Events

Anomaly.Aircraft Equipment Problem : Critical
Detector.Person : Flight Crew
Were Passengers Involved In Event : N
When Detected : In-flight
Result.Flight Crew : Landed in Emergency Condition
Result.Flight Crew : Returned To Departure Airport
Result.Flight Crew : Inflight Shutdown

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

The takeoff was done by the Captain. Due to the heavy weight of 365,000 lbs and obstacle departure procedure we elected to use a maximum thrust takeoff setting. Takeoff roll and rotation was normal. At 400 feet we selected LNAV and commenced the right turn for the departure. At approximately 600-700 feet AGL, in the right turn, there was a slight jerk to the left and the aircraft stopped turning. We both verified the left engine had quit. The engine failure was sudden and without warning. There were no abnormal indications prior to the engine failure. After verifying what happened we were over our turn point for the special engine out procedure. Heading select was called for and we continued the right turn. At this point we contacted ATC and advised them of our intention to fly the 206 heading. We continued the climb to level off height and began to speed up and clean up the aircraft. At this time we also confirmed that the left engine had flamed out. We coordinated with ATC for a higher altitude and began to run the "Engine failure/Shutown" checklist.

We both agreed that attempting a restart would be time consuming and distracting, and going to [destination] was obviously not an option anymore. We made the decision to land single engine back in ZZZ. After finishing the "Engine failure/Shutdown" checklist we consulted the Non-Normal Configuration Landing Distance Table. We were going to land at approximately 360,000 lbs, about 32,000 lbs over weight. We had virtually no center tank fuel to dump and we were still feeding the good engine with what was left in the center tank which was about 3,000 lbs. We asked for and were given the longest runway for landing which gave us about 2,000 feet more runway for the overweight landing. The approach and landing were uneventful. Manual brake usage was used on rollout and were what I would describe as minimal. Deceleration was normal with maximum reverse thrust used on the right engine. After turning left we informed the tower we would let the fire crew examine the left engine. At this time we were informed by fire crew that there was fluid leaking out of the left engine. Also at this time fire crew notified us of smoking left brakes. Not wanting a pool of fuel by the hot brakes we cleared the fire crew away and

continued the taxi, very slowly, East towards the ramp to cool the brakes. The hottest brake temperature we saw on the left was one 9 and three 8's. The right side was mostly 5 and 6. While taxing we were informed that the leak was still there. With brakes as hot as they were, the possibility of fuel leaking and the potential for thermal plug discharge, we elected to stop the aircraft and chock the aircraft. While waiting for ground support the brakes cooled to reasonable levels. That's when the thermal plugs started to blow. The brake temperatures at this time were one 7 and three 6's. We lost 3 tires on the left side while waiting for ground support.

Narrative: 2

[Report Narrative Contained No Additional Information.]

Synopsis

B767-300 flight crew experiences a sudden engine failure at 700 feet AGL after takeoff. The engine is shut down and the flight returns to the departure airport for an overweight landing. ARFF reports fluid leaking from the shut down engine and three of the four tires on that truck deflate due to temperature.

ACN: 1299693 *(14 of 50)*

Time / Day

Date : 201510
Local Time Of Day : 1201-1800

Place

Locale Reference.Airport : ZZZ.Airport
State Reference : US
Altitude.AGL.Single Value : 0

Environment

Flight Conditions : VMC
Light : Daylight

Aircraft

Reference : X
ATC / Advisory.Tower : ZZZ
Aircraft Operator : Air Carrier
Make Model Name : Regional Jet 700 ER/LR (CRJ700)
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Training
Flight Phase : Landing
Maintenance Status.Maintenance Deferred : N
Maintenance Status.Released For Service : Y

Component : 1

Aircraft Component : Throttle/Power Level
Manufacturer :
Aircraft Reference : X

Component : 2

Aircraft Component : Thrust Reverser Control
Manufacturer :
Aircraft Reference : X

Component : 3

Aircraft Component : Powerplant Fuel Control
Manufacturer : GE CF-34
Aircraft Reference : X

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 : Air Transport Pilot (ATP)
ASRS Report Number.Accession Number : 1299693
Human Factors : Confusion

Person : 2

Reference : 2
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : Check Pilot
Function.Flight Crew : Captain
Qualification.Flight Crew : Air Transport Pilot (ATP)
ASRS Report Number.Accession Number : 1299694
Human Factors : Confusion
Human Factors : Situational Awareness
Analyst Callback : Completed

Events

Anomaly.Aircraft Equipment Problem : Critical
Anomaly.Deviation - Procedural : Published Material / Policy
Detector.Person : Flight Crew
Were Passengers Involved In Event : N
When Detected.Other
Result.Flight Crew : Overcame Equipment Problem

Assessments

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

Narrative: 1

We were on approach to landing Runway 27. I was pilot flying. The approach was normal, in the flare I brought the thrust levers to idle at the appropriate time. The left thrust lever stopped at idle and the right continued slightly. When I went to deploy reverse thrust, the left reverser deployed and the right thrust lever went back a little bit more. The Captain took control of the airplane when only the left reverser deployed. After we were pulled off the runway, I saw the right engine was in shutdown and the engine was spooling down. We stopped on the parallel taxiway and restarted the engine before taxiing back to the gate.

Narrative: 2

First Officer (FO) was the Pilot Flying and I was the PM giving instruction. Approaching Runway 27 everything looked really good, FO was doing a good job keeping airspeed and keeping the aircraft on glideslope. Touchdown was firm and on centerline and well within our standards. I was guarding the flight controls with my feet on the rudder pedals and hand on the yoke. My right hand was down low on the lower pedestal just in case I needed to take over and add power. After main wheels touchdown FO brought the nose wheel down nice and gentle. On the roll out, FO deployed thrust reversers with only the left deploying. I looked down at the switches and both reversers where armed. Rolling down the FO told me there was a split on the power levers and it was then that I realized the right engine was shut down. I took over the controls and taxied off the runway. I never saw the FO pull the [shut-off] trigger and I always saw his hand on top of the power levers. I really do not know how the right engine shut down. I really cannot say what the

cause of this was, since Standard Operations Procedures (SOP) was followed. FO or I never pulled the trigger to shut down the engine. FO and I retraced our steps and could not come up with an explanation on what could have caused the right engine to shut down while on the rollout.

Callback: 2

Reporter stated the First Officer was in training and transitioning from Turboprops to their CRJ-700 aircraft. The aircraft and FO were performing just fine when the right engine suddenly shutdown. He has thought over and over again about the sequence of steps they had accomplished prior to the engine event and cannot find any reason for the shutdown except for an inadvertent contact with the shut-off trigger handle (switch) on the lower aft side of the engine throttle lever. All the more frustrating because the First Officer had performed very well and neither he, nor the FO could remember ever touching the shut-off trigger. Since the right engine restarted without any problems and no EICAS fault messages appeared, the possible movement of the right engine shut-off trigger seems to be the only plausible explanation.

Synopsis

A First Officer and Check Pilot reported a sudden, unexplained shutdown of the right engine on a CRJ-700 aircraft during the landing rollout on a training flight. The Check Pilot noted he never saw the FO pull the right engine shut-off trigger and only observed the First Officer's hand on top of the power levers.

ACN: 1297154 *(15 of 50)*

Time / Day

Date : 201509
Local Time Of Day : 1801-2400

Place

Locale Reference.ATC Facility : ZZZZ.ARTCC
State Reference : FO
Altitude.MSL.Single Value : 21000

Environment

Flight Conditions : VMC
Light : Night

Aircraft

Reference : X
ATC / Advisory.Center : ZZZZ
Aircraft Operator : Air Carrier
Make Model Name : B777 Undifferentiated or Other Model
Crew Size.Number Of Crew : 3
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Flight Phase : Climb

Component

Aircraft Component : Turbine Assembly
Aircraft Reference : X
Problem : Failed

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 Not Flying
Qualification.Flight Crew : Air Transport Pilot (ATP)
Experience.Flight Crew.Total : 10000
Experience.Flight Crew.Last 90 Days : 76
Experience.Flight Crew.Type : 76
ASRS Report Number.Accession Number : 1297154

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)
Experience.Flight Crew.Total : 19638
Experience.Flight Crew.Last 90 Days : 235
Experience.Flight Crew.Type : 1719
ASRS Report Number.Accession Number : 1297155

Person : 3

Reference : 3
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : Pilot Not Flying
Function.Flight Crew : Relief Pilot
Qualification.Flight Crew : Air Transport Pilot (ATP)
Experience.Flight Crew.Total : 8200
Experience.Flight Crew.Last 90 Days : 240
Experience.Flight Crew.Type : 500
ASRS Report Number.Accession Number : 1297172

Events

Anomaly.Aircraft Equipment Problem : Critical
Detector.Automation : Aircraft Other Automation
Detector.Person : Flight Crew
Were Passengers Involved In Event : Y
When Detected : In-flight
Result.General : Maintenance Action
Result.Flight Crew : Inflight Shutdown
Result.Flight Crew : Returned To Departure Airport
Result.Flight Crew : Landed in Emergency Condition
Result.Air Traffic Control : Provided Assistance

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

Uneventful evening leading up to pushback for departure. We noted that the left engine started a little slower than the right but auto start was never interrupted and it came up on speed a few seconds after the right engine.

The capt was flying as it was his leg, I was in the right seat and FO (First Officer). No anomalies were noted during taxi out or upon advancing the throttles to takeoff power. We were climbing via the SID talking to Dep and had just passed FL200. We had used max cont climb earlier on the departure to ensure climb restrictions but had selected normal at least 5 mins before the engine event.

At approximately FL210, we heard and felt a loud bang and the aircraft yawed left. It was obvious that we had lost the left engine. Capt continued to maintain aircraft control and fly the aircraft. The Capt directed myself and the IRO (International Relief Officer) to run the checklist. We started with the Eng Fail L checklist which took us immediately to the Eng Severe Damage/Sep checklist as we noted high EGT (red Line) very low oil press, zero oil

qty, N2 zero, and engine vibration of 5 on the engine instruments. We were experiencing noticeable vibrations in the cockpit. Capt slowed to 250 kts and began a descent to help control the vibration. We requested vectors to the departure airport as our nearest suitable airport.

Once we had the engine shutdown, Capt directed me to fly as he and the IRO made company contact, talked to the FAs (Flight Attendants) and ran the fuel dumping checklist. I handled the radios and flying duties as they coordinated with ground and FAs.

ATC directed us to descend us to 5000 feet. I told them we needed to level at FL80 for fuel dumping and would like vectors or holding for the next 20 mins or so. They vectored us for a while then cleared us present position hold for fuel dumping. There was a little communication barrier as we told me we wanted the ILS and would let them know when we were ready for the approach. They kept trying to turn us to intercept final. We dumped all the fuel from the center tanks which left us ~45,000 lbs over weight for a landing weight of ~505,000 lbs. We decided that we would accept an overweight landing. I flew as Capt briefed the single engine flaps 20 approach and missed approach. Capt took the airplane back and we then took vectors to final. Capt flew a flawless single engine approach and landing. We elected to clear the runway, leave the flaps extended, shut down and get towed to parking as we did not know the extent of the damage to the engine and related structures on the left side of the airplane. Capt had me go the gear page to check the brakes and we noted them heating to 5 on two of the left outboard wheels. We had not been directed to the checklist but we referred to it anyway. The Hot Brakes checklist annunciated as we were looking at it. Capt related the hot brakes to the ground crew. They hooked up the tug and we were towed to the hard stand. All brakes had cooled to the white zone by the time we arrived.

We debriefed with entire crew, FAs included, on the airplane after the passengers had deplaned. Extensive damage was noted to the engine on visual inspection to include shrapnel in the nacelle and burn marks on the tail cone. Visible fluid leakage could be seen when the engine cowlings were opened. We proceeded to station operations where calls were made to the company.

Narrative: 2

During climb through FL210 the left engine failed suddenly with a loud bang, EGT (Exhaust Gas Temperature) above redline, oil quantity zero, oil pressure near zero, zero N2, and moderate vibration. As pilot flying, I leveled off to maintain airspeed and called for the checklist. While the F/O (First Officer) and Relief Pilot ran the ENG FAIL left and Engine Severe damage checklists, I continued flying, and requested vectors from approach back to the departure airport. I then gave the aircraft to the F/O and coordinated with Dispatch and operations. Dispatch agreed that ZZZZ was the nearest suitable airport. We determined that we would dump fuel and advised approach that we would remain at FL180 despite being cleared to a lower altitude. We were cleared in a holding pattern while we ran the Fuel Jettison checklist. The Relief Pilot made an announcement to passengers and communicated the information to the lead flight attendant.

After dumping approximately 43,000 pounds of fuel, the center tank was empty except for about 3000 pounds, and the center override/jettison pumps on the fuel synoptic indicated low pressure. The ECL (Electronic Checklist) directed us to stop dumping when jettison was complete OR when center tank was empty. We were somewhat surprised by the verbiage (which later could not be found in the checklist in the flight manual or on another B777 aircraft ECL), but decided it was prudent to stop the dump and land overweight, with the potential of unknown damage to the aircraft or systems. We checked the Flight Manual

required non-normal configuration landing distance and landing performance limit weight. We had requested the same from Dispatch but did not receive the information. Approach control was helpful despite minor language difficulties.

As we began the approach we noticed a HYD QTY LOW L EICAS advisory message and we confirmed that left hydraulic quantity was zero. There was no ECL prompt. We performed the ILS with flaps 20 and landed at approximately 505,000 lb, which was 45,000 lb over the aircraft structural landing weight. We had requested airport emergency equipment to meet the aircraft. We used most of the runway. Once clear of the runway, we shut down the remaining engine and requested a precautionary tow to the parking area. Brake temperatures were normal for about 10 minutes, but as the tug was connected to the aircraft, two of the left truck brakes were slightly above 5. We advised the ground crew and accomplished the BRAKE TEMP checklist.

We were towed to a hardstand and passengers were deplaned onto buses. We then debriefed the entire crew. The Door 2L flight attendant reported that at the moment of engine failure, a large flame trailed the left engine and illuminated the aft cabin through the windows. We thoroughly briefed the Duty Manager, Dispatch, and Maintenance Control, and ensured proper maintenance entries were logged.

We began the Fuel Jettison ECL. After dumping 43000 pounds of fuel, when we returned to what we thought was the same checklist, the FUEL JETTISON MAIN ECL appeared. We did not realize that in fact we had an additional system failure in part due to the nearly identical checklist names. We were more concerned with terminating the dump and getting our disabled aircraft on the ground. We completed the FUEL JETTISON MAIN checklist, with the original Fuel Jettison checklist inhibited. A subsequent conference with Maintenance Control revealed a right main jettison pump failure and that maintenance had addressed the issue.

Narrative: 3

On climb out we suffered a left engine failure at approx. 21000 feet/300 KIAS. Initial indications were a loud bang from the left side, medium airframe vibration and spiked EGT (Exhaust Gas Temperature), zero oil quantity, oil pressure of 2 psi, zero N2, ENG FAIL L EICAS message, numerous secondary EICAS messages and caution lights. The engine did not attempt to relight itself.

We informed ATC (departure) and turned back towards the departure airport. Airframe vibrations were quite noticeable until we slowed to 250 KIAS. The PM (Pilot Monitoring) FO (First Officer) and myself as IRO (International Relief Officer) completed the ENG FAIL L and Severe Engine Damage checklists while the PF (Pilot Flying) CAPT continued to fly the aircraft. The CAPT then transferred control of the aircraft/ATC communications to the PM FO. We asked ATC for vectors and to roll the emergency vehicles. We also coordinated with Base OPS to let them know we were returning and to arrange for a tow after landing and PAX accommodations.

With the left engine shutdown, we next ran the FUEL JETTISON checklist and began dumping fuel. We were surprised that the ECL (electronic checklist) stated "When fuel jettison complete OR center tanks empty". Secure jettisoning. This is different from the FM (Flight Manual) verbiage and was also different from a different 777's ECL verbiage that I checked the following night. Was this an ECL anomaly for that particular aircraft? I made an announcement to the PAX informing them of the situation and then talked to the Purser on the interphone giving her info. All of us agreed that we did not need to prepare the cabin for evacuation as this might "spring load" an evacuation mentality that was probably

unneeded given the circumstances.

We set up a present position holding track with ATC while we continued to dump fuel at 8000 feet MSL 20 nm of the airport. We finally got in touch with Dispatch using the SATCOM after numerous attempts. We informed him of the situation and requested Single Engine/Flaps 20/505000 LW landing perf. data which we never received. He agreed with our plan to return. We used the Abnormal Landing Distance charts and determined that we needed 4500 feet for stopping distance. We set autobrakes 3, flaps 20, and commenced the approach (after securing fuel jettison once the center tank was empty as per our aircraft's ECL FUEL JETTISON checklist). We felt that we had been in the air long enough and as it was unknown what other damage the aircraft may have suffered we decided that an overweight landing was in order. Plus the checklist told us to secure jettison with empty center tanks which left us 45000# heavy. The CAPT assumed control of the aircraft for the landing. We had 120,000 pounds of fuel in the wings and estimate that we landed overweight at 505000 pounds. We rolled to the high-speed and shutdown clear of the runway as a precaution. Brake temps peaked at 5 on 2 wheels on the left truck. The rest were around 3- 4. We ran the BRAKE TEMP checklist and informed ground personnel of the hot brakes. No fires occurred. After about 15 minutes, we were hooked to a tug and towed to the ramp. The PAX were deplaned onto buses.

On short final, we noticed the L HYD quantity near zero. Once we shut down, we looked at the Hydraulics page and noted the left HYD reservoir was near empty. Flight time - 1:02/2:05 Block. Post flight inspection of the left engine showed melted shrapnel in the tail cone and large amounts of fluid dripping from the mid-section of the engine and coating the nacelle, pylon and tail cone. There also appeared to be broken and dripping hydraulic or oil lines/fittings. During a full crew debrief, the FA's (Flight Attendants) reported having seen a huge flash down the left side of the aircraft and hearing a very loud boom at the time of the incident. They also reported large airframe vibrations until we slowed down. The PAX remained relatively calm and the FA's did a great job. We went to Operations and telephone debriefed the company. As a side note, we had noted on engine start that the left engine lagged significantly behind the right engine (hanging for about 10s before light off) but stabilized normally. There was also an unrelated (?) 3 week old write-up on the left engine in the Log history. The engine appeared to be operating normally after start and during takeoff and climb out right up until the failure point.

Synopsis

B777 Flight Crew experiences a catastrophic engine failure climbing through FL210. The engine is shut down and after dumping fuel the flight returns to the departure airport for an overweight landing. A fuel jettison pump failure during dumping caused some confusion due to its nearly identical title to the jettison checklist on the electronic checklist. HYD QTY LOW L was also annunciated on the EICAS during approach.

ACN: 1296953 *(16 of 50)*

Time / Day

Date : 201509
Local Time Of Day : 1201-1800

Place

Locale Reference.ATC Facility : ZZZ.ARTCC
State Reference : US
Altitude.MSL.Single Value : 36000

Environment

Light : Daylight

Aircraft

Reference : X
ATC / Advisory.Center : ZZZ
Aircraft Operator : Air Carrier
Make Model Name : A319
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Flight Phase : Climb
Airspace.Class A : ZZZ

Component : 1

Aircraft Component : Turbine Engine
Aircraft Reference : X
Problem : Malfunctioning

Component : 2

Aircraft Component : Turbine Assemb Blade
Aircraft Reference : X
Problem : Failed

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 : 1296953
Human Factors : Confusion
Human Factors : Distraction
Human Factors : Time Pressure

Events

Anomaly.Aircraft Equipment Problem : Critical
Detector.Person : Flight Crew
Were Passengers Involved In Event : Y
When Detected : In-flight
Result.General : Maintenance Action
Result.Flight Crew : Returned To Departure Airport
Result.Aircraft : Aircraft Damaged

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

On takeoff roll, n-1 on engine 2 vibration high, other parameters normal, no ECAM. Climb out n-1 vibration subsided. Climbing from FL360 to FL380 entire aircraft shuttered/vibrated then kabam. Everything nice. Engine 2 n1 vibration back to normal, but engine 2 fuel flow about 1,000 Pound Per Hour (PPH) over engine 1. Also, EGT engine 2 exceeded engine 1 by about 150 degrees. I conferred with dispatch/maintenance on a phone patch and decided to return to [departure airport]. I advised lead FA and then spoke to passengers. Return to [departure airport] uneventful. No ECAM presented itself.

Preliminary inspection by mechanic that met us at gate indicated last turbine section of #2 engine was no longer there.

Synopsis

A319 Captain described an engine vibration that suddenly ceased, but included split engine parameters. Following a successful return to the field, Maintenance identified the loss of turbine blades.

ACN: 1296648 *(17 of 50)*

Time / Day

Date : 201509
Local Time Of Day : 1801-2400

Place

Locale Reference.Airport : DTW.Airport
State Reference : MI
Altitude.MSL.Single Value : 1000

Environment

Flight Conditions : VMC
Light : Night

Aircraft : 1

Reference : X
ATC / Advisory.TRACON : D21
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
Flight Phase : Climb
Airspace.Class B : DTW

Aircraft : 2

ATC / Advisory.TRACON : D21
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 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 Not Flying
Qualification.Flight Crew : Air Transport Pilot (ATP)
ASRS Report Number.Accession Number : 1296648

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 : Regained Aircraft Control

Assessments

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

Narrative: 1

We were cleared for takeoff about 3 miles behind an A330, I felt this was unnecessarily close as we had only two aircraft waiting for takeoff behind us. I was slow to hand the controls to my First Officer (FO) in order to gain separation but after takeoff at about 1,000 feet we encountered wake turbulence resulting in about 38 degrees roll right followed by about 50 degrees roll left with almost full opposite lock on the yoke. Shortly thereafter my FO regained enough airflow to recover the encounter, I notified ATC and the flight proceeded without further incident.

Synopsis

A CRJ-200 Captain reported encountering wake turbulence shortly after takeoff from DTW in trail of an A330 that resulted in up to 50 degrees of uncommanded roll. Reporter stated he felt ATC spacing could have been more generous.

ACN: 1294934 *(18 of 50)*

Time / Day

Date : 201509
Local Time Of Day : 1801-2400

Place

Locale Reference.Airport : ZZZ.Airport
State Reference : US
Altitude.AGL.Single Value : 0

Environment

Flight Conditions : VMC
Light : Dusk

Aircraft : 1

Reference : X
ATC / Advisory.Ramp : ZZZ
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
Mission : Passenger
Nav In Use : FMS Or FMC
Flight Phase : Taxi

Aircraft : 2

Reference : Y
ATC / Advisory.Ramp : ZZZ
Aircraft Operator : Air Carrier
Make Model Name : Large Transport
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Nav In Use : FMS Or FMC
Flight Phase : Taxi

Person : 1

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)
Experience.Flight Crew.Total : 4883
Experience.Flight Crew.Last 90 Days : 189
Experience.Flight Crew.Type : 4883
ASRS Report Number.Accession Number : 1294934
Human Factors : Communication Breakdown
Human Factors : Confusion

Human Factors : Distraction
Human Factors : Human-Machine Interface
Human Factors : Situational Awareness
Communication Breakdown.Party1 : Flight Crew
Communication Breakdown.Party2 : Ground Personnel

Person : 2

Reference : 2
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)
Experience.Flight Crew.Type : 14
ASRS Report Number.Accession Number : 1294949
Human Factors : Confusion
Human Factors : Communication Breakdown
Human Factors : Distraction
Human Factors : Situational Awareness
Human Factors : Human-Machine Interface
Communication Breakdown.Party1 : Flight Crew
Communication Breakdown.Party2 : Ground Personnel

Events

Anomaly.Deviation - Procedural : Published Material / Policy
Anomaly.Ground Event / Encounter : Aircraft
Detector.Person : Ground Personnel
Detector.Person : Flight Crew
When Detected : Taxi
Result.Aircraft : Aircraft Damaged

Assessments

Contributing Factors / Situations : Human Factors
Contributing Factors / Situations : Company Policy
Contributing Factors / Situations : Procedure
Primary Problem : Procedure

Narrative: 1

While parking at gate XX, the automated parking guidance and the marshaller parking guidance (should not have had both, should be one or the other) were not in agreement. Indeed, auto-guidance and marshaller guidance were one-eighty out. Furthermore, marshaller guidance was entirely non-standard signals. Indeed, none of the marshaller's signals were standard. Both First Officer and I noted the guidance (auto versus human) discrepancy, and the lack of signal standardization. Situation did not inspire confidence. Prudence dictated "stop the jet". We stopped the jet, set parking brake, and contacted Ramp. We advised Ramp that marshaller guidance and auto guidance were not in agreement. Ramp directed us to shutdown engines and await tow-in. We did so. Shortly thereafter, another aircraft impacted our right horizontal stabilizer with its left winglet. We briefed Flight Attendants and made calming PAs to passengers. We assisted Maintenance, over interphone, in separating the two aircraft, by restoring hydraulic pressure, applying full nose-up trim, and applying full aft yoke. As a post-script, when checking in on Crew

Communication System (CCS) this/following morning, I received a CCS message to contact Ops. I did so. The person identified himself as a "maintenance liaison" in Ops. He advised me that in the last week, three maintenance tow-ins had reported erroneous auto-guidance at Gate XX. He stated he had reported the erroneous Gate XX auto-guidance up-channel.

Narrative: 2

I was the FO. This trip was in conjunction with my continuing 756 IOE. The trip was completely uneventful until parking at gate XX. The weather was clear VFR upon arrival and our gate was immediately available. The Line Check Airman (LCA) conducted normal taxi procedure to the gate until turning into gate XX. There was a Marshaller at the gate that was giving conflicting information from the JBI-1900 Accu Park system. We were following the guidance of the system, however the Marshaller was giving conflicting direction by moving his right arm up and down as if to be trying to marshal us left. There was confusion and both the LCA and myself agreed we needed to stop the aircraft for clarification before moving further forward. We stopped about 40-50 feet short of the 757 parking spot and I contact Ramp control immediately to explain the situation in detail, and that we were holding position until we could get tugged into parking. Ramp control concurred and directed us to shut down and await a tug. We secured both engines and set parking break. The LCA explained the situation to the passengers and we awaited a tug. Approximately 5-7 minutes passed giving us enough time to actually debrief the entire arrival and landing, when all of a sudden there was a large strike felt to the aircraft. Ground personnel hooked up and told us that the aircraft at the gate behind us was just pushed back into our aircraft and that they were stuck together. We discussed the need to possibly secure the APU but it was determined by ground personnel that the exhaust was not an immediate concern. We were instructed to hold full nose up trim and horizontal stab up to aid in getting the jets separated. We assessed the damage during post flight and saw that the jet struck the right horizontal stab, damaging the tip of our stab and shearing off the other aircraft's winglet, and also continuing to scrape the bottom of the stab for about 20-25 feet. We were also informed that it was believed that the jet didn't have appropriate wing walkers and that the gate XX JBI-1900 had been written up three previous times with no corrective action. While we did stop short of the gate due to uncertainty of the marshaling, in accordance with expected actions based on previous formal guidance on such systems, I don't feel that any of our actions as the cockpit crew resulted in collision. Ramp control cleared the jet to push and was fully aware of our situation.

Synopsis

A B757 stopped short of the gate during taxi in because the autoparking and Marshaller gave conflicting directions. While waiting for a tow in, a another aircraft's ground crew pushed their aircraft to where it's winglet struck the B757's horizontal stabilizer.

ACN: 1294627 *(19 of 50)*

Time / Day

Date : 201509
Local Time Of Day : 1801-2400

Place

Locale Reference.Airport : ORD.Airport
State Reference : IL
Altitude.MSL.Single Value : 2700

Environment

Flight Conditions : VMC
Light : Night

Aircraft

Reference : X
ATC / Advisory.TRACON : C90
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 10L
Flight Phase : Initial Approach
Airspace.Class B : ORD

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 : 1294627

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)
Experience.Flight Crew.Total : 14000
ASRS Report Number.Accession Number : 1294632

Events

Anomaly.Aircraft Equipment Problem : Less Severe

Narrative: 1

Encountered a nose-low usual attitude while approaching ORD at night under VFR conditions. Autopilot engaged, approach mode in use, gear down flaps 15 and speed 170 knots. GS and LOC captured. Altitude between 2,500 feet and 3,000 feet. The glide slope rapidly deflected to full scale and the autopilot and trim followed. I disconnected the autopilot and began recovery as nose-low guidance on the HUD became active. We may have approached 20 degrees nose down pitch. Max speed was 197 knots so we didn't over speed the flaps. After recovery and stabilized I continued the approach. We were stable at 1,000 feet so I did not go around. On landing we noticed a line of heavy aircraft on the south side of 10L. Normally aircraft wait on the north side. I suspect GS interference by the heavies. Fatigue was a factor since we flew the red eye in the morning. Spent daylight hours in the hotel and then on the same day flew a night flight. When using 10L as only runway during late night ops, aircraft should wait on the north side of 10L.

Narrative: 2

We had just intercepted the localizer and glideslope to 10L, with the autopilot on, in VMC conditions, as per ATC's instructions and were on the approach in ORD, outside of BUGSE around CARLE. At first the aircraft was tracking the glideslope and localizer correctly but at approximately 2700 MSL the aircraft suddenly, unexpectedly and fairly aggressively pitched nose down. Both the Captain and myself at first thought this was a momentary pitch deviation and waited a couple of seconds for the autopilot to correct itself and return the aircraft to a normal flight path as it had in the past. But instead the autopilot did not correct itself and increased the downward pitch. As the downward pitch increased the Captain immediately disconnected the auto pilot and corrected the pitch attitude of the aircraft to a stable and normal flight path. We did not get the GPWS warning. At the same time this was happening the localizer was bouncing from one scale limit on the Primary Flight Display to the other. After the Captain corrected to the normal flight path we continued the approach, which was uneventful, to a successful landing. Upon landing the Captain remarked that according to his HUD, an unusual attitude had occurred which prompted me to suggest that we both file a [safety] report. The Captain took corrective action in a timely manner and at no time did either of us think or feel safety of the flight had been compromised.

I suspect ATC/Tower/Ground had permitted an aircraft to taxi in front of the localizer and or glideslope antennas which caused the aggressive pitch deviation and the erroneous localizer information. I suggest that ATC be mindful and relay the information that the integrity of the signals may be compromised even in VMC or protect the antennas when aircraft are using it at night. Normally, when taxing aircraft inadvertently interfere with localizer and glide slope signal the auto pilot just has a momentary pitch deviation but this time it was much more aggressive and longer lasting.

Synopsis

With the autopilot engaged, crew intercepted the localizer and glideslope (GS) to 10L at ORD. At approximately 2,700 MSL the aircraft pitched nose down. The autopilot did not correct the deviation and increased the downward pitch. As the downward pitch increased the Captain disconnected the autopilot and corrected the pitch attitude to a stable flight path and landing. Crew suspects that there was ground aircraft interference with the ILS/GS transmitter signal.

ACN: 1293076 *(20 of 50)*

Time / Day

Date : 201509
Local Time Of Day : 1801-2400

Place

Locale Reference.Airport : ZZZ.Airport
State Reference : US
Altitude.MSL.Single Value : 2500

Environment

Flight Conditions : VMC
Light : Night

Aircraft

Reference : X
ATC / Advisory.TRACON : ZZZ
Aircraft Operator : Air Carrier
Make Model Name : Regional Jet 200 ER/LR (CRJ200)
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Flight Phase : Climb
Route In Use : Vectors
Airspace.Class B : ZZZ

Component

Aircraft Component : Cowling/Nacelle Fasteners, Latches
Aircraft Reference : X
Problem : Failed

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)
ASRS Report Number.Accession Number : 1293076
Analyst Callback : Completed

Person : 2

Reference : 2
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 : 1293081
Human Factors : Workload
Human Factors : Troubleshooting

Events

Anomaly.Aircraft Equipment Problem : Critical
Anomaly.Deviation - Procedural : Maintenance
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Overcame Equipment Problem
Result.Flight Crew : Returned To Departure Airport
Result.Flight Crew : Landed in Emergency Condition
Result.Air Traffic Control : Provided Assistance
Result.Aircraft : Aircraft Damaged

Assessments

Contributing Factors / Situations : Aircraft
Contributing Factors / Situations : Procedure
Primary Problem : Ambiguous

Narrative: 1

Aircraft departed with a clearance of heading 185 to 10,000 feet. The First Officer was the Pilot Flying (PF) and the Captain was the Pilot Monitoring. The takeoff was normal. While established on a heading of 185 at approximately 2,500 feet MSL and accelerating through approximately 220 KIAS, we heard a loud bang accompanied by a large shudder to the aircraft with a yaw to the right. It also felt as if we lost altitude even though we were climbing at approximately 1,500 fpm. The entire incident felt as if we made hard impact with a large object. A single chime, Master Caution of R REVERSER UNLOCKED occurred a few seconds later, accompanied by the R TR Emergency Stow switch light illuminated. The Right Thrust Lever did not auto-retract. All of these items led us to both believe the Right Thrust Reverser had deployed, then immediately stowed. About this time is when Departure Control wanted us to turn toward the north for our departure route, which I declined and stated I had a possible Thrust Reverser deploy which I was working on. A "present heading" clearance was issued, with a level off of 4,000 feet MSL and the intention of returning for landing.

The QRH Immediate Action Items were accomplished as well as the required QRH procedure, and use of the Right Thrust Lever was resumed per QRH guidance. We were vectored around to the east of the airport for the landing. Emergency vehicles were requested due to the uncertainty of further possible issues. The Flight Attendant was properly briefed on exactly what we believed occurred, and was also told brace positions would not be necessary due to an expected normal landing. The passengers were also briefed via PA on what we believed occurred (Thrust Reverser deployment followed by an immediate stow) and we were returning immediately. The passengers were also told to expect to see Emergency Vehicles along the runway due to our situation. Dispatch was also notified via ACARS of the situation and our immediate return to departure airport.

The aircraft had brief, sudden, periodic shudders during the return. The First Officer remained the PF as he handled the situation superbly. He noted the aircraft seemed to shudder more as the Right Thrust Lever was increased, prompting the suggestion to use it as needed (with the thought to retract to Idle if the shudder increased over time). This

made us both believe the Thrust Reverser was still possibly cracked open. The aircraft also seemed to need more Left Rudder as the Right Thrust Lever was increased, which solidified this belief.

The approach and landing were normal, and below 47,000 lbs. I asked the First Officer to go outside a look at the right engine to see if the Thrust Reverser was partially cracked open. He returned and told me the "top portion of the engine aft of the white cowling is gone. Missing." The passengers were still on the aircraft so I first walked up to the gate and asked the customer service rep why the passengers haven't deplaned yet. I was told they were waiting for us to repo the next aircraft. I firmly but professionally told the customer service rep to deplane the passengers immediately, as we had too much to do and couldn't worry about them ourselves.

I walked outside to the aircraft. I noticed the entire upper Cowl Core was missing from the right engine and the lower Cowl Core was severely damaged. I immediately went back into the aircraft, called Ground Control on the radio, and asked for a phone number to call them on as I felt the information I was about to share with them didn't need to be divulged on a radio frequency. I called the Tower and informed them of the missing aircraft part and where it approximately departed the aircraft at. An Ops vehicle arrived at our aircraft within a few minutes and asked about our departure gate information, exact taxi route, departure runway, and takeoff time. They then made the decision to close our departure runway until daylight when a thorough runway FOD inspection could be made.

All personnel directly involved within our Company and Ops acted fully professionally at all times. Knowing the crew was obviously shaken by "what could have been" (i.e., had the Cowl Core impacted the tail upon departure from the aircraft), the chief pilot made the determination to remove us from the remainder of our pairing.

The aircraft had a repeat logbook entry (five within the last three days) regarding a small access panel on the upper Cowl Core Panel which consistently opened in flight, and was personally written up by the operating flight crew twice during this day. This access panel (possibly for compressor washes) was serviced by maintenance personnel immediately prior to this particular flight. The response by maintenance (verbally) was that the latch on this particular panel was recently replaced, and was so stiff they "needed a screwdriver to open it" and they didn't understand why this panel consistently opened in flight. The aircraft was visibly inspected by a member of the flight crew after the maintenance work was completed and no abnormalities were noticed which were visible from the ground.

This aircraft engine also had a prior logbook entry from this incident day made by this flight crew regarding the Right Engine Jetpipe touching the Tailcone from approximately 3:30 to 5:30 positions, approximately 20 percent of the area. The Jetpipe was determined to be not touching the Tailcone by Maintenance personnel prior to the first flight of this aircraft by this flight crew. This was the 3rd flight of the day by this flight crew and 4th of the day by this aircraft.

Callback: 1

The Captain stated that it was learned that subsequent maintenance investigation revealed the thrust reverser had not deployed and that the yawing and airframe shudder that the crew experience was likely due to the portions of the cowling that had separated from its latches but remained attached to the remaining cowling.

Narrative: 2

Upon initial walk around before departing I noticed on the right engine that the spacing between the inner and outer jet pipe was uneven and that there was an access door unlatched and partly open on the upper forward part of the jet pipe. I notified the captain and he wrote up both in the maintenance log. There were several previous write ups for the access door. Maintenance came out secured the door and inspected the jet pipe found it to be within tolerance. A cargo overheat message prior to door close and a significant amount of maintenance corrective action the flight left approximately 3 hours late. Upon postflight walk around I found the access door to be open again. Maintenance was notified, they came back out, secured the door and signed the maintenance log. With maintenance clear we ready to depart. Taxi out was uneventful other than our clearance dropping out due the delay. I was the pilot flying the captain was the pilot monitoring. The takeoff went normal and out instructions were to fly heading 185 on departure. We turned to heading 185 at 400 feet AGL. At approximately 2500 feet MSL we heard and felt a loud thump sounding similar to something impacting the aircraft. Less than a second later we got an R REV UNLOCKED message. There was a small amount of yaw to the right and the right thrust lever did not automatically retard. The captain complied with the immediate action items and the QRH. The QRH permitted us to use the affected thrust lever at the end. ATC vectored us to the east and back around to land in via visual. On final after getting configured to land with the N1 rpm matched the aircraft had a slight tendency to yaw to the right. Also it was taking approximately 5% more N1 RPM than normal to maintain glideslope on final. Landing was normal. We taxied off the runway and contacted company to get a gate. We taxied to the gate and shut the engines down. I exited the aircraft to inspect the right thrust reverser and found the upper forward portion of the jet pipe to be missing and the lower portion hanging down then went to inform the captain. The jet bridge was then connected and a [customer service agent] assisted in deplaning the passengers. The passengers remained calm and did not seem upset during deplaning.

An undesired aircraft state was created by equipment failure. The workload and aircraft state that resulted from the equipment failure were threats. I am unaware of any errors on the part of the crew.

Until the cause of the event is determined I cannot say what will prevent this kind of event in the future.

Synopsis

Shortly after takeoff, a CRJ crew heard a loud bang accompanied by aircraft shutter/yawing and warning lights indicating possible deployment of the right thrust reverser. Appropriate QRH procedure was accomplished and a landing made at the departure airport. Post flight inspection revealed that the right engine's upper Cowl Core Panel was missing and the lower panel was damaged. Crew notified Maintenance of the aircraft damage and ATC of the missing airplane parts.

ACN: 1291760 *(21 of 50)*

Time / Day

Date : 201508
Local Time Of Day : 0601-1200

Place

Locale Reference.Airport : LGA.Airport
State Reference : NY
Altitude.MSL.Single Value : 2000

Environment

Flight Conditions : Marginal
Weather Elements / Visibility : Turbulence
Light : Dawn

Aircraft

Reference : X
ATC / Advisory.TRACON : N90
Aircraft Operator : Air Carrier
Make Model Name : EMB ERJ 190/195 ER/LR
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 : ILS RWY 22
Flight Phase : Initial Approach
Airspace.Class B : LGA

Component

Aircraft Component : ILS/VOR
Aircraft Reference : X
Problem : Malfunctioning

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 : 1291760
Human Factors : Confusion
Human Factors : Workload

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Anomaly.Inflight Event / Encounter : Unstabilized Approach

Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Became Reoriented
Result.Flight Crew : Overcame Equipment Problem

Assessments

Contributing Factors / Situations : Environment - Non Weather Related
Contributing Factors / Situations : ATC Equipment / Nav Facility / Buildings
Contributing Factors / Situations : Aircraft
Primary Problem : Ambiguous

Narrative: 1

We were on the base to final for ILS Runway 22 at LGA, ATC gave us clearance to turn on heading 250, descend to 2,000 feet and cleared for ILS Approach Runway 22, I turned on heading, descended to 2,000 feet in FLCH and armed approach (LOC,GS were armed). Localizer moved and was captured on FMA around 7-8 DME and GS was alive, when LOC needle was less than 1 dot, the airplane suddenly roll wings level with increasing descent. The distance to the runway was around 6-7 miles. I checked FMA, it was in ROLL and Flight Path Angle (FPA) mode. I disconnected autopilot making correction to bring back the airplane on the correct flight path.

I distrust the automation at this time and continued approach in the manual mode, monitoring raw data indication and VASI on the Runway 22. During the maneuver, I went slightly lower on the glide path and received twice EGPWS glideslope alert. I corrected glide path and landed uneventfully.

My First Officer told me after landing that he experienced and observed 3 cases of these anomalies over the last several months and it was ILS approach Runway 22 and distance when anomalies occurred from 6 to 10 miles on final. I suggested him to submit a report about the anomalies too. I did not find any NOTAMs regarding these anomalies and ATC did not notify us about deviation.

I could only suspect false LOC and GS or interference with ILS signals. The airplane equipment worked correctly on the next approach. The high workload and task saturation to correct the flight path after anomalies distracted me from monitoring the glide path.

Synopsis

EMB190 Captain experiences an autopilot anomaly during LOC and glide path capture of the ILS 22 at LGA. The autopilot initially seemed to capture the LOC then rolled wings level with increasing descent below the glide path and displaying ROLL and Flight Path Angle (FPA) in the FMA. The autopilot is disconnected and the approach continued manually. The First Officer informs the Captain that he has seen this anomaly occur several times during the ILS 22 to LGA over the last few months.

ACN: 1291392 *(22 of 50)*

Time / Day

Date : 201508
Local Time Of Day : 1801-2400

Place

Locale Reference.Airport : MIA.Airport
State Reference : FL

Environment

Flight Conditions : VMC

Aircraft : 1

Reference : X
ATC / Advisory.Tower : MIA
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
Flight Phase : Landing
Airspace.Class B : MIA

Aircraft : 2

Make Model Name : B767 Undifferentiated or Other Model
Flight Phase : Landing

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 : 1291392

Events

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

Assessments

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

Narrative: 1

I was Pilot Flying and had an uneventful flight until I approached the flare on Runway 12 in MIA. Captain was Non Flying Pilot (NFP). As I brought the aircraft into the flare, the auto-throttles retarded the thrust to idle as normal. The Captain and I were waiting on the main gear to make contact with the runway as normal, as I listened to the radar altimeter count down from 20 and 10 at a normal descent rate. That's when I began to experience irregularity with the aircraft handling. Suddenly, the left wing dropped aggressively causing the left main gear to slam to the runway. The momentum from that impact caused the aircraft to roll to the right and then the right main made firm contact with the runway as the left main came off the ground.

At that point, I decided the aircraft was not in control to land and I initiated a go-around. Honestly, it happened so fast that in the heat of the moment I don't remember if I hit the TOGA button or not, but I must have missed the button because I don't recall the TOGA thrust mode becoming active. I did however firewall the thrust levers because of how fast the event was unfolding, and the need for thrust immediately.

While I was advancing the throttles, the Captain called for a go around also. The auto throttles appeared to disengage from my overriding input. The engines were at idle already from the flaring position the aircraft was in, and it took about 5 seconds for the engines to spool up. In the mean time, the aircraft nose gear made contact with the runway, but the aircraft seemed to balloon back off the runway from the rebound. The airplane felt like it was starting a porpoise-like oscillation. I was able to regain control of the airplane, and stabilized the aircraft in ground effect until the engines were producing thrust and we started to climb. From there, we were able to successfully go around. We departed back southeast bound and were vectored for a visual approach to Runway 09. I landed the aircraft without incident and we taxied to the gate without further incident.

We decided it would be prudent to have Maintenance come out and inspect the aircraft for a possible hard landing. There was no sign of visible aircraft damage on our post flight inspection. Afterwards, the Captain and I discussed what had happened a bit more. I explained to the Captain I all of a sudden lost control of the airplane as it suddenly seemed to lose lift on the left wing causing an abrupt and uncontrollable roll. We agreed we had probably encountered wake turbulence in the flare. A heavy 767 had landed just prior to our arrival, and the rotation I experienced felt consistent with wake turbulence I've experienced in flight.

There isn't much to be said about the event itself, as it was not predictable and I had to react out of instinct to get the airplane flying again. However, this was the first time I ever had a go-around in the airplane in the year and a half I've been flying for [this airline]. The event itself and the go around were a lot more intense than I expected, and I think that adds to part of the confusion my mind faced during the event. I think I expected a successful landing, and the thought of a go-around had never crossed my mind so I wasn't mentally prepared for having to do it. I wish now looking back I had seen one before in real life, as impractical is that may be. I also learned to always anticipate a go-around from a landing. Even down as far as 10' above the ground - in truly the worst place I would have to go-around, it could happen. Practicing a go around in this condition may be helpful as a sim scenario in the future.

Also, the heat of the moment in the go-around itself. I would have liked to be more "automatic" with the go around procedure. I need to review that mentally more often so when I have to do it again, I'll be completely ready to act than be startled. In the sim, I would always know when it was coming. Even if it didn't happen, I was fresh and ready for anything. Most of that I would say is expecting a successful landing and an error on my

part, but I haven't done a go-around for over 6 months in any capacity. An SOP refresher in AQP might be a nice integration for irregular operations.

Synopsis

ERJ-175 First Officer reported encountering wake turbulence at touchdown in MIA that resulted in a left and right roll so a go-around was executed.

ACN: 1288787 *(23 of 50)*

Time / Day

Date : 201508
Local Time Of Day : 1201-1800

Place

Locale Reference.Airport : DTW.Airport
State Reference : MI

Environment

Weather Elements / Visibility : Thunderstorm
Weather Elements / Visibility.Visibility : 10
Light : Daylight
Ceiling.Single Value : 3500

Aircraft

Reference : X
ATC / Advisory.Tower : DTW
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
Nav In Use : FMS Or FMC
Flight Phase : Initial Approach
Route In Use : Visual Approach
Route In Use : Vectors
Route In Use.STAR : GEMNI 4
Airspace.Class B : DTW

Component

Aircraft Component : Autoflight Yaw Damper
Aircraft Reference : X
Problem : Malfunctioning

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 : 1288787
Human Factors : Workload

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Anomaly.Deviation - Track / Heading : All Types
Anomaly.Deviation - Procedural : Published Material / Policy
Anomaly.Inflight Event / Encounter : Weather / Turbulence
Anomaly.Inflight Event / Encounter : Fuel Issue
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Overcame Equipment Problem
Result.Air Traffic Control : Issued New Clearance

Assessments

Contributing Factors / Situations : Weather
Contributing Factors / Situations : Human Factors
Contributing Factors / Situations : Aircraft
Primary Problem : Ambiguous

Narrative: 1

Left ZZZ right at brake release fuel. The weather along the route to Detroit was checked on our cell phones prior to departure and that indicated only very widely scattered spots of showers. DTW forecast was for thunderstorms well after our arrival. During the early cruise portion of the flight weather along the Mizar arrival necessitated a re-route to the Weeda arrival. This added about 120 miles to our route but the onboard fuel prediction indicated that we would land just above the reserve amount of fuel which was just over 1900 lbs. Well downrange headed toward SUBWY intersection we got another reroute to the GEMNI arrival. This added about 60 more miles to our distance. The fuel prediction on landing was now for right at reserve fuel. Enroute additional vectors and a rather early letdown increased fuel burn resulting in a prediction a 150 lbs below reserve fuel amount. The weather in DTW was still good with visibility of 10 SM and cloud bases above 4000 ft so I elected to continue. Over Lake Erie as we closed in on DTW we noticed a rapidly building area of cumulonimbus clouds about 5 miles south of the airport. At that time the tops were around 20,000 ft. Later as we descended on downwind, I noticed that the weather had closed with the airport to about three miles off the departure end. We got vectored well out before being turned back into the approach. Through the gaps in the clouds I could see that Flint was a viable alternate in good weather if we needed it if the weather became a factor at DTW. At the base turn we were about 100 lbs below reserve fuel with about 1800 lbs on board. DTW weather was still good so I elected to continue. About halfway down the final, still above the bases of the scattered to broken cloud layer, we lost the localizer but still had the glide slope. I waited about 15 seconds to see if it would come back and was about to ask the FO to query the tower when the tower asked us if we had the localizer. With our negative response we were told to turn off the localizer to go around. Glancing at the fuel I saw that we were at 1690 lbs of fuel and I asked the FO to declare a min fuel advisory since the final was so long. The tower immediately turned us back to the airport and descended us to 3000 with a directive to call the airport in sight. We broke out about 3,500 ft, saw the airport and was cleared for a visual approach. We landed with about 1600 lbs of fuel.

Our yaw damper was producing uncommanded minor yaws in flight with the autopilot off. We had written this up on the previous leg and the local maintenance cleared the error codes and reset the system. About ten minutes into the flight the yaw damper again began to produce uncommanded left and right yaws with associated rudder trim changes. We elected to turn off the yaw damper which in turn of course disconnected the autopilot. I was flying pilot and this significantly increased my workload to fly the aircraft manually.

With the frequent reroutes and a last minute runway change we were considerably loaded up during the flight. This distracted me from paying closer attention to the fuel burn trend and the weather trends south of the Detroit airport. That aside we worked well together otherwise to reduce my workload and prepare for the approach. We had 657 lbs of hold fuel, no contingency fuel, and no extra fuel. We burned the hold fuel up in the reroute.

In the future, I think I will brief specific actions on the part of the NPF to reduce the workload of the flying pilot. I practice a raw data approach in good weather at least once each trip but the task of hand flying for over an hour was draining when you added the additional tasks of keeping up with the numerous changes in the flight. When one pilot is having to hand fly the entire trip, I think the philosophical goal of the NPF should be to load-shed the pilot flying as much as possible even to the point of accomplishing their checklist items where possible. I will say that previous ingrained habits of always checking fuel status when given either holding or a route change helped me to notice the fuel issue early and keep track of its trend.

Synopsis

CRJ-200 Captain reported declaring minimum fuel when weather and reroutes increased his fuel burn. Reporter also cited increased workload from yaw damper failure that required hand flying the aircraft.

ACN: 1286770 *(24 of 50)*

Time / Day

Date : 201507
Local Time Of Day : 0601-1200

Place

Locale Reference.Airport : CLT.Airport
State Reference : NC
Altitude.MSL.Single Value : 2000

Environment

Flight Conditions : IMC
Light : Daylight

Aircraft

Reference : X
ATC / Advisory.Tower : CLT
Aircraft Operator : Air Carrier
Make Model Name : Bombardier/Canadair 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 : CLT

Person

Reference : 1
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 : 1286770
Human Factors : Human-Machine Interface
Human Factors : Distraction
Human Factors : Situational Awareness

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Anomaly.ATC Issue : All Types
Anomaly.Inflight Event / Encounter : Unstabilized Approach
Anomaly.Inflight Event / Encounter : CFTT / CFIT
Detector.Person : Flight Crew
Detector.Person : Air Traffic Control
When Detected : In-flight
Result.Flight Crew : Returned To Clearance
Result.Flight Crew : FLC Overrode Automation
Result.Air Traffic Control : Issued Advisory / Alert

Assessments

Contributing Factors / Situations : Environment - Non Weather Related
Contributing Factors / Situations : ATC Equipment / Nav Facility / Buildings
Contributing Factors / Situations : Airport
Primary Problem : Airport

Narrative: 1

During our approach to runway CLT 36R, [a flight] (#unknown) informed the tower that they would need to return to the gate. For whatever reason (taxiway construction? and aircraft awaiting takeoff on the east side of the runway), the tower chose to taxi the aircraft from the approach end of 36R to an exit taxiway farther down the runway to rejoin C taxiway.

By doing this, our glideslope signal was disturbed causing the Avionic Flight Control System (AFCS) to pitch up to follow the distorted glideslope signal causing a sudden upset during final flap extension. The aircraft was stable, configured properly and the AFCS was engaged and properly tracking the localizer and glideslope prior to this disturbance. Noticing the rapid decrease in airspeed, the AFCS was disengaged, pitch reduced and thrust increased to stabilize the aircraft. Because of the rapid change in pitch attitude, the aircraft descended below the glideslope while regaining airspeed.

This resulted in a low altitude warning from the tower. By this time, the aircraft was in visual conditions, the runway and the Vertical Glideslope Indicator (VGSI) were in sight and we were in a position to continue a stable visual approach to landing.

The aircraft behind us on the approach also complained of ILS disturbance during this same event.

Synopsis

The flight crew reported that, during a critical phase of their approach, the ILS glideslope signal was disturbed by an aircraft taxiing down the runway. The autopilot was quickly disengaged, however the aircraft momentarily descended below the glidescope, generating a terrain proximity warning from the control Tower. A timely correction was made and the approach and landing were completed successfully.

ACN: 1286392 *(25 of 50)*

Time / Day

Date : 201508
Local Time Of Day : 1201-1800

Place

Locale Reference.ATC Facility : ZDC.ARTCC
State Reference : VA
Altitude.MSL.Single Value : 34000

Environment

Flight Conditions : Mixed
Weather Elements / Visibility.Visibility : 5
Ceiling.Single Value : 10000

Aircraft : 1

Reference : X
Make Model Name : B737 Undifferentiated or Other Model
Crew Size.Number Of Crew : 2
Flight Plan : IFR
Flight Phase : Cruise
Airspace.Class A : ZDC

Aircraft : 2

Reference : Y
Make Model Name : Widebody Transport
Airspace.Class A : ZDC

Person

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : Captain
Experience.Flight Crew.Last 90 Days : 174
Experience.Flight Crew.Type : 11000
ASRS Report Number.Accession Number : 1286392

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

Narrative: 1

While at level cruise at FL340 in a mostly smooth ride, we experienced sudden moderate turbulence with an abrupt right roll to 45 degrees of bank. The autopilot disengaged, and we made manual control inputs to return to level flight. The turbulence lasted for about five seconds. No Passengers or Crew were injured.

We reported the event to ATC, but I do not recall if we were talking to Boston or New York ARTCC. The Controller said a [Widebody Transport] had crossed our path about 20 miles in front of us. He did not mention it because he thought the heavy traffic was far enough away to not be a factor. We were in and out of IMC, so we never saw the [Widebody Transport]. We did have a 60-knot headwind.

My recollection of our position [during] the event is vague, but it was near the coast in the Atlantic City to Baltimore area.

Synopsis

Air carrier Captain reported encountering wake turbulence at FL340 when a Widebody Transport aircraft crossed their path 20 miles ahead of them that resulted in an uncommanded 45 degree bank.

ACN: 1286032 *(26 of 50)*

Time / Day

Date : 201508
Local Time Of Day : 1201-1800

Place

Locale Reference.Airport : ATL.Airport
State Reference : GA
Relative Position.Distance.Nautical Miles : 12
Altitude.MSL.Single Value : 8000

Environment

Flight Conditions : Mixed
Weather Elements / Visibility.Visibility : 10
Light : Daylight
Ceiling.Single Value : 4000

Aircraft : 1

Reference : X
ATC / Advisory.TRACON : A80
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
Nav In Use : FMS Or FMC
Nav In Use.Localizer/Glideslope/ILS : Runway 9R
Flight Phase : Initial Approach
Airspace.Class B : ATL

Aircraft : 2

Reference : Y
ATC / Advisory.TRACON : A80
Aircraft Operator : Air Carrier
Make Model Name : Any Unknown or Unlisted Aircraft Manufacturer
Flight Plan : IFR
Flight Phase : Final Approach
Airspace.Class B : ATL

Person

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : Captain
Experience.Flight Crew.Last 90 Days : 130
Experience.Flight Crew.Type : 160
ASRS Report Number.Accession Number : 1286032

Human Factors : Situational Awareness
Human Factors : Distraction

Events

Anomaly.Deviation - Track / Heading : All Types
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

Assessments

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

Narrative: 1

On approach to RWY 9R ATL. Encountered large (45 degree Angle of Bank) roll due to aircraft wake ahead. Aircraft entered CWR (Control Wheel Roll) which disengaged LNAV mode. Loss of LNAV was not noticed until late turn onto RWY 9R Localizer. Deviation corrected by Crew and ATC. Remainder of approach and landing was normal.

Synopsis

B737-700 Captain reported uncommanded 45 degree roll from preceding aircraft wake on approach to Runway 9R at ATL.

ACN: 1279800 *(27 of 50)*

Time / Day

Date : 201507
Local Time Of Day : 0601-1200

Place

Locale Reference.Airport : ZZZ.Airport
State Reference : US
Altitude.AGL.Single Value : 0

Aircraft

Reference : X
ATC / Advisory.Tower : ZZZ
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 : Taxi

Component

Aircraft Component : Elevator Trim System
Aircraft Reference : X
Problem : Malfunctioning

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.Last 90 Days : 160
Experience.Flight Crew.Type : 1741
ASRS Report Number.Accession Number : 1279800
Human Factors : Troubleshooting
Human Factors : Other / Unknown

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)
Experience.Flight Crew.Last 90 Days : 184

Experience.Flight Crew.Type : 428
ASRS Report Number.Accession Number : 1279782

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Detector.Person : Flight Crew
When Detected : Taxi
Result.General : Release Refused / Aircraft Not Accepted
Result.Flight Crew : Returned To Gate

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

We finished before takeoff checks and were number 2 for departure heading for ZZZ. As we slowly taxied into position number 2 for takeoff, the trim wheel spun uncommanded from 4.9 to 5.5 and stopped. About 4-5 seconds later the autopilot disconnect aural warning came on along with the AP DISC light, which stayed on and chiming until I clicked the left thumb autopilot disconnect button. We turned on to taxi way and I called Maintenance Control to discuss this. We taxied back so maintenance could troubleshoot. On the way back I did press Autopilot A on and disconnected it. All worked as usual (as far as I could tell), and the Autopilot was not on during the taxi out.

Operations did a wonderful job detecting every system in the cat III; autopilot type range and found no issues. They began getting frustrated (I believe), and told us that we must have done something to make it happen. I had to refuse the aircraft and called the duty manager for help downing that aircraft. I asked them to pull the flight recorder to see what exactly happened. I believe I didn't describe the incident well enough to give them the direction to look. The flight recorder was indeed pulled, and copied. I could be completely wrong, and that's ok, but I'm interested in what was the issue. I'm writing this as they did pull the flight recorder in the hopes we can find the answer.

Narrative: 2

[Report narrative contained no additional information.]

Synopsis

B737 flight crew returned to the gate for maintenance troubleshooting when the elevator trim moved from the preset value of 4.97 to 5.50 without any pilot actuation of the control wheel trim buttons.

ACN: 1278467 *(28 of 50)*

Time / Day

Date : 201507
Local Time Of Day : 1801-2400

Place

Locale Reference.ATC Facility : ZAU.ARTCC
State Reference : IL
Altitude.MSL.Single Value : 40000

Environment

Weather Elements / Visibility : Turbulence
Weather Elements / Visibility.Visibility : 50
Weather Elements / Visibility.Other
Ceiling.Single Value : 30000

Aircraft

Reference : X
ATC / Advisory.Center : ZAU
Aircraft Operator : Corporate
Make Model Name : Challenger 300
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 91
Flight Plan : IFR
Mission : Personal
Flight Phase : Cruise
Route In Use : Direct
Airspace.Class A : ZAU

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 : Air Transport Pilot (ATP)
Qualification.Flight Crew : Flight Instructor
Qualification.Flight Crew : Multiengine
Experience.Flight Crew.Total : 13500
Experience.Flight Crew.Last 90 Days : 80
Experience.Flight Crew.Type : 2500
ASRS Report Number.Accession Number : 1278467

Events

Anomaly.Deviation - Altitude : Excursion From Assigned Altitude
Anomaly.Inflight Event / Encounter : Weather / Turbulence
Anomaly.Inflight Event / Encounter : Loss Of Aircraft Control
Detector.Person : Flight Crew

Detector.Person : Air Traffic Control
When Detected : In-flight
Result.Flight Crew : Returned To Clearance

Assessments

Contributing Factors / Situations : Weather
Primary Problem : Weather

Narrative: 1

Cruising at 40,000 feet we were in between tops of cells estimated at 41,000 feet. Distance between cells 20 miles estimated. Nothing of a return on radar to speak of. Got a little light turbulence when we received a very hard, severe shot of turbulence. The Autopilot kicked off, the plane rolled approx 35 degrees and a sudden loss of altitude of approx 500 feet to 39,500 feet. I was the pilot flying, got control of the plane and was back at altitude in less than 30 seconds. ATC inquired as to what was going on, we explained and were instructed to "maintain 400". We did, no problem, and continued the flight. Nothing more was said and this was a case of turbulence I have not experienced in over 15 years.

Synopsis

A Challenger 300 Captain reported encountering severe turbulence in cruise flight at FL400 that resulted in a 35 degree roll and a 500 foot altitude excursion.

ACN: 1277194 *(29 of 50)*

Time / Day

Date : 201507
Local Time Of Day : 0001-0600

Place

Locale Reference.Airport : ZZZ.Airport
State Reference : US
Altitude.MSL.Single Value : 38000

Environment

Flight Conditions : VMC

Aircraft

Reference : X
ATC / Advisory.Center : ZZZ
Aircraft Operator : Air Carrier
Make Model Name : B777 Undifferentiated or Other Model
Crew Size.Number Of Crew : 3
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Nav In Use : FMS Or FMC
Flight Phase : Cruise
Airspace.Class A : ZZZ

Component

Aircraft Component : Turbine Assembly
Aircraft Reference : X
Problem : Failed

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
Experience.Flight Crew.Total : 19000
Experience.Flight Crew.Last 90 Days : 230
Experience.Flight Crew.Type : 13000
ASRS Report Number.Accession Number : 1277194
Human Factors : Time Pressure
Human Factors : Distraction
Human Factors : Confusion
Human Factors : Troubleshooting

Person : 2

Reference : 2
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : Other / Unknown
Experience.Flight Crew.Total : 19000
Experience.Flight Crew.Last 90 Days : 300
Experience.Flight Crew.Type : 8000
ASRS Report Number.Accession Number : 1276623
Human Factors : Troubleshooting
Human Factors : Time Pressure
Human Factors : Workload

Person : 3

Reference : 3
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : Pilot Not Flying
Function.Flight Crew : Captain
Experience.Flight Crew.Total : 19300
Experience.Flight Crew.Last 90 Days : 120
Experience.Flight Crew.Type : 2000
ASRS Report Number.Accession Number : 1276890
Human Factors : Time Pressure
Human Factors : Situational Awareness
Human Factors : Distraction
Human Factors : Confusion
Human Factors : Workload

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Anomaly.Deviation - Speed : All Types
Anomaly.Deviation - Procedural : Published Material / Policy
Anomaly.Inflight Event / Encounter : Fuel Issue
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Returned To Departure Airport

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

I had just leveled the aircraft at FL380, approx. 30 miles from West of [waypoint] (eastbound) with the autopilot engaged. An FAA Maintenance Inspector had just left the cockpit. Crew meals were waiting at the door to be delivered. I donned my O2 mask as the Captain left her seat to open the cockpit door when suddenly a subtle but noticeable thud was felt in my seat bottom and toes resting lightly on the rudder pedals. Center called us to terminate radar services and switch us to enroute (HF) communication but I advised them that we wanted to remain in VHF contact as long as possible since I sensed an engine problem possibly developing.

They gave us an alternate frequency but said it was only good for another 50 miles. At this time, I heard a light whistling sound behind the instrument panel that I hadn't noticed before. Looking at the engines, I observed a slightly lower N1 on the left engine. The Captain quickly returned to her seat and we discussed the indications. While a little hazy on the exact details and sequence of events, I seem to recall we had another brief, slightly larger thud as the Captain reduced power on the left engine to stabilize the N1 at about the 6 o'clock position. The compressor stall checklist was then run by the Captain and I quickly dropped my mask beside me.

Simultaneously, an attempt was being made by the FAA Maintenance Inspector and a deadheading First Officer (FO) in the cabin to gain cockpit access using the emergency cockpit access code which seemed confusing/distracting as we were dealing with the situation. After a failed first attempt, they eventually were admitted. The FAA inspector took the #2 observer's seat while the deadheading FO sat in the number 1 Observer's seat and began to work with the Captain running the Severe Engine Damage (shutdown) checklist when engine temperature began to spike after trying to initially recover the engine by slowly pushing up the throttle per the Compressor Stall checklist. The throttle was slowly advanced from the 6 o'clock position but when almost back to the normal cruise 10 o'clock position, a much larger "thud" occurred, the N1 collapsed, and EGT began to rise rapidly (up to 800 plus deg.?).

Knowing that an engine shutdown was imminent, I took the initiative by requesting a descent to FL200 after viewing the "Eng Out"; prompt on the FMC VNAV page. While a diversion airport had not yet been decided on, it seemed reasonable to me that we at least get turned around and heading in the right (westbound) direction. A descent clearance to FL200 was granted and a 180 degree turn was granted and I commenced a slow right turn and descent before the airspeed decayed too much (10-15 kts at that point). ATC asked for [an update] and I told them to standby while I assessed how high, how far (to ZZZ) and how much fuel we would have after dumping. Later, though not specifically instructed by the Captain due to workload concerns, I advised ATC that we would likely land on [the longest runway] in ZZZ and to have the fire trucks standing by near the high speed intersection Y.

I descended in VS mode initially selecting 2,000 fpm to recapture the decayed speed (15 kts) while bugging up to about 300 kts. A 30 mile ring was drawn around ZZZ as I also noted the diversion options near us and mentally calculating about how far they were, checklists still remaining to be run, their runway lengths and my relative familiarity/recency of experience in each. Once stabilized in descent at about 12-1500 fpm at 300 kts and minimal thrust on right engine, I redirected my attention to the discussion between the Captain and newly designated IRO. Flight attendants reported a slight odor in the cabin. [We] were heavily engrossed discussing with Dispatch and [maintenance] what had happened and that we were diverting. By observing the current aircraft weight, and after advising ATC of their requested information, I then also took the initiative to coordinate approval for fuel jettison and it was approved. When the discussion eventually evolved into landing weight, diversion airport, etc., I advised the Captain & IRO that we had been approved to dump fuel. Initially, the Fuel Auto Jettison checklist was run but later discarded in favor of the correct (unannunciated) Fuel Jettison checklist. As we began to dump fuel, we received an ATC clearance to descend to 10,000 feet and we continued to dump down to Maximum Landing Weight (MLW).

After fuel jettison was complete we found ourselves with approx. 4,000 pounds imbalance between main tanks. We decided to run the fuel imbalance checklist to slowly bring them

closer to equality. We opted to not finish this checklist before landing since we were already on a downwind abeam the field and were briefing running other checklists and coordinating with the flight attendants and passengers. The approach and landing was uneventful and we turned off onto the taxiway just beyond Y and set the brake as 4 fire trucks converged and advised us on ground frequency that there was no fire. After telling the passengers this news and to remain seated, we eventually were towed to the gate and the passengers disembarked. We inspected the affected engine with the FAA maintenance inspector and observed the destroyed turbine sections. The Captain had an impromptu debrief with the entire crew present with the FAA to discuss impressions/reactions, etc. In our haste to vacate the aircraft since maintenance wanted to tow the aircraft off the gate, we neglected to send in an FRM on the incident.

Narrative: 2

I was deadheading to work. I was in the passenger cabin. As the flight attendants started their meal and beverage service, I heard a pop and started to feel vibration, although very slight. I got up from my seat and I called the captain to offer my services (I had introduced myself to her during boarding, giving her my seat number and offer to help if anything came up). Captain asked me to come to the cockpit and assist.

Upon arriving at the cockpit, the first officer, who was flying the aircraft, had already started a turn back to ZZZ and also commenced a descent. The captain asked me to contact dispatch, which I did over the SATCOM. I advised the dispatcher of the nature of our [situation] and our intentions. After that, I assisted the captain with various checklist - the continuation and conclusion of the engine fire/severe damage checklist, and the fuel jettison checklist. After the conclusion of those items, we got a fuel imbalance EICAS message and I worked with the captain to accomplish that check.

During the descent, we did a quick review and critique to make sure no items were missed. By this time we were over our [destination] and concentrated our efforts on landing. A normal ILS was flown to landing. I made the announcement for all passengers to remain seated (as previously briefed by the captain). The captain elected to have the crash/fire/rescue vehicles meet the aircraft. They checked out the left engine, found no fire or fluids leaking, and awaited our intentions. The captain elected to shut down the aircraft and have ZZZ station personnel tow the aircraft to [the] gate.

Narrative: 3

[Report narrative contained no additional information].

Synopsis

A B-777 flight crew lost an engine while enroute. They ran appropriate checklists, dumped fuel, and returned to their departure airport and landed.

ACN: 1276375 *(30 of 50)*

Time / Day

Date : 201507
Local Time Of Day : 1201-1800

Place

Locale Reference.ATC Facility : ZZZ.TRACON
State Reference : US

Environment

Light : Daylight

Aircraft

Reference : X
Aircraft Operator : Air Carrier
Make Model Name : EMB ERJ 145 ER/LR
Crew Size.Number Of Crew : 2
Flight Plan : IFR
Mission : Passenger

Component

Aircraft Component : Autopilot
Aircraft Reference : X
Problem : Malfunctioning

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 : First Officer
ASRS Report Number.Accession Number : 1276375
Human Factors : Confusion
Human Factors : Workload
Human Factors : Situational Awareness

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Detector.Person : Flight Crew
When Detected : In-flight
Result.General : Maintenance Action
Result.Flight Crew : Landed in Emergency Condition
Result.Flight Crew : Returned To Departure Airport
Result.Flight Crew : Landed As Precaution

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

First officer was flying when the wing rolled right about three times. The autopilot was kicked off and the controls were transferred to the Captain. The Captain hand flew into ZZZ while the first officer helped with radios and check list. No [checklist] items were done because it was a random hard over and the nose seemed to YAW in the other direction. The crew was thinking that it was a possible spoiler non commanded deployment. The plane was landed safely and the gate was made. The plane was [written] up and taken to the hangar from maintenance. There were no EICAS messages associated with the event, but there were huge vibrations and at least three hard rolls to the right with the autopilot on.

First officer not understanding if it was just his side or not gave the Captain the controls and allowed him to fly the approach. The crew also verified twice approach clearance. Autopilot was turned off and not reused which trapped the hard roll over sensation.

Synopsis

The crew experienced three hard rolls to the right and vibrations. They disconnected the autopilot and returned to the departure airport.

ACN: 1270032 *(31 of 50)*

Time / Day

Date : 201506
Local Time Of Day : 0601-1200

Place

Locale Reference.ATC Facility : ZZZ.ARTCC
State Reference : US
Altitude.MSL.Single Value : 36000

Environment

Flight Conditions : VMC

Aircraft

Reference : X
ATC / Advisory.Center : ZZZ
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 : Cruise
Route In Use : Vectors
Route In Use : Direct
Airspace.Class A : ZZZ

Component

Aircraft Component : Airspeed Indicator
Aircraft Reference : X
Problem : Malfunctioning

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
Experience.Flight Crew.Total : 12300
Experience.Flight Crew.Last 90 Days : 229
Experience.Flight Crew.Type : 916
ASRS Report Number.Accession Number : 1270032

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Detector.Person : Flight Crew

When Detected : In-flight
Result.Flight Crew : Overcame Equipment Problem

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

During cruise at FL360 in VMC conditions southeast of Airport ZZZ prior to descent, we noticed IAS Disagree illuminated on both Captains and FO's airspeed tapes. Initially the air speeds were approximately 6 knots difference between each other. We ran the QRH for IAS Disagree which sent us to the Airspeed Unreliable checklist. We determined using that checklist that the captain's side was unreliable. That checklist also had us reference the Flight with unreliable airspeed in the performance chapter. While referencing that, the Captain's and FO's altimeters began to disagree by approximately 300 FT. We ran the ALT disagree checklist as well and still believed the Captain's side to be faulty. Just about that time, the controller asked us to start our descent. Airspeed and Altitude differences started getting much larger after a short period of time once we began our descent. The Captains airspeed indicator started falling back to the lowest possible value of 45 knots and altimeter was off now by about 1,000 feet. The airspeed low aural warning started sounding in the cockpit. The unreliable airspeed checklist warned us of this possibility. The first officer's airspeed and altimeter agreed with the standby instruments, however we still backed up the flight for added safety by referencing pitch and power settings in the performance chapter to make sure that we had some reliable information. After starting our descent from FL360 both engine EEC ALT lights illuminated. We ran the QRH for EEC Alternate mode. Shortly after that, the Speed Trim Fail light illuminated and the QRH was run for Speed Trim Fail. Next, VNAV disconnected and we went into CWS pitch mode. We looked down at the box and noticed we had lost all performance data in the box. This explained the VNAV disconnect. We engaged level change and that worked fine. About this time ATC changed our arrival and we noticed that even though we were still in LNAV, the airplane was not tracking LNAV. [ATC was notified] and we received priority handling in the form of a heading direct to the airport and then vectors onto the visual approach for Runway XY. I was originally flying the airplane, but we quickly got so emerged in checklists and busy tasks, I decided to follow the guidance in the FOM on managing [the current condition] and gave pilot flying duty to the FO so I could run checklists and manage the [situation]. I accomplished all checklists, then called the flight attendants. I explained to them what had happened and the type of [condition], told them there were no special instructions, and that we had approximately 15-20 minutes until landing. I then made a PA to the passengers and told them we had a downgrade of some of our flight instruments, but had the situation under control and we're working on backup instruments. I told them that as a precaution, we had requested [priority] handling from ATC and because of that as a precaution, they would see fire trucks on the side of the runway when we landed. I then texted my dispatcher and told them the situation. They copied and asked if there was anything they could do to help. I told them no thanks. The [ARFF] equipment was rolled. Around 11,000 feet, my airspeed was still reading 45 knots and my altimeter was 1,000 feet off from our altitude. All of a sudden, the airspeed and altimeter snapped back to normal and airspeed and ALT disagree messages went away. Since the First Officer was doing such a great job flying the airplane, and his instruments could be trusted more than mine, I let him fly the approach and landing. We still were referencing pitch and power settings in the performance section of the QRH for unreliable airspeed for added safety. We landed without incident and taxied off the runway and to

the gate. The probe heat was on for the entire flight per SOP and we never got a caution light saying any probe heat was INOP.

Synopsis

B737 Captain reported receiving an IAS Disagree warning. Crew followed procedures and flew a safe approach and landing.

ACN: 1270014 *(32 of 50)*

Time / Day

Date : 201506
Local Time Of Day : 1801-2400

Place

Locale Reference.ATC Facility : ZZZZ.ARTCC
State Reference : FO
Altitude.MSL.Single Value : 35000

Environment

Flight Conditions : VMC
Light : Night

Aircraft

Reference : X
ATC / Advisory.Center : ZZZZ
Aircraft Operator : Air Carrier
Make Model Name : B767-300 and 300 ER
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Flight Phase : Cruise
Route In Use : Oceanic
Maintenance Status.Maintenance Deferred : N
Maintenance Status.Released For Service : N
Maintenance Status.Maintenance Type : Unscheduled Maintenance
Maintenance Status.Maintenance Items Involved : Inspection

Component : 1

Aircraft Component : Elevator
Manufacturer : Boeing
Aircraft Reference : X
Problem : Malfunctioning

Component : 2

Aircraft Component : Elevator ControlSystem
Manufacturer : Boeing
Aircraft Reference : X
Problem : Malfunctioning

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)
Experience.Flight Crew.Total : 10000
Experience.Flight Crew.Last 90 Days : 90
Experience.Flight Crew.Type : 5000
ASRS Report Number.Accession Number : 1270014
Human Factors : Troubleshooting
Analyst Callback : Completed

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 : 1270018
Human Factors : Troubleshooting
Analyst Callback : Attempted

Events

Anomaly.Aircraft Equipment Problem : Critical
Detector.Person : Flight Crew
Were Passengers Involved In Event : N
When Detected : In-flight
Result.General : Maintenance Action
Result.General : Flight Cancelled / Delayed
Result.Flight Crew : Diverted

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

I was returning from my scheduled break when I was asked by the flying pilots to go to the back of the aircraft and observe if the aircraft was doing anything abnormal. I walked back to the aft galley and noticed that the aircraft was oscillating pitch up and down while in smooth air conditions. I returned to the flight deck and observed the right side elevator indicator on the status page oscillating at the same rate that was consistent with what I was feeling in the back of the aircraft. I relieved the Captain from her seat and had her go back to observe the uncommanded pitch movements. Upon her return, we discussed our options with Maintenance Control and Dispatch, and decided that this was a safety of flight concern rendering the aircraft unsafe to continue flight operations. We ran all appropriate checklist items, and diverted to ZZZZ. During the approach, elevator oscillations were noted all the way down the ILS, with the autopilot coupled and also when the aircraft was being manually flown by the crew. After an uneventful and successful landing at the airport, the First Officer and myself did a post flight walk around and noticed that the right side elevator was completely drooped down while the left side was only partially drooped.

Callback: 1

Reporter stated they were about two hours into the flight when he went to the aft cabin and noticed the vertical pitch oscillations that felt like an asymmetrical force input, not

turbulence induced. Back in the flight deck, all three left, center, right hydraulic system pressures to the elevators were normal. The right elevator chevron on the EICAS Status was definitely oscillating from just above to slightly below the left elevator chevron. The oscillations became more noticeable the slower the aircraft flew. After landing, the right elevator was noticeably drooped, almost vertical. No hydraulic leaks were noted.

Reporter stated their air carrier sent a Maintenance team to the diverted B767-300 aircraft. Initially Maintenance thought the problem was an indication error after looking at the aircraft, but he (reporter) again described the inflight oscillations that had occurred. The aircraft was ferried to a maintenance base. He does not know what Maintenance might have repaired, but he suspects an input rod was not properly re-secured during an A-Check that had just been accomplished on the aircraft prior to their departure.

Narrative: 2

Aircraft had just come out of A-Check and mechanics were still completing Class II navigation checks when we arrived.

Climbing out of ZZZ, with center Autopilot (AP) on command, the airplane failed to level off at FL240. Captain caught it and leveled off normally without exceeding 150 feet. AP appeared to behave normally thereafter.

We noticed the ALT FLAP CONT circuit breaker (C/B) was popped. We attempted to contact ZZZ Dispatch and Maintenance Control via SATCOM, but could not get through. Sent ACARS messages to Dispatch, but they couldn't call us either. Tried ZZZ State Radio and ZZZZ Radio frequencies off the COMM page from the route section, and also every other frequency shown on the COMM page and none of them worked. Asked ZZZZ domestic for an HF frequency, and managed to establish a HF patch to [ZZZ] Dispatch and Maintenance Control.

By this time we had checked the [EICAS] status page and noticed the Elevator Flight Control Indications showed a steady oscillation on the right elevator. We asked the Relief Pilot to check the aft section of the airplane before coming back to the cockpit for crew change. He returned to the cockpit and reported a vibration and pitching movement in the back of the aircraft. He then observed the status page and indicated his observations were consistent with the indications.

The left elevator [EICAS] chevron appeared in a normal position. The right elevator chevron was oscillating from a position in which the lower part of the right chevron was above the top part of the left chevron, to a position in which the upper part of the right chevron was below the lower edge of the left chevron.

Although it was moving rapidly, it appeared to be oscillating approximately 1.25-1.50 chevron widths.

We were approaching ZZZZZ intersection and the entry into ETOPS airspace. Maintenance Control had no suggestions except to try alternate autopilots, which we declined to do, as we believed that it was a greater threat to safety to start troubleshooting an elevator issue. The Captain went back to investigate the situation herself. She found the vibration and rhythmic pitching motion perceptible from the middle of economy class, and distinctly present from approximately row 29-30. There was a definite pitching and oscillation in the back of the airplane which was not present in the front, and it became rapidly apparent. The bouncing was enough to briefly lift the Captain. The airplane was in smooth air.

We decided as a crew to divert to a suitable airport and not to enter ETOPS airspace and continue to [destination.] We had previously just checked weather at airports in the region. ZZZZ was VFR and nearby, and we diverted to ZZZZ.

The Relief FO remained on the frequency with ZZZ Dispatch and Maintenance Control, while the Captain and FO flew and coordinated with ATC. We worked together as a crew to minimize stresses on the aircraft, and turned at 15 degrees bank toward ZZZZ, descended from FL350 to FL260 and then FL200 and slowly down to the airport. We reviewed abnormal and normal landing checklists, used the diversion guide and coordinated with ZZZZ authorities. After getting landing data for flaps 25 and flaps 30, we made a flaps 25 landing. During the descent we noticed the elevator oscillations remained at the same frequency, or momentarily reduced. The ailerons indicated asymmetrical position, even though the yoke indicated 0 position. At approximately 6,000 feet and 210 knots, the oscillations were momentarily reduced. At approximately 500 feet, the airplane pitched down at an abnormal rate, and the Captain clicked off the autopilot to fly and land the airplane normally. After landing, the crew conducted a postflight inspection. The left elevator was in a normal faired position. The right elevator was completely down, in an almost vertical position. The cockpit indications on the status page matched the visual observations outside.

Synopsis

A Captain and First Officer describe the pitch oscillations their B767-300 aircraft experienced in smooth air about two hours after departure. The right elevator indicator on the EICAS status page was oscillating at the same rate that was consistent with what was felt in the back of the aircraft. The oscillations were more noticeable as the aircraft slowed and continued all the way to a diverted landing. Aircraft was ferried to a maintenance base.

ACN: 1268333 *(33 of 50)*

Time / Day

Date : 201506
Local Time Of Day : 1201-1800

Place

Locale Reference.Airport : IAD.Airport
State Reference : DC
Altitude.MSL.Single Value : 4000

Environment

Flight Conditions : VMC
Weather Elements / Visibility : Turbulence
Weather Elements / Visibility.Visibility : 10
Light : Daylight
Ceiling.Single Value : 3000

Aircraft : 1

Reference : X
ATC / Advisory.TRACON : PCT
Aircraft Operator : Fractional
Make Model Name : BAe 125 Series 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 01C
Flight Phase : Initial Approach
Route In Use.STAR : GIBBZ2
Airspace.Class B : DCA

Aircraft : 2

Reference : Y
ATC / Advisory.TRACON : PCT
Aircraft Operator : Air Carrier
Make Model Name : B737 Undifferentiated or Other Model
Operating Under FAR Part : Part 121
Flight Plan : IFR
Flight Phase : Initial Approach
Route In Use.STAR : GIBBZ2
Airspace.Class B : DCA

Person

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)
ASRS Report Number.Accession Number : 1268333

Events

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 New Clearance

Assessments

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

Narrative: 1

We were on the GIBBZ2 arrival into IAD, between SIYOB [and] MIKEJ intersections. My hands were on the controls and aircraft was steady at 210 knots assigned and 4000 feet. The auto-pilot was on. We were already briefed and ready for the ILS 01C. All check lists were completed and we were waiting for a vector to final to intercept the ILS. This entire event was over maybe an 8-10 second period. We encountered wingtip vortices from a B737 that was 6 miles in front of us. I had my hands on the controls at the time it started. When all of a sudden the right wing was automatically forced down. I turned the yoke to the left and seemed to regain control of the aircraft. When we were back to level, the wing took another dip. At this point, I thought the autopilot was malfunctioning and quickly hit the trim switch to disengage it quickly. Then when the wing dipped again and with more force and a little further down. This time I had almost full left aileron in to keep the aircraft up right. We were never over 45 degrees at any point. I estimate it to be in the 30-35 degrees. But when it is uncommanded, it was startling, and I was having trouble maintaining 100% control of the aircraft. Then once I would gain control again, it would start again. So, it was an intermittent event, as it would start and stop. By the 3rd time the aircraft was bumped around. We had figured we were hitting a vortex off another aircraft. First officer (F/O) ask if we were following anybody. ATC replied with a B737, 6 miles in front of us. I told him to request an immediate climb, as vortices go down and out. F/O was on the ball and requested it, the controller responded with a climb to 6000 feet. I started an immediate climb and we seemed to be clear of it, after we had climbed maybe 75 feet. Then the controller revised the clearance to maintain 5000 feet. We leveled at 5000 feet and he then turned us east bound on a left base leg. The F/O had 2 or 3 direct transmissions with ATC with no delays or other aircraft talking. He reported the turbulence, asked about traffic, requested a climb, all in a few seconds and it seemed to work out very well. This was maybe a 10 second time period. But, it was very quick, very abrupt, then we were out of it and turning left to intercept and starting a descent back down to 3000 for the approach. I ask him to check on the passengers. They said they were ok, and we would explain once on the ground. Once on the ground, engines shut down. I jumped up to greet them and explain with a big apology for the turbulence. The passenger explained his wife was in the lav and that was a great thing as she was fearful of flying. I explained to them the vortices of airplanes. They were thankful for of our work in the process. At one point, he thought we might actually end up rolling it completely over. I assured him we were not even at the 45 degree mark, but I understand his position being in the back and having a view that would maybe make him think that. They seemed happy and satisfied with the flight and went on their [way]. I briefed [Company] of the incident as well and they noted it on their files too.

Synopsis

BAE-125-850XP Captain reported encountering wake turbulence in 6-mile trail of a B737 on approach to IAD.

ACN: 1268185 *(34 of 50)*

Time / Day

Date : 201506
Local Time Of Day : 1201-1800

Place

Locale Reference.ATC Facility : ZZZ.ARTCC
State Reference : US
Altitude.MSL.Single Value : 27500

Environment

Light : Daylight

Aircraft

Reference : X
Aircraft Operator : Air Carrier
Make Model Name : MD-80 Series (DC-9-80) Undifferentiated or Other Model
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Flight Phase : Climb
Maintenance Status.Maintenance Deferred : N
Maintenance Status.Maintenance Type : Unscheduled Maintenance
Maintenance Status.Maintenance Items Involved : Testing
Maintenance Status.Maintenance Items Involved : Inspection

Component : 1

Aircraft Component : Rudder Control System
Manufacturer : Boeing McDonnell-Douglas
Aircraft Reference : X
Problem : Malfunctioning

Component : 2

Aircraft Component : Autoflight Yaw Damper
Aircraft Reference : X

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)
ASRS Report Number.Accession Number : 1268185
Human Factors : Confusion
Analyst Callback : Completed

Events

Anomaly.Aircraft Equipment Problem : Critical
Anomaly.Inflight Event / Encounter : Other / Unknown
Detector.Person : Flight Crew
Were Passengers Involved In Event : N
When Detected : In-flight
Result.General : Maintenance Action
Result.Flight Crew : Overcame Equipment Problem
Result.Flight Crew : Landed in Emergency Condition
Result.Air Traffic Control : Provided Assistance

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

Climbing thru FL275 we had an un-commanded rudder input. I asked the First Officer (FO) to descend to FL240 and slow to 280 knots. We had no other abnormal indications. The FO was hand flying the aircraft. I used the QRH and turned the Yaw Damper to 'Override'. Everything was normal, so I returned the Yaw Damper to the 'Normal' position. We [advised ATC of aircraft condition] and proceeded to ZZZ1 with no other issues. Landing was normal. The flight attendants were given the test briefing and instructed to call me if they felt or heard anything abnormal. Maintenance did find a fault in the Restricted Rudder portion of the rudder package.

Callback: 1

Reporter stated the First Officer (FO) was hand flying the aircraft in 'Climb Thrust' with the Autopilot 'Off' and climbing through FL275, when suddenly they experienced a hard over Right Rudder; similar to a slam, an impulse move, with the rudder pedals moving. Captain and the FO verified neither had moved the rudder pedals. The aircraft felt like a 12-15 degree hard over had occurred as the MD-80 rolled to the right with the Right rudder pedal not quite full forward. All hydraulic pressures and cockpit indications were good. Nothing to indicate anything had just happened.

Reporter stated as he began to input left rudder pedal, he also noticed the left pedal was starting to move on it's own, as if trying to correct for the right hard over. The flight attendants in the aft cabin thought the aircraft had lost an engine. Following their QRH procedures, Captain moved the Yaw Damper switch to the Override (OVRD) position which depowers the Yaw Damper servo. He later moved the Yaw Damper switch to the 'On' position after everything seemed normal. They continued to destination airport; they did not divert. In discussions with Maintenance after they landed, the thought was that perhaps some obstruction, moisture or icing on the Pitot tubes at the Vertical stab could have affected the Rudder Throw Limiter Actuator or linkage. Maintenance did replace one of the Rudder Limiter switches and also noted a Fault had been recorded involving the Restricted Rudder portion of the rudder PCU. Otherwise, no other discrepancy was found.

Captain reportedly had experienced his first MD-82 Rudder hard over several years ago. In that incidence, the Right pedal did go full right rudder, pedal had bottomed out, with the aircraft in a heavy right roll. Captain credits previous military experience with inflight adverse upset training helped control the MD-80 in a slip configuration until they could get the left rudder pedal to move; which did not happen very fast. In that incident, no cockpit indications or Circuit Breakers (C/Bs) out; nothing. Captain hopes this safety report will

help other pilots in the future and help Maintenance determine the cause for these uncommanded rudder movements in the MD-80 aircraft.

Synopsis

Captain reports an uncommanded Right Rudder hard over of approximately 15 degrees and roll had occurred on their MD-80 while climbing thru FL275. Descended to FL240; slowed to 280 knots. Followed QRH and turned Yaw Damper to 'Override'. Descended to FL240. Everything normal. Returned Yaw Damper to 'Normal' position. Landing normal. Maintenance found fault in the restricted rudder portion of the Rudder PCU and Rudder Limiter switch.

ACN: 1263575 *(35 of 50)*

Time / Day

Date : 201505
Local Time Of Day : 0601-1200

Place

Locale Reference.Airport : ZZZ.Airport
State Reference : US
Altitude.MSL.Single Value : 9000

Environment

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

Aircraft

Reference : X
ATC / Advisory.TRACON : ZZZ
Aircraft Operator : Air Carrier
Make Model Name : B737-400
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Flight Phase : Descent
Route In Use : Vectors
Airspace.Class B : ZZZ

Component

Aircraft Component : Gear Extend/Retract Mechanism
Aircraft Reference : X
Problem : Malfunctioning

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 : 7000
Experience.Flight Crew.Last 90 Days : 97
Experience.Flight Crew.Type : 236
ASRS Report Number.Accession Number : 1263575
Human Factors : Workload
Human Factors : Confusion

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : FLC complied w / Automation / Advisory
Result.Aircraft : Equipment Problem Dissipated

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

I was the pilot monitoring during the event. The aircraft was descending through 9000 ft to a level off of 6000 ft and instructed to hold 210 kts until further advised by ATC while being vectored. The Aircraft experienced an uncommanded gear extension with the gear handle in the off position. Given the amount of noise in the cockpit and the additional pitch over while in level change mode, I suspected the gear had extended with the lever in the "OFF" position. I completed the QRH procedure for "gear disagree" shortly after level off. When the gear handle was placed to down position, the red gear unsafe lights instantaneously went to green. No further action was taken. The flight landed safely and without incident.

Synopsis

A B737-400 landing gear extended uncommanded during descent through 9,000 ft as the aircraft was slowing to 210 kts. Safe indications resulted with the QRH execution.

ACN: 1262307 *(36 of 50)*

Time / Day

Date : 201505
Local Time Of Day : 0001-0600

Place

Locale Reference.ATC Facility : SBAZ.ARTCC
State Reference : FO
Altitude.MSL.Single Value : 37000

Environment

Flight Conditions : VMC
Weather Elements / Visibility : Thunderstorm
Weather Elements / Visibility : Turbulence

Aircraft

Reference : X
ATC / Advisory.Center : SBAZ
Aircraft Operator : Air Carrier
Make Model Name : B777 Undifferentiated or Other Model
Crew Size.Number Of Crew : 3
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Nav In Use : FMS Or FMC
Flight Phase : Cruise

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 Not Flying
Qualification.Flight Crew : Air Transport Pilot (ATP)
ASRS Report Number.Accession Number : 1262307
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 : First Officer
Function.Flight Crew : Relief Pilot
Function.Flight Crew : Pilot Flying
Qualification.Flight Crew : Air Transport Pilot (ATP)
Experience.Flight Crew.Total : 15000
ASRS Report Number.Accession Number : 1262309
Human Factors : Situational Awareness

Events

Anomaly.Deviation - Altitude : Excursion From Assigned Altitude
Anomaly.Deviation - Speed : All Types
Anomaly.Deviation - Track / Heading : All Types
Anomaly.Inflight Event / Encounter : Weather / Turbulence
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Took Evasive Action
Result.Air Traffic Control : Issued New Clearance

Assessments

Contributing Factors / Situations : Weather
Contributing Factors / Situations : Aircraft
Primary Problem : Weather

Narrative: 1

I am the Captain and was Pilot Monitoring (PM). The First Officer (FO) was the pilot flying. I called dispatch on Satcom enroute to get an update on weather on our route. The dispatcher mentioned a small speck of weather on the Sat IR approximately 150 miles ahead on our position. We already were looking at that on our radar and started a deviation to the west of course with ATC clearance about 80 miles away.

Our current altitude was 39,000, the optimum altitude was 37,900. We were 1,000 above optimum but also 2,900 below Max (41,900). We had selected that altitude as the ride was not good at 35,000 and we were unable to get 37,000 approved earlier.

The Weather was on the route at OPLIP intersection, and our Deviation was west of course 60 NM. Time was XA:40Z and we were talking with Amazonica Control. As we approached the cell (still approx. 40 miles off our left) the FO deviated even further to the west to give a wider berth. With the turbulence we had slowed to mach 82. We were about 20 knots above the yellow hook. VNAV was engaged and rather abruptly we both noticed a change in wind direction from a right cross wind of 30 to a headwind of 25. I noticed a sudden change in Total Air Temperature (TAT) temp warmer and then the Pitch Limit Indicators (PLI) displayed on the PFD about 1.5 degrees above our pitch attitude and the speed was decreasing, still above the yellow hook. Engine thrust was now at max Climb we both knew that we would not be able to maintain altitude. The FO asked me about a descent, I said yes descend immediately.

I called once to ATC for a clearance and got no reply to our request. I declared a mayday and broadcast our intention to descend to 370.

The FO selected 370 and pushed the altitude select button and turned the jet even further from the cell. I suggested a vertical speed descent rather than VNAV.

I scanned the engine instruments and EICAS on the descent I notice the temp had gone from -18 to -3. Almost as quickly as we had lost speed in the descent we gained it, and quickly approached max airspeed or the red tape. The FO had his hands full selecting the heading sector and pulling the throttles back some. I used the speed brakes to aid the descent and control speed, after some variable movements in speed from the high to low (all still within the yellow and red bands) we leveled off and maintained 370.

I explained our reason for the Mayday call to Amazonica control and got clearance to

maintain 370. After passing the weather we were in the clear and returned to the track.

We surmised that the temp change put the airplane in a coffin corner situation suddenly and once we got slightly behind the power curve, the aircraft was unable to maintain altitude.

I've seen sudden changes in wind speed and direction around thunderstorms and also temps changes, but this was the most significant temp change I've witnessed. We gave this rapidly developing cell (with significant lightning during our passage) at least 20 miles clearance at all times and choose to fly upwind of the cell. But even that was not enough to avoid these atmospheric circumstances prompting our Mayday descent. The Mayday call was to warn ATC and other aircraft of the immediate situation, the outcome of which was never in doubt. [The other] FO was in the bunk and was briefed on the event after our crew change a short period later.

Dispatch needs better weather tools for Thunderstorms in Latin South America. They often look at weather and think that not much weather exists and can offer no help to crews in real time. Often causing us to deviate far off course to avoid developing thunderstorms, such as this weather event. Also inflight weather charts and Radar for flight crews in a must in this modern era. Most GA aircraft have much better real time pics of the weather than a $300 M airline aircraft, using hours old paper charts and old electronic data from prior to block out! It's time for real time weather in our flight decks!

Narrative: 2

[Report Narrative Contained No Additional Information].

Synopsis

A B777 flight crew encounters turbulence at FL390 approaching a thunderstorm over South America. A sudden temperature increase and wind shift make FL390 untenable and a descent is requested. At FL370 the crew is able to maintain airspeed and altitude.

ACN: 1260211 *(37 of 50)*

Time / Day

Date : 201504
Local Time Of Day : 0601-1200

Place

Locale Reference.Airport : PHX.Airport
State Reference : AZ
Altitude.AGL.Single Value : 34

Environment

Flight Conditions : VMC
Light : Daylight

Aircraft : 1

Reference : X
ATC / Advisory.Tower : PHX
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
Nav In Use : FMS Or FMC
Flight Phase : Climb
Flight Phase : Takeoff
Airspace.Class B : PHX

Aircraft : 2

ATC / Advisory.Tower : PHX
Aircraft Operator : Air Carrier
Make Model Name : A320
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
Airspace.Class B : PHX

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 : Commercial
ASRS Report Number.Accession Number : 1260211

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

Narrative: 1

We were cleared for takeoff on runway 25R. (The aircraft that took off before us was an A320.) The takeoff roll was uneventful. After lift-off, at 34 feet RA [Radar Altimeter], our aircraft made a sharp uncommanded roll to the left. Max bank angle was 15 degrees. Immediately recognizing that we were caught in wake turbulence, I make a very positive corrective action with the side stick to the right and was able to recover the aircraft before the wing tip struck the ground. The remainder of the climb-out and flight were uneventful.

Synopsis

An narrow body Airbus First Officer reported encountering wake turbulence very shortly after takeoff in trail of an A320 that resulted in a "sharp" roll to the left.

ACN: 1259814 *(38 of 50)*

Time / Day

Date : 201505
Local Time Of Day : 0601-1200

Place

Locale Reference.ATC Facility : ZZZ.ARTCC
State Reference : US
Altitude.MSL.Single Value : 34000

Environment

Flight Conditions : VMC
Light : Daylight

Aircraft

Reference : X
ATC / Advisory.Center : ZZZ
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 : Cruise
Airspace.Class A : ZZZ

Component

Aircraft Component : Autoflight Yaw Damper
Aircraft Reference : X
Problem : Malfunctioning

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 : 1259814
Human Factors : Training / Qualification
Human Factors : Troubleshooting
Human Factors : Workload
Human Factors : Confusion

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Anomaly.Deviation - Procedural : MEL
Anomaly.Deviation - Procedural : Published Material / Policy
Detector.Automation : Aircraft Other Automation
Detector.Person : Flight Crew

When Detected : In-flight
Result.General : Maintenance Action
Result.Flight Crew : FLC complied w / Automation / Advisory
Result.Flight Crew : Took Evasive Action

Assessments

Contributing Factors / Situations : Procedure
Contributing Factors / Situations : MEL
Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

After showing up to start our shift I noticed that Yaw Damper (YD) 1 had been deferred. I briefed the MEL book and verified that "YD1 inop" status message was indeed illuminated indicating that YD 1 was selected off. All of the MEL parameters had been complied with. After take off the status of the yaw dampers had changed to a yellow caution message. Which led me to believe that neither YD was engaged. The auto pilot would not engage. I reset YD2 and all YD messages were gone I selected YD1 engage so as to disconnect YD1. YD 1 did not disconnect. We continued our climb as we tried to figure out the issue. Finally at flight level 340 we felt uncommanded yaw inputs which were verified by the flight controls EICAS page. There were no abnormal EICAS messages. We described the situation to Center and requested lower to trouble shoot the problem. After being cleared to FL240 we descended and slowed the aircraft as I searched through the QRH for possible corrective actions. After finding "uncommanded yaw inputs" I was directed to turn off both yaw dampers. I selected both yaw engage buttons but neither yaw damper disconnected. I tried this several times. I requested priority handling from Center and was cleared direct to our filed destination. We slowed the aircraft to 250 knots as directed by the QRH. Sometime later the YD 1 white status message appeared on EICAS 2We considered deviating and landing at several other airports. After the YD inop status message appeared the uncommanded yaws stopped. Although I did notice that some yaw was occurring on the Flight control page. We continued on to our filed destination and landed without further event.

Synopsis

A CRJ-900 Yaw Damper 1 (YD1) was MEL'ed. After takeoff, YD-2 was engaged which also apparently engaged YD-1. At cruise uncommanded yaw inputs occurred which were verified on the EICAS. The crew descended, completed the UNCOMMANDED YAW INPUT QRH procedure and disconnected both yaw dampers.

ACN: 1256155 *(39 of 50)*

Time / Day

Date : 201504
Local Time Of Day : 1801-2400

Place

Locale Reference.ATC Facility : RJJJ.ARTCC
State Reference : FO
Altitude.MSL.Single Value : 33000

Environment

Flight Conditions : IMC
Weather Elements / Visibility : Turbulence
Light : Night

Aircraft

Reference : X
ATC / Advisory.Center : RJJJ
Aircraft Operator : Air Carrier
Make Model Name : B747-400
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Mission : Cargo / Freight
Nav In Use : FMS Or FMC
Flight Phase : Cruise
Route In Use : Oceanic

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 Not Flying
Qualification.Flight Crew : Air Transport Pilot (ATP)
ASRS Report Number.Accession Number : 1256155
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 : First Officer
Function.Flight Crew : Pilot Flying
Qualification.Flight Crew : Air Transport Pilot (ATP)
ASRS Report Number.Accession Number : 1256156
Human Factors : Situational Awareness

Events

Anomaly.Deviation - Altitude : Excursion From Assigned Altitude
Anomaly.Deviation - Speed : All Types
Anomaly.Deviation - Track / Heading : All Types
Anomaly.Inflight Event / Encounter : Weather / Turbulence
Anomaly.Inflight Event / Encounter : Loss Of Aircraft Control
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Returned To Clearance
Result.Flight Crew : Regained Aircraft Control

Assessments

Contributing Factors / Situations : Weather
Primary Problem : Weather

Narrative: 1

Approximately 3hr 10min into the flight at cruise in night IMC, FL330, coasting out of Japan within Tokyo FIR and radar contact, we encountered sudden and severe turbulence resulting in large vertical and lateral deviations. The initial event lasted several minutes, followed by two more less severe events, in total lasting perhaps 15 - 20 min.
There were no SIGMETS that we were aware of, weather and windshear (w/s) data on the OFP for that segment (for FL310, we were at FL330) showed no significant w/s (4 or less). FL330 appeared to be "in the tops" of the existing cloud layer, which showed no significant radar returns or convective activity. The weather radar system(s) appeared to be operating normally, showing appropriate ground returns etc. when cycled through range, pitch and gain settings. The first encounter was very sudden and severe, with little or no warning beyond what had been only light to moderate turbulence at the time.

My first thought was that we had clipped the top of a thunderstorm cell, but there was no indication on the radar, and no lightning, hail or other weather phenomena that would indicate the presence of a thunderstorm. Initial pitch up was not extreme, but accompanied by large airspeed and altitude deviations, resulting in intermittent overspeed and stick shaker warnings. This was followed by a roll to the right of approximately 25 degrees and resulted in a 50 - 60 degree heading change and loss of LNAV capture.

Observed altitude excursions were approximately +700 feet, to -500 feet from FL330. Airspeed fluctuations were too large and erratic to capture. FO, as PF, initiated recovery by disconnecting A/P and A/T and attempting to limit pitch and roll excursions and stabilize the flight path and airspeed. ATC was notified and did not report any conflict or traffic hazard in our immediate vicinity. We heard no other reports of severe turbulence on frequency, or on 121.5 mHz. There were no TCAS targets displayed nearby. Once brought back to a more stabilized path (perhaps 1 - 2min) the automation was reengaged and we again tried to determine if there were thunderstorms in the area, and again found none. A second encounter soon followed, with less severe flight path excursions, recovered in the same manner. Both events resulted in altitude and course deviations outside of regulatory limits, and were beyond our control.

Some factors to consider:
1. We were filed for FL310 initially as our T/O was at MGTOW. FL310 was not available from departure, we were offered FL270 or FL330. FL330 was chosen, which was the maximum for our GW. Once level we elected to use LRC over ECON initially in order to "split the difference" between the amber bands on the airspeed indicator until our GW reduced. 3hrs later we were still in LRC which resulted in a .859m cruising speed when the

turbulence was encountered. Mach .82 was entered into VNAV as soon as the automation was re-engaged, followed eventually by ECON for the remainder of the flight.

2. Upset training works, FO's quick response and deliberate but smooth recovery, using techniques trained for annually, was directly responsible for the safe outcome, and undamaged aircraft, from this thankfully rare event.

3. CRM/captain authority issues. CRM/TEM training works as well. While many would say hand flying in severe turbulence should be a "captain only" event, I disagree, with certain caveats. As stated, FO was PF, yet with the first sudden encounter I also instinctively reached for the yoke and thrust levers, resulting in both pilots on the controls precisely when the need for smooth inputs is absolutely critical. Keeping that in mind, but remaining prepared, I withdrew my hands from the controls and continued as PM while FO performed the recovery. Clearly there are arguments for either case, but they are also not mutually exclusive, as I remained prepared to switch roles if I thought it was required, which I am glad to report was not the case. Both pilots were intently focused on all aspects of the flight path, but working as a team and not in a tug of war on the controls. We don't train that way in the simulator, that is: switching roles in the middle of an upset, so we shouldn't be adding a step to the maneuver in the chaos of the real event; it is a bad time to practice a hand off, provided the PF is winning the battle.

4. Fatigue/FRM. As can often happen, my rest plans did not result in the amount of sleep intended, though I was in bed in a quiet, dark room during the pre-duty rest period. The departure was late afternoon local, with full daylight for at least the first part of the flight, and we were a 3 man crew so I knew there would be a rest period. Fitness for flight is by nature a subjective call, and while I did feel somewhat tired at pick up time, I judged myself fit for duty. My practice as captain, once the PF/PM/RP duties are established, is to give first choice of rest to the PF, who in this case chose the middle rest period. As I felt sufficiently rested to stay in the seat for the first part of the flight I elected to take the last rest period. After sunset now, at 3hrs in cruise when the event began, I was experiencing some fatigue and probably was not 100% precisely when, at an instant's notice, 150% was required.
I would describe this as one factor in the overall equation of this event, with perhaps the worst place for me to have been at that time would be in the bunk.

Recommended practices for future events. Preparedness is the key, and planning as much as practical in terms of weather forecasts and flight planning. But, as in our case, where it was almost completely unexpected, proficient hand flying skills are the most important tool to have immediately available. My understanding is that there will be increased emphasis on real time, less scripted, training scenarios. That will likely add realism to promote greater preparedness for such extreme and unexpected events like the one we encountered.

Narrative: 2

Approximately 3 hrs into our flight while cruising at FL330 and in Tokyo FIR we suddenly encountered severe turbulence that resulted in the aircraft deviating from assigned altitude and course. Airspeed control was lost and fluctuated rapidly from over speed to stick shaker. Pitch up was not excessive but aircraft did climb rapidly and rolled and skewed violently to the right resulting in a large departure from its previous course. Maybe, 60 degrees of heading and a lateral displacement of some distance. I could not say how far with any accuracy. I disconnected all automation and attempted to recover, very mindful of not exacerbating the situation. Aircraft did not respond well to control inputs but I was able to limit the deviations initially, and then bring it back under control. As we

were attempting to bring the aircraft back to course and altitude we re-engaged the automation and a few seconds later we encountered more severe turbulence that resulted in a loss of flight path control for a second, brief time. We recovered the aircraft as before and returned to course and altitude. Altitude deviations were approximately plus 700-800 and minus 500-600, lateral displacement was approximately 2-3 miles. The captain made two radio broadcasts to Tokyo to report our situation, both acknowledged by ATC.
At no time prior to this were any significant radar returns seen along our route of flight. The night was dark but the sky was full of stars and no convective activity had been observed or reported. However it did appear that we were flying over a broken layer of cloud and a few of these reached our altitude.

FL330 was the maximum altitude for our weight and was selected due to filed level not being available, and, our fuel load being very tight on a re-release flight plan, the alternative FL270 would have been too low. However a careful analysis before departure gave us no reason for concern and we adjusted our cruising speed, selecting LRC, to better match our situation. There were no mechanical issues with the aircraft and the radar when tested had performed as expected. My radar range was set to 80 miles prior to the event but after the first encounter I selected 40 miles and confirmed it was set to display turbulence. The aircraft performed flawlessly prior to and after the event.

Synopsis

B747 flight crew experiences severe turbulence at FL330 in the Tokyo FIR. Altitude deviations of 600-700 feet occur along with stick shaker and over speed warnings. The First Officer disconnects the autopilot and auto thrust to return the aircraft to stable flight. A second and third event of less severity occur over the next ten minutes. Flight continues to destination.

ACN: 1253644 *(40 of 50)*

Time / Day

Date : 201504
Local Time Of Day : 1201-1800

Place

Locale Reference.ATC Facility : ZZZ.ARTCC
State Reference : US

Environment

Flight Conditions : VMC
Light : Daylight

Aircraft

Reference : X
ATC / Advisory.Center : ZZZ
Aircraft Operator : Air Carrier
Make Model Name : EMB ERJ 145 ER/LR
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Flight Phase : Cruise
Airspace.Class A : ZZZ

Component

Aircraft Component : Spoiler System
Aircraft Reference : X
Problem : Malfunctioning

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)
ASRS Report Number.Accession Number : 1253644
Human Factors : Troubleshooting
Human Factors : Workload
Human Factors : Situational Awareness
Human Factors : Training / Qualification

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Anomaly.Deviation - Procedural : Published Material / Policy
Anomaly.Deviation - Procedural : Maintenance
Detector.Automation : Aircraft Other Automation

Detector.Person : Flight Crew
When Detected : In-flight
Result.General : Maintenance Action
Result.Flight Crew : Diverted
Result.Flight Crew : FLC complied w / Automation / Advisory
Result.Flight Crew : Took Evasive Action

Assessments

Contributing Factors / Situations : Procedure
Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

I was acting as the pilot monitoring. Upon reaching our planned cruise altitude of 37,000 feet the pilot flying accelerated initially to a speed of Mach .70. All indications were normal at that time, and the items of the cruise checklist were completed but not verbalized. After a short while at cruise, the Spoiler Fail EICAS caution message appeared. This caution extinguished approximately 5 seconds after it appeared. At this time the pilot flying and I noticed the spoiler indication was flashing from OPN to CLSD repeatedly. There were not any crew initiated reasons for this to be occurring. There were also no airspeed, altitude, pitch, or roll deviations at this time. I then proceeded to locate the UNCOMMANDED SPOILER DEPLOYMENT IN FLIGHT QRH checklist. The checklist verified the caution message we received was applicable to the situation. This checklist was complied with, dispatch and maintenance were notified, and the required circuit breakers were pulled. After communicating with dispatch and maintenance control as well as discussing the condition ourselves, we felt we had a "floating" spoiler causing the indication. Due to this, and the level of control we had with the airplane, we decided a diversion to a nearby airport would be our best option for landing at the nearest suitable field. This option provided us with enough time to complete all remaining checklists, get required ATIS and NOTAM information for the divert airport, complete the diversion report, and make all required notifications to the crew and passengers.

After about 20 minutes at cruise a request was made with Center to exit RVSM airspace and change our destination. We continued our descent to 10,000 feet to burn additional fuel to lighten the landing weight of the aircraft. We chose to do this because we initially did not know if we would be in an overweight landing situation, as well as to make stopping without the use of spoilers easier on the equipment and lessen the chances of overrunning the runway. At this time I also pre-emptively ran the overweight landing checklist, just to make sure we covered those items in the case of being overweight.

While finishing the QRH for the spoilers we received compensated landing numbers with a 1.35 QRH factor, and determined that we would be lading under structural limits, and that we would have more than the required runway distance for the landing in our divert airport.

The pilot flying and I decided that due to the slight risk of having a loss of control due to a malfunctioning secondary flight control the safest option would be to have ARFF notified to be ready for our arrival. We were given clearance to descend and proceed direct to the airport. We were then vectored for a visual approach to runway 32. Our landing occurred without any incident.

We were able to taxi to the terminal under our own power, where the passengers were

removed from the aircraft and taken to the airport terminal. Upon meeting with maintenance we were informed this tail number has a continued history of this problem. A post-flight walk around revealed no abnormalities, fluids, or damage.

The crew acted in a very calm manner throughout this situation and good CRM procedures were utilized. Many passengers commented on the fact they felt better about the situation due to the Captain's PA explaining what was happening.

The threat that occurred during this flight was an uncommanded spoiler deployment in flight. The threat was managed by use of the QRH and established procedures for this known situation. The situation never progressed beyond a threat. No errors, No undesired aircraft state.

I believe the crew acted in an extremely professional and calm manner. I attribute this to the training and CRM.

Synopsis

An EMB-145 EICAS alerted SPOILER FAIL while at cruise, so the UNCOMMANDED SPOILER DEPLOYMENT IN FLIGHT QRH was completed and the flight diverted to a nearby airport. The aircraft control felt normal but after landing the crew determined this was a repeat anomaly.

ACN: 1253218 *(41 of 50)*

Time / Day

Date : 201504
Local Time Of Day : 1201-1800

Place

Locale Reference.ATC Facility : ZZZ.ARTCC
State Reference : US
Altitude.MSL.Single Value : 18000

Aircraft

Reference : X
ATC / Advisory.Center : ZZZ
Aircraft Operator : Air Carrier
Make Model Name : Regional Jet 700 ER/LR (CRJ700)
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Flight Phase : Climb
Airspace.Class A : ZZZ

Component

Aircraft Component : Rudder Control System
Aircraft Reference : X
Problem : Malfunctioning

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 : 1253218
Human Factors : Situational Awareness
Analyst Callback : Completed

Events

Anomaly.Aircraft Equipment Problem : Critical
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Returned To Departure Airport
Result.Flight Crew : Landed in Emergency Condition

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

On climb out passing 18000 we started getting erratic uncommanded rudder movement. First to the right then to the left. We checked our flight control page on the EICAS and noticed everything was normal on the page with the rudder indication dead center but the rudder was still moving as the brick was moving back and forth and the aircraft was yawing back and forth. It was not violent, but you could feel it moving. We slowed down to to 250 knots initially to avoid aggravating the situation as every rudder input you have given to the aircraft slightly aggravated the rudder. We were worried that we had a PCU that was going bad and it could possibly hardover on us. We opted to return [to the departure airport] since it was closest with most CFR in the area and the longest runways. We told the controllers what was happening and told them we needed to slow down and descend. We proceeded to complete the checklists and headed back. On the descent the aircraft was still moving back and forth with the rudder still moving erratically. We asked the controllers for wide shallow turns on to final and a slower speed which made the ride back much better for us. Throughout the remainder of the flight, the rudder indication stayed centered and normal even though the actual aircraft was still swaying from rudder movement. We had no other indication or any alerted messages. After landing we taxied to the gate and parked without incident, shut the aircraft down and went outside to look at the rudder for any damage. When we got outside to look at the rudder, it was still moving back and forth with the engines shut down and the hydraulic pumps still on.

Callback: 1

The reporter has not been informed of the cause of these rudder oscillations but he believes that a PCU anomaly is the only unannunciated fault that could cause the rudder to move uncommanded.

Synopsis

CRJ700 Captain reported passing FL180 experience erratic uncommanded rudder movement. With the aircraft yawing back and forth, no movement is visible on the EICAS flight control page. The crew elects to slow down, and return to the departure airport for an uneventful landing. After parking at the gate with the engines shut down but with the hydraulic pumps on the rudder was still moving back and forth.

ACN: 1252316 *(42 of 50)*

Time / Day

Date : 201504
Local Time Of Day : 1201-1800

Place

Locale Reference.ATC Facility : ZZZ.ARTCC
State Reference : US
Altitude.MSL.Single Value : 39000

Environment

Flight Conditions : IMC
Light : Daylight

Aircraft

Reference : X
ATC / Advisory.Center : ZZZ
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 : Cruise
Airspace.Class A : ZZZ

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 Not Flying
Qualification.Flight Crew : Air Transport Pilot (ATP)
ASRS Report Number.Accession Number : 1252316
Human Factors : Physiological - Other
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 : Pilot Flying
Function.Flight Crew : First Officer
ASRS Report Number.Accession Number : 1252344
Human Factors : Physiological - Other
Human Factors : Situational Awareness
Human Factors : Workload

Events

Anomaly.Flight Deck / Cabin / Aircraft Event : Other / Unknown
Anomaly.Deviation - Altitude : Excursion From Assigned Altitude
Anomaly.Deviation - Speed : All Types
Anomaly.Inflight Event / Encounter : Weather / Turbulence
Anomaly.Inflight Event / Encounter : Loss Of Aircraft Control
Detector.Person : Flight Crew
When Detected : In-flight
Result.General : Maintenance Action
Result.Flight Crew : Took Evasive Action
Result.Flight Crew : Regained Aircraft Control

Assessments

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

Narrative: 1

I was Pilot Monitoring (PM). We had seen some dark areas on the Doppler for a system moving through the country over the southeastern US, and had the weather radar on. The radar was on automatic tilt. We were cruising at FL 390 painting nothing on the radar in smooth flight (in fact the seat belt sign was off). Suddenly the aircraft encountered severe turbulence. I immediately threw the seat belt sign on as the pilot flying (PF) grabbed the yoke with both hands and turned the autopilot off. The aircraft then went 15 degrees wing down in a descent and the airspeed increased as the clacker went off.

The First Officer (FO) continued to fly the aircraft, making pitch adjustments manually and I assisted on the throttles. The airspeed tapes "closed in" on us quickly and soon the stick shaker went off. The PF did a fantastic job flying out with stall recovery, but soon the clacker went off again. In the process we lost 300 feet and I called ATC for immediate descent to FL 370, which we did. The aircraft rolled 15 degrees to either side throughout and the PF flew very well, keeping aircraft control. The entire episode lasted about 30 seconds and we returned to controlled flight at FL 370. PIREP given to ATC. I called to the back to check Flight Attendants (FA), they were startled of course but reported nothing but a very messy galley. I had the FO make a PA, while I typed a message to Dispatch for severe turbulence. I double-checked with FA's for how the Passengers were doing, they reported no injuries but lots of mess. One gentleman had been in the lavatory, but no one else was standing so that worked out in our behalf.

The FA's had been thrown around but reported no injuries as well. I then phone patched Dispatch through the Company frequency and made a voice PIREP and told them I would be doing a writeup. The flight continued on and landed uneventfully. Logbook writeup made and aircraft pulled out of service for inspections.

The Flight Attendants did an amazing job keeping everyone calm and cleaning up a large mess, as most Passengers had drinks spilled as well as a big galley mess. They should be acknowledged for a job well done, especially our "A". I would also like to note that we completed a series on phone "interviews" upon landing, and were asked if we were ok to continue on. Both of us still had a lot of adrenaline going and answered yes. In hindsight, we should have stopped our day right there, and not even been given the option. We had two more legs in challenging weather and made some minor mistakes we would not

normally have made. Our natural inclination is to get the job done and power through, but I don't think I would do that again.

Narrative: 2

I was Pilot Flying (PF) during cruise at FL 390, 0.78 Mach. We were flying in a stratus layer associated with an occluded front and had the Weather radar on. We encountered turbulence that resulted in 15-degree roll and stick-shaker activation. I disconnected the autopilot and pitched the nose down. The aircraft kept climbing due to the updraft, and we simultaneously heard and felt the stick-shaker and high speed warning. The Captain was quick to call ATC and request FL 370, and he kept the power up. I had to lose about 300 feet to remain at flying speed. The over speed was approximately eight to ten knots into the "clacker".

After reaching FL 370, the Captain contacted ATC and issued a UUA Urgent PIREP of severe turbulence. He addressed the Flight Attendants and assessed that there were no injuries. The Customers were notified. The Captain notified Dispatch to have Maintenance meet the aircraft upon arrival. Maintenance subsequently pulled the aircraft out of service for inspection.

There were no radar returns depicting thunderstorms in the flight path, and there were no PIREPS of MDT/SVR turbulence along this airway. The Captain and I did discuss our possible crossing of a cold front with MESO activity and thunderstorms, and we had the radar set appropriately. Had we remained at FL370 instead of FL390, we would have remained in the tops instead of (mostly) in the clear. I believe that the Flight Crew and Dispatch did the best with what we had to work with.

Synopsis

A B737-700 crew reported severe turbulence at FL390 which resulted in a stall recovery descent with both stick shaker and overspeed warnings. No injuries were reported but the aircraft was removed from service.

ACN: 1251949 *(43 of 50)*

Time / Day

Date : 201504
Local Time Of Day : 1201-1800

Place

Locale Reference.ATC Facility : EGTT.ARTCC
State Reference : FO
Altitude.MSL.Single Value : 32000

Environment

Flight Conditions : VMC
Light : Daylight

Aircraft : 1

Reference : X
ATC / Advisory.Center : EGTT
Aircraft Operator : Air Carrier
Make Model Name : B767-300 and 300 ER
Crew Size.Number Of Crew : 3
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Nav In Use : FMS Or FMC
Flight Phase : Climb

Aircraft : 2

ATC / Advisory.Center : EGTT
Aircraft Operator : Air Carrier
Make Model Name : B777 Undifferentiated or Other Model
Crew Size.Number Of Crew : 3
Operating Under FAR Part : Part 121
Flight Plan : IFR
Flight Phase : Climb

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)
ASRS Report Number.Accession Number : 1251949

Person : 2

Reference : 2
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)
Experience.Flight Crew.Type : 250
ASRS Report Number.Accession Number : 1251950

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 : Environment - Non Weather Related

Narrative: 1

We departed London and had just reached our cruising altitude of FL320. It was VMC and we had asked ATC for ride conditions. They advised smooth, no complaints. Seat belt sign was on. All of a sudden we received two violent jolts, rolling the aircraft up and to the right. There were negative g's and objects thrown around. It was sudden and with no warning. We heard objects being thrown about in the back. Airspeed increased and aircraft was thrown in pitch up and roll, twice.

Asked ATC about separation and advised we had a wake turbulence encounter. They had just turned us with a heading off of the airway. They advised we were approximately 12 miles behind and 2200 feet below a 777. We advised that we needed more separation and also informed them we had injuries. No traffic showed on TCAS - probably because he was greater than 2000 feet above.

After we were assured aircraft was under control and we were separated from the threat, I called back to check on the flight attendants (FA). They were all shaken up, but one FA in the rear had a cart land on her when it came back down, hitting her knee. Advised dispatch and medical. FA was relieved of duties for the remainder of flight, and seated with her leg elevated and the knee covered in ice. Her shoulder and neck hurt as well, but the knee was the worst. There was no sign of bleeding or torn skin, but it was clearly banged and swelling larger than the other knee.

Asked [Dispatch] to bring [Maintenance] in on the line. Asked [Manager] if we were legal to continue and enter ETOPs airspace after a severe turbulence encounter; explained we had the two bouts of negative g's. [Manager] advised he would check, and got back to us with an ACARS message explaining he had checked with the fleet, and wake turbulence encounter was not severe turbulence. Based on this clarification made the logbook entry "wake turbulence encounter". Also made logbook entries for the medical kit being used.

FA was being met by her husband anyway at destination, and stated she would prefer to go to [Company] clinic with him, than to be met by paramedics. Asked [Dispatch] if they could verify if clinic would be open when we arrived, but they never got back to us.

An FA supervisor met the flight and we explained the situation to him. Lead FA did an excellent job and the injured FA had a very good attitude.

Narrative: 2

[Report narrative contained no additional information]

Synopsis

B767 flight crew reported encountering wake turbulence at FL320 in trail of a B777 departing EGLL that resulted in injuries to a Flight Attendant.

ACN: 1251357 *(44 of 50)*

Time / Day

Date : 201503
Local Time Of Day : 1801-2400

Place

Locale Reference.ATC Facility : ZZZ.ARTCC
State Reference : US
Altitude.MSL.Single Value : 37500

Environment

Flight Conditions : Mixed
Light : Night

Aircraft

Reference : X
ATC / Advisory.Center : ZZZ
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
Nav In Use : FMS Or FMC
Flight Phase : Climb
Airspace.Class A : ZZZ

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 : 1251357
Human Factors : Workload
Human Factors : Troubleshooting
Human Factors : Situational Awareness
Human Factors : Human-Machine Interface
Human Factors : Distraction
Analyst Callback : Completed

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 : 1251596
Human Factors : Workload
Human Factors : Troubleshooting
Human Factors : Situational Awareness
Human Factors : Distraction
Human Factors : Human-Machine Interface
Analyst Callback : Attempted

Events

Anomaly.Aircraft Equipment Problem : Critical
Detector.Automation : Aircraft Other Automation
Detector.Person : Flight Crew
When Detected : In-flight
Result.General : Maintenance Action
Result.Flight Crew : Took Evasive Action
Result.Flight Crew : Returned To Departure Airport
Result.Flight Crew : FLC complied w / Automation / Advisory
Result.Flight Crew : Landed in Emergency Condition
Result.Flight Crew : FLC Overrode Automation
Result.Aircraft : Automation Overrode Flight Crew

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

Passing through 37,500 for a cruise at flight level 380 the autopilot went into control wheel steering pitch mode. It appeared that the autopilot was not going to level off at the assigned altitude. Both the First Officer (FO) and myself reached for the controls and disconnected both the autopilot and autothrottles.

At about the same time the Captain's primary flight display (PFD) started showing mulitple erratic indications on both airspeed and altimeter. These were accompanied by multiple aural alerts. I switched the flying duties to the FO's side while getting out the QRH. Nothing could be found, at first, in the QRH that matched our situation. I went to the airspeed unreliable checklist first but other items were failing so we weren't sure if that was the correct check list to follow.

We notified ATC that we had some navigational problems and inquired about our course. They said our altitude was erratic and showing quick changes from 38,000 feet. We switched to our number 2 transponder to see if that would solve the problem. Center then showed us level at 38,000 feet. Then I got a unable required Nav Perf-RNP. Both the RNP and ANP were amber. I went to the POS page 2 and saw that our IRS were drifting apart. Left side showed 13 miles while the right side showed 5 miles and drifting even more apart. We inquired about our track and was told it appeared we were drifting off course. We requested a vector to a nearby vortac. This was given and told to proceed when able.

About that time I got an IRS fault and again checking the POS page 2 saw that I had lost the left IRS. Followed the QRH I switched the IRS to both on the right side. Nothing happened to my PFD and the FO's PFD started to drift off making his side worse. I switched the IRS back to the normal position and for a short time that fixed the FO's instruments.

I called both Dispatch and Maintenance Control advising them of the situation. By this time we had been hand flying and the navigational instruments were in question. I informed both that we were going to return to the departure airport. Dispatch re-dispatched us for our return via ACARS. We advised ATC of our intentions and were given a heading back. We noticed that our standby heading indicator was showing us on a 120 heading while we were still flying a 300 heading. It also had a flag showing it was inop.

As soon as the FO started his turn we received two uncommanded rudder inputs causing a sharp roll to the left. The captains instruments were showing both pitch and bank angle in excess and was getting both aural alerts to each. Then my PFD went blank since I still had the overhead switch in the normal position on the IRS.

After the uncommanded rudder input I advised ATC that we were no longer RVSM qualified. We requested a lower altitude and was assigned flight level 280. As we started the descent we realized that 28,000 would put in IMC. Not wanting to go IMC with our faulty navigational instruments I requested to stop at 34,000 to stay VMC and that was approved.

We checked weather at several different locations but none had the weather we felt comfortable flying in considering our current problems. We flew back to our departure airport via radar vectors and using our whiskey compass. Weather at our departure airport was VMC and we knew a visual approach could be made easily. Both the FO and myself took turns doing the flying. We elected not to trim or change the configuration of the aircraft since we weren't sure exactly what was wrong with the jet and what caused the rudder input to roll the plane. We talked about our approach and how we would configure the plane for landing.

Since we had uncommanded input to the rudder we elected not to arm the speed brake for fear of early deployment. Flaps would be at 15 for a higher approach speed in case of a hard rudder throw. The ground prox flap inhibit switch was turned off used the single engine check list since that covered our abnormal landing configuration. Autobrakes 3 were selected but they had failed too. Autobrakes were turned off and normal braking was to be used.

While descending through 12,000 feet on our approach we experienced a third and more violent roll to the left, again caused by a uncommanded rudder input. At this point I instructed the FO to turn off the yaw damper. While on approach we still were receiving many false warnings concerning airspeed and windshear. The Captain's barber pole and yellow stall indicator were touching during the approach. After touch down the Captain's stick shaker went off throughout the roll out. After clearing the runway we taxied to the gate. The taxi in was uneventful.

All decisions made were based on the interest of safety. At no time did we deviate from any altitude, clearance, or FARs.

Callback: 1

The reporter stated that the Captain's PFD was ultimately blank. The only heading source available was the wet compass which the crew was not certain they could trust. After the flight, passengers and flight attendants reported several significant rudder "kicks", several more than the crew experienced. Maintenance reported an IRS transfer switch anomaly was apparently the cause. That component was replaced and the aircraft returned to service.

Narrative: 2

[Report narrative contained no additional information].

Synopsis

A B737-700 autopilot transitioned to Control Wheel Steering uncommanded, followed by the loss of both IRS, erratic airspeed, altimeter, pitch and bank indications as well as intermittent uncommanded rudder inputs. The flight returned to the departure airport where Maintenance suspected an IRS Transfer Switch Fault.

ACN: 1250242 *(45 of 50)*

Time / Day

Date : 201503

Place

Locale Reference.ATC Facility : ZZZ.ARTCC
State Reference : US
Altitude.MSL.Single Value : 36000

Environment

Flight Conditions : VMC

Aircraft

Reference : X
Make Model Name : B757 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

Component

Aircraft Component : Rudder Control System
Aircraft Reference : X
Problem : Malfunctioning

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 Not Flying
Experience.Flight Crew.Total : 10000
Experience.Flight Crew.Last 90 Days : 130
Experience.Flight Crew.Type : 4500
ASRS Report Number.Accession Number : 1250242

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)
Experience.Flight Crew.Total : 19000
Experience.Flight Crew.Last 90 Days : 250

Experience.Flight Crew.Type : 4000
ASRS Report Number.Accession Number : 1250254

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Detector.Person : Flight Crew
Detector.Person : Flight Attendant
When Detected : In-flight

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

While at cruise at FL360 we began to experience what felt like someone applying short, brisk, rudder inputs. These varied between left and right input, and there was no discernible pattern. The ride was smooth so as not to confuse this with any turbulence--supported by the Flight Attendants (FA) who all remarked they noticed the unusual behavior. After we realized it was a continuing anomaly, and because there were no indications of any rudder input by lower EICAS or actual rudder pedals, we [notified] ATC. We initiated the descent, referenced the QRH to our situation as practical, and continued to [destination]. The anomaly lessened considerably below FL200, and the flight terminated without further incident. Upon arrival at the gate we were informed there was at least one historical event on this airplane related to rudder control.

Narrative: 2

[Report narrative contained no additional information].

Synopsis

B757 flight crew reported noticing uncommanded rudder inputs in cruise flight. Crew decided to continue to destination.

ACN: 1248456 *(46 of 50)*

Time / Day

Date : 201503

Place

Locale Reference.Airport : PHX.Airport
State Reference : AZ

Environment

Flight Conditions : VMC

Aircraft

Reference : X
ATC / Advisory.Tower : PHX
Aircraft Operator : Air Carrier
Make Model Name : B737 Undifferentiated or Other Model
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Flight Phase : Takeoff

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 : 1248456
Human Factors : Other / Unknown

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)
Experience.Flight Crew.Total : 11000
Experience.Flight Crew.Last 90 Days : 240
Experience.Flight Crew.Type : 800
ASRS Report Number.Accession Number : 1248471

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Detector.Person : Flight Crew
When Detected : In-flight

Result.General : Maintenance Action
Result.General : Flight Cancelled / Delayed
Result.Flight Crew : Rejected Takeoff
Result.Flight Crew : Returned To Gate

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

Just as the 100 knot call was made the aircraft swerved to the left. Attempted to bring aircraft back to centerline using right rudder, but aircraft continued left. Reject was announced and maneuver completed. Rejected Takeoff (RTO) engaged and was released manually 3-4 seconds later. Max speed 110. Advised tower and we cleared the runway. Advised flight attendants to remain seated. After talking with station maintenance and Maintenance Control we taxied back to the gate.

Narrative: 2

We began a normal takeoff roll. Thrust was verified set on both engines. When I moved my scan to the airspeed indicator to make the 100 knot call, the airplane yawed left, the captain called an aborted takeoff and began the Rejected Takeoff (RTO) maneuver. The airplane accelerated for another moment and I estimate the airplane reached 105-110 knots. I made calls to the passengers to remain seated and informed ATC. No Airport Rescue and Fire Fighting (ARFF) assistance was requested. We ran the rejected checklist and then discussed whether inspection was needed. After maintenance coordination we returned to the gate. Several tests and checks were run on engines flight controls and brakes and yielded no result. We were asked to perform a high speed taxi test. We coordinated with the Duty Manager who advised we were not authorized to do this type of taxi test. The flight was canceled and crew sent to rest.

Synopsis

A B737 flight crew experiences a sudden yaw at 100 knots during takeoff. The takeoff is rejected. Maintenance can find no apparent reason for the swerve and the flight is canceled.

ACN: 1245806 *(47 of 50)*

Time / Day

Date : 201503
Local Time Of Day : 1201-1800

Place

Locale Reference.Airport : SFO.Airport
State Reference : CA
Altitude.MSL.Single Value : 1000

Environment

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

Aircraft : 1

Reference : X
ATC / Advisory.Tower : SFO
Aircraft Operator : Air Carrier
Make Model Name : B777 Undifferentiated or Other Model
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Mission : Passenger
Nav In Use.Localizer/Glideslope/ILS : Runway 28L
Flight Phase : Final Approach
Airspace.Class B : SFO

Aircraft : 2

Reference : Y
ATC / Advisory.Tower : SFO
Aircraft Operator : Air Carrier
Make Model Name : B757 Undifferentiated or Other Model
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Mission : Passenger
Nav In Use.Localizer/Glideslope/ILS : Runway 28R
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 : First Officer
Function.Flight Crew : Pilot Not Flying
Experience.Flight Crew.Total : 18000
Experience.Flight Crew.Last 90 Days : 200
Experience.Flight Crew.Type : 11000

ASRS Report Number.Accession Number : 1245806
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 Flying
Qualification.Flight Crew : Air Transport Pilot (ATP)
Experience.Flight Crew.Total : 15200
Experience.Flight Crew.Last 90 Days : 200
Experience.Flight Crew.Type : 5000
ASRS Report Number.Accession Number : 1245811

Person : 3

Reference : 3
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : First Officer
Function.Flight Crew : Relief Pilot
Function.Flight Crew : Pilot Not Flying
Experience.Flight Crew.Total : 14000
Experience.Flight Crew.Last 90 Days : 300
Experience.Flight Crew.Type : 2000
ASRS Report Number.Accession Number : 1245825

Events

Anomaly.Conflict : Airborne Conflict
Detector.Automation : Aircraft RA
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : FLC complied w / Automation / Advisory

Assessments

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

Narrative: 1

Vectors to the visual approach 28L SFO, with the captain flying the approach and myself as PM. We reported B757 in sight, who was for the right (28R). We were instructed at first to maintain 180 knots and immediately slowed to comply. We were not cleared for a visual approach until after we were vectored on a dog leg for final, where we used the ILS for lateral and vertical guidance. Shortly after joining final we were instructed to slow to 170 knots until 6 DME, as the B757 was not very far ahead of us. As the two airplanes progressed, and with myself primarily concerned with the traffic (90 percent outside), I noticed the B757 level off, or even pitch slightly up, drop their gear and obviously configure for approach. I also noticed that the B757 speed was decreasing and informed the captain, where we selected landing flaps 25 and slowed to approach speed (145 kts) so as not to pass the traffic. With eyes glued to the B757, that aircraft trend was slowly

but consistently trending toward our flight vector. I glanced inside and noted that the captain was even slightly left of course, confirming that we were not the migrating culprits. The lateral closure between our two airplanes was slow but consistent, and just as the proximity was becoming uncomfortable the B757 self-initiated a go around, and seconds later we got an RA to descend. No maneuvering was required on our part as the RA pitch bar did not command action beyond our normal glide path gradient at the time. From my vantage point it appeared that the B757 vector was still migrating toward our path even after initiating the go around, and perhaps 2-4 seconds passed before the B757 noticeably turned to the right, away from our vector. We continued to a normal landing with no need at any time to execute an avoidance maneuver beyond ensuring our descent complied with the RA. Whatever was going on in the B757 cockpit, I applaud them in their decision to initiate a go around before things "got out of hand" to the point where we would need to take more urgent action to avoid a collision.

Narrative: 2

While being vectored to a visual approach to Runway 28L in SFO, we were initially on autopilot. A B757 was also being vectored to runway 28R at the same time. Eventually we were cleared the visual, and on autopilot, intercepted the final approach and glide slope. We were also given the restriction to slow to 170 knots until 6 miles, which we did. Approaching the "bridge", I disconnected the autopilot and began to hand fly as we were on speed, on glide slope, and on the localizer as well. We were told to not pass the B757, but the B757 appeared to suddenly slow so we began slowing below 170 knots to stay behind him, in fact went to 30 flaps and 30 approach speed to stay behind him. That flight began to look like they were getting left of their centerline, so we creeped to the left a little to give him some room. Then we got a TCAS RA alert to descend so I continued to descend on the glide slope and stay just at the bottom of the red TCAS alert bar. The B757 went around, appeared to go over the top of us somewhat, but separation was assured and the RA alert stopped. We continued and made an uneventful landing. During the entire event we had the B757 insight.

Narrative: 3

We were flying the ILS 28L at SFO in VMC conditions, visibility was 10+ SM and ceiling better than 5,000 feet. A B757 was on the parallel ILS 28R and slightly ahead of us and in close proximity to our aircraft as is typical on any given day landing in SFO. We were flying the ILS 28L at SFO in VMC conditions, visibility was 10+ SM and ceiling better than 5,000 feet. A B757 was on the parallel ILS 28R and slightly ahead of us and in close proximity to our aircraft as is typical on any given day landing in SFO. We were instructed NOT to pass the B757, which we did not do and were not going to prior to touchdown. We were lined up slightly left of the LOC course purely for comfort factor, the B757 appeared to be on course and ever so slightly above our glide path.

At approximately 800 feet AGL I called out that the B757 was going around. Within a nano second we received a TCAS RA advising us to descend, at the same time the B757 had veered toward our course but remained above our glide path continuing to climb and alter course away from us. It happened so fast that we virtually had no time to respond but more importantly with visual reference to the B757 there was NEVER any threat to our aircraft since we were to the left and below the B757 during the whole parallel approach.

Until the B757 initiated their go around we were never aware of anything unusual about this parallel approach sequence. The only time we felt any sort of threat was during the TCAS RA when the B757 veered toward our course but since they were above us and

climbing we never felt safety was in jeopardy. The event confused all of us because we do not know why the B757 felt compelled to go around. We landed safely seconds later.

Synopsis

B777 flight crew on visual approach to Runway 28L at SFO experiences a TCAS RA with a B757 on approach to Runway 28R. The B757 had drifted slightly left of course and was slightly high and initiated a go around at the same time the B777 crew received their RA.

ACN: 1240481 *(48 of 50)*

Time / Day

Date : 201502
Local Time Of Day : 0601-1200

Place

Locale Reference.Airport : ATL.Airport
State Reference : GA
Altitude.MSL.Single Value : 3000

Environment

Flight Conditions : VMC
Light : Daylight

Aircraft : 1

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
Nav In Use : FMS Or FMC
Flight Phase : Initial Approach
Route In Use : Visual Approach
Airspace.Class B : ATL

Aircraft : 2

Reference : Y
Aircraft Operator : Air Carrier
Make Model Name : B747 Undifferentiated or Other Model
Flight Phase : Final Approach

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 : 1240481

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 : 1240478

Events

Anomaly.Deviation - Speed : All Types
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 : Took Evasive Action
Result.Flight Crew : Regained Aircraft Control

Assessments

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

Narrative: 1

Unusual attitude recovery at low altitude. Being vectored onto final in ATL following a 747. Separation about 5 miles. I think we were cleared to 3,000 feet heading 300 to join Runway 28 final and cleared the visual approach. We think around 4,000 feet and a couple miles south of final, flaps were at 20 degrees and about 170 knots and encountered wake turbulence. Initial roll was to the left just a few degrees then all of a sudden hard right roll of at least 130 degrees or possibly more. Saw nothing but ground out my forward windshield. I was pilot flying and turned off the autopilot and pushed full forward on yoke. First Officer (FO) pushed power forward but not sure if he went full power or not. Stick shaker was going off and I think I heard bank angle a couple of times. After shaker stopped I started rolling back out and started a gradual climb back up to glide slope and turned back toward the runway as we had turned a little bit toward the north probably about a 330 heading. Not sure of the recovery altitude but think it was around 3,000 feet (we did receive a low altitude alert from ATC.) My flight bag was upturned, the MEL and my Jepp book was on the floor and the knob on my audio control panel was missing. We reported incident to ATC, called Flight Attendant (FA) to check on PAX and she said all were ok. We decided to continue with approach and land. After landing we called dispatch and maintenance and requested assistance in case of any passenger wound up being injured.

Not sure if anything could be done to avoid event as I believe current separation procedures were being followed. Maybe a policy change from ATC on separation standards are in order. Upset recovery training works.

Narrative: 2

We were on the intercept for final approach in ATL for runway 28, following a 747. We believe we were cleared down to 3,000 feet on a heading of 300. We started to get a little turbulence and the wing dipped slightly to the left. I believe I stated something about possible wake and then we went inverted with a bank to the right approx. 130 degrees or more with the stick shaker. The nose was pointed slightly down. The Captain immediately started the unusual att. recover procedure. I added power with the stick shaker. The Captain rolled the aircraft back to the left and recovered eventually with a gradual climb. The aircraft was heading a little more to the north now so the Captain started a turn back

towards the final approach course. I told ATL we had recovered from an unusual attitude. ATC gave us an altitude alert. We continued the approach with no further wake turbulence.

Synopsis

CRJ-200 flight crew reported encountering wake turbulence in trail of a B747 on approach to ATL. Encounter resulted in a low altitude upset, with a bank angle in excess of 130 degrees.

ACN: 1239506 *(49 of 50)*

Time / Day

Date : 201502
Local Time Of Day : 1801-2400

Place

Locale Reference.Airport : LAX.Airport
State Reference : CA
Altitude.AGL.Single Value : 200

Environment

Flight Conditions : VMC
Light : Night

Aircraft : 1

Reference : X
ATC / Advisory.Tower : LAX
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
Nav In Use : FMS Or FMC
Flight Phase : Takeoff
Airspace.Class B : LAX

Aircraft : 2

Reference : Y
Aircraft Operator : Air Carrier
Make Model Name : Q400
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Phase : Takeoff

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 Not Flying
Qualification.Flight Crew : Air Transport Pilot (ATP)
ASRS Report Number.Accession Number : 1239506

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 Flying
Qualification.Flight Crew : Air Transport Pilot (ATP)
ASRS Report Number.Accession Number : 1239503
Human Factors : Situational Awareness

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.Flight Crew : Became Reoriented

Assessments

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

Narrative: 1

This narrative describes a low speed event which occurred within 5 to 10 seconds after takeoff. The First Officer (FO) was the pilot flying (PF). The aircraft takeoff weight was approximately 46,500 lbs. with a flap setting of 20 degrees, a trim setting of 7.8, and the use of reduced thrust. The airport weather was clear and the wind was reported at 3 knots, so almost calm. During this event the stick shaker activated and the aural stall warbler tone was heard. In my opinion, the circumstances of the event were induced by the combined effect of an aggressive pitch rate during rotation and encountering significant wake turbulence and propeller slipstream effects from the preceding departing aircraft within 100 to 200 feet above the runway during our initial climb. The following is a detailed description of the pertinent facts and timeline:

The aircraft preceding our flight in the takeoff sequence was a Bombardier Q400. When the Q400 was cleared for takeoff, our flight was instructed to line up and wait on the same runway. Once we were aligned with the runway and the Q400 was airborne our flight was almost immediately cleared for takeoff. The FO accepted control of our aircraft and began a reduced thrust takeoff roll. The takeoff roll was normal up to the rotation point. When the FO began to rotate the aircraft (i.e. pitch the nose upward), the pitch rate was aggressive and not typical. I would not say that I was alarmed, but I was definitely surprised. The initial climb rate was rapid up to between 100 and 200 feet above the runway at which time we began to encounter significant destabilizing wake turbulence and, I suspect, propeller slipstream effects from the preceding Q400. The turbulence encounter initially induced uncommanded roll excursions of up to 20 degrees left and right. Within roughly 2 seconds after the roll excursions began, the stick shaker activated and immediately after the stick shaker activated the stall warbler tone was heard for 1 to 2 seconds, after which all stall warning indications and roll excursions ceased. So, the entire encounter was perhaps 5 seconds, where the low speed event comprised the last 3 of those 5 seconds. The lowest airspeed I observed during this time was about 15 knots above the low speed checkerboard, but I was not fixated on the airspeed alone, and I believe the airplane continued to climb throughout the event. We continued to encounter definite, but more benign, wake turbulence disturbances through at least 1,500 feet above the runway elevation at which point we entered smooth air.

The following are additional items I either noticed or did not notice. (1) In spite of an aggressive takeoff rotation, the aircraft was not pitched beyond the initial command bar guidance designated by activation of the TOGA button prior to the takeoff roll. (2) The CRJ FCOM states that the stick pusher and stall switch/lights illuminate in conjunction with the stall warbler tone. I did not see the stall switch/lights illuminate, nor did I observe the stick pusher, and the FO stated to me that he did not feel the stick pusher activate. (3) The FO stated to me after the event that he had reduced pitch slightly when the stick shaker activated. While I do not question his assertion, I did not perceive his action at the time. (4) During this event, the engine thrust remained at the FLEX setting which was a deficiency in our response. When the stall warning system activated, it was my expectation that the FO would increase the engine thrust. However, by the time I realized the degree to which he was focused on manipulating the flight controls in the wake turbulence, the event had passed and aircraft control was no longer compromised. In this situation I should not have waited, but instead I should have immediately advanced the engine thrust to maximum as soon as it became apparent that the PF would not do so. (5) I certainly did not realize, and I believe that my FO agrees, that the wake and slipstream effects from a Q400 could be so significant to a CRJ.
I believe that the instability induced by the wake turbulence encounter when combined with the aggressive aircraft pitch rate described previously were together the root cause for the aircraft's stall warning system to activate. I also believe that if these two factors were to have been encountered separately that it is plausible that the stall warning system might not have activated. This is not to discount any personal responsibility in managing the aircraft, but rather to make clear the effect of combined factors. Contributing factors include underestimating the magnitude of aircraft wake compared to the size of the aircraft and therefore being less prepared for a wake turbulence encounter, and being complacent about the professional performance of crew members.

I consider the FO who worked this flight to be professional in the execution of his duties and I have flown with him on many occasions over several years. When flying with a familiar person who also has considerable experience over the same routes and from the same airports, it is easier to adopt the mindset that your coworker will be unlikely to do something which is unexpected. In my case this in turn enhances the chance that I will make a mistake through casual assumptions and failing to "keep my guard up". When I asked the FO afterwards if he noticed that his rotation rate was overly aggressive, he admitted that it could have been, but did not categorically state that it was. From now on I will always take this type of scenario more seriously and address the issue of crew familiarity and its impact on flight safety during the crew briefing where applicable. Through this event I now have a greater regard for the need to apply proactive measure both in discussion and in acting as the pilot monitoring (and PF) based on what I see, and not what I expect.

Narrative: 2

On takeoff at approx. 300 feet we encountered wake turbulence from a Dash Q400 that departed prior to us. The stall warbler and shaker activated for 2 seconds approx. then silenced once we flew through the shear. We encountered turbulence from the Dash on and off through 1,100. Remainder of the climb-out was normal.
Root cause was departing right after a Q400 and encountering prop wash and their wake. Perhaps a rotation too fast into the c-bars might have been a contributing factor.
Be aware of wake and prop wash from a Dash!! Smaller aircraft can disturb the air as well as larger aircraft! On rotation a smooth pitch into the C bars as well will lessen the wake turbulence recovery.

Synopsis

CRJ-200 flight crew reported encountering wake turbulence in trail of a Q400 on takeoff from LAX that resulted in a momentary stick shaker.

ACN: 1237849 *(50 of 50)*

Time / Day

Date : 201502
Local Time Of Day : 1801-2400

Place

Locale Reference.ATC Facility : M98.TRACON
State Reference : MN
Altitude.MSL.Single Value : 700

Environment

Flight Conditions : VMC
Light : Night

Aircraft

Reference : X
Aircraft Operator : Air Carrier
Make Model Name : EMB ERJ 190/195 ER/LR
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Nav In Use.Localizer/Glideslope/ILS : 12L
Flight Phase : Initial Approach
Route In Use : Visual Approach
Route In Use : Vectors
Airspace.Class B : M98

Component

Aircraft Component : MCP
Aircraft Reference : X
Problem : Improperly Operated

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)
ASRS Report Number.Accession Number : 1237849
Human Factors : Human-Machine Interface
Human Factors : Situational Awareness
Human Factors : Training / Qualification

Events

Anomaly.Deviation - Speed : All Types
Anomaly.Deviation - Track / Heading : All Types

Anomaly.Deviation - Procedural : Published Material / Policy
Anomaly.Deviation - Procedural : Clearance
Anomaly.Inflight Event / Encounter : Unstabilized Approach
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Took Evasive Action
Result.Flight Crew : FLC Overrode Automation

Assessments

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

Narrative: 1

As I can remember the events - we were being vectored for a visual approach with ILS back up to runway 12L at MSP, with traffic being vectored to the close parallel runway 12R. First Officer (FO) Pilot Flying (PF). Approach control wanted us to ID traffic ahead on 12R approach. We could not see traffic. We did ID airport and were given clearance to 3,000 Ft. Sometime after that the traffic became no factor and we were cleared for the approach. FO turned left toward airport well inside marker. I told him he should come back right so we will be able to intercept final and pick up the glideslope from our altitude, 3,000 Ft. I pointed out that WASHY was the outer marker. He did. I alerted him that now we were going through final and I thought maybe he now sees 12R. I told him to make a left turn back to final and I visually point out 12L. He does not turn, now I am concerned that we will stray into 12R approach. I felt he lost sight of 12L, I took control of Aircraft and made left turn to final. He now ID'd runway 12L. I returned control to FO. I reminded him we were cleared for the approach, he armed the approach and turned off the auto pilot. Auto throttles on. I thought he wanted to hand fly. We configured on schedule and completed the landing check list. At 1,000 ft. FO stated "stable speed correcting" Our speed was Vapp +10 and I observed our speed slowing to Vapp. I now diverted my monitoring outside to an aircraft that had taken the runway. I was concerned about spacing for our landing. I queried tower of our landing clearance, which was confirmed. I now saw that A/C begin takeoff role. I am not sure, but about 700 Ft. I noticed speed was Vapp -5 and I announced "airspeed" there was no reaction. I then saw more then 1/2 dot below glide path and announced "glideslope". I noticed speed decay further with no response on thrust levers, neither auto throttles or FO increased thrust. At the same time FO raised the nose and speed decayed rapidly. I saw the pitch limit indicators come into view rapidly. Suddenly I realized we were in speed on elevator mode, I immediately took control of AC, established a pitch, increased thrust by manually overriding auto thrust. Moments later we were established on speed and glide path, continued visually to landing. This all happened very quickly.

After landing I noticed Altitude set at 700 Ft. on the PFD. During debrief I asked the FO how did 700 Ft. get set in altitude setting. He stated at one point during approach (hand flying) he was high on glide slope, so he spun in lower altitude - it just happened to stop at 700 Ft., then selected flight level change. Prior to this we had 3,000 Ft. set, which is glide slope intercept altitude at WASHY and also missed approach alt. I did not know that he had changed the altitude and did not see this happen, maybe I was looking at the check list or looking for traffic. Also, it was not announced. This drove thrust levers to idle and as we got slower we slipped below the glide slope. FO was confused on what was happening and his flight director said lower the pitch to get speed back with elevator at the same time he was proceeding below the glide slope. Also, I asked FO why he chose to

turn off the autopilot, he stated his thumb hit the disconnect, so he just continued manually.

We do have barriers in place to prevent this from occurring.
1. Both pilots should be involved in selecting a new altitude and verified.
2. On visual approaches set selected altitude to potential go around altitude, no lower than pattern altitude.
3. Consider highest level of automation on visual approaches at night.
4. Pilot monitoring makes GP mode changes during manual flight and high work loads.
5. Stabilized approach parameters
6. CAMI
7. Communicate all intentions.
8. FO should have executed go around at first indication of speed decay below Vapp-5.

Synopsis

EMB190 Captain reports several errors by his First Officer under training? during a night visual approach to Runway 12L at MSP. The First Officer inadvertently turned off the autopilot then selected an MCP altitude below field elevation then selected FLC. This resulted in decaying airspeed and flight below the glideslope before the Captain takes over.