ASRS Database Report Set

Checklist Incidents

Report Set Description	A sampling of reports from all aviation arenas referencing checklist issues (design, procedures, distraction, etc.).
Update Number	35.0
Date of Update	March 28, 2019
Number of Records in Report Set	50
Number of New Records in Report Set	6
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.

B Hooey

Becky L. Hooey, Director
NASA Aviation Safety Reporting System

CAVEAT REGARDING USE OF ASRS DATA

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

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

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

Report Synopses

ACN: 1628322 *(1 of 50)*

Synopsis
A Boeing Captain reported the need for additional training on new checklist procedures.

ACN: 1627441 *(2 of 50)*

Synopsis
737-800 First officer reported the new checklist, "Triggers and Flows," created confusion.

ACN: 1626691 *(3 of 50)*

Synopsis
B737 First Officer reported the table of contents page numbers for the non-normal section regarding flight controls may be inaccurate. Trim runaway checklist was difficult to find. Flight ops bulletin is difficult to understand.

ACN: 1621603 *(4 of 50)*

Synopsis
CRJ-200 flight crew reported a high speed rejected takeoff due to a warning message. Following the abort, checklist was forgotten for the warning message and brake overheat.

ACN: 1602134 *(5 of 50)*

Synopsis
A321 Captain reported QRH shortcomings and communication breakdown between flight crew and cabin attendants while troubleshooting uncommanded stabilizer trim malfunction.

ACN: 1601488 *(6 of 50)*

Synopsis
ATR-42 Captain reported a pitch trim issue during climb was resolved with QRH procedure, but crew was concerned about further controllability issues.

ACN: 1600434 *(7 of 50)*

Synopsis
BE99 flight crew reported a gear up landing while training, as a result of inattentive supervision and an incomplete abnormal procedures checklist.

ACN: 1600145 *(8 of 50)*

Synopsis

ERJ-175 Captain reported a discrepancy between the De-ice Checklist and the Before Takeoff Checklist.

ACN: 1596878 *(9 of 50)*

Synopsis

B737-700 Captain reported forgetting to complete the Before Takeoff Checklist prior to taking the runway.

ACN: 1594913 *(10 of 50)*

Synopsis

A319 pilot reported making a mistake with the aircraft's packs because of an unclear checklist.

ACN: 1590825 *(11 of 50)*

Synopsis

CRJ-200 flight crew reported landing without completing the Before Landing checklist, citing a late clearance as contributing.

ACN: 1590424 *(12 of 50)*

Synopsis

Air carrier Captain reported being distracted by checklist items during taxi resulting in a taxiway incursion and contact with a taxiway light.

ACN: 1589650 *(13 of 50)*

Synopsis

Ground personnel reported arrival shipment had a missing HAZMAT checklist.

ACN: 1580643 *(14 of 50)*

Synopsis

ERJ-145 First Officer reported the before takeoff checklist was not completed prior to taxi into position for takeoff.

ACN: 1577231 *(15 of 50)*

Synopsis

B737-800 Captain reported discrepancy between Antiskid MEL crew procedures and QRH crew procedure during approach.

ACN: 1575939 *(16 of 50)*

Synopsis

A B737 First Officer reported that the new procedure as to when to use the Landing Checklist has increased the workload during approach.

ACN: 1575933 *(17 of 50)*

Synopsis

A B777 Captain reported that the new procedure as to when to use the landing checklist has increased the workload during approach.

ACN: 1567833 *(18 of 50)*

Synopsis

B767 Captain reported aileron problems during the Before-Takeoff Checklist.

ACN: 1566534 *(19 of 50)*

Synopsis

E175 Captain reported not completing the After Start Checklist and taking off without the Thrust Reference System activated.

ACN: 1565856 *(20 of 50)*

Synopsis

B777-200 First Officer reported low hydraulic center fluid EICAS which resulted in poor CRM, incorrect data from Dispatch, and vague checklist reference.

ACN: 1507869 *(21 of 50)*

Synopsis

ERJ-190 flight crew reported uncommanded trim movement in both the yaw and roll axis.

ACN: 1504429 *(22 of 50)*

Synopsis

CRJ-700 First Officer reported several messages and instrument indications associated with a malfunction of the Attitude and Heading Reference System.

ACN: 1501625 *(23 of 50)*

Synopsis

A321 flight crew reported encountering windshear on approach with no predictive windshear indication and then severe turbulence on the go-around with thunderstorms in the vicinity.

ACN: 1494383 *(24 of 50)*

Synopsis

EMB-175 Captain reported that they were unable to taxi due to loss of steering.

ACN: 1493949 *(25 of 50)*

Synopsis

EMB-145 Captain reported returning to the departure airport after a Flight Attendant was injured during a wake vortex encounter climbing through FL235 in trail of a B777.

ACN: 1481080 *(26 of 50)*

Synopsis

CRJ-900 Captain reported a yaw damper INOP status message received in cruise, followed by uncommanded rudder movements. Captain requested priority handling to a normal landing.

ACN: 1480536 *(27 of 50)*

Synopsis

MD-11 crew reported an anomaly with the overspeed warning alert twice during descent which also caused the profile decent system to miss a level off.

ACN: 1480449 *(28 of 50)*

Synopsis

Hawker 800 Captain reported encountering wake turbulence four miles in trail of a B737 on approach to LAX.

ACN: 1480312 *(29 of 50)*

Synopsis

CRJ-700 Captain reported returning to departure airport after experiencing an autopilot malfunction that drove the stabilizer trim to a nose-down position.

ACN: 1480145 *(30 of 50)*

Synopsis

CL60 Captain reported he noticed a deviation from assigned altitude when the autopilot disconnected, and observed that automation dependency was a factor in the excursion.

ACN: 1478908 *(31 of 50)*

Synopsis

B737 flight crew reported diverting to an alternate airport after experiencing a stabilizer trim runaway.

ACN: 1475720 *(32 of 50)*

Synopsis

CRJ-900 Captain reported that they disconnected the autopilot and yaw dampeners and flew the aircraft manually due to uncommanded rudder movements.

ACN: 1472244 *(33 of 50)*

Synopsis

B737 First Officer reported they experienced a sudden and aggressive yaw during the takeoff roll on ORD Runway 22L when an A321 crossed overhead landing on Runway 28C.

ACN: 1467455 *(34 of 50)*

Synopsis

MD11 flight crew experienced a loud squeal passing through 8,000 that continued to grow louder, making communication difficult. Crew elected to return to the departure airport after dumping fuel.

ACN: 1464333 *(35 of 50)*

Synopsis

ERJ-175 Captain reported encountering wake turbulence on approach to CLT in trail of a B757 that resulted in an uncontrollable roll with subsequent system anomalies related to the unusual attitude.

ACN: 1462578 *(36 of 50)*

Synopsis

CRJ200 flight crew reported the flight director made a sudden climbing right turn off the localizer course during approach causing their aircraft to encroach into the adjacent approach path. The second approach resulted in the same anomaly, but the crew intervened quickly.

ACN: 1459089 *(37 of 50)*

Synopsis

B757 flight crew reported an uncommanded roll occurred when the speed brakes were deployed and again when flaps were extended for landing.

ACN: 1456749 *(38 of 50)*

Synopsis

B737 flight crew reported an increase in airspeed and vertical speed that resulted in a max climb rate of 7,900 feet per minute and overshooting the assigned cruise altitude by approximately 1,000 feet.

ACN: 1451923 *(39 of 50)*

Synopsis

G200 flight crew experienced a rudder hard-over after a rudder trim adjustment during which the rudder trim knob detached from the post. The crew was able to center the rudder trim using a Leatherman multi-tool then pulled the circuit breaker to prevent further movement.

ACN: 1451124 *(40 of 50)*

Synopsis

B737-800 flight crew reported rejecting the takeoff at 140 knots after experiencing a sudden uncommanded yaw.

ACN: 1449862 *(41 of 50)*

Synopsis

B737 Captain reported multiple FMS malfunctions on the HHOOD3 Arrival and RNAV (RNP) Z Runway 10L to PDX. Captain reported a visual landing.

ACN: 1447795 *(42 of 50)*

Synopsis

G200 flight crew reported a malfunction with one autopilot shortly after level off from climb. Crew switched to other autopilot and continued to the destination.

ACN: 1446762 *(43 of 50)*

Synopsis

A319 flight crew reported an abrupt, uncommanded pitch up and climb when the FMS was set up for a Managed Descent using Autopilot Number Two. Normal operations were resumed with the use of Autopilot One.

ACN: 1445991 *(44 of 50)*

Synopsis

CRJ-200 Captain reported returning to departure airport after experiencing a stabilizer trim problem.

ACN: 1443987 *(45 of 50)*

Synopsis

EMB175 Captain reported an autopilot disengagement and abrupt pitch up at FL350. Later, maintenance inspection revealed a disagreement with the elevator servo.

ACN: 1443625 *(46 of 50)*

Synopsis

A300 flight crew reported a runway excursion when they attempted to do a 180 degree turn to position the aircraft for takeoff on a 150 foot wide runway.

ACN: 1439165 *(47 of 50)*

Synopsis

Boeing 757 flight crew reported an uncommanded roll during descent with the autopilot engaged. The Rudder Ratio light illuminated a few seconds later.

ACN: 1438649 *(48 of 50)*

Synopsis

Air carrier flight crew reported an interrupted glideslope signal at IND caused the aircraft to pitch up while on autopilot. The Captain took control from the First Officer and landed the aircraft.

ACN: 1437194 *(49 of 50)*

Synopsis

EMB145 flight crew reported an airspeed indication failure at FL370 in IMC with thunderstorms nearby. The flight diverted to the nearest suitable airport with airspeed returning to normal during the approach.

ACN: 1432329 *(50 of 50)*

Synopsis

A300 flight crew reported returning to departure airport after Number 2 engine abruptly rolled back to idle.

Report Narratives

ACN: 1628322 *(1 of 50)*

Time / Day

Date : 201903
Local Time Of Day : 1201-1800

Place

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

Aircraft

Reference : X
Aircraft Operator : Air Carrier
Make Model Name : Boeing Company Undifferentiated or Other Model
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Flight Phase : Parked

Component

Aircraft Component : Checklists
Aircraft Reference : X
Problem : Design

Person

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : Pilot Flying
Function.Flight Crew : Captain
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Instrument
Qualification.Flight Crew : Multiengine
ASRS Report Number.Accession Number : 1628322
Human Factors : Training / Qualification

Events

Anomaly.Deviation - Procedural : Published Material / Policy
Detector.Person : Flight Crew
When Detected : Pre-flight
Result.General : None Reported / Taken

Assessments

Contributing Factors / Situations : Manuals
Primary Problem : Manuals

Narrative: 1

New B737 normal checklist have not been well trained to the aircrew. Confusing and cause problems with standardization. Pilots need specific training. The checklist were placed in our mailboxes with minimal training provided. Suggest 2 day training period at the flight academy with qualified check airman. Gradual implementation where either procedure is allowed. Then after, all are trained we only use the new procedures. New procedures should be re-written for clarity.

Synopsis

A Boeing Captain reported the need for additional training on new checklist procedures.

ACN: 1627441 *(2 of 50)*

Time / Day

Date : 201903
Local Time Of Day : 0601-1200

Place

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

Aircraft

Reference : X
Aircraft Operator : Air Carrier
Make Model Name : B737-800
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Flight Phase : Parked

Component

Aircraft Component : Checklists
Aircraft Reference : X
Problem : Design

Person

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : First Officer
Qualification.Flight Crew : Multiengine
Qualification.Flight Crew : Instrument
Qualification.Flight Crew : Air Transport Pilot (ATP)
ASRS Report Number.Accession Number : 1627441
Human Factors : Confusion
Human Factors : Distraction
Human Factors : Troubleshooting
Human Factors : Communication Breakdown
Communication Breakdown.Party1 : Flight Crew
Communication Breakdown.Party2 : Other
Communication Breakdown.Party2 : Flight Crew

Events

Anomaly.Deviation - Procedural : Other / Unknown
Detector.Person : Flight Crew
When Detected : Pre-flight
Result.General : None Reported / Taken

Assessments

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

Narrative: 1

This leg was the first leg of a four-day sequence which was, for both the CA (Captain) and I, the first experience with the procedural changes from challenge and response checklist to "triggers and flows." Both of us had reviewed the new checklist as well as accomplished the 'training' provided by the company. Regardless of that preparation, we found the transition to be substantially more difficult. Upon recognizing this issue, we identified our new checklist/flows as a threat, not only to our operation but to our CRM. Throughout this four-day sequence (which I flew with two different CAs) our new procedures were a focal point, and it often created confusion and obstacles to effective CRM. The triggers in many cases are at weird times. The 'flows' are cumbersome and have some portions that are very sporadic.....and don't 'flow'. The 'silent' portions include some very critical information which breaks down cockpit communication and CRM. The so called 'training' we received....a 12 minute video....on a procedural change...that doesn't seem like it was put together by pilots. In my opinion, it was very eye opening to see how much those changes in our checklist created confusion and impacted CRM. This needs to be look at again closely. The checklist needs to be changed to make more logical sense (from a pilot perspective) on the triggers, and the flows need to be more intuitive to include making some of the silent items, not silent to facilitate CRM. Training needs to be accomplished in a simulator.

Synopsis

737-800 First officer reported the new checklist, "Triggers and Flows," created confusion.

ACN: 1626691 *(3 of 50)*

Time / Day

Date : 201903

Place

Altitude.MSL.Single Value : 35000

Aircraft

Reference : X
Aircraft Operator : Air Carrier
Make Model Name : B737 Next Generation Undifferentiated
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Flight Phase : Cruise

Component

Aircraft Component : Checklists
Aircraft Reference : X
Problem : Design

Person

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : First Officer
Qualification.Flight Crew : Multiengine
Qualification.Flight Crew : Private
Qualification.Flight Crew : Commercial
Qualification.Flight Crew : Instrument
Experience.Flight Crew.Total : 6790
Experience.Flight Crew.Last 90 Days : 216
ASRS Report Number.Accession Number : 1626691
Human Factors : Training / Qualification
Human Factors : Troubleshooting
Human Factors : Confusion
Human Factors : Time Pressure

Events

Anomaly.Deviation - Procedural : Published Material / Policy
Detector.Person : Flight Crew
When Detected : In-flight
Result.General : None Reported / Taken

Assessments

Contributing Factors / Situations : Aircraft
Contributing Factors / Situations : Chart Or Publication
Primary Problem : Chart Or Publication

Narrative: 1

With the 737 Max's grounded in the world today can the flight controls non normal section table of contents page numbers be messed up. 3 highly experienced 737 pilots took 10 minutes in cruise to find the trim runaway checklist in flight. Bulletin 19057 is so subtle that only after reading it several times and having this issue myself did I realize the gravity of its words. With 99 percent of line pilots using paper checklists this is simply unacceptable. All [Union] and company representatives contacted tonight about this agreed this is totally wrong. A note that the hyperlinks are correct in the iPad QRC does not cut it with all other ways of access inaccurate. If this airplane were to go down because of this technology issue it would look good on the front page of [newspaper]. If you want the iPad to be the sole source of non-normal guidance take the paper checklist out of the aircraft. Otherwise fix the paper timely.

Synopsis

B737 First Officer reported the table of contents page numbers for the non-normal section regarding flight controls may be inaccurate. Trim runaway checklist was difficult to find. Flight ops bulletin is difficult to understand.

ACN: 1621603 *(4 of 50)*

Time / Day

Date : 201902
Local Time Of Day : 1801-2400

Place

Locale Reference.Airport : DEN.Airport
State Reference : CO
Altitude.AGL.Single Value : 0

Environment

Flight Conditions : VMC
Light : Night

Aircraft

Reference : X
ATC / Advisory.Tower : DEN
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.Other
Airspace.Class B : DEN

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 : Multiengine
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Instrument
ASRS Report Number.Accession Number : 1621603
Human Factors : Training / Qualification
Human Factors : Workload
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)

Qualification.Flight Crew : Instrument
Qualification.Flight Crew : Multiengine
ASRS Report Number.Accession Number : 1621605
Human Factors : Distraction
Human Factors : Workload
Human Factors : Training / Qualification

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Anomaly.Deviation - Procedural : Published Material / Policy
Detector.Person : Flight Crew
When Detected.Other
Result.Flight Crew : Rejected Takeoff

Assessments

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

Narrative: 1

During the takeoff roll, a "Config Spoilers" warning message appeared at around 140 knots indicated airspeed. A high speed rejected takeoff was performed near V1. V1 was 144 knots indicated airspeed and it is not recalled whether the V1 call was made yet or not. In the aftermath of the rejected takeoff, Air Traffic Control, Maintenance, and company were contacted, however calling for QRH (Quick Reference Handbook) items for config spoiler warning message and brake overheat was forgotten.

Warning message appeared at high speed and near V1. It is possible that the abort wasn't accomplished until a speed between V1 and Vr. In the aftermath of the abort, QRH items were forgotten.

Change the preflight brief to include specific actions for which an aborted takeoff will be performed, include the likelihood of a decision to "continue" if the anomaly occurs after V1 to try and mitigate the initial reaction being to simply abort even when it is dubious whether one is at V1 or not.

Narrative: 2

During the takeoff roll, a "Config Spoilers" warning message appeared at around 140KIAS. An aborted takeoff was performed. V1 was 144KIAS. After the procedure was performed we exited the runway and contacted ATC, Maintenance and company. However, calling for and performing QRH (Quick Reference Handbook) procedures for config spoilers and brake overheat messages were forgotten.

In the time immediately after the abort attention was so focused on communicating with ATC, Maintenance and company that calling for a performing the QRH procedures were overlooked.

Expand and include in the preflight briefing more detail on required procedures that need to be performed immediately after an aborted takeoff.

Synopsis

CRJ-200 flight crew reported a high speed rejected takeoff due to a warning message. Following the abort, checklist was forgotten for the warning message and brake overheat.

ACN: 1602134 *(5 of 50)*

Time / Day

Date : 201812
Local Time Of Day : 1201-1800

Aircraft

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

Component

Aircraft Component : Elevator Trim 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)
Qualification.Flight Crew : Multiengine
Qualification.Flight Crew : Instrument
ASRS Report Number.Accession Number : 1602134
Human Factors : Communication Breakdown
Human Factors : Troubleshooting
Human Factors : Workload
Communication Breakdown.Party1 : Flight Crew
Communication Breakdown.Party2 : Flight Attendant

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Anomaly.Flight Deck / Cabin / Aircraft Event : Other / Unknown
Anomaly.Deviation - Procedural : Published Material / Policy
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Overcame Equipment Problem

Assessments

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

Narrative: 1

The First Officer did an outstanding job flying the aircraft, setting up the MCDU for the approach, and communicating with ATC during the arrival until I was ready to take back control. He properly made this his first priority and avoided distraction, thereby allowing me to focus on managing the emergency. He was the first to suggest holding on to the pitch trim wheel and, later, [advising ATC]. The First Officer should be specifically and highly commended.

No one I talked to during or after this event had ever heard of an uncommanded stabilizer trim malfunction on an Airbus fly-by-wire aircraft before. This event should be documented and a de-identified summary should be published to [Company] pilots so that others can learn from this event.

The pagination of the System Reset Tables in COM Book 2 was confusing and delayed my ability to determine that there were no applicable resets for several minutes. It has been mentioned by Flight Operations Management that there is the intent to eventually provide tail number-specific QRHs in the cockpit and thereby return towards Airbus manufacturer philosophy regarding Abnormal/Emergency Procedure and ECAM handling. This must be properly implemented, and it carries risks because the manufacturer-provided QRHs are not compatible with our current procedures, manual set, or ECAM handling philosophy, so these items would require appropriate modifications. But properly implemented, returning to tail number-specific QRHs would solve the issue I encountered, and many others.

The Safety Department should determine whether or not a brace command was issued by flight attendants, without flight crew awareness, and contrary to what I believed were my very clear instructions. For example: did this not occur, did it occur due to a miscommunication between myself and the Lead FA, did it occur due to a miscommunication between the Lead FA and the other FAs, or did a FA deliberately disregard my instructions? If this occurred due to a miscommunication, I would like to be made aware of it so we can learn what went wrong and how to communicate better in the future. If this occurred due to a deliberate decision by a FA to disregard my instructions (but then not inform us they had done this), the FA should be debriefed in a non-punitive manner to determine the reason for that FA's decision and then to ensure that they understand: that it was not appropriate for this particular situation, what were the risks associated with doing this, and what were the risks associated with not telling the pilots they had done this.

Synopsis

A321 Captain reported QRH shortcomings and communication breakdown between flight crew and cabin attendants while troubleshooting uncommanded stabilizer trim malfunction.

ACN: 1601488 *(6 of 50)*

Time / Day

Date : 201812
Local Time Of Day : 0001-0600

Place

Locale Reference.Airport : ZZZ.Airport
State Reference : US

Environment

Flight Conditions : VMC

Aircraft

Reference : X
ATC / Advisory.TRACON : ZZZ
Aircraft Operator : Air Carrier
Make Model Name : ATR 42
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Flight Phase : Climb

Component

Aircraft Component : Horizontal Stabilizer Trim
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 Not Flying
Function.Flight Crew : Captain
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Instrument
Qualification.Flight Crew : Multiengine
ASRS Report Number.Accession Number : 1601488

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Detector.Person : Flight Crew
When Detected : In-flight
Result.General : Maintenance Action
Result.Flight Crew : Overcame Equipment Problem
Result.Aircraft : Equipment Problem Dissipated

Assessments

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

Narrative: 1

During climb, had a pitch trim Asymmetry [message], followed QRH. En-route crew discussed possible issues with control of aircraft with pitch trim being stuck in a nose up trim. [Advised ATC] and landed in ZZZ normal. Notified Maintenance.

Possible changes to QRH for Pitch Trim failure should include notes about uncontrollably issues and possible needing to divert to another airport.

Synopsis

ATR-42 Captain reported a pitch trim issue during climb was resolved with QRH procedure, but crew was concerned about further controllability issues.

ACN: 1600434 *(7 of 50)*

Time / Day

Date : 201812
Local Time Of Day : 0601-1200

Place

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

Environment

Flight Conditions : VMC

Aircraft

Reference : X
ATC / Advisory.Tower : ZZZ
Aircraft Operator : Air Taxi
Make Model Name : Airliner 99
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 135
Flight Plan : IFR
Mission : Training
Flight Phase : Landing
Route In Use : Visual Approach
Airspace.Class D : ZZZ

Component : 1

Aircraft Component : Indicating and Warning - Landing Gear
Aircraft Reference : X
Problem : Improperly Operated

Component : 2

Aircraft Component : Landing Gear
Aircraft Reference : X
Problem : Improperly Operated

Person : 1

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Taxi
Function.Flight Crew : Captain
Function.Flight Crew : Pilot Not Flying
Qualification.Flight Crew : Instrument
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Multiengine
ASRS Report Number.Accession Number : 1600434
Human Factors : Situational Awareness
Human Factors : Distraction

Human Factors : Training / Qualification
Human Factors : Communication Breakdown
Communication Breakdown.Party1 : Flight Crew
Communication Breakdown.Party2 : Flight Crew

Person : 2

Reference : 2
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Taxi
Function.Flight Crew : Pilot Flying
Function.Flight Crew : Trainee
Qualification.Flight Crew : Multiengine
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Instrument
ASRS Report Number.Accession Number : 1600435
Human Factors : Situational Awareness
Human Factors : Communication Breakdown
Human Factors : Training / Qualification
Communication Breakdown.Party1 : Flight Crew
Communication Breakdown.Party2 : Flight Crew

Events

Anomaly.Flight Deck / Cabin / Aircraft Event : Other / Unknown
Anomaly.Deviation - Procedural : Published Material / Policy
Anomaly.Ground Event / Encounter : Gear Up Landing
Detector.Person : Flight Crew
When Detected : In-flight
Result.General : Maintenance Action
Result.Aircraft : Aircraft Damaged

Assessments

Contributing Factors / Situations : Chart Or Publication
Contributing Factors / Situations : Human Factors
Contributing Factors / Situations : Procedure
Primary Problem : Chart Or Publication

Narrative: 1

I was PIC supervising a Trainee on an FAR 135 Cargo only flight. Trainee was manipulating the controls. Nearing our destination airport (about 10 to 15 miles out) my Trainee reported the airport in-sight to approach control anticipating being cleared for a visual approach via the right downwind for runway XX. When the visual approach clearance did not come, I suggested we cancel our IFR flight plan and start our descent because we were still at cruise altitude and needed to descend over 6000 feet to enter the pattern. Approach control acknowledged our IFR cancellation and instructed us to enter the right downwind for runway XX and contact the tower.

Trainee contacted the tower, reported we were VFR entering the right downwind for runway XX, but also asked if runway XY was available. The tower responded with "Cleared to land Runway XY". This compounded the altitude we needed to descend so I suggested a no flap approach and landing (A training event we were going to complete later in the day). Trainee reduced power and increased propeller R.P.M. to full. This increased drag to

aid in our descent but also increases ambient noise in the cockpit which produces air noise through our voice activated intercom. Another power reduction was made and we eventually captured the glideslope for the ILS approach for runway XY. I estimate we were stabilized on the glideslope at our target airspeed for the remaining 5 miles to the airport. I watched my trainee pickup and read the ZERO FLAP LANDING checklist and stow it. Unfortunately neither of us utilized the BEFORE LANDING checklist and we landed with the gear in the retracted position.

I learned later that a gear warning horn that would have alerted us that the gear was not in the down position was silenced by my trainee when it sounded after the first or second power reduction. A normal procedure for a normal approach and landing but not for a zero flap landing. Touchdown Inattentive supervision disbelief I need more time to think about that. 1. I should have turned off the cabin heat to increase my alertness. 2. I should have refused the Rwy XY landing clearance and continued onto the downwind for Rwy XX 3. I should have turned down the squelch on the intercom to resume normal communications with my trainee. 4. Sunglasses may have helped instead of using my hand to block the rising sun that was in the direction of my trainee.

Narrative: 2

We were approaching ZZZ at 5,000 feet with Approach in a BE-99 C model. Because we were approaching the airport environment at a relatively high altitude, I asked the Captain if he thought I should cancel the IFR clearance or stay with approach. After briefly discussing it, I elected to cancel the IFR and descend. We were instructed to enter a right downwind for runway XX and I immediately asked if runway XY was available. We were cleared to land runway XY. I reduced power initially to approximately 400 torque, and then to flight idle, and was descending at approximately 1,500 - 2000 fpm at 180 - 185 kts while maneuvering to the right to intercept the ILS runway XY. When I reduced power for the descent the gear warning horn sounded and I silenced it by pressing the Gear Warn Silence button.

As we were approaching the ILS I began reducing the airspeed and descent rate with pitch and then applied power to become established on the glideslope. We were conducting a no flap landing so I transitioned to the props full forward and airspeed at blue line (115 kts) configuration. I completed the Zero Flap Landing abnormal procedures checklist and continued the VFR approach to landing, backed up with the ILS. We touched down on runway XY centerline without the landing gear down at approximately 2,500 feet from the threshold and slid on the cargo pod in a slightly curved path to the right coming to rest approximately halfway between the runway centerline and the edge of the runway, adjacent to taxiway X. We moved the condition levers to cutoff, and then accessed each other's physical condition. The Captain communicated with ATC, while I referenced the emergency procedures checklist to secure the aircraft. There were no injuries.

Normally, when I'm using the abnormal procedures checklist on final approach it's because I'm doing a single engine approach and landing. Right after I completed the Zero Flap Landing checklist my mindset was that I wasn't single engine, so I'm done with the checklist. Done with the abnormal procedures checklist on final normally means that I'm configured to land. I focused on aircraft control and missed the 1,000 foot above touchdown call out. Secure the engines to prevent injury or further damage. As the Captain recommended, changing the Zero Flap Landing checklist to include the landing gear, and a note about the gear warn silence button, may be beneficial.

Synopsis

BE99 flight crew reported a gear up landing while training, as a result of inattentive supervision and an incomplete abnormal procedures checklist.

ACN: 1600145 *(8 of 50)*

Time / Day

Date : 201812
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 : EMB ERJ 170/175 ER/LR
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Flight Phase : Taxi

Person

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : Pilot Flying
Function.Flight Crew : Captain
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Multiengine
Qualification.Flight Crew : Instrument
ASRS Report Number.Accession Number : 1600145
Human Factors : Situational Awareness
Human Factors : Confusion

Events

Anomaly.Deviation - Procedural : Published Material / Policy
Detector.Person : Flight Crew

Assessments

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

Narrative: 1

We had to de-ice due to some residual ice on winglets, leading edge of the wings, leading edge of the tail and horizontal stabilizers. Proceeded as per SOP with de-ice procedure and appropriate checklists. During taxi to the runway I requested a Runway Performance Change Checklist, since the assigned runway was different from the one discussed in the briefing, and the First Officer reading through the checklist positioned flaps on 2 as per takeoff performances. We realized that was not standard procedure for the post de-ice taxi to set the flaps which shall be positioned at the right configuration during the "before takeoff checklist". I requested a Before Takeoff Checklist immediately with no other issue.

The checklist dedicated to the de-ice procedure requires the crew to verify flaps settings against the takeoff performance data and verify the actual position during the "runway performance change checklist" when the flaps are supposed to be up.

The very confusing De-ice/Anti-ice Checklist could have posed a serious safety issue, affecting the anti-ice fluid, in case of actual freezing precipitation or prolonged taxi on contaminated surfaces.

Revise and update the appropriate checklist which is very confusing

Synopsis

ERJ-175 Captain reported a discrepancy between the De-ice Checklist and the Before Takeoff Checklist.

ACN: 1596878 *(9 of 50)*

Time / Day

Date : 201811
Local Time Of Day : 1201-1800

Place

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

Environment

Light : Night

Aircraft

Reference : X
ATC / Advisory.Tower : LAX
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 : Takeoff

Person

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Function.Flight Crew : Pilot Not Flying
Function.Flight Crew : Captain
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Instrument
Qualification.Flight Crew : Multiengine
Qualification.Flight Crew : Commercial
Experience.Flight Crew.Last 90 Days : 390
Experience.Flight Crew.Type : 7826
ASRS Report Number.Accession Number : 1596878
Human Factors : Confusion
Human Factors : Fatigue
Human Factors : Situational Awareness
Human Factors : Time Pressure
Human Factors : Communication Breakdown
Human Factors : Distraction
Communication Breakdown.Party1 : Flight Crew
Communication Breakdown.Party2 : Flight Crew

Events

Anomaly.Deviation - Procedural : Weight And Balance
Anomaly.Deviation - Procedural : Published Material / Policy
Anomaly.Inflight Event / Encounter : Fuel Issue

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

Assessments

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

Narrative: 1

I had flown seven out of the last nine days. This was the third leg on the last day of a four-day trip. Before push, the [weight and balance system] said we had a required 297 pound taxi burn to get to below ATOG. We elected to request Runway 25R so to burn the fuel on taxi out. The push took over 10 minutes from gate, due to a Trainee doing his first push. It involved a lot of stopping and starting and aggressive braking of the tug after we had both engines started.

When we were finally ready to taxi, there was congestion. We realized that burning off fuel was no longer a problem; as a matter of fact, we were worried we were going to burn below our min takeoff fuel. We requested [Runway] 24L, and ran the Departure Plan Checklist. We taxied out to take our place in line. We were really watching our fuel burn at that point, as we were within 100 pounds of our min take off fuel. We were holding short behind a (other carrier) aircraft at the end of the runway when Tower cleared an aircraft to take off from the intersection behind us.

I asked what our sequence was, and Tower did not reply. He then cleared (other carrier) to takeoff from in front of us. We were next cleared onto the runway. It was not until I read back "cleared for takeoff" and the First Officer went to push the power up that he realized that the autothrottles were not armed and we had not run the checklist. I told Tower to cancel our clearance so that we could run the checklist. The checklist was completed and we took off. (Fuel was so tight on this one, that when we got to [destination], we had to extend the gear just a bit early to burn down below max landing weight.)

Synopsis

B737-700 Captain reported forgetting to complete the Before Takeoff Checklist prior to taking the runway.

ACN: 1594913 *(10 of 50)*

Time / Day

Date : 201811

Place

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

Environment

Flight Conditions : VMC

Aircraft

Reference : X
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 : Taxi

Component

Aircraft Component : Air Conditioning and Pressurization Pack
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 : First Officer
Function.Flight Crew : Pilot Not Flying
Qualification.Flight Crew : Multiengine
Qualification.Flight Crew : Commercial
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Instrument
Experience.Flight Crew.Total : 1977
Experience.Flight Crew.Type : 1977
ASRS Report Number.Accession Number : 1594913
Human Factors : Time Pressure
Human Factors : Human-Machine Interface
Human Factors : Training / Qualification
Human Factors : Confusion
Human Factors : Distraction

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Anomaly.Deviation - Procedural : Published Material / Policy
Detector.Automation : Aircraft Other Automation
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Overcame Equipment Problem
Result.Aircraft : Equipment Problem Dissipated

Assessments

Contributing Factors / Situations : Chart Or Publication
Contributing Factors / Situations : Company Policy
Contributing Factors / Situations : Human Factors
Contributing Factors / Situations : Procedure
Primary Problem : Chart Or Publication

Narrative: 1

After starting engine number 2 on taxi, we ran the maintenance check procedure for MEL [for] OPS PLACARD. DEFECT: ENGINE HIGH PRESSURE VALVE INOPERATIVE AND SECURED CLOSED.

The check was normal. However, we had just barely two minutes completed when we were cleared onto the runway for takeoff. So, while completing the check and returning the ENG bleed switch to on and the X Bleed switch back to AUTO, we got an ECAM for Pack 2. I quickly glanced at the procedure again and read that it said to turn Pack 2 off, so I turned off pack 2, and the ECAM went away. Quickly, we ran through ECAM completed and screens normal, completed the before takeoff checklist, and then completed a normal takeoff.

However, after leveling off, we returned to the written procedure check and determined that pack switch should have only been turned off if the PRECOOLER OUTLET TEMPERATURE EXCEEDS 240 DEGREES CELSIUS WITHIN 2 MINUTES AFTER X-BLEED VALVE OPENING. We then returned the pack switch to on without any issues.

As we started our descent we ran the procedure again for low power settings by again turning the engine bleed switch off and X bleed switch to open. The descent and approach and landing were normal.

Overall the procedure was confusing and should have been clarified beforehand.

Synopsis

A319 pilot reported making a mistake with the aircraft's packs because of an unclear checklist.

ACN: 1590825 *(11 of 50)*

Time / Day

Date : 201811
Local Time Of Day : 1201-1800

Place

Locale Reference.Airport : ZZZ.Airport
State Reference : US

Environment

Flight Conditions : VMC
Light : Dusk

Aircraft

Reference : X
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 Approach

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 : 1590825
Human Factors : Distraction
Human Factors : Situational Awareness

Person : 2

Reference : 2
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : Pilot Not Flying
Function.Flight Crew : First Officer
Qualification.Flight Crew : Air Transport Pilot (ATP)
ASRS Report Number.Accession Number : 1590679
Human Factors : Situational Awareness
Human Factors : Distraction
Human Factors : Workload

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Anomaly.ATC Issue : All Types
Anomaly.Deviation - Procedural : Published Material / Policy
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Became Reoriented

Assessments

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

Narrative: 1

I was the Pilot Flying (PF) into ZZZ at dusk. The First Officer told me during our pre-departure briefing that he was somewhat new and hadn't flown the [aircraft] since his differences IOE. I took a lot of extra time even before pushback briefing everything I could think of about the differences as well as our flight, especially Runway XY into ZZZ. The event occurred on approach and landing on Runway XY into ZZZ. We were getting vectored for the RNAV GPS XY, and the Approach Controller seemed like he was distracted, as the vectors he was giving us were odd. I sensed this, and decided to start getting configured early, to slow things down and reduce the workload for the final approach segment. The vector he gave us already put us in a position to be behind. I had to query him to give us a turn to final and clear us for the approach. We were given a lower altitude, and cleared for the approach. We were both on the same page in terms of the approach briefing, we went over it meticulously in our briefings. It was my first time flying into ZZZ, and I believe I was hyper-focused on flying the approach. I made the standard callouts, including "Flaps 45, Before Landing Checklist", and this was where I believe something distracted us both. If I had to guess, it would probably be the Tower clearing us to land. I remember calling for the checklist, but I don't think it was ever done. After touchdown, I pulled out the thrust reversers, and I believe a L (or R) THR REV UNSAFE amber message illuminated, and we had no reverse thrust. I armed the thrust reversers and began using them, but by the time I had them out, we were already at about 70 knots. We had plenty of Runway available to stop and were slowed to taxi speed well before taxiway Juliet. We taxied to the gate without incident.

As the Captain, if the checklist was indeed not completed, I should have caught this.

Narrative: 2

My Captain and I were flying to ZZZ. We started briefing our approach and landing early as it is a short flight and a complicated approach with a short runway. Because of this, we made sure to pay extra attention to the briefing. As we got closer to the airport, we asked the approach controller for vectors to the RNAV Runway XY approach. We did this because it is much safer than doing a visual approach. During the vectors to the approach, we started getting configured early to avoid getting task saturated in the event we get vectored too tightly. After being given our intercept angle, we were well set up for our approach. While getting closer and closer to intercepting the final approach course, we were still waiting to be cleared for the approach. My Captain decided to query the controller to see if we were clear for the approach. He then cleared us for the approach while we were very close to the approach course. Then, we were immediately handed off to Tower who cleared us to land. At the same time, we had to make our final configuration changes and complete all of the call-outs associated with our approach. We quickly became task saturated and I missed my cue to arm our thrust reverses. During all of this

task saturation, we must have missed, or did not complete our before landing checklist due to being distracted by a hand-off at an inconvenient time.

The mistake was detected after landing when the pilot flying tried to deploy the thrust reversers. The reversers would not deploy. That is when the pilot flying noticed that the reversers were not armed.

This occurrence was caused by tight vectors and a late approach clearance, as well as a hand-off to Tower during an already task saturated period of flight.

The pilot flying then armed the reversers while continuing to stop using the brakes. The aircraft was able to slow down with plenty of runway remaining. We then exited the runway in a safe manner onto the nearest taxiway.

I do not believe the Controller was expecting us to ask for an RNAV approach. It seemed he had become task saturated as well due to the fact that he had to be asked before telling us we were cleared for the approach. It may help to advise our intentions to fly an approach earlier, as well as being given wider vectors that do not create task saturation.

Synopsis

CRJ-200 flight crew reported landing without completing the Before Landing checklist, citing a late clearance as contributing.

ACN: 1590424 *(12 of 50)*

Time / Day

Date : 201810
Local Time Of Day : 1201-1800

Place

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

Aircraft

Reference : X
ATC / Advisory.Ground : 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 : Taxi

Person

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : Captain
Qualification.Flight Crew : Instrument
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Multiengine
ASRS Report Number.Accession Number : 1590424
Human Factors : Situational Awareness
Human Factors : Distraction

Events

Anomaly.Deviation - Procedural : FAR
Anomaly.Deviation - Procedural : Clearance
Anomaly.Ground Incursion : Taxiway
Anomaly.Ground Event / Encounter : Object
Detector.Automation : Air Traffic Control
When Detected : Taxi
Result.General : Maintenance Action
Result.Flight Crew : Returned To Gate
Result.Air Traffic Control : Provided Assistance

Assessments

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

Narrative: 1

We were cleared to taxi. My mental picture of the taxi was to the end of Taxiway A and right turn on the runway. I called for below the line after being cleared to takeoff. When we should have turned onto the runway, the checklist item required me to check the engine instruments. When I looked back up we noticed we should have turned. We informed Ground and they said continue on [current taxiway] and turn around on the ramp and taxi back. We asked if the taxi was stressed for our aircraft. While standing by we contacted our Ramp Maintenance to tow us. Ground Control came back and gave us taxi instructions to continue on [current taxiway] that our company aircraft just did the same thing. We proceeded as instructed. After turning around and back on to taxi A, we were told that we took out a taxi light. We then taxi back to gate to have gear inspected. No damage was found. Then continued flight. Both heads down in cockpit while aircraft was taxing.

Synopsis

Air carrier Captain reported being distracted by checklist items during taxi resulting in a taxiway incursion and contact with a taxiway light.

ACN: 1589650 *(13 of 50)*

Time / Day

Date : 201810
Local Time Of Day : 0601-1200

Place

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

Aircraft

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

Person

Reference : 1
Location Of Person : Company
Reporter Organization : Air Carrier
Function.Ground Personnel : Other / Unknown
ASRS Report Number.Accession Number : 1589650

Events

Anomaly.Deviation - Procedural : Published Material / Policy
Anomaly.Deviation - Procedural : Hazardous Material Violation
Detector.Person : Ground Personnel
When Detected : Routine Inspection
Result.General : Maintenance Action

Assessments

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

Narrative: 1

Checklist for dry ice missing.

Synopsis

Ground personnel reported arrival shipment had a missing HAZMAT checklist.

ACN: 1580643 *(14 of 50)*

Time / Day

Date : 201809
Local Time Of Day : 0601-1200

Place

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

Environment

Flight Conditions : Marginal
Weather Elements / Visibility : Thunderstorm
Light : Daylight

Aircraft

Reference : X
ATC / Advisory.Tower : 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 : Taxi

Component

Aircraft Component : Gust Lock
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 : Pilot Flying
Function.Flight Crew : First Officer
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Multiengine
Qualification.Flight Crew : Instrument
ASRS Report Number.Accession Number : 1580643
Human Factors : Situational Awareness
Human Factors : Distraction

Events

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

When Detected : Taxi
Result.Flight Crew : Overcame Equipment Problem

Assessments

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

Narrative: 1

While on the taxi up to runway XXR at ZZZ, I as the FO (First Officer) conducted the before takeoff briefing. We were waiting behind a number of jets and a single engine turbo prop and the briefing lead to a discussion about the approaching storm front in from the south and moving towards the end of the runway. Observing what the previous departing aircraft were doing and also observing a gust front our extended brief lead to a discussion of wind shear escape and what we as a crew would do to mitigate that threat. No other departing aircraft reported wind shear on their departure and we were then called to line up and wait. Subsequently we were given a heading and cleared for takeoff. As Pilot Flying (PF) I then went to set takeoff thrust and noticed that the gust lock was still engaged and both the captain and I immediately realized we hadn't completed the before takeoff checklist. We hadn't increased thrust or commenced the takeoff roll at all so the Captain requested a short delay on the threshold and we completed the flow and checklist. On completion of the before takeoff checklist we were given another vector and cleared for takeoff. We departed and the remainder of the flight was uneventful. Later, we decided it was worthwhile to complete the [safety report], in order for the event to be properly analyzed by a third party. In our subsequent discussion we felt in mitigating the perceived threat of wind shear we became fixated which became the new threat and error of not ending the brief and moving onto the flow and before takeoff checklist. The result was the undesired aircraft state, lining up on the runway for takeoff with the gust lock still in and not properly configured for takeoff.

Threat: fixation on other threats affecting the flight
Error: failed to complete before takeoff checklist
[Result]: lining up on the runway incorrectly configured

In this specific case, [I would suggest making] a clear ending of the before takeoff brief which would lead into the before takeoff checklist.

Fixation, avoid fixation on tasks or conversations as it can lead to non-identification of other threats or tasks.

Synopsis

ERJ-145 First Officer reported the before takeoff checklist was not completed prior to taxi into position for takeoff.

ACN: 1577231 *(15 of 50)*

Time / Day

Date : 201809
Local Time Of Day : 1201-1800

Place

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

Environment

Flight Conditions : VMC

Aircraft

Reference : X
ATC / Advisory.Tower : ZZZ
Aircraft Operator : Air Carrier
Make Model Name : Medium Transport, Low Wing, 2 Turbojet Eng
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Flight Phase : Initial Approach
Airspace.Class B : ZZZ

Component

Aircraft Component : Antiskid 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 : Pilot Flying
Function.Flight Crew : Captain
Qualification.Flight Crew : Commercial
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Instrument
Qualification.Flight Crew : Multiengine
Experience.Flight Crew.Total : 22000
ASRS Report Number.Accession Number : 1577231

Events

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

When Detected : In-flight
Result.Flight Crew : Overcame Equipment Problem
Result.Air Traffic Control : Provided Assistance

Assessments

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

Narrative: 1

Aircraft was dispatched with MEL 32-XXX, Anti-Skid System. This was the first time either of us had seen this MEL, and since it is fairly extensive, we spent a lot of time briefing it. I felt like we had a good understanding of the requirements and was confident that we could comply. The flight progressed normally until we began configuring for the approach. As we decelerated with the flaps at 15, the First Officer attempted to arm the speed brake lever. Instead of the normal green armed light, we got an amber "speed brake do not arm light." The First Officer stowed the handle and tried arming it again, to no avail. I asked him, "Are we missing something here?." We had thoroughly briefed the MEL, but we never saw anything that said that we couldn't arm the speed brakes. The MEL states, "Extend speed brakes manually since automatic extension system MAY not be operative with antiskid inoperative." We were prepared to manually deploy the speed brakes upon landing, if they didn't automatically deploy. The word "may" implies that the system might work. How could it possibly work if the speed brake lever is not armed? We thought we had a new problem so we executed a go around to regroup and consult the QRH checklist. The checklist says to land without arming the speed brakes and manually deploy the speed brakes upon landing. We came back around using this procedure and landed without incident. I should add that during our descent, I used the speed brakes and the green armed light came on like it normally does. When we got the do not arm light with flaps extended, it confused me. I thought we had a new problem. Upon arrival at the gate, we contacted Maintenance and they showed me a copy of their "Speed brake do not arm light is on - fault isolation" troubleshooting procedure (see attached file). This document clearly states that when two anti-skid channels are inoperative (which is what we had), the speed brake do not arm light will come on whenever the speed brake lever is moved to the armed position. In other words, the system is operating normally. At this point, I realized that the intent of the MEL was to NOT arm the speed brake lever, and the manual deploy was required. There is no "may" or "might" regarding this. You HAVE to manually deploy the speed brake upon landing. Both my First Officer and I were confused by the word "may" and the lack of a clear instruction to NOT arm the speed brake lever. Maintenance cleared the logbook and we operated the flight back to ZZZ without further incident.

The language in this MEL is confusing and unclear. We made our best effort to comply with the requirements, but we got it wrong.

Change the language in the MEL to clearly state that the speed brake lever must not be armed and that manual deployment of the speed brakes are required. Replace the word "may "with the word "will."

One other suggestion from my First Officer [is] a reminder that a bleeds off takeoff may be required would be helpful. We caught it, but it could be easily missed, especially with a 12,000 ft runway in front of you!

Synopsis

B737-800 Captain reported discrepancy between Antiskid MEL crew procedures and QRH crew procedure during approach.

ACN: 1575939 *(16 of 50)*

Time / Day

Date : 201809
Local Time Of Day : 0601-1200

Place

Locale Reference.Airport : ZZZ.Airport
State Reference : US
Altitude.AGL.Single Value : 700

Environment

Flight Conditions : VMC

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 : Final Approach
Airspace.Class B : ZZZ

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
ASRS Report Number.Accession Number : 1575939
Human Factors : Workload
Human Factors : Communication Breakdown
Communication Breakdown.Party1 : Flight Crew
Communication Breakdown.Party2 : Flight Crew

Events

Anomaly.Deviation - Procedural : Published Material / Policy
Anomaly.Deviation - Procedural : FAR
Anomaly.Inflight Event / Encounter : Unstabilized Approach
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Became Reoriented

Assessments

Contributing Factors / Situations : Company Policy
Contributing Factors / Situations : Environment - Non Weather Related

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

Narrative: 1

While on approach at approximately 700ft as Pilot Monitoring (PM) I noticed the speed brakes were not armed. I then looked at the ignition switches and noticed they were off and I quickly realized the landing checklist had not been accomplished. The situation was corrected and checklist completed prior to the 500 ft stable call. I am writing this [report] as a concern with our new landing procedures on the B737. As far as I am concerned the landing checklist should be completed prior to the FAF at the very least. With these new procedures the landing checklist, talking to ATC for landing clearance and the 1000ft call can come right on top of each other. All of these things are taking away from the pilot monitoring to do exactly what they should be tasked with which is MONITORING the airplane and backing up the flying pilot. This is not the first time I have experienced this problem but fear what might result from this current procedure. This event was the closest I have come to landing without having armed the speed brakes. Had there been more distractions and the weather worse we may have not caught this and landed in a situation that would be good to have had them.

Synopsis

A B737 First Officer reported that the new procedure as to when to use the Landing Checklist has increased the workload during approach.

ACN: 1575933 *(17 of 50)*

Time / Day

Date : 201809

Place

Altitude.AGL.Single Value : 1200

Aircraft

Reference : X
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 : Final Approach

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 : 1575933
Human Factors : Communication Breakdown
Human Factors : Training / Qualification
Communication Breakdown.Party1 : Flight Crew
Communication Breakdown.Party2 : Other

Events

Anomaly.Deviation - Procedural : Published Material / Policy
Anomaly.Deviation - Procedural : FAR
Detector.Person : Flight Crew
When Detected : In-flight
Result.General : None Reported / Taken

Assessments

Contributing Factors / Situations : Chart Or Publication
Contributing Factors / Situations : Company Policy
Contributing Factors / Situations : Equipment / Tooling
Contributing Factors / Situations : Human Factors
Contributing Factors / Situations : Procedure
Primary Problem : Chart Or Publication

Narrative: 1

As a Line Check Airmen (LCA) I take extreme pride in my ability to consistently operate the aircraft in accordance with SOP. The new placement of the call for the landing checklist

AFTER the landing flaps have been called for has led to an alarming number of missed or incomplete landing checklists in my operation. I can only imagine what this might look like in "looser" cockpit environments. I complained about this development at the recent standards meeting and was told this was done to accommodate our non-Electronic Check List (ECL) brethren who find it an undo inconvenience to hold the paper checklist in their hand until final flaps are called for if the checklist is initiated at the gear down call as it has been done for [years.]

Waiting until the final flaps are called for at 1200-1000 feet on a normal approach, in the international arena, often coincides with the landing clearance or the discussion of when we might get one. Now, the pending Flight Manual (FM) change will re-instate the setting of the missed approach altitude in this same vicinity thereby increasing the workload and verbalization at this point in the approach. My experience is already telling me that the landing checklist falls through the cracks at this point far too often. There is no open checklist displayed as a reminder and the change to call for it with final flaps seems, to me, to be among the most difficult of these "standardization" changes to assimilate.

Synopsis

A B777 Captain reported that the new procedure as to when to use the landing checklist has increased the workload during approach.

ACN: 1567833 *(18 of 50)*

Time / Day

Date : 201808
Local Time Of Day : 0601-1200

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.Ground : ZZZ
Aircraft Operator : Air Carrier
Make Model Name : B767-200
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Cargo / Freight
Flight Phase : Taxi

Component

Aircraft Component : Aileron 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)
Qualification.Flight Crew : Instrument
Qualification.Flight Crew : Multiengine
ASRS Report Number.Accession Number : 1567833
Human Factors : Troubleshooting

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Detector.Person : Flight Crew
When Detected : Taxi
Result.General : Maintenance Action
Result.Flight Crew : Returned To Gate

Assessments

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

Narrative: 1

The FO (First Officer) performed the flight control check of the before takeoff checklist and noticed an unusual vibration/burble when the ailerons were operated. I confirmed this and we blocked back in and wrote up the issue as a vibration/burble in the control column when the control wheel was turned to the right. After trouble shooting with MX the issue appeared to be most severe when the right inboard aileron was operated with the flaps at 15. MX inspected the right inboard aileron and reported that one of the actuators, which appeared to have recently been installed, was almost completely lacking any lubrication. After lubricating this actuator the control operation improved.

Synopsis

B767 Captain reported aileron problems during the Before-Takeoff Checklist.

ACN: 1566534 *(19 of 50)*

Time / Day

Date : 201808
Local Time Of Day : 0001-0600

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 : EMB ERJ 170/175 ER/LR
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Mission : Passenger
Flight Phase : Takeoff

Component : 1

Aircraft Component : FADEC / TCC
Aircraft Reference : X
Problem : Improperly Operated

Component : 2

Aircraft Component : Pressurization Control System
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 Flying
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Multiengine
Qualification.Flight Crew : Instrument
ASRS Report Number.Accession Number : 1566534
Human Factors : Time Pressure
Human Factors : Distraction

Events

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

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

Assessments

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

Narrative: 1

After waiting on the ramp in ZZZ to receive our clearance from ATC, the First Officer and I decided to taxi out and wait just like another airliner flight had done in front of us. We obtained clearance to taxi to Runway XX behind the other airliner. About 5 minutes later, as I approached the 737, I decided to shut down the number 2 engine since we still did not have our IFR clearance due to ATC computer issues. As soon as we shut down engine number 2, ATC issued the other airliner their IFR clearance. In the meantime, we had started the APU in order to shut down number 1, but it became unnecessary since we figured we would be issued our clearance right after the other airliner. Once ATC finished with other airliner, they called us. I instructed the First Officer to start engine number 2. Tower gave us takeoff clearance, but we replied we needed 2 minutes. First Officer and I reviewed our IFR clearance and re-briefed the departure.

It is at this moment I am sure I set us up for failure. I forgot to call for an After Start Checklist. As a result, I never reset the TRS (Thrust Reference System) page in the MCDU after shutting down the number 2 engine. We had the EICAS caution message pop up ENG NO TAKEOFF DATA. I reviewed all my PFD indications and everything looked normal. I noticed our APU was still on and I confused the message with the ENG REF ECS DISAG. Since that message is so common, I reached up and turned off the APU knowing the QRH tells us the conditions for the message to be APU ON, REF ECS ON, Engines Idle. I have gone over the scenario multiple times in my head today and I believe the EICAS message did go away. We ran the Taxi Checklist and told Tower we were ready for departure. We ran the Before Takeoff Checklist. We lined up and took off. I don't recall seeing any EICAS message up during line up and my initial takeoff roll when I brought the throttles to TOGA, as I always do a quick check and then transition outside when I am pilot flying.

After takeoff at 400 feet, I called heading and I noticed we had Pack 1 and 2 Off. I then thought maybe I bumped the throttles past TOGA. They were not past the detent. I believe I missed the TRS and we ended up with a default ECS OFF No Flex takeoff. I consider this to be a serious safety issue especially because the runway in ZZZ is short and there is already such a small margin of error. I hope to never make this mistake again and will exercise even more caution in the future.

Synopsis

E175 Captain reported not completing the After Start Checklist and taking off without the Thrust Reference System activated.

ACN: 1565856 *(20 of 50)*

Time / Day

Date : 201808

Place

Locale Reference.ATC Facility : ZZZZ.ARTCC
State Reference : FO

Environment

Flight Conditions : VMC

Aircraft

Reference : X
ATC / Advisory.Center : ZZZZ
Aircraft Operator : Air Carrier
Make Model Name : B777-200
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Flight Phase : Cruise

Component

Aircraft Component : Hydraulic Syst Reservoir Tank
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
Function.Flight Crew : Relief Pilot
Qualification.Flight Crew : Air Transport Pilot (ATP)
ASRS Report Number.Accession Number : 1565856
Human Factors : Communication Breakdown
Human Factors : Troubleshooting
Communication Breakdown.Party1 : Flight Crew
Communication Breakdown.Party2 : Flight Crew
Communication Breakdown.Party2 : Dispatch

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Anomaly.Deviation - Procedural : Published Material / Policy
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Landed in Emergency Condition

Assessments

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

Narrative: 1

Almost 3 hours into flight, EICAS displayed a "HYD Q Low C" message. We ran the checklist, which is advisory only. Quantity was 0.38 in the center system. Over a period of the next hour and a half, the quantity ran down to 0.02. In that time we talked to Dispatch, Maintenance, and ran several scenarios. The hydraulic pressure during this time remained normal, in spite of the fluid loss. There is lots to discuss, but I want to focus on three things.

1. My interaction with the Captain was sub-optimal. He was set on the fact that if we completely lost center hydraulics, (and the Dispatcher concurred), he wanted to land [at a suitable alternate]. My position was that the aircraft was designed for the loss of center hydraulics, we were flying normally, and we could proceed safely to [destination airport] (assuming the weather remained good), and could land there without stranding 271 passengers [at the alternate]. There is much more to discuss here. Suffice it to say that I regret that my input, and perhaps how I presented it, was not well received. Eventually, the Captain pretty much shut me out, which was evidenced when we ran the "C2 HYD Press PRI" checklist, which calls for the C2 electric pump to be turned off. The Captain reached for the C2 air demand pump, and when I told him three times he had the wrong pump, he switched it off anyway. When he realized his error, he then turned off the C2 electric pump. No safety of flight issue, but the interaction had degraded to an extent where clearly my input was not being received. I bring this up only to say this: I had run out of tools to tell the Captain that I felt he (and the Dispatcher) were headed down an unnecessary path of diversion for a non-threatening situation. He mentioned that "the airplane is 20 years old" and that he wasn't confident that the AIR pumps were rated to run continuously (since that is what they were doing later on when the ELEC C2 pump was switched off with the pressure still good). He mentioned the United Sioux City crash to both the Dispatcher and Maintenance on SATCOM, and later talked about declaring "MAYDAY" upon arrival, if we made it that far. I felt if I said "I'm in the red," I'd be sending the wrong message. I think I understood the problem, but was failing to convince the Captain. I wanted to say something to the effect that HE was in the red, but I had no attention step to drive that home. (And clearly would have been poorly received in this case.) Would it have been safe to land [at the suitable alternate]? Absolutely. But until that decision was made (and we didn't lose the center system completely until much later), I felt it was my duty to try to make a more rational choice. I've talked with some people I know and trust regarding this flight. One pilot described that at another airline that they had an "ask, suggest, insist" acronym. But since this was much more drawn out, and really wasn't an emergency, the "insist" step really didn't apply.

2. I've mentioned Dispatch. We received erroneous landing data (3,000 feet off), and were told that "if the pressure drops, it's a land as soon as possible situation." It was also suggested to "experiment" with turning on and off pumps to figure out where the leak might be. We didn't do that, and stayed with the checklist. I could go on. Bottom line, I don't think Dispatch should be in the business of telling us to land as soon as possible, particularly since that advice was so wildly off base.

3. I think the center checklist could be improved. I'd like to see some revised notes. "Plan

for more time for slower flap and slat operation in secondary electrical mode with the flap handle." Those added words would have cleared up some system fuzziness. In our scenario, the pressure stayed in normal range for hours despite little or no quantity. The ADP's (Air Turbine-Driven Pumps) cycled on and off. Flight Attendant called up to report a noise near the 3R door. First Officer went back to listen. Turns out it went away when we turned off the ADP's. A note to that effect would have been helpful. (I'm assuming the short operation of the ADP's during landing configuration isn't noticed over the noise of gear and flap extension). The checklist, with the built-in decision tree, was unusable because of the intermittent condition of the pressure. Turning off the ADP's solved that problem. Even after the checklist was run, the green line running through the ELEC C1 pump to the nosewheel steering remained on, then finally went out, leading you to believe maybe in fact you had lost nosewheel steering. (Again, system knowledge after an all night flight can get fuzzy, plus the schematic and the way the malfunction developed was deceptive). A note mentioning that you would get back nose gear steering after about 60 KIAS would have been helpful, which is in fact exactly what occurred. Nevertheless, the Captain insisted on stopping on the runway, and only after some cajoling from the First Officer and I, taxied clear, but yet had us towed to the gate. (Unnecessarily, in my opinion, but certainly his prerogative).

4. Finally, though I can't find it now, somewhere in the checklist "notes" that we reviewed on descent, it mentioned not to fly a NON-ILS procedure. We saw it twice on the lower EICAS. Originally, we'd planned on doing an ILS to Runway XX, but XY became the active, and only the NON-ILS was available. It was VFR, but had it not been, it would have been helpful to know WHY a NON-ILS wasn't permitted.

I'd like to mention the dedicated and superb interaction we had with [a] Maintenance Technician, who really did all he could to research some questions we had. As an aside, at one time we could not contact either Dispatch or Maintenance for about an hour through SATCOM, which was annoying. There were no messages indicating a problem. According to Maintenance the next day, an "O" ring in the center hydraulic control module had failed.

Synopsis

B777-200 First Officer reported low hydraulic center fluid EICAS which resulted in poor CRM, incorrect data from Dispatch, and vague checklist reference.

ACN: 1507869 *(21 of 50)*

Time / Day

Date : 201712
Local Time Of Day : 0601-1200

Place

Locale Reference.Airport : ZZZ.Airport
State Reference : US

Environment

Flight Conditions : VMC
Light : Dawn

Aircraft

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

Component : 1

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

Component : 2

Aircraft Component : Aileron 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 : First Officer
Function.Flight Crew : Pilot Flying
Qualification.Flight Crew : Air Transport Pilot (ATP)
ASRS Report Number.Accession Number : 1507869
Human Factors : Troubleshooting

Person : 2

Reference : 2
Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : Captain
Function.Flight Crew : Pilot Not Flying
Qualification.Flight Crew : Air Transport Pilot (ATP)
ASRS Report Number.Accession Number : 1507885
Human Factors : Confusion

Events

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

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

While rotating for takeoff I noticed the aircraft yawing around 20-30 degrees with no crosswind component. Upon completion of the after takeoff check list the captain and I discussed the odd flight characteristics on rotation. We noticed the yaw trim wasn't centered and corrected it.

After adjusting the yaw and roll trim were noticed both were moving past the commanded position. The captain ran the applicable QRH and we proceeded to [our destination]. The flight continued without incident until I disconnected the autopilot for landing.

I had a difficult time maintaining roll control due to a pronouncement right rolling tendency with roll and yaw trim centered. I was able to compensate for the abnormal rolling tendency and landed normally. We notified maintenance of the malfunctions and control issues.

Narrative: 2

It was the first flight of the day and second day of a three day. VFR morning and the First Officer the PF (Pilot Flying). He had limited time on the airplane but extremely sharp and in tune with the airplane. During a normal takeoff (no wind/x-wind), my First Officer rotated and I notice the nose starting to yaw to the right as if there was a large x-wind. No substantial wind was noted, I looked at all the engine indications and everything looked normal.

After clean up I informed him his inclinometer ball wasn't centered and what happened on takeoff? He was as shocked as I was and didn't know why the nose inadvertently drifted. Upon looking at the trim we noticed the yaw indicating half right and the roll 1/4 left.

Upon returning the aircraft to a coordinated state the trim indication showed uncommanded movement of both the yaw and roll trim. Upon leveling at cruise to ensure we were seeing the same we disconnected the autopilot and re-trimmed the aircraft and noticed upon selecting the yaw trim the indicators kept moving more than commanded. The trim would creep but did not meet the threshold for the automated "trim" aural warning. This function was tested and worked during my flow. I know the trim was centered on the ground. Being that the trim was not a complete runaway and was controllable in the sense of repeated centering and constant monitoring, we continued to

[our destination]. We reviewed the immediate action items and the QRH but nothing was cut and dry on having more than one trim runaway. The FO (First Officer) and I agreed that if this problem persisted that we would utilize the AP/DISC (Autopilot Disconnect) press and hold memory item and work out a solution from there. I tried to speak with [Maintenance Control] but another aircraft had an Emergency and I was unable to make contact. I advised dispatch via ACARS of our issue and was told to call tech ops on the ground.

On approach, the FO disconnected the AP and I quickly observed him placing large amounts of left aileron (8- 9 o'clock position) with current winds showing only a 2 knot crosswind. Upon landing and follow up with tech ops, the aircraft had a small history of recent flight control issues.

The FO taking over the aircraft was one of the crews who had previously written the aircraft up for similar issue in regards to the ailerons. Upon meeting up with crew who flew the aircraft and overnighted this aircraft, they too had a similar condition but didn't notice the trim.

I've never seen or heard of two trims moving uncommanded at the same time let alone in opposite directions. No QRH procedure exists nor can you account for everything that can and will go wrong.

If I had followed the QRH preemptively by isolating both yaw and trim computers I was unsure if it was safer to do so or if by doing so might inadvertently put me in a worse situation. Was it the Trim Panel, wiring issues, a rogue rudder PCU (Power Control Unit)? I didn't know, but we did our best to monitor, stabilize and create readiness for a plan B.

Synopsis

ERJ-190 flight crew reported uncommanded trim movement in both the yaw and roll axis.

ACN: 1504429 *(22 of 50)*

Time / Day

Date : 201712
Local Time Of Day : 1201-1800

Place

Locale Reference.Airport : ZZZ.Airport
State Reference : US
Altitude.MSL.Single Value : 6000

Environment

Flight Conditions : VMC
Light : Dusk

Aircraft

Reference : X
ATC / Advisory.TRACON : 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 : Initial Approach
Airspace.Class B : ZZZ

Component : 1

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

Component : 2

Aircraft Component : Attitude Indicator(Gyro/Horizon/ADI)
Aircraft Reference : X
Problem : Malfunctioning

Component : 3

Aircraft Component : Indicating and Warning - Flight & Navigation Systems
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 Not Flying
Function.Flight Crew : First Officer
ASRS Report Number.Accession Number : 1504429

Human Factors : Time Pressure
Human Factors : Troubleshooting

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Detector.Automation : Aircraft Other Automation
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Landed in Emergency Condition
Result.Flight Crew : Overcame Equipment Problem

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

We were operating from ZZZ-ZZZ1. Due to delays into ZZZ1 we pushed back out of the gate at XB:24 local from the original time of XA:07. We had light to moderate snow in ZZZ so after pushback we proceeded to the deice pad to get the aircraft free of contaminants before takeoff. We departed ZZZ at XB:59. The flight started mostly in IMC conditions but by the time we began our descent on the arrival we were in VMC. We were at 10,000 ft and approach was beginning to vector us for the LOC due to strong winds in ZZZ1. There were strong winds in ZZZ1 that evening but it was VMC with visibility of 10 SM. The CA was PF and I was PM. At 10,000 ft while heading to ZZZ1, we had the autopilot on and it was coupled to the CA's side. Suddenly the autopilot disconnected. We had no indications other than a Yaw Damper 1 status message. We reengaged the autopilot, Yaw damper 1, and continued with our descent to 6,000 ft. At approximately 6,000 ft, the captain's altitude indicator started showing an increasing roll to the left, the autopilot disconnected again, we got and EFIS COMP MON caution message and the captain's attitude indicator continued its roll to the left until it was completely inverted. Due to the increasing bank angle on the attitude indicator, the captain's screen decluttered and we had an almost continuous "BANK ANGLE" aural warning. While this was happening, my attitude indicator indicated a slight roll to the right and showed an amber ROLL and PIT flag on the lower portion of the attitude indicator. The captain's airspeed indications also did not match what was on the standby instruments nor did it match my instruments. At this point, the captain had taken manual control after the autopilot disengaged and we both tried to figure out the problem while using the outside horizon to determine our attitude since it was VMC and confirming it with our standby attitude indicator.

ATC had cleared us to 4,000 ft and right heading 060. On request from the CA, I reported to the controller that we had an instrumentation error. The controller asked if we needed any assistance and we decided to [advise ATC] since we weren't able to trust our speed, altitude, and attitude indications. The controller asked us if we still wanted to go to ZZZ1. Since we were very close to the airport, and in VMC conditions, the CA agreed to proceed to ZZZ1. I replied to the controller; "Affirmative" to confirm our intentions to land at ZZZ1. Meanwhile, the CA was flying using visual references. Keeping the aircraft level with the horizon. The captain and I continued scanning our instruments and noticed that my attitude indicator started to come back to wings level and that my airspeed, altitude, and attitude all matched the standby instruments. The captain decided that since my side matched the standby that I should take the controls and I did. I continued to fly manually while the captain talked on the radio and assisted me by bugging speeds and altitude. ATC stated that they planned to put us on a right downwind for the visual since the

meteorological conditions permitted it. Once aligned with the extended centerline, we had the runway in sight and got cleared for a visual. At this point, my instruments looked accurate but I was still double checking with the standby instruments and the captain kept double checking my airspeed and altitude to make sure we were stabilized on glide path. Aside from the malfunctioning instruments, we were flying the approach as normal. We landed the aircraft safely and proceeded to the gate as normal.

This incident happened very close to the ground, flying during evening hours, in congested airspace. This made the situation a bit more challenging. We were ready for the approach. We had loaded it into the FMS and had briefed it way before we initiated our final descend into ZZZ1. However, when faced with the instrumentation failure that we experience, I felt we did not have as much time as we would have liked to try to troubleshoot the problem. We were very close to landing and decided that since the meteorological conditions were favorable, we should just go ahead and land the aircraft. As a crew we would have liked more time to run our QRH procedures, as trained by the company, but at the time this did not seem suitable since we more than likely would have had to be vectored out somewhere away from all the traffic. With night time approaching, as well as weather from the west, we decided that time was critical and landing immediately was the better decision. The aircraft was never in an undesired state. We are both very familiar with this airspace and having the airport in sight when this happened helped us maintain our situational awareness up and maneuver the aircraft to a safe landing.

I believe that as a cockpit crew, the CA and I had great communication and good CRM. However, due to the time constraints, we were unable to brief the cabin crew like we wanted. Everything happened very quickly and we never thought it was going to end up badly so we never briefed them. In hindsight, we should have briefly told them what was happening and that we were landing immediately just in case something did happen upon touchdown and they could proceed in the way they were trained.

Also, from a human factors point of view, I believe the CRJ does a poor job in telling the pilot that the AHRS system has failed. We are used to receiving caution and warning messages on our EICAS but for this particular system failure all we got was a EFIS COMP MON message. I remember this from ground school but unfortunately, during day to day line flying, when we see an EFIS COMP MON message we normally just associate it with magnetic interference so we are a bit desensitized to it. When we got this message during this incident, we knew it was the AHRS acting up but it takes a lot of crosschecking between instruments to figure out which one is right and which is wrong. I believe that a more efficient system should be develop to let the pilot know exactly what's being affected so the pilot has to work less determining the problem and use his time to troubleshoot.

If I ever encounter an event like this again, I think trying to slow things down might help. I will use this as a learning experience and take away the things that worked and leave the ones that didn't so that I can be more prepared to deal with this in the future.

Synopsis

CRJ-700 First Officer reported several messages and instrument indications associated with a malfunction of the Attitude and Heading Reference System.

ACN: 1501625 *(23 of 50)*

Time / Day

Date : 201712
Local Time Of Day : 1801-2400

Place

Locale Reference.Airport : ZZZ.Airport
State Reference : US

Environment

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

Aircraft

Reference : X
ATC / Advisory.Tower : ZZZ
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 : Final Approach
Route In Use : Vectors
Airspace.Class B : 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 : 1501625
Human Factors : Human-Machine Interface
Human Factors : Situational Awareness
Human Factors : Workload

Person : 2

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

Experience.Flight Crew.Total : 5212
ASRS Report Number.Accession Number : 1501608

Events

Anomaly.Deviation - Speed : All Types
Anomaly.Inflight Event / Encounter : Weather / Turbulence
Anomaly.Inflight Event / Encounter : Unstabilized Approach
Detector.Person : Flight Crew
Were Passengers Involved In Event : N
When Detected : In-flight
Result.Flight Crew : Took Evasive Action
Result.Flight Crew : Diverted
Result.Air Traffic Control : Provided Assistance
Result.Air Traffic Control : Issued New Clearance

Assessments

Contributing Factors / Situations : Weather
Primary Problem : Weather

Narrative: 1

On vectors for approach...Tower reported previous aircraft reported a plus 20 knot increase on final. Fully configured, inside of ZZZZZ [Waypoint] approximately 1200 feet, encountered a plus 40 knot increase in airspeed with an ascent. I executed a go-around. No predicative wind shear indications. It seemed like immediately on the go-around we encountered severe turbulence. I directed the First Officer to tell ATC we needed an immediate right turn. Thunderstorms were painting about 10 miles north of the field at the time of the approach and I suspected that was the cause. ATC gave us a heading but I did not think it was enough. Keep in mind this was all happening very fast. I wanted a 180 degree turn away from the storms.... All this while in severe turbulence. The jet was shaking so violently I could not read the airspeed, altitude or heading. I could see the red and amber in the airspeed indicator and the blue on the HSI. Again, this was all occurring simultaneously; the autopilot kicked off. I had a handful of airplane and could not read the instruments. I tried to reengage the autopilot 2 or 3 times but it continued to kick off. The airspeed during all of this, as best I could tell, seemed to go from the red to the amber, over speed to low speed and back rapidly. Also had rapid, uncommanded, pitch and roll. I don't really know how long it lasted but I would guess 2 or 3 minutes.

After we were out of the turbulence and had the jet under control ATC vectored us back around for another approach. I asked if other airplanes got in after us. Not sure if I asked the First Officer or ATC. I was trying to clear my mind after what just happened but I don't think I was successful. I was thinking get this thing on the ground. Somewhere on final encountered the moderate to severe turbulence again and broke out to the right and started heading south again.

Made the decision to divert.... I had over 12,000 lbs. of fuel so was not concerned about that.... No time to consult with dispatch, but did call enroute. Landed uneventfully.

As we were being vectored for the approach the runway and airport was in the clear. I could see it all just fine. We were painting the storms north of the field but the other aircraft ahead of us were getting in. With the exception of the report of a 20 knot gain by the previous jet there were no indications of a real threat. It all happened suddenly and for the most part unexpectedly. I was aware of the potential for wind shear and was thinking

about the possibility. I called dispatch prior to leaving to ask about the weather and was told it should pass [destination] to the north. The alternate was a "just in case." I'm still not sure what we encountered. Was it a microburst? Blow off from the storms just north of the field? I don't know.

Narrative: 2

At approximately 600 feet AGL, the airspeed began to increase, consistent with a strong gust. As the airspeed continued to increase approximately 40 knots above planned VREF, the Captain initiated a go-around. Turbulence was encountered in the climb as we configured the aircraft, and gradually worsened as we climbed and proceeded over the field and northeast of the field. With the proximity of the storm cells north of the field, we requested a vector to the right away from the weather. At that time, the line was still north, extending northeast, so ATC gave us a 020 heading.

During this time, the turbulence had increased to severe, and it was difficult to see the instruments or manipulate the FCU, and the Captain attempted to utilize the autopilot but it kicked offline. We asked for and received a vector further right to 040, and when it was apparent this was not enough, we told ATC that a vector directly away from the line was required. ATC provided a 090 vector, and at this time, while at 5,000 feet we were in and out of the bottom of the clouds, still experiencing severe turbulence. ATC gave us a vector to 170 and the turbulence died down and the ride south of the field was smooth. Aircraft were still being vectored to final, and I considered that the airspeed increase may have been due to a gust front.

Synopsis

A321 flight crew reported encountering windshear on approach with no predictive windshear indication and then severe turbulence on the go-around with thunderstorms in the vicinity.

ACN: 1494383 *(24 of 50)*

Time / Day

Date : 201711
Local Time Of Day : 0601-1200

Place

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

Environment

Flight Conditions : Marginal
Light : Daylight

Aircraft

Reference : X
ATC / Advisory.Ramp : ZZZ
Aircraft Operator : Air Carrier
Make Model Name : EMB ERJ 170/175 ER/LR
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Flight Phase : Taxi

Component

Aircraft Component : Nosewheel Steering
Aircraft Reference : X
Problem : Failed
Problem : Improperly Operated

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 : 1494383
Human Factors : Situational Awareness
Human Factors : Training / Qualification

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Anomaly.Deviation - Procedural : Published Material / Policy
Detector.Person : Flight Crew
When Detected : Taxi

Result.General : Maintenance Action
Result.Aircraft : Aircraft Damaged

Assessments

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

Narrative: 1

Few minutes before the scheduled departure time we contacted the Ramp Control for pushback instructions and we were told to push back. The ground crew complied with the instructions and pushed the airplane back. The ground crew disconnected the aircraft. Engine 1 and the APU were running; Engine 2 was off. The hydraulic pump switches were all in the 12 o'clock position. After the ground equipment was removed and clear of the aircraft the Ramp Controller instructed us to taxi straight ahead and make a right turn to and to monitor the next controller. I applied power to Engine 1, quickly followed by pressing down on the tiller, but I immediately felt that I did not have steering control and as the airplane gained momentum it started to turn right due to pure asymmetrical thrust. This is the second time that I experienced a steering failure on initial taxi out. I noticed the STEER OFF message on the EICAS even though I was firmly attempting to engage the steering. I reduced thrust to idle and brought the airplane to a stop. I switched the electric hydraulic pumps 1 and 2 to ON (even though Engine 1 was running) and tried to engage the steering one more time. This time I got an advisory (blue) STEER FAIL message on the EICAS. I reconfigured the hydraulic pumps to their normal position (AUTO). I also recycled the parking brake, and tried to engage the steering again, unsuccessfully.

At this point the airplane was facing due west and blocking about half of the entrance of the [taxiway]. The Ramp Controller was also questioning our actions, which did not match his instructions. The First Officer explained that we had a steering failure and that we probably needed to go back to the gate. The First Officer and I discussed that it was going to be very challenging to taxi without steering. So I told the Ramp Controller that I was not sure if a return to gate was necessary and that I could just taxi the airplane back to get it out of the way and call maintenance. I then applied power to Engine 2 and carefully proceeded to make a right turn back into the ramp using differential braking. In doing so I felt unusual resistance and difficulty trying to make the airplane go straight. Ramp personnel and [Company] Line Maintenance in the area quickly approached the AC (without anybody calling them) and instructed us to stop immediately (we were already stopped). A [Company] Mechanic plugged his head set and told us that the nose wheel had flipped 180 degrees (we had a LG NO DISPATCH message on the EICAS). After several attempts the ground personnel and maintenance managed to turn the nose wheel to the right position and towed the airplane back to the gate. During this time I contacted the dispatcher and explained the situation. Once at the gate I logged the maintenance discrepancies, and contacted MX Control. We then swapped aircraft and completed the flight with no issues.

My perception of Steering Failures on initial taxi out:

As I mentioned, this is the second time that this happens to me. I always thought this issue was mainly caused by the ground personnel leaving the Steering Switch accidentally in the DISENG position. It is important to note that the first time I had this issue the

External Power Connection Access Panel was on MEL, and taped over, so the crew could not verify the position of the switch. During that occasion Maintenance personnel approached the aircraft on the ramp and had us go through a "button pushing" sequence to reset the system. I was under the impression that they also checked the exterior panel, but I never actually learned what they did and what the root of the problem was. Today, I assumed it was also the outside switch that had been left in the DISENG position.

Why I decided to steer the airplane using differential braking:

I had a STEER FAIL in flight while on approach to ZZZ on Oct 2017. After landing on Runway XX I steered the airplane onto a high-speed taxiway, stopped and asked for the QRH. The QRH states that the procedure for a steer failure is to steer he airplane using differential braking and rudder. Nothing more. So, I did just that and I was able to taxi the airplane all the way to the gate using this method. Also, during my upgrade PC I was given a steer failure during taxi out and was told to demonstrate taxiing with differential braking and rudder. Therefore, when the steer failed on taxi out on Nov 2017 I felt fully capable of safely steering the airplane back to the ramp area, and away from an active taxiway using differential braking.

What I have realized:

On Nov 2017 I was single engine. While common sense says that it is not a good idea to try to steer using differential braking while on single engine I have never been explicitly instructed not to do so, or that the airplane is not able to withstand it. Doing some reading on the subject I found that the Systems Manual has a note stating that "after a power up, the first steering engagement must be performed with the airplane stopped. If this condition is not met, the hard over test might not be successfully accomplished by the system and STEER FAIL message might be displayed."

I have developed the habit of sometimes letting the airplane advance before engaging the steering. I cannot remember when exactly I started doing this, but I believe I might have done it a few times during CA IOE. I don't remember explicitly being told not to do that. But with this new knowledge I suspect that my two steering failures on initial taxi out might have been caused by me not knowing how to use the system properly. The company should emphasize to new Captains during training the operation, limitations, and different modes of the E-JET steering system. I remember only briefly going over the system during initial training. During upgrade no particular emphasis was placed on this system. [The Company] cannot take it for granted that all First Officers have a solid understanding of a system that they don't have operational experience in. [The Company] should divulge information stating that the E-JET steering system must be engaged before the airplane moves, and that single engine "Free Wheel Steering" is not allowed.

Synopsis

EMB-175 Captain reported that they were unable to taxi due to loss of steering.

ACN: 1493949 *(25 of 50)*

Time / Day

Date : 201711
Local Time Of Day : 0601-1200

Place

Locale Reference.Airport : ZZZ.Airport
State Reference : US
Altitude.MSL.Single Value : 23500

Environment

Weather Elements / Visibility : Thunderstorm
Light : Daylight

Aircraft : 1

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 : Climb
Airspace.Class A : ZZZ

Aircraft : 2

Reference : Y
ATC / Advisory.Center : ZHU
Aircraft Operator : Air Carrier
Make Model Name : B777 Undifferentiated or Other Model
Crew Size.Number Of Crew : 2
Flight Plan : IFR
Mission : Passenger
Flight Phase : Climb
Airspace.Class A : ZZZ

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 : 1493949
Human Factors : Workload
Analyst Callback : Completed

Events

Anomaly.Deviation - Procedural : Published Material / Policy
Anomaly.Inflight Event / Encounter : Loss Of Aircraft Control
Anomaly.Inflight Event / Encounter : Wake Vortex Encounter
Detector.Person : Flight Crew
When Detected : In-flight
Result.General : Physical Injury / Incapacitation
Result.Flight Crew : Diverted
Result.Flight Crew : Landed As Precaution
Result.Flight Crew : Regained Aircraft Control
Result.Flight Crew : Returned To Departure Airport

Assessments

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

Narrative: 1

While on climb out we encountered severe turbulence, possibly wake turbulence from a B777 that was climbing out in front of us. We were passing through 23500 ft when suddenly the aircraft was thrown violently into a left roll, followed immediately by a sudden roll to the right and a jolt. The autopilot continued to function which helped keep the aircraft in a controllable flight. I had the FO call and check on the FA and she told us that she had fallen and hit her head. I made the decision to air return back to ZZZ. At this time the FO took control of the flying duties while I coordinated with ATC, the company and OPs. I also rechecked on the FA, and she stated that she was starting to feel dizzy and light headed. We [advised ATC] and were turned directly towards ZZZ. This all happened within 2-3 minutes of initial occurrence. We returned and landed with no further problems. We were met at the gate by paramedics and the Inflight Supervisor and our FA was escorted to the ambulance. It was decided that she was going to be transported to the hospital for further evaluation.

In a situation like this there can be numerous threats. 1st, aircraft upset by turbulence, 2nd, and injured crew member, 3rd communicating with ATC, OPs and then coming up with a quick plan to safely bring the aircraft and passengers back to the airport. As with almost any situation, looking back, there are things to be learned. As a pilot the "I can do it all" attitude has to be put aside and one must use all resources at hand. I learned, again, that crew resource management, i.e. the FOs quick and initial, "I can fly while you make a plan and communicate with everybody" (not quite the quote) helped make this situation more controllable. It would help, however, if there was one person who could be called after landing to coordinate. As it was I had to call dispatch, scheduling, ops, Maintenance, and none seemed to know that I was on the phone with the other.

Synopsis

EMB-145 Captain reported returning to the departure airport after a Flight Attendant was injured during a wake vortex encounter climbing through FL235 in trail of a B777.

ACN: 1481080 *(26 of 50)*

Time / Day

Date : 201709
Local Time Of Day : 1201-1800

Place

Locale Reference.ATC Facility : ZZZ.ARTCC
State Reference : US
Altitude.MSL.Single Value : 25000

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 : Pilot Not Flying
Function.Flight Crew : Captain
Qualification.Flight Crew : Air Transport Pilot (ATP)
ASRS Report Number.Accession Number : 1481080
Analyst Callback : Attempted

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Landed in Emergency Condition

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

At FL250 received a Yaw Damper 2 (YD2) INOP status message. Shortly after, experienced sudden yawing motion. Suspecting the yaw damper, disconnected it, which also disconnected the autopilot. Yawing motion continued, both left and right and short, sudden motion, as well as long, sustained ones. Re-engaged YD2 and the autopilot, with the uncommanded motion diminished. Were then cleared to descend via the arrival when the yaw damper disconnected, resulting in a caution message and an autopilot disconnect. Ran the QRH. Decided to leave the yaw damper off. At the same time the yaw motions started again, the cause being uncommanded rudder movements observed on the flight controls synoptic page.

Advised ATC unable to continue the arrival due to no autopilot, and requested step-down instructions. Was unable to determine the cause of these rudder movements, and found no reference in the QRH. As the yawing was not diminishing (it was quite noticeable, requiring constant corrections by the flying First Officer), and the cause was unknown, we decided to land as soon as possible. [Requesting priority handling] with ATC. Advised the cabin of sterile procedures and completed all checklists, but decided to contact Dispatch once on the ground in order to have both pilots monitor the aircraft's behavior. Kept speed and configuration changes slow and gentle, and as the aircraft remained controllable, decided not to brace the cabin. Landing was normal. Once on the ground, while being externally inspected by the emergency trucks, briefed the flight attendants and the passengers. At the gate, contacted Dispatch and Maintenance.

Synopsis

CRJ-900 Captain reported a yaw damper INOP status message received in cruise, followed by uncommanded rudder movements. Captain requested priority handling to a normal landing.

ACN: 1480536 *(27 of 50)*

Time / Day

Date : 201709
Local Time Of Day : 0601-1200

Place

Locale Reference.ATC Facility : ZZZ.TRACON
State Reference : US
Altitude.MSL.Single Value : 10600

Environment

Flight Conditions : VMC
Light : Daylight

Aircraft

Reference : X
ATC / Advisory.TRACON : ZZZ
Aircraft Operator : Air Carrier
Make Model Name : MD-11
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Cargo / Freight
Flight Phase : Descent
Airspace.Class E : ZZZ

Component

Aircraft Component : Indicating and Warning - Flight & Navigation Systems
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 Not Flying
Qualification.Flight Crew : Air Transport Pilot (ATP)
Experience.Flight Crew.Total : 12000
Experience.Flight Crew.Last 90 Days : 65
Experience.Flight Crew.Type : 3000
ASRS Report Number.Accession Number : 1480536

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 : 7500
Experience.Flight Crew.Last 90 Days : 150
Experience.Flight Crew.Type : 2000
ASRS Report Number.Accession Number : 1480539

Events

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

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

On the arrival today we had an anomaly that I have never seen before on the MD-11. We were in the descent with the speed brakes deployed and we were about 10 knots under the max foot and stable. Suddenly the yellow foot shot down 20-30 knots followed by the red foot. An overspeed warning alert sounded with a high speed protection annunciation. No weather, turbulence or pitch changes occurred to cause this. Within a few seconds the foot returned to normal about 10 knots above our descent speed and all was well. A few seconds later the yellow and red foot repeated the sudden downward movement and we received the same warnings again. A few seconds later the feet returned to normal and we resumed our descent.

At this point we were trying to diagnose the issues and figure out what was wrong and without knowledge to us the aircraft was no longer in prof and went to level change and we descended past our clearance limit of 11,000 to 10,600 before we reversed our descent to a climb back to 11,000. [ATC didn't say] anything and we remained at 11,000 feet until ZZZZZ and continued our clearance to 10,000 after we passed ZZZZZ. I'm not sure what caused the speed/foot/overspeed anomalies. I wrote it up in the logbook and briefed maintenance as a theoretical overspeed from the warnings, but I don't actually believe we had an overspeed, but I can't be sure with the quick changes that appeared and disappeared.

Narrative: 2

[Report narrative contained no additional information.]

Synopsis

MD-11 crew reported an anomaly with the overspeed warning alert twice during descent which also caused the profile decent system to miss a level off.

ACN: 1480449 *(28 of 50)*

Time / Day

Date : 201709
Local Time Of Day : 0601-1200

Place

Locale Reference.Airport : LAX.Airport
State Reference : CA
Relative Position.Distance.Nautical Miles : 10
Altitude.MSL.Single Value : 3000

Environment

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

Aircraft : 1

Reference : X
ATC / Advisory.Tower : LAX
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
Nav In Use.Localizer/Glideslope/ILS : Runway 25L
Flight Phase : Final Approach
Airspace.Class B : LAX

Aircraft : 2

Reference : Y
ATC / Advisory.Tower : LAX
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 : Final Approach
Airspace.Class B : LAX

Person

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Taxi
Function.Flight Crew : Captain
Function.Flight Crew : Pilot Flying
Qualification.Flight Crew : Instrument
Qualification.Flight Crew : Air Transport Pilot (ATP)

Qualification.Flight Crew : Multiengine
Experience.Flight Crew.Total : 5600
Experience.Flight Crew.Last 90 Days : 200
Experience.Flight Crew.Type : 2000
ASRS Report Number.Accession Number : 1480449

Events

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

Assessments

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

Narrative: 1

We experienced moderate wake turbulence from a B737 4 miles in front of us. We were flying the ILS Runway 25L with the LOC and GS captured by the autopilot, 8 NM out, when suddenly the aircraft started to shake and the autopilot started compensating strong roll movements. Suspecting wake turbulence I decided to disconnect the autopilot, apply power, and climb to get out of the wake. Once out of the turbulence we reported the incident to LAX Tower and flew most of the approach one dot above the GS. The turbulence continued through the whole approach phase almost down to the runway. I can tell that because I tried to recapture the GS about 1 NM from the runway and I felt a light roll force as I tried to descend to the GS, so I decided to land beyond the 1500 aiming marks.

Synopsis

Hawker 800 Captain reported encountering wake turbulence four miles in trail of a B737 on approach to LAX.

ACN: 1480312 *(29 of 50)*

Time / Day

Date : 201709
Local Time Of Day : 1201-1800

Place

Locale Reference.Airport : ZZZ.Airport
State Reference : US
Altitude.MSL.Single Value : 10000

Environment

Flight Conditions : VMC
Light : Daylight

Aircraft

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

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 Not Flying
Function.Flight Crew : Check Pilot
Function.Flight Crew : Captain
Qualification.Flight Crew : Air Transport Pilot (ATP)
ASRS Report Number.Accession Number : 1480312

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Anomaly.Deviation - Altitude : Excursion From Assigned Altitude
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Diverted

Result.Flight Crew : Returned To Departure Airport
Result.Flight Crew : Landed As Precaution

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

On climb out passing through approximately 7,000 FT, we received an "EFIS COMP MON" caution message immediately followed by an AP TRIM IS ND (Autopilot Trim is Nose Down) caution message. I instinctively looked at the elevator trim display and observed the trim running nose down.

I immediately pushed the stab trim disconnect and instructed the First Officer to do the same. I assumed control of the aircraft and told the First Officer to request a level off at 10,000 FT from ATC. As he was doing that I disconnected the Autopilot and found it to be excessively out of trim to the point that it was very difficult to control. I instructed him to run the Stab Trim Runaway checklist. Although we never heard the trim clacker, it seemed at the time the more prudent checklist to run.

I had the First Officer request a turn back towards [departure airport] as a precaution although we had not committed yet to a return. During this turn I lost some altitude due to the excessive nose down trim as the primary cause but was able to gain it back. Upon further reflection, I decided to run the AP TRIM IS ND checklist because I felt that the Autopilot was the more probable cause. I reengaged the trim and trimmed the aircraft for level flight. We did not experience any trim runaway.

After briefing the First Officer about the Autopilot possibly driving the trim nose down, a reengaged the Autopilot per the checklist. Immediately the trim started moving nose down so I once again disconnected the trim and the Autopilot. I reengaged the trim and left the Autopilot off. I determined the Autopilot had malfunctioned and since at this time we had full control of the aircraft, I elected to not [get priority handling]. I had the First Officer request a return to [departure airport] and instructed him to notify the flight attendants and to ACARS dispatch. We returned and landed uneventfully.

Synopsis

CRJ-700 Captain reported returning to departure airport after experiencing an autopilot malfunction that drove the stabilizer trim to a nose-down position.

ACN: 1480145 *(30 of 50)*

Time / Day

Date : 201709
Local Time Of Day : 1801-2400

Place

Locale Reference.Airport : APA.Airport
State Reference : CO
Altitude.MSL.Single Value : 15000

Environment

Flight Conditions : VMC
Weather Elements / Visibility : Turbulence
Light : Daylight

Aircraft

Reference : X
ATC / Advisory.TRACON : D01
Aircraft Operator : Corporate
Make Model Name : Challenger CL600
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 91
Flight Plan : IFR
Mission : Personal
Nav In Use : FMS Or FMC
Nav In Use : GPS
Flight Phase : Descent
Route In Use : Vectors
Route In Use.STAR : DUNNN2
Airspace.Class E : D01

Person

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Corporate
Function.Flight Crew : Captain
Function.Flight Crew : Pilot Not Flying
Qualification.Flight Crew : Instrument
Qualification.Flight Crew : Flight Engineer
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Flight Instructor
Qualification.Flight Crew : Multiengine
Experience.Flight Crew.Total : 31000
Experience.Flight Crew.Last 90 Days : 50
Experience.Flight Crew.Type : 30
ASRS Report Number.Accession Number : 1480145
Human Factors : Situational Awareness

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Anomaly.Deviation - Altitude : Excursion From Assigned Altitude
Anomaly.Deviation - Procedural : Clearance
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Became Reoriented
Result.Flight Crew : Returned To Clearance

Assessments

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

Narrative: 1

A bit of an odd report and I was a bit reluctant to file this, but I'm a bit old school and see a trend that I don't like. We were on the DUNNN2 RNAV Arrival into the Denver's Centennial (APA) airport and were provided with some shortcuts that actually simplified the procedure. The ATC Controller said to "descend and maintain 14,000 FT and be level in 5 minutes." The pilot flying started his clock and had the time/altitude restriction wired using the vertical speed mode of the autopilot. We entered some moderate turbulence at 14,300 FT during the descent and the autopilot disengaged but the pilot flying did not notice. I may not have noticed immediately because I was setting both heading bugs. Normal non-flying pilot duties.

If I didn't see the disconnect right away, I'm sure within three to five five seconds I observed the autopilot disconnect annunciator light. I verbalized that the autopilot kicked off and to get the nose down. I saw the slight nose up tendency which was probably due to the stab trim condition and perhaps the effect of the bumpy air. The pilot flying saw the altitude increase and instead of manually flying (like I would have thought a jet pilot would do) and pushing the nose over slightly, he was using/manipulating the autopilot vertical speed wheel to arrest the climb.

I was focused on his flight instruments and saw his right hand on the yoke (and trying to determine if we had a runaway trim or flight control malfunction) but didn't realize that his focus was on the darn now non-functioning (and slow to command even if it was working) vertical speed wheel. I said, "I have it" and made a quick recovery but we topped out at almost 15,000 FT with a then expeditious return to our assigned altitude of 14,000 FT.

I have stressed good hand flying skills to this aviator and have insisted that he practice honing those skills. He has good hand flying abilities but I'm sure that many aviators are reluctant to disengage and go down on the automation ladder when needed. I don't believe a loss of separation occurred because Denver TRACON gave us a turn just before this autopilot/pitch-up (that was why I was heads down setting both the independent HDG Bugs) occurrence happened.

I would not be writing this if it wasn't for the "be level in 5 minutes" clearance. Even with the altitude excursion we didn't miss the timing by much. Could I have done a better job? I'm sure, but I am fighting a culture of pilots that are too dependent on automation. If I [had] been the flying pilot, I have little doubt that ATC or anyone in the back of the airplane would have known of our issue. I would like to think that a near immediate transition to manual flight would have occurred, just like what you would see say on an ILS approach and disconnecting the autopilot on final. We don't disconnect and let the

airplane do what it wants, we fly the darn thing. On a side note, I gave the airplane back to him after leveling and stabilizing and he re-engaged the autopilot.

Synopsis

CL60 Captain reported he noticed a deviation from assigned altitude when the autopilot disconnected, and observed that automation dependency was a factor in the excursion.

ACN: 1478908 *(31 of 50)*

Time / Day

Date : 201709

Place

Locale Reference.Airport : ZZZ.Airport
State Reference : US
Altitude.MSL.Single Value : 4000

Environment

Flight Conditions : VMC

Aircraft

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

Component

Aircraft Component : Horizontal Stabilizer Trim
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.Type : 7437
ASRS Report Number.Accession Number : 1478908

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.Type : 7124
ASRS Report Number.Accession Number : 1478903

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Diverted
Result.Flight Crew : Requested ATC Assistance / Clarification
Result.Flight Crew : Landed As Precaution
Result.Air Traffic Control : Issued New Clearance

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

Normal departure until cleaning up the flaps and slats. After everything was up, got master caution, flight controls, speed trim fail lights. At the same time the aircraft started slow trimming nose up. I was able to counter the movement with the trim switch on the yoke. Kept the speed at 250 and continued the departure so that we could run the non-normal checklist. After turning off the two guarded trim switches below and to the right of the throttles, the runaway condition stopped. Down to manual trim. We [advised ATC] and ATC leveled us off at FL240 and turned us back to [an alternate airport] per our request to divert there. Contacted the Company, briefed the Flight Attendants and passengers. Made a smooth, uneventful overweight landing.

Narrative: 2

[Report narrative contained no additional information.]

Synopsis

B737 flight crew reported diverting to an alternate airport after experiencing a stabilizer trim runaway.

ACN: 1475720 *(32 of 50)*

Time / Day

Date : 201708
Local Time Of Day : 1801-2400

Place

Locale Reference.ATC Facility : ZZZ.ARTCC
State Reference : US
Altitude.MSL.Single Value : 22600

Environment

Flight Conditions : VMC
Light : Night

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
Route In Use : Direct
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 : 1475720
Human Factors : Situational Awareness

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Landed As Precaution
Result.Flight Crew : Overcame Equipment Problem

Result.Flight Crew : Requested ATC Assistance / Clarification
Result.Flight Crew : Regained Aircraft Control
Result.Air Traffic Control : Issued New Clearance

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

While in cruise at FL260, with the autopilot engaged, we felt a sudden jolt and a very noticeable yaw back and forth. As the pilot flying I took a tighter hold of the control yoke and we both started looking at all the indicators to try to see what had been the cause, including checking if there was any nearby traffic above us that might have been the cause of a wake turbulence encounter.

There were no obvious abnormalities, no warning lights or indications.

We started to feel the additional yaw excursions. One of us selected the FLT CNTRL page on the EICAS, and we could then see fairly significant movement of the rudder (not extreme excursions, but more than would normally be seen in cruise).

I called for the QRH for un-commanded rudder movement. We ran through the steps, including disconnecting the autopilot and yaw dampers. As soon as the YDs (Yaw Dampers) were disconnected the un-commanded movements stopped.

As the conditions did NOT persist, we were not required to land at the nearest suitable airport. As the aircraft was controllable we decided it was acceptable to continue on. However, as we were worried that the problem could reoccur I determined the safest course of action was to inform ATC so that if we needed to divert everything would be in place for us.

We asked for and received a new clearance for lower and slower, and ATC also gave us direct to [the destination]. We were asked for and provided the usual information (souls on board, fuel, etc) as well as a basic description of the problem.

We also contacted Dispatch and Maintenance via ACARS, advising them of the problem, our current condition, and intention to land if nothing further happened, or divert if necessary.

Lastly, we advised the Flight Attendants what was happening, that we expected a normal landing and taxi-in, but to be prepared in case the situation worsened and called for a change in plans.

We continued the flight, with me flying manually. We asked for and received clearances to allow for relatively gentle descents and turns and a long final so as to keep stresses on the controls light.

I performed a normal visual, backed up with the ILS, to the longest runway, followed by a normal touchdown and roll-out.

Normal taxi-in and parking, after which I contacted [maintenance operations] via telephone to discuss what had happened and the write-up entry I was doing.

It appeared to me to be just and odd equipment abnormality. We did discuss the local weather (was it a wind shear issue, etc), but all the weather was far west of our position when it was happening, so that was ruled out as a factor. As I stated above, we thought about a wake turbulence issue, but there was no traffic anywhere near us. And as soon as the Yaw Dampeners were disconnected the problem seemed to stop.

I will also add that it required considerable right rudder trim to center the brick once I started manually flying. Somewhere in the 30-40% range of the indicated available travel. This might or might not be a symptom of the issue.

Synopsis

CRJ-900 Captain reported that they disconnected the autopilot and yaw dampeners and flew the aircraft manually due to uncommanded rudder movements.

ACN: 1472244 *(33 of 50)*

Time / Day

Date : 201708
Local Time Of Day : 0601-1200

Place

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

Environment

Flight Conditions : VMC
Light : Daylight

Aircraft : 1

Reference : X
ATC / Advisory.Tower : ORD
Aircraft Operator : Air Carrier
Make Model Name : B737 Next Generation Undifferentiated
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Flight Phase : Takeoff

Aircraft : 2

Reference : Y
ATC / Advisory.Tower : ORD
Aircraft Operator : Air Carrier
Make Model Name : A321
Crew Size.Number Of Crew : 2
Flight Plan : IFR
Mission : Passenger
Flight Phase : Final 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 : First Officer
Function.Flight Crew : Pilot Not Flying
Qualification.Flight Crew : Air Transport Pilot (ATP)
Experience.Flight Crew.Type : 938
ASRS Report Number.Accession Number : 1472244

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 : Captain
Qualification.Flight Crew : Air Transport Pilot (ATP)
Experience.Flight Crew.Type : 1618
ASRS Report Number.Accession Number : 1472253

Events

Anomaly.Conflict : Ground Conflict, Less Severe
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Became Reoriented

Assessments

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

Narrative: 1

We were departing Runway 22L in ORD. At the time ORD was landing Runway 28C. Just prior to our takeoff an A321 was landing Runway 28C which crosses over Runway 22L's takeoff roll path. At approximately 120-130 kts our aircraft suddenly and aggressively yawed right. This occurred prior to V1 but in the high speed regime. As pilot monitoring I double checked the engine and flight control indications. Everything was normal so I did not make a call out. The Captain (pilot flying) was able to return the aircraft to runway centerline and took off normally without any further issues.

The winds during takeoff were reported 300 degrees at 8 kts. I believe that we encountered jet blast or wake from the aircraft landing Runway 28C.

Narrative: 2

[Report narrative contained no additional information.]

Synopsis

B737 First Officer reported they experienced a sudden and aggressive yaw during the takeoff roll on ORD Runway 22L when an A321 crossed overhead landing on Runway 28C.

ACN: 1467455 *(34 of 50)*

Time / Day

Date : 201707
Local Time Of Day : 0001-0600

Place

Locale Reference.Airport : ZZZZ.Airport
State Reference : FO
Relative Position.Distance.Nautical Miles : 25
Altitude.MSL.Single Value : 8000

Environment

Flight Conditions : Mixed
Light : Night

Aircraft

Reference : X
Aircraft Operator : Air Carrier
Make Model Name : MD-11
Crew Size.Number Of Crew : 3
Operating Under FAR Part : Part 121
Mission : Cargo / Freight
Route In Use.Other

Component

Aircraft Component : Cockpit Window
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 Flying
Qualification.Flight Crew : Air Transport Pilot (ATP)
Experience.Flight Crew.Total : 12500
Experience.Flight Crew.Last 90 Days : 70
Experience.Flight Crew.Type : 5500
ASRS Report Number.Accession Number : 1467455
Human Factors : Communication Breakdown
Human Factors : Situational Awareness
Communication Breakdown.Party1 : Flight Crew
Communication Breakdown.Party2 : Flight Crew
Communication Breakdown.Party2 : ATC

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 : 18750
Experience.Flight Crew.Last 90 Days : 100
Experience.Flight Crew.Type : 8000
ASRS Report Number.Accession Number : 1467456
Human Factors : Situational Awareness

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 : Pilot Not Flying
Function.Flight Crew : Relief Pilot
Qualification.Flight Crew : Air Transport Pilot (ATP)
Experience.Flight Crew.Total : 15700
Experience.Flight Crew.Last 90 Days : 150
Experience.Flight Crew.Type : 4000
ASRS Report Number.Accession Number : 1467457

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Detector.Person : Flight Crew
When Detected : In-flight
Result.General : Maintenance Action
Result.Flight Crew : Landed As Precaution
Result.Flight Crew : Returned To Departure Airport
Result.Air Traffic Control : Issued New Clearance
Result.Aircraft : Equipment Problem Dissipated

Assessments

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

Narrative: 1

Passing through approximately eight thousand feet, a vibrating low-volume howl began to emanate from the First Officers window. Within what seemed to be approximately a 3-4 second time lapse, this sound became completely unbearable. Communications with ATC as well as communications within the cockpit were extremely difficult, rendering the requirement for maximum volume selections and overhead cockpit speakers on and at maximum volume, to optimize our ability to discern ATC communications. Visual and physical inspections of the First Officer window revealed that the window was properly secured. The window also had an accompanied vibration. The Captain conducted excellent CRM utilization and leadership with all crew members. We determined that a continued

flight would not only be detrimental to safety, but would also, and in short order, render permanent hearing damage to us all. All crew members determined that an immediate level off during our climb was needed, followed by communications with ATC regarding our need to return to [departure airport], as well as the need for us to fuel dump to achieve a safe landing weight for the aircraft. During our eventual descent, we noticed that the extremely loud noise quickly dissipated close to the same altitude it began. All checklists were accomplished. Updated weather information and landing performance was gathered followed by appropriate briefings, to return to our departure airport. A successful landing was ensued with appropriate debriefs with local maintenance personnel whom later shared with us the degradation of the First Officer window seal.

Narrative: 2

After takeoff climbing through 8,000 feet the FOs window developed a very loud high pitch squeal and vibration in the window. I ask ATC to hold our altitude that we were working a problem. The higher the cabin altitude climbed the louder the noise, to the point where we were having difficulty communicating. After we accessed our situation I decided to return. Asked radar for a fuel dumping area and we were cleared to dump. We also contacted OPS and got a release for a return, which we received. We ran all of our checklists, terminated the dump and briefed the approach. Once we had everything squared away, we flew the ILS for an uneventful landing. MX found a broken window seal. Reasons to dump fuel and return:
1) Noise level becoming unbearable and inhibited communication between crew members and hearing ATC,
2) Concern for a window failure due to vibration,
3) A 9 hrs over water flight. I feel I must recognize the crew for remarkable performance and our use of CRM, made for a safe uneventful return.

Narrative: 3

An extremely loud noise and vibration suddenly originated from the FO window during climb at approximately FL80. The FO window was closed and locked with the locking lever in the locked position. ATC communications and crew cockpit communications became extremely difficult as we climbed out on the SID. Several clearances were repeated by ATC and aircrew due to extreme noise. Continued painful noise exposure was deemed intolerable and imprudent by the crew. Climb was stopped and fuel dumped for a normal landing at departure airport. The noise subsided during the descent to an uneventful landing.

Synopsis

MD11 flight crew experienced a loud squeal passing through 8,000 that continued to grow louder, making communication difficult. Crew elected to return to the departure airport after dumping fuel.

ACN: 1464333 *(35 of 50)*

Time / Day

Date : 201707
Local Time Of Day : 0601-1200

Place

Locale Reference.Airport : CLT.Airport
State Reference : NC
Altitude.MSL.Single Value : 2500

Environment

Flight Conditions : VMC
Light : Daylight

Aircraft : 1

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

Aircraft : 2

Reference : Y
ATC / Advisory.Tower : CLT
Aircraft Operator : Air Carrier
Make Model Name : B757 Undifferentiated or Other Model
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Flight Phase : Final Approach
Airspace.Class B : CLT

Person

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : Captain
Function.Flight Crew : Pilot Flying
Qualification.Flight Crew : Air Transport Pilot (ATP)
Experience.Flight Crew.Type : 6000
ASRS Report Number.Accession Number : 1464333
Analyst Callback : Attempted

Events

Anomaly.Aircraft Equipment Problem : Less Severe
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 : Executed Go Around / Missed Approach
Result.Flight Crew : Regained Aircraft Control
Result.Flight Crew : Took Evasive Action
Result.Air Traffic Control : Issued New Clearance

Assessments

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

Narrative: 1

On approach into Charlotte Runway 23, we were at flaps 3 and approaching the FAF LECAR which is 2,500 MSL following a B757. Very suddenly the nose of the plane dropped followed by the right wing shooting straight up. I had my hands on the controls and I disconnected the autopilot and applied the maximum amount of aileron and full power. The airplane however kept rolling. We finally exited the wake at a nose low attitude. I broke off the approach and the FO requested a heading and altitude from CLT tower/approach. We climbed to 4,000 on a 120 heading and received delay vectors until we could sort out the extensive list of EICAS messages.

I tried to re-engage the automation but we lost our air data. A short time later the EICAS shortened down to AUTOTHROTTLES FAIL, WINDSHEAR FAIL, STALL PROTECTION FAIL, and ANGLE OF ATTACK LIMIT FAIL. At this point the autopilot worked again but not the auto throttles. We cleaned up the plane and accelerated to 210 KTS. I then called back to the flight attendants to check on the situation in the cabin. Everyone fortunately had their seat belts on and was fine. I made a cabin PA to the passengers, then the FO ran the associated QRH items associated with each of the EICAS messages. The FO entered the new V speeds, reloaded the approach, ran another descent checklist, then we requested vectors back to Runway 23. On the ground we received ADS 2 (Air Data System) FAIL, ADS 3 FAIL messages.

Synopsis

ERJ-175 Captain reported encountering wake turbulence on approach to CLT in trail of a B757 that resulted in an uncontrollable roll with subsequent system anomalies related to the unusual attitude.

ACN: 1462578 *(36 of 50)*

Time / Day

Date : 201707
Local Time Of Day : 0601-1200

Place

Locale Reference.Airport : CLT.Airport
State Reference : NC

Environment

Light : Daylight

Aircraft

Reference : X
ATC / Advisory.TRACON : CLT
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.Localizer/Glideslope/ILS : Runway 36L
Flight Phase : Initial Approach
Airspace.Class B : CLT

Component

Aircraft Component : Approach Coupler
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 : First Officer
Qualification.Flight Crew : Air Transport Pilot (ATP)
ASRS Report Number.Accession Number : 1462578
Human Factors : Confusion
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 : Pilot Not Flying
Function.Flight Crew : Captain

Qualification.Flight Crew : Air Transport Pilot (ATP)
ASRS Report Number.Accession Number : 1462579
Analyst Callback : Attempted

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Anomaly.Deviation - Track / Heading : All Types
Anomaly.Deviation - Procedural : Clearance
Anomaly.Deviation - Procedural : Published Material / Policy
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Executed Go Around / Missed Approach
Result.Flight Crew : FLC Overrode Automation
Result.Flight Crew : Became Reoriented
Result.Air Traffic Control : Issued New Clearance

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

I was pilot flying. We were on a published arrival into CLT. Once ATC gave us heading vectors to swing us around to the approach end of 36L, the captain and I both switched to the localizer freq 36L and went to green needles. As we neared the localizer course, ATC gave us a final vector to join the localizer for 36L. Just as we captured the localizer, my flight director made a sudden climbing right turn off the localizer course. I immediately disconnected the autopilot and turned back left to try to recapture the localizer. Although it was just a matter of only a couple of seconds, we got a traffic alert for inbound traffic on the localizer for 36C but no RA. The controller gave us a vector for 090 but since I had already turned back to westerly heading to try to rejoin, he gave us a heading of 270 and canceled the approach clearance.

At that time we reengaged the autopilot and it held the heading assignment. We quickly troubleshot the issue in attempting to figure out what caused the quick pitch and roll and could not find anything out of place. As the controller vectored us back around for another attempt to the ILS 36L, the captain and I did a positive transfer of controls and he became PF and I PM. ATC contacted us prior to the approach and issued a phone number to copy for a possible pilot deviation. As the controller issued us another vector to join the localizer, the captain armed the NAV button. As soon as he captured the localizer, the flight director again, pitched up and to the right as before. The captain caught it quick enough and disconnected the autopilot and stayed on course on the localizer manually. As we stabilized, I noticed on my FO side, my flight director was pitched up and stuck in an upright position and I did not have the glide slope green star and it stayed that way through the approach.

As we continued prior to 1000 feet, pitch/roll commands kept appearing in place of the LOC and GS on at least 2 occasions. We rearmed the approach at least 2 times before it stabilized. By the final approach course beyond 1000 feet we were stable on the captain's side and he hand flew the approach down to just above minimums doing a great job of flying after all we had just went through. During the approach, we also received CAS messages of inboard ground spoilers and spoileron faults as well as the cargo door light message was on. The captain contacted ATC as requested and briefed them on the

avionics failure we had and they stated they would be submitting a report. Maintenance was called to the plane upon landing and we deplaned after the aircraft was put out of service.

Narrative: 2

After receiving vectors from Charlotte approach control to intercept the 36L localizer, nav was armed, coupled to the FO's side. As soon as the course captured, the flight director made a sudden, sharp turn to the right. FO disconnected the auto pilot and attempted turn back to the approach course. Due to the speed and suddenness of the turn, we inadvertently encroached into the 36C approach course resulting in a TA. Charlotte approach issued an immediate vector to turn to a 090 heading, but we had turned to approximately 290 already. The controller then issued a 270 heading to clear us from both the 36C and 36L approach paths and to resequence us for an approach. The autopilot was reengaged and seemed to function normally. I opted to take the flying pilot duties to fly the approach. After receiving a vector to intercept the 36L localizer, I armed nav. As soon as the localizer captured the flight director again started to make a sharp right turn. I immediately disconnected the auto pilot and assumed manual control to remain on course. No further attempts were made to engage the autopilot for the remainder of the flight. As I was hand flying the approach, pitch and roll commands appeared on two occasions prior to 1000 feet. I reengaged approach each time and successfully landed the aircraft. Also, during the approach, we received intermittent inboard ground spoiler and spoileron messages and several cargo door CAS messages.

Charlotte approach had advised us prior to the second approach that a possible pilot deviation had occurred and provided a telephone number for the Charlotte TRACON for us to call. I called after we arrived at the gate and after a brief discussion, was told that they would be submitting a report on the incident. I advised dispatch and maintenance control of the situation and entered the discrepancies in the aircraft logbook.

Synopsis

CRJ200 flight crew reported the flight director made a sudden climbing right turn off the localizer course during approach causing their aircraft to encroach into the adjacent approach path. The second approach resulted in the same anomaly, but the crew intervened quickly.

ACN: 1459089 *(37 of 50)*

Time / Day

Date : 201706
Local Time Of Day : 0601-1200

Place

Locale Reference.Airport : ZZZ.Airport
State Reference : US
Altitude.MSL.Single Value : 24000

Environment

Flight Conditions : VMC
Light : Daylight

Aircraft

Reference : X
ATC / Advisory.Center : 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
Flight Phase : Descent
Airspace.Class A : ZZZ

Component : 1

Aircraft Component : Speedbrake/Spoiler
Aircraft Reference : X
Problem : Malfunctioning

Component : 2

Aircraft Component : Aeroplane Flight 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 : Captain
Function.Flight Crew : Pilot Flying
Qualification.Flight Crew : Air Transport Pilot (ATP)
Experience.Flight Crew.Type : 1144
ASRS Report Number.Accession Number : 1459089

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.Type : 1537
ASRS Report Number.Accession Number : 1459087

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Requested ATC Assistance / Clarification
Result.Flight Crew : Overcame Equipment Problem

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

Passing approximately FL240 while descending into [destination] deployed speedbrakes to acquire the VNAV path. As soon as handle came out of detent aircraft rolled sharply left [and the] autopilot corrected with one unit of right aileron. AUTO SPEEDBRAKE EICAS message also displayed immediately. Stowed handle and aircraft rolled back to the right until the ailerons returned to neutral, then aircraft flew level. Redeployed speedbrakes with same response. Amount of speedbrakes handle made no difference in roll, stayed at one unit all the way to full speedbrakes. Disconnected autopilot when descending through FL190 and reattempted use of speedbrakes with the same results. Engaged center autopilot but had the same conditions so reengaged the left autopilot. Anytime the speedbrake handle was moved out of the down detent aircraft rolled left and autopilot added one unit right aileron to maintain wings level. Elected to keep speedbrake use to a minimum. Disconnected autopilot descending through 11000 feet as I wasn't comfortable with leaving it engaged with a possible flight control issue. Aircraft never rolled any of the times I hand-flew, seemed perfectly in trim.

Received a request from ATC to slow from 250 to 190 knots for slowing traffic. FO had already run through the Auto Speedbrake QRH procedure which admonished not to arm the speedbrakes for landing. I advised that we should be ready for possible roll issues as flaps were extended and called for flaps 1. No issues at the setting. I called for flaps 5 and started to get some left rolling without the speedbrakes being deployed. We had just checked on with Tower and notified them of our intentions. With flaps 30 roll was much more pronounced, requiring as much as 4 units of right aileron to maintain wings level. Winds were 250 deg at 10 knots so no crosswinds were involved. FO reminded me to use manual spoilers after touchdown. As soon as the aircraft touched down the need for right aileron disappeared. I selected reverse and the FO called "speedbrakes", which I then manually deployed. The rest of the landing rollout and runway exit were uneventful. ATC asked us if we needed any assistance, to which we replied no. Taxi to the gate was completed with no further issues. We elected to keep the spoilers deployed for maintenance while being aware of that in case an emergency egress situation should come up requiring their stowage.

Narrative: 2

[Report narrative contained no additional information.]

Synopsis

B757 flight crew reported an uncommanded roll occurred when the speed brakes were deployed and again when flaps were extended for landing.

ACN: 1456749 *(38 of 50)*

Time / Day

Date : 201706
Local Time Of Day : 1801-2400

Place

Locale Reference.ATC Facility : ZDV.ARTCC
State Reference : CO
Altitude.MSL.Single Value : 35600

Environment

Weather Elements / Visibility : Windshear
Light : Night

Aircraft

Reference : X
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 : 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 : First Officer
Experience.Flight Crew.Last 90 Days : 313
ASRS Report Number.Accession Number : 1456749

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.Last 90 Days : 349
Experience.Flight Crew.Type : 17000
ASRS Report Number.Accession Number : 1456682

Events

Anomaly.Deviation - Altitude : Overshoot
Anomaly.Deviation - Procedural : Published Material / Policy

Anomaly.Deviation - Procedural : Clearance
Anomaly.Inflight Event / Encounter : Weather / Turbulence
Detector.Person : Flight Crew
Were Passengers Involved In Event : N
When Detected : In-flight
Result.Flight Crew : Returned To Clearance
Result.Flight Crew : FLC Overrode Automation
Result.Flight Crew : Became Reoriented
Result.Air Traffic Control : Provided Assistance

Assessments

Contributing Factors / Situations : Weather
Primary Problem : Weather

Narrative: 1

Climbing through about FL355 for FL370 at approximately M.78 in VNAV, we noticed an uncommanded rise in airspeed along with the large increase in Vertical Speed. The airspeed trend arrow went up into the barber pole, (we never got the clacker) so the Captain reduced power, as the airspeed and Vertical Speed continued to increase very rapidly, the Captain continued to reduce power and increase the pitch in an attempt to prevent the aircraft from overspeeding.

The airspeed and Vertical Speed increased at such a rapid rate that we were unable to level off the FL370, with the airspeed continuing to increase. We did not have any indications of mountain wave or windshear leading up to this point. I believe we were able to get the aircraft to slow down and level off at approximate FL380, with idle thrust. I immediately notified ATC of the severe updraft we had experienced and our deviation in altitude. The windshear event appeared to be over and we returned back to FL370 promptly.

I called the Flight Attendants to check the status of the cabin, everyone was ok thankfully. We notified Dispatch of the severe updraft/windshear, and the Captain wrote the aircraft up when we got to ZZZ. Maintenance met the airplane in with a printed report of the flight data, showing a 7900 fpm climb during the peak of the windshear event. The rest of the flight was mostly light chop/turbulence. We didn't encounter any more mountain wave or windshear.

There isn't anything that we could have done to prevent this event. I believe we handled it as well as possible, given the extreme nature of the windshear/turbulence.

Narrative: 2

Leveling off to cruise at FL370 climbing out in mostly smooth conditions we encountered severe turbulence in the form of a significant updraft. Pitch and thrust were managed as to not exceed aircraft limitations while maintaining positive aircraft control.

Synopsis

B737 flight crew reported an increase in airspeed and vertical speed that resulted in a max climb rate of 7,900 feet per minute and overshooting the assigned cruise altitude by approximately 1,000 feet.

ACN: 1451923 *(39 of 50)*

Time / Day

Date : 201705
Local Time Of Day : 1801-2400

Place

Locale Reference.Airport : ZZZ.Airport
State Reference : US
Altitude.MSL.Single Value : 15000

Environment

Flight Conditions : VMC
Light : Night

Aircraft

Reference : X
ATC / Advisory.TRACON : ZZZ
Aircraft Operator : Air Taxi
Make Model Name : Gulfstream G200 (IAI 1126 Galaxy)
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 135
Flight Plan : IFR
Mission : Passenger
Nav In Use : FMS Or FMC
Flight Phase : Descent
Airspace.Class E : ZZZ

Component

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

Person : 1

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Taxi
Function.Flight Crew : Captain
Function.Flight Crew : Pilot Flying
Qualification.Flight Crew : Air Transport Pilot (ATP)
ASRS Report Number.Accession Number : 1451923
Human Factors : Distraction
Human Factors : Troubleshooting
Human Factors : Workload
Analyst Callback : Attempted

Person : 2

Reference : 2
Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck
Reporter Organization : Air Taxi
Function.Flight Crew : First Officer
Function.Flight Crew : Pilot Not Flying
Qualification.Flight Crew : Air Transport Pilot (ATP)
ASRS Report Number.Accession Number : 1451924
Human Factors : Workload
Human Factors : Distraction
Human Factors : Troubleshooting
Analyst Callback : Attempted

Events

Anomaly.Aircraft Equipment Problem : Critical
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
Result.Flight Crew : Took Evasive Action
Result.Flight Crew : Regained Aircraft Control
Result.Aircraft : Automation Overrode Flight Crew

Assessments

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

Narrative: 1

Prior to takeoff, cockpit checks were completed and the rudder trim was actuated full deflection left and right per the checklist and no defects were discovered. After takeoff I adjusted the rudder trim slightly right. At this time the rudder trim selector knob pulled off of the rudder trim post. Assuming that the setscrew only backed out we placed the knob back on the post and continued the flight under normal operations. Once at an altitude of 10,000 feet, we briefed that we would not touch the rudder trim and leave it in the set position for the remainder of the flight.

Approach cleared us direct an arrival waypoint and to cross at 8,000 feet. In the descent though 15,000 feet, out of habit I attempted to apply the slightest amount of right rudder trim to true the aircraft. At this time the rudder trim abruptly applied full uncommanded deflection to the right. Which was indicated on the primary EICAS page of nine full units right trim. Causing a severe skid at an indicated airspeed around 300 kts. The autopilot was immediately disconnected in efforts to regain control of the aircraft. At this time I was applying left rudder as hard as possible and asked for the pilot not flying to add rudder input as well in attempt to remove the airplane from the skid. During the skid the cabin host was walking up the main entry door to open the curtain. At which time cabin host was promptly commanded to take a seat. The non-flying pilot attempted to re-center the rudder trim using the unsecured trim knob. However, due to the knob not being attached pilot not flying was unable to move the rudder trim.

At this time I notified ATC that we were having a problem with the rudder trim, we were off course and unable to make the crossing restriction. ATC cleared us direct to the airport and to maintain 6,000 feet. I called for the rudder trim circuit breakers to be pulled in an

effort to de-energize the trim motor. After the PNF was able to find an on board multi-tool that we keep in the cockpit, PNF was able to latch onto the trim post. When we realized this we pushed the CB's back in and attempted to re-center the rudder trim. The PNF discovered that the switch was not self-centering and that after moving the trim to the left PNF would have to move it back to the right to stop the movement of the motor. At which time I called for the CB's to be pulled again to ensure that the trim motor would not activate. During the skid fuel migrated to the left wing causing an imbalance between 300-400 lbs. After regaining control of the aircraft I asked ATC to provide either delaying vectors or a hold. ATC cleared us for a present position hold at 6,000 feet and the autopilot was re-engaged in the holding pattern.

I attempted to contact maintenance control by the use of the satellite phone to inquire if they would prefer for us to land at a nearby airport. However, due to the company's automated answering service we were unable to make contact with company. At this point I made the decision to continue to the original planned airport of arrival. After being cleared direct for the airport by ATC we were able rebalance the fuel and made a successful landing. After arrival a post flight inspection found no visible structural damage and no injuries were reported. After debriefing with the crew I made the decision that we were finished for the night as nerves were a bit shaken. Provide a discrete phone number for flights crews to be able to contact company without having to use the automated answering service.

Narrative: 2

Enroute the PF tried to adjust rudder trim for a more coordinated flight, the rudder trim knob became dislodged from the rudder trim post. After a short discussion between the PF, and myself we decided to not make any more rudder trim corrections for the remainder of the flight and determined that it was logical to continue the flight. While in descent into our filed destination, I advised the PF that I was going to be "offline" to obtain the current weather and notify the FBO of our arrival. While "offline" I felt a sudden and rapid yaw from the airplane. It was at this time that I knew there was a problem. The PF immediately disconnected the autopilot as PF gained control of the airplane. At this point, I had noticed that PF's hand was on or around the rudder trim tab. With my head down in the cockpit I knew that the Rudder Trim Tab Knob had become dislodged with the rudder trim post. I grabbed for the trim tab knob and tried to get it to sit back down on the post but because of the yawing and uncontrolled flight profile, I was unable to do so. During this time I was instructed by the PF to disconnect the Rudder Trim circuit breakers, which I did.

Returning to the task of correcting the rudder trim problem, I decided to abandon the knob and reach for a small Leatherman multi-tool that was in the cockpit when it was decided that the multi-tool was our best option for repair. The PF then instructed me to reconnect the circuit breakers to allow movement of the rudder trim motor, which I did. Using the multi-tool, I was able to turn the rudder trim post to the left to gain a more coordinated flight. While doing this, we both noticed that the rudder trim continued to travel in the opposite direction and the auto stop was not working, leaving me to try to find "center" and stop it there. After several attempts to gain positive control, we were successful. Once again, the PF instructed me to pull the rudder trim circuit breakers, which I did. We gained positive control of the aircraft and were able to re-engage the autopilot. It was at this time that I was able to come back "online" and able to hear all communications with ATC. I was given positive control of the aircraft by the PF as he contacted ATC and asked for a hold to try to contact Maintenance Control. We were unable to make contact, and decided that we would continue on to our original destination. We landed without incident and taxied to our FBO.

Synopsis

G200 flight crew experienced a rudder hard-over after a rudder trim adjustment during which the rudder trim knob detached from the post. The crew was able to center the rudder trim using a Leatherman multi-tool then pulled the circuit breaker to prevent further movement.

ACN: 1451124 *(40 of 50)*

Time / Day

Date : 201705
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 : B737-800
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
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 : 1451124

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 : 1451425

Events

Anomaly.Ground Event / Encounter : Other / Unknown
Detector.Person : Flight Crew
When Detected.Other

Result.Flight Crew : Rejected Takeoff
Result.Flight Crew : Returned To Gate

Assessments

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

Narrative: 1

Weight approximately 141.0, Flap 1, 22K Max [thrust set] (adjusted to max due to gusty winds and landing aircraft reporting a 20 knot gain at 300 feet).

During [takeoff] roll the aircraft experienced a sudden, significant and uncommanded yaw to the right. Initiated reject procedure at approximately 140 knots. Asked for Fire and Rescue to look over the aircraft. They noticed nothing unusual, brakes were not overheating, taxied to the gate.

Narrative: 2

Just above 140 knots we experienced a sudden lunge to the right. Captain elected to reject the takeoff. The abort was handled professionally with all SOPs adhered to. Emergency crews were called to look our airplane over and after the fire chief said the brakes of the airplane was 160 degrees we taxied back to the gate with the emergency crews following us.

I don't know why this event occurred but the winds were gusting with aircraft landing reporting 20 knot gain on approach.

Synopsis

B737-800 flight crew reported rejecting the takeoff at 140 knots after experiencing a sudden uncommanded yaw.

ACN: 1449862 *(41 of 50)*

Time / Day

Date : 201705
Local Time Of Day : 0601-1200

Place

Locale Reference.Airport : PDX.Airport
State Reference : OR
Altitude.MSL.Single Value : 24000

Environment

Flight Conditions : VMC
Light : Daylight

Aircraft

Reference : X
ATC / Advisory.Center : ZSE
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
Nav In Use : GPS
Flight Phase : Descent
Route In Use.STAR : HHOOD3
Airspace.Class A : ZSE

Component

Aircraft Component : FMS/FMC
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)
Experience.Flight Crew.Last 90 Days : 88
ASRS Report Number.Accession Number : 1449862

Events

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

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

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

Our flight was normal until about 50 NM from the top of descent. My FO and I were setting up for the RNAV (RNP) Z RWY 10L when I noticed my inboard DU (Display Unit) and the upper DU blink. I then noticed a DSPLY SOURCE 1 annunciation in the bottom left corner of my outboard DU. I verbalized this to the FO and had him get out the QRH. He found the DSPLY SOURCE Checklist and proceeded to run it. About this time the annunciation went away. We reviewed the checklist and concurred that no further action was required. Because of the momentary failure we discussed the legality of executing a RNP approach and decided that we could do so. We briefed the arrival and the approach, and were just about to run the approach Descent Checklist when the DSPLY SOURCE 1 annunciation returned. Again we got out the QRH and started the checklist. The light again went out after about 60 seconds. As we were now past the TOD and had not received descent clearance we asked for a lower altitude and got the boards out. This was required to regain the path while honoring the 280 knot transition airspeed restriction that is published on the HHOOD3 RNAV arrival. About this point, the Flight Attendants called up wanting the seat belt sign on for light turbulence. We complied and were grateful for their call as cockpit workload had suddenly gotten very high and it might have been missed.

The FO and I again discussed the wisdom of doing the RVAV RNP as the DSPLY SOURCE 1 annunciation intermittently was illuminated for a total of 5 or 6 times. We consulted QRH. Under the section "Malfunction OR Required Equipment" we were confused by the use of the word "OR" in the title. We decided it should read "of". We were also confused by the terminology used in the body of the text where it reads "not authorized for single or dual failure of any equipment item". We discussed this point and decided it meant any required equipment item as listed but were not completely sure of this interpretation. Looking at another page did not help us decide if an intermittent DSPLY SOURCE 1 annotation would be disqualifying for an RNP approach so I made the command decision to apply a very strict reading of QRH. I directed the FO to set up and brief the Columbia Visual backed up ILS 10L. He set up and quickly briefed the approach. About this time the DSPLY SOURCE 1 annunciation came on for several minutes so we ran the QRH checklist in its entirety and then came back together and verified that we had covered all bases with respect to the failure.

To say that our RNAV descent was busy would be a massive understatement. The HHOOD3 has several required speed changes and multiple crossing restrictions. Dealing with an equipment malfunction, running a QRH, interpreting poorly written RNP guidance and briefing multiple approaches while trying to regain the path after a late descent clearance taxed us to the max. As far as I can tell, we flew the lateral, vertical and speed profile without error but this was very difficult to do considering the workload. I used the VSD mode on my Primary Flight Display and that was tremendously helpful in maintaining my overall situational awareness. (Very few of my FOs use this tool and they should as it gives instantaneous situational awareness of vertical path.) It helped greatly that I had a very capable FO on this leg. Using all of our CRM tools the two of us managed the threat and got everything done (including the much delayed approach descent checklist) by about FL200.

Past BLRUN on the HHOOD3 the DSPLY SOURCE 1 annunciation illuminated again and showed us something completely new. The FMC CDU scratchpad displayed DISCONTINUITY and I believe the aircraft went into CWS Pitch and Roll mode. I can't say that I saw CWS annunciated but as the autopilot did not disconnect and the flight path did not change it seems logical that we defaulted into CWS. I was very confused by this new failure mode and double clutched the waypoint under 1L. This made BLRUN the active waypoint. This was very wrong as we were well past BLRUN and descending to cross SSDEE. I selected SSDEE to the scratchpad and moved to 1L. I then confirmed it with the FO and executed it. By this point I had had enough. Cockpit workload was way too high, and our situational awareness had suddenly become way too low. Most concerning was that for an unknown reason the FMC had shown us a discontinuity and apparently resequenced itself to a waypoint we had already passed. I directed the FO to tell approach that we were unable the RNAV arrival and that we needed a vector. She gave us a 270 vector with no altitude assigned. We then asked her for an altitude assignment and she realized her mistake and cleared us to descend and maintain 5000 feet.

As the flying pilot, I selected LVL CHG and HDG SEL and complied with our clearances as we were given vectors to a short visual approach. We successfully managed this new challenge by using CRM to recognize and verbalize the threat of a high energy approach. Once we realized we were getting the slam dunk, we used timely speedbrakes, an early gear extension and flaps 30 outside the marker to get back on the vertical profile and meet the stabilized approach criteria. The rest of the flight was uneventful.

I believe that working together as a crew, we handled everything correctly and within required navigational standards. I am submitting this report mainly for tracking purposes. This is the second time I have had to deal with a degraded FMS on an RNAV arrival within the last 30 days. The first time, the FMC on the flying pilot's side failed, the autopilot disconnected, and went into CWS Pitch and Roll while descending into [a different airport]. That was also a very challenging scenario that I wish I had filed a report for but I did not. Regardless, even a momentary loss of flight path data on an RNAV arrival and has very significant implications for the safe conduct of the flight and it might be an excellent training scenario. It's even more critical if you are planning to use an RNP approach and then suddenly can't. My final concern is that as more and more airports are transitioning to RNP approaches (in particular in the Caribbean), even a minor FMC failure might mean that you can't land at your intended destination. I'm not sure that the company's current fuel policy addresses this issue and can envision a scenario where a crew finds itself challenged with few options and not much gas. Regardless, two failures that degrade my ability to fly an RNAV arrival and/or shoot an RNP Approach in less than 30 days has gotten my attention and I hope it gets yours.

Synopsis

B737 Captain reported multiple FMS malfunctions on the HHOOD3 Arrival and RNAV (RNP) Z Runway 10L to PDX. Captain reported a visual landing.

ACN: 1447795 *(42 of 50)*

Time / Day

Date : 201705
Local Time Of Day : 1201-1800

Place

Locale Reference.Airport : ZZZ.Airport
State Reference : US
Altitude.MSL.Single Value : 3000

Environment

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

Aircraft

Reference : X
ATC / Advisory.TRACON : ZZZ
Aircraft Operator : Personal
Make Model Name : Gulfstream G200 (IAI 1126 Galaxy)
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 91
Flight Plan : IFR
Mission : Ferry
Nav In Use : FMS Or FMC
Flight Phase : Initial Climb
Airspace.Class E : ZZZ

Component

Aircraft Component : Autopilot
Aircraft Reference : X
Problem : Malfunctioning

Person : 1

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Personal
Function.Flight Crew : Captain
Function.Flight Crew : Pilot Flying
Qualification.Flight Crew : Multiengine
Qualification.Flight Crew : Commercial
Experience.Flight Crew.Total : 2200
Experience.Flight Crew.Last 90 Days : 20
Experience.Flight Crew.Type : 250
ASRS Report Number.Accession Number : 1447795
Human Factors : Troubleshooting

Person : 2

Reference : 2
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Personal
Function.Flight Crew : Pilot Not Flying
Function.Flight Crew : First Officer
Qualification.Flight Crew : Commercial
Qualification.Flight Crew : Multiengine
Qualification.Flight Crew : Flight Instructor
Qualification.Flight Crew : Instrument
ASRS Report Number.Accession Number : 1447803
Human Factors : Troubleshooting

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Anomaly.Deviation - Altitude : Excursion From Assigned Altitude
Anomaly.Deviation - Procedural : Published Material / Policy
Anomaly.Deviation - Procedural : Clearance
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Overcame Equipment Problem
Result.Flight Crew : Regained Aircraft Control

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

I was Pilot in Command and the Pilot Flying after a normal takeoff climbing out from ZZZ. Gear was up and we were turning to a heading of 320 with the auto-pilot (AP) engaged set to level at 3000 feet. Almost immediately after leveling at 3000 feet the plane pitched aggressively up and started climbing. I immediately disconnected the autopilot and pitched down and trimmed down but there was real resistance (felt like a runaway trim). I believe the highest we climbed was 4000-4500 feet. My copilot pushed down with me to adjust altitude and he requested a heading and block altitude from ATC while we evaluated the situation. We hand-flew the plane.

Having three options of landing overweight (we were above max landing weight), dump fuel or continue, as we were going to a Maintenance Facility we opted to continue to our destination and trouble shoot/monitor closely the situation.

I advised my copilot to couple the AP to his side and try to re-engage the AP. We had enough fuel to fly to our destination at an altitude below 28,000 feet but since the AP was operating normally on the right side we continued flight with it operating uneventfully in that position in RVSM (FL400-FL410).

We reacted immediately and advised ATC immediately after taking rapid corrective action. We train for this and will continue to do so. I am sorry if we caused aggravation and we appreciate the immediate assistance provided to us by ATC.

Narrative: 2

[Report narrative contained no additional information.]

Synopsis

G200 flight crew reported a malfunction with one autopilot shortly after level off from climb. Crew switched to other autopilot and continued to the destination.

ACN: 1446762 *(43 of 50)*

Time / Day

Date : 201705
Local Time Of Day : 0001-0600

Place

Locale Reference.Airport : ZZZ.Airport
State Reference : US
Altitude.MSL.Single Value : 37000

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
Nav In Use : FMS Or FMC
Flight Phase : Descent
Airspace.Class A : ZZZ

Component

Aircraft Component : Autopilot
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 Not Flying
Qualification.Flight Crew : Air Transport Pilot (ATP)
ASRS Report Number.Accession Number : 1446762

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 : 1446759

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Anomaly.Deviation - Altitude : Excursion From Assigned Altitude
Detector.Person : Flight Crew
Were Passengers Involved In Event : N
When Detected : In-flight
Result.Flight Crew : Returned To Clearance
Result.Flight Crew : Overcame Equipment Problem

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

We were given a clearance to descend via the arrival into ZZZ and were at FL370. We also were instructed to maintain 270 kts until ZZZZZ intersection and then resume published speeds. 6,000 ft had been put into the altitude window for the bottom altitude of the profile descent and DES was indicated on the FMA for a managed descent. Aircraft was being operated with autopilot 2 engaged. FO was PF and is a new hire. We were both looking at the FO's MCDU as I was explaining how to put the 270 knot restriction on the DES page. We both felt the plane abruptly pitch up and begin a zoom climb and depart FL370. I looked at all the instruments to determine why the aircraft started the climb, initially believing that a protection had been activated or we had suffered an undue activation of alpha protection malfunction, but neither was the case. AP never disengaged on its own. AP was disconnected and aircraft was leveled at about 38,800 ft then a descent was begun. I advised ATC of the event. AP 2 was then reengaged. It appeared that the aircraft was starting to climb again so AP 2 was again disconnected. We engaged AP 1 and resumed normal operations on that autopilot.

Narrative: 2

[Report narrative contained no additional information.]

Synopsis

A319 flight crew reported an abrupt, uncommanded pitch up and climb when the FMS was set up for a Managed Descent using Autopilot Number Two. Normal operations were resumed with the use of Autopilot One.

ACN: 1445991 *(44 of 50)*

Time / Day

Date : 201705
Local Time Of Day : 0001-0600

Place

Locale Reference.Airport : ZZZ.Airport
State Reference : US
Altitude.MSL.Single Value : 8500

Environment

Weather Elements / Visibility : Turbulence

Aircraft

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

Component

Aircraft Component : Horizontal Stabilizer Trim
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 : Pilot Flying
Function.Flight Crew : Captain
Qualification.Flight Crew : Air Transport Pilot (ATP)
ASRS Report Number.Accession Number : 1445991
Human Factors : Distraction
Human Factors : Workload

Events

Anomaly.Aircraft Equipment Problem : Critical
Anomaly.Deviation - Procedural : Published Material / Policy
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Landed As Precaution

Result.Flight Crew : Returned To Departure Airport
Result.Flight Crew : Overcame Equipment Problem

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

Stab trim runaway at 8500 feet. First Officer (FO) was flying, autopilot on, aircraft configuration was clean and we were steady state at 240-250 knots.

I heard the "stab in motion" aural go off for what I perceived as too long for normal operations, especially with the aircraft configuration.

I assumed control of the aircraft and disconnected the stab trim. I perceived a nose down (yoke moving fwd) motion just prior to disconnecting the trim. I called for the memory items for stab trim runaway, and the QRH.

The FO accomplished the required checklists. I had the aircraft and the radios. We [advised ATC], requested an immediate return to [departure airport] and a descent.

I was fighting a nose down trim condition which seemed best at around 230 knots. We got vectored for an approach and requested a long final. Somewhere in there the FO got the landing data and we determined we had sufficient runway available (155%). As the flaps came out, the nose down trim feel abated for the most part. We were fast at 1000 feet but I was able to get to ref 20 flaps plus a few by 500 feet. Uneventful landing ensued. WX was low ceilings, 3NM vis in mod rain, wind 90 degrees left wind, wet runway.

We missed the thrust reversers. Probably did not run the landing checklist with all that was going on. When I pulled them on landing, I got the caution msgs, closed the reversers, armed the switches and then redeployed them without further incident. Still stopped with plenty of runway remaining.

Synopsis

CRJ-200 Captain reported returning to departure airport after experiencing a stabilizer trim problem.

ACN: 1443987 *(45 of 50)*

Time / Day

Date : 201704
Local Time Of Day : 0601-1200

Place

Locale Reference.Airport : ZZZ.Airport
State Reference : US
Altitude.MSL.Single Value : 35000

Environment

Flight Conditions : VMC
Light : Daylight

Aircraft

Reference : X
ATC / Advisory.Center : ZZZ
Aircraft Operator : Air Carrier
Make Model Name : EMB ERJ 170/175 ER/LR
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Nav In Use : GPS
Nav In Use : FMS Or FMC
Flight Phase : Cruise
Airspace.Class A : ZZZ

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 : Captain
Function.Flight Crew : Pilot Flying
Qualification.Flight Crew : Air Transport Pilot (ATP)
ASRS Report Number.Accession Number : 1443987

Events

Anomaly.Aircraft Equipment Problem : Critical
Anomaly.Deviation - Altitude : Excursion From Assigned Altitude
Detector.Person : Flight Crew
When Detected : In-flight

Result.General : Physical Injury / Incapacitation
Result.Flight Crew : Overcame Equipment Problem

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

While in cruise at FL350 at Mach .75 and 54 minutes into the flight (in VMC conditions; in still air; with no turbulence being alerted to us, the flight crew by ATC or by PIREPS) the autopilot was engaged until the autopilot disengaged and the aircraft did an abrupt pitch up and stick shaker occurred. The aircraft climbed approximately 200 feet during this event. The aircraft was returned back to FL350 and autopilot was reengaged. No EICAS message occurred however we reviewed the pitch trim runaway checklist even though there was no EICAS message. From the time the autopilot disengaged to the stick shaker was less than 2 seconds. Recovery of the aircraft was immediate with myself (pilot flying) and the FO pushing on the yoke forward for this stall recovery incident. ATC was not notified of any flight deviation since the total incident lasted less than 20 seconds from the start to recovery back at FL350. ATC did not question our altitude change.

I contacted the FAs and no passengers were injured. FA #2 was injured to where she sustained a bloody lip and twisted foot. I asked if she was ok or needed immediate medical care. She indicated she was not in need of medical care thus we continued to ZZZ which was less than 1 hour away. Once the aircraft was in cruise back at FL350, as indicated above, I evaluated the aircraft stability, flight characteristics and safety of the passengers and since there were no issues, I did not declare an emergency. After the event the aircraft preformed as usual and autopilot was reengaged and speed brakes were used. After the event I monitored the pitch trim indicator on the EICAS and it reflected between 2.5 and 2.7 on the trim with the autopilot engaged.

After the event the maintenance personnel that inspected the aircraft indicated the initial cause was a disagreement with the elevator servo. In looking at the event a week later, it appears over time at cruise, the aircraft reconfiguring to a pitch up attitude due to an elevator/servo disagreement and the autopilot disengaged since it was not able to hold a level altitude with this configuration. Thus when the autopilot disengaged the aircraft was configured in a pitch up attitude and we pitched up to a stick shaker notification. The recovery of this event was an immediate response from myself and the FO. The recovery of the aircraft was what we were taught in recovery of a stall at high altitude.

This was my first sequence after recurrent to which a high altitude stall was demonstrated in the simulator. The only difference was in the simulator the airspeed was reduced and in this real life situation the aircraft did not lose airspeed but was placed in an immediate pitch up attitude.

Synopsis

EMB175 Captain reported an autopilot disengagement and abrupt pitch up at FL350. Later, maintenance inspection revealed a disagreement with the elevator servo.

ACN: 1443625 *(46 of 50)*

Time / Day

Date : 201704
Local Time Of Day : 1801-2400

Place

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

Environment

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

Aircraft

Reference : X
ATC / Advisory.Ground : ZZZ
Aircraft Operator : Air Carrier
Make Model Name : A300
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Cargo / Freight
Flight Phase : Taxi
Route In Use.Other

Person : 1

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : Captain
Function.Flight Crew : Pilot Flying
Qualification.Flight Crew : Air Transport Pilot (ATP)
Experience.Flight Crew.Total : 10000
Experience.Flight Crew.Last 90 Days : 60
Experience.Flight Crew.Type : 7000
ASRS Report Number.Accession Number : 1443625
Human Factors : Training / Qualification
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 Not Flying

Qualification.Flight Crew : Air Transport Pilot (ATP)
Experience.Flight Crew.Total : 11000
Experience.Flight Crew.Last 90 Days : 110
Experience.Flight Crew.Type : 700
ASRS Report Number.Accession Number : 1443638

Events

Anomaly.Ground Excursion : Runway
Detector.Person : Flight Crew
When Detected : Taxi
Result.General : Flight Cancelled / Delayed

Assessments

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

Narrative: 1

I was scheduled to operate [multiple flights]. Upon taxi out in ZZZ we were assigned by ATC to back taxi on [the] runway to perform 180 degree turn at the end for takeoff. This was due to taxiway closures and airport construction. My First Officer pointed out that they had just previously assigned the same clearance to an aircraft before us. Since taxiway A was part of the closures and since other aircraft were given the same clearance it led me to believe that I had no other option for departure. After we were clear of the ramp and positioned on the parallel taxiway I stopped the aircraft, set the parking break and we performed all briefings and pre-takeoff checks and checklists. I then handed my First Officer my iPad opened to the [procedures] and asked him to locate the description of the 180 degree maneuver so we could review it. I told him I had only done this maneuver once in my upgrade training in the SIM and I wanted to be sure that we would be doing it correctly. After review of the [procedure] we entered [the] runway at taxiway D and began to back taxi to the end of the runway. As I began the maneuver I solicited my First Officer's input since we had reviewed the procedure together. Both of us seemingly were in agreement throughout the maneuver. Just prior to beginning my hard over turn to the right my First Officer stated that he wouldn't go much further. I commented that I had not yet reached the runway edge but then began the right turn almost immediately thereafter. My First Officer was the first one to think that we were potentially off the runway. Since the aircraft seemed sluggish I boosted the power to see if it would continue its turn. It was at this point that it became obvious to me that he was correct. I then set the parking brake. We contacted the tower and notified them then contacted Operations. We started the APU then shutdown both engines. I contacted Operations to advise them of the situation. We remained with the aircraft until the decision was made to wait for recovery assistance. At that point we exited the aircraft and proceeded to the gateway. We submitted to the drug and alcohol test, contacted crew scheduling then went to the hotel until our scheduled jumpseat. In hindsight I should have queried ATC about any other options for departure that would not require the back taxi. As we waited at the end of the runway for assistance I noticed the segment of taxiway between [two parallel runways] appeared to be open and usable. This would have meant that we could have back taxied made the right onto the taxiway and used [the parallel runway] for departure. Additionally, I believe that seeing and performing the maneuver on Operating Experience would have been helpful and should be incorporated into our training in the future.

Narrative: 2

[Report narrative contained no additional information.]

Synopsis

A300 flight crew reported a runway excursion when they attempted to do a 180 degree turn to position the aircraft for takeoff on a 150 foot wide runway.

ACN: 1439165 *(47 of 50)*

Time / Day

Date : 201704
Local Time Of Day : 1201-1800

Place

Locale Reference.ATC Facility : ZZZ.TRACON
State Reference : US
Altitude.MSL.Single Value : 12000

Environment

Flight Conditions : VMC

Aircraft

Reference : X
ATC / Advisory.TRACON : 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
Flight Phase : Final Approach
Airspace.Class B : ZZZ

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 : Captain
Function.Flight Crew : Pilot Flying
Qualification.Flight Crew : Air Transport Pilot (ATP)
Experience.Flight Crew.Total : 30500
Experience.Flight Crew.Last 90 Days : 240
Experience.Flight Crew.Type : 10686
ASRS Report Number.Accession Number : 1439165

Person : 2

Reference : 2
Location Of Person : Company
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 : 1439138

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Anomaly.Inflight Event / Encounter : Unstabilized Approach
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Landed in Emergency Condition
Result.Flight Crew : Overcame Equipment Problem
Result.Flight Crew : Regained Aircraft Control
Result.Air Traffic Control : Provided Assistance

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

On descent on STAR into ZZZ, we were told to slow down to accommodate traffic ahead. As I was decelerating the aircraft through 270 to 250 (assigned) knots, the aircraft started a substantial roll. AUTOPILOT AND AUTOTHROTTLE WERE ON. I disengaged the autopilot to hand fly, and fully stowed the speed brakes. Despite speed brakes stowed, the aircraft rolling moment was quite different. Rudder ratio light came on a few seconds later. Ran the checklist, simultaneously we further reviewed the situation. Rudder and roll moment had a peculiar (bungee) feel to it. Configured early and landed uneventfully. Had CFR equipment inspect the aircraft on landing, condition and fluids issues of at all. None found visually by CFR CREWS. Jump seater was put to use and was great assistance.

Narrative: 2

[Report narrative contained no additional information.]

Synopsis

Boeing 757 flight crew reported an uncommanded roll during descent with the autopilot engaged. The Rudder Ratio light illuminated a few seconds later.

ACN: 1438649 *(48 of 50)*

Time / Day

Date : 201704
Local Time Of Day : 1801-2400

Place

Locale Reference.Airport : IND.Airport
State Reference : IN

Environment

Flight Conditions : VMC
Light : Night

Aircraft : 1

Reference : X
ATC / Advisory.Tower : IND
Aircraft Operator : Air Carrier
Make Model Name : Medium Large Transport, Low Wing, 2 Turbojet Eng
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Flight Phase : Final Approach
Route In Use : Visual Approach
Airspace.Class C : IND

Aircraft : 2

Reference : Y
ATC / Advisory.Tower : IND
Aircraft Operator : Air Carrier
Make Model Name : Large Transport, Low Wing, 2 Turbojet Eng
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Flight Phase : Taxi

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.Type : 8000
ASRS Report Number.Accession Number : 1438649
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 : Check Pilot
Function.Flight Crew : Captain
Qualification.Flight Crew : Air Transport Pilot (ATP)
Experience.Flight Crew.Type : 6000
ASRS Report Number.Accession Number : 1439207

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 : Pilot Flying
Experience.Flight Crew.Type : 300
ASRS Report Number.Accession Number : 1438651
Human Factors : Training / Qualification
Human Factors : Confusion
Human Factors : Situational Awareness

Events

Anomaly.Inflight Event / Encounter : Unstabilized Approach
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : FLC Overrode Automation

Assessments

Contributing Factors / Situations : ATC Equipment / Nav Facility / Buildings
Contributing Factors / Situations : Human Factors
Primary Problem : Human Factors

Narrative: 1

We were in the process of flying an uneventful approach at the end of an uneventful flight. The approach was the visual approach to runway 32 in IND. We were following an aircraft and another aircraft was about to depart and we assume that one of these aircraft, perhaps both, interfered with the glideslope signal. As is usual, we were backing up the visual approach with the ILS and on autopilot as well.

When the interference occurred, it was sudden and surprising in intensity. I have seen this occur many times throughout the years, and without question this was the worst I've seen. As the glideslope deviated upward, the aircraft of course went with it and initiated a steep pitch attitude and almost full power. The first officer (FO)was caught unaware as this was new to him, and in the moment's indecision, I assumed the controls and stabilized the aircraft. I was able to return to a stable configured flight path at about 1,100-1,200 ft, and decided to maintain controls for the remainder of the approach, as I didn't feel it appropriate to transfer controls at that point of the approach. We then landed without further incident.

A check airman was on the jumpseat and was able to provide some added and informed

insight to a discussion we all had upon reaching the parking point. The FO seemed slightly shaken, and we veterans were surprised as well, at how quickly the aircraft reacted to a disrupted glideslope indication. The pitch and power inputs were drastic; personally, I'd like a download of the data to see just what it did. It was a vivid demonstration to the FO of what this particular situation can do to a pilot in that you can have a pristine day that suddenly goes wrong. Without intervention, I'm not sure what state the aircraft would have achieved with the oscillation that followed. The downward pitch and excessive power input would probably have resulted in a potential CFIT threat.

As well, indecision as to what action to take can create issues hazardous to a positive outcome of the flight. Absent a decision to correct the flight path or to call for a go-around, I needed to intervene, which provided a vivid and excellent teaching moment for the FO who now has seen an authentic representation of how quickly scenarios can change in this environment. We decided to report this since we do believe it was an upset. There may be an issue with the glideslope itself and may need to be addressed by the airport authority as this scenario is easily repeated. The only way to get experience is to get experience. The FO needed it, and now he has some more. Because I have some, we corrected it to an uneventful outcome.

Narrative: 2

While on final approach to IND RWY 32 at approximately the FAF, IND Tower cleared an aircraft onto RWY 32. The aircraft passed through and interrupted the RWY 32 Glide Slope transmission. The FO had the FMS coupled to the ILS 32. The disruption caused a GS indication that was nose high (estimated 10 degrees) which the autopilot (AP) tracked and the autothrottle advanced to takeoff thrust. FO's reaction to this inflight upset was delayed, (fixation/confusion on the abrupt pitch/thrust change), prompting the CA to announce, and take the flight controls. The CA immediately and smoothly returned the aircraft to the ILS glide path and because being in a critical phase of flight, landed the aircraft.

Several contributing factors.
1) FO was on a line check with a check airman jumpseat observing him. He was a little nervous.
2) Weather was clear with light to moderate winds. This crew was performing well and were literally minutes away from landing.
3) FO was a recent new hire. Because of that, I am assuming he had low time in CFR Part 121 operations.
4) FO described that he had never encountered this kind of GS anomaly before and was unfamiliar with ground GS aircraft disruptions.

Crew knowledge and experience are the only way to prevent this event.

Conclusion: Excellent rapid control by the CA. Excellent learning experience for the FO.

Narrative: 3

[Report narrative contained no additional information.]

Synopsis

Air carrier flight crew reported an interrupted glideslope signal at IND caused the aircraft to pitch up while on autopilot. The Captain took control from the First Officer and landed the aircraft.

ACN: 1437194 *(49 of 50)*

Time / Day

Date : 201704
Local Time Of Day : 1201-1800

Place

Locale Reference.Airport : ZZZ.Airport
State Reference : US
Altitude.MSL.Single Value : 37000

Environment

Flight Conditions : IMC
Weather Elements / Visibility : Thunderstorm
Weather Elements / Visibility : Turbulence
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
Nav In Use : GPS
Nav In Use : FMS Or FMC
Flight Phase : Cruise
Airspace.Class A : ZZZ

Component : 1

Aircraft Component : Air Data Computer
Aircraft Reference : X
Problem : Malfunctioning

Component : 2

Aircraft Component : Pitot-Static 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)
ASRS Report Number.Accession Number : 1437194

Human Factors : Time Pressure
Human Factors : Troubleshooting
Human Factors : Confusion
Human Factors : Distraction

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 : 1437200
Human Factors : Time Pressure
Human Factors : Distraction
Human Factors : Workload

Events

Anomaly.Aircraft Equipment Problem : Critical
Anomaly.Deviation - Speed : All Types
Anomaly.Inflight Event / Encounter : Weather / Turbulence
Detector.Automation : Aircraft Other Automation
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Landed As Precaution
Result.Flight Crew : Diverted
Result.Aircraft : Equipment Problem Dissipated

Assessments

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

Narrative: 1

When we leveled off at FL370 and noticed an amber IAS indication. When we checked the airspeed indicators we noticed that the FO's airspeed was indicating lower than mine and the standby airspeed indicator. As we accelerated there was no change in his airspeed indicator. Based on this I thought there was a blockage of pitot tube 2. The PM pulled out the QRH and it instructed us to do an ADC (Air Data Computer) reversion. This also required us to descend out of RVSM airspace. ATC assigned us FL270 and we began to descend. We descended with the autopilot on. As we descended we noticed the standby IAS and Captain side no longer matched up. Captain side IAS was descending and acting like an altimeter. This caused some uncertainty initially as we were not sure which one to believe. We were asked to increase our descent by ATC so I increased the VS to 2000 fpm. Shortly after this the airplane did an uncommanded pitch down and we disconnected the autopilot. It was at this point smoke or water vapor came pouring in through the window seals. I wasn't sure which it was at first, but it made me worried about our pressurization and we were still at FL300 and hand flying. I checked the cabin pressure on the EICAS and it seemed normal. About at this point we also experienced a failure of both ADCs as we got red Xs across our instruments. I also saw an IC-600 failure message on the EICAS and the

first officer reported seeing a PRESN auto fail message. We [advised ATC] and proceeded to ZZZ. We received radar vectors there. As we descended the systems came back online and by the time we were getting vectors to ILS all indications were normal again. At some point I turned the autopilot back on but it kicked off after we intercepted the localizer as the localizer was swaying back and forth. After that we landed uneventfully at ZZZ.

Bad weather, instrument failure, task saturation. The autopilot pitch down was caused by me leaving the autopilot on after I should have disconnected it. At the time I was busy and it did not occur to me that I should turn the autopilot off. At that time I was busy trying to decide which airspeed indication I could rely on and trying to figure out what was going on.

Narrative: 2

The flight started about 1.5 hours delayed due to a line of severe weather. Our filed route took us north with expected vectors around the west side of the most severe elements of the line. Previous aircraft had flown through our route without any issues. We reached our cruising altitude of 37,000 ft. and were leveled off for approximately 9 minutes before we received an amber IAS indication on the PFDs. Taking note of the three airspeeds revealed the FO side was in disagreement with the standby and captain's side PFD. I pulled the QRH. The guidance provided stated to compare data with the standby indicator and if required use cross-side data by pressing the appropriate reversionary button. We did this resulting in the FO side airspeed reading in agreement with the captain's side and standby instruments. Further guidance also instructed us to descend below RVSM so I as the PM called ATC and requested a non RVSM altitude for a minor issue with our airspeed indications. At that point the problem seemed solved and we intended to continue as planned.

It was during the descent, however, that the real alarming airspeed indications began to manifest. As we got lower, all three airspeed indications fell out of agreement and all trended lower with each bit of altitude lost. Obviously we were both extremely alarmed at this indication and I began thinking out loud about what would cause the result. My thought was that a partial pitot tube blockage which prevent air from entering the tube but not preventing it from escaping would possibly result in this reading. This thinking was based on static pressure continually increasing as we descended but ram air pressure remaining unchanged. This would result in an ever increasing static to ram air pressure ratio thus resulting in a lower airspeed indication. My mind immediately went to [a recent aircraft accident] which crashed due to pitot tube blockage and an improper pitch and power setting in response to inaccurate airspeed indications. The time spent during the descent while the airspeed was rolling back was incredibly stressful as it was IMC in the thin air of 35,000+ feet. I am certain both of our minds were trying to figure out as rapidly as possible what was happening in order to best figure out how to handle the problem. Any EICAS indications which may or may not have existed during that period went unnoticed as the evaluation of whether or not a stall at 30 something thousand feet was imminent took precedence over all other things. Once I was done verbalizing my theory on the pitot tube blockage and we both agreed it was a real possibility, our focus became pitch and power and working together to ensure the aircraft continued to fly safely in the descent.

Up until this point the captain had elected to continue to let the autopilot fly, perhaps due to the thin air, but we were both very aware of the probable need to disconnect it when our airspeed indication read very low. I don't think either of us knew for sure what the Autopilot was going to do at such low airspeeds which in hindsight should have been a trigger for the captain to hand fly the aircraft but there was a lot to think about at that

point. When the airspeed indication (not actual airspeed) read dangerously low the autopilot commanded a very rapid pitch down attitude. The captain immediately disconnected the autopilot and I jumped on the controls with him to pull the nose back up to a safe descent attitude while also trimming the nose up to relieve the pressure. I notified ATC of our situation. I asked if there was any known VMC in the area but none could be found. ATC offered ZZZ as the closest suitable airport and provided vectors to the field. At some point during our continued descent we lost all airspeed and altitude indications as both PFD's were covered in red Xs. A number of EICAS indications were presented which again took a back seat to flying the aircraft, getting setup to land at an airport now less than 30 miles away with a Metar of TSRA over ZZZ.

Honestly there was so much going on as the PM that the only EICAS message that was clearly noted in my head was PRESN auto FAIL. Perhaps this was because it seemed like a completely new problem in the storm of events. It was somewhere around this time, likely before I noticed PRESN auto FAIL, that our windows were completely fogged over and both the Captain and FO side windows were venting in visible water vapor. The windows were so obstructed that I initially thought we had severe clear ice buildup on our windows further adding to my workload as it produced even more stress to an already very stressful event. Concerns of seeing a runway with an obstructed windscreens became the next thought in my head so I moved on to trying to solve that problem. There were no indications of failed windshield heat, however, I checked the windshield heat buttons at least three times to make sure they were on and even cycled the captain's side as I have never seen so much condensation on a heated windscreen before. I eventually had a moment to grab the box of tissues we thankfully had on the fight deck and was relieved to find our visibility issues were solved after wiping down the front windscreens. While we didn't get into VMC conditions until around 2,000 feet on the approach, we did at some point during our descent into ZZZ get all of our indications back and in agreement with no reversions. To the best of my knowledge we were within 10 miles of the field and getting vectors for the ILS when our instrumentation resumed what at least appeared to be a normal operating condition. I would be dishonest if I said I wasn't very skeptical of all instrument indications at that point after all we had been through thus far. Because the indications were in agreement the Captain elected to reengage the autopilot again for our arrival into ZZZ. Keep in mind from the point of failure when the Captain took the controls from the autopilot until right now in the scenario, all that I have been doing from the right seat has been in conjunction with being equally focused on watching the captain's flying to back him up on his pitch and power. Nothing was more important in my mind than 1. Preventing a stall and 2. Ensuring we didn't descend the aircraft into the ground due to task saturation. Our descent into ZZZ was constant moderate precipitation and despite an ATIS indicating TSRA, Approach had two aircraft which had recently landed, thus encouraging us to continue into ZZZ. In one last reminder from the aircraft to never stop flying until you are safely on the ground, the autopilot started badly s-turning on the localizer and the autopilot disengaged itself. The captain of course took the controls again and hand flew the ILS to the runway to land without any further issues.

Some of the major threats included severe weather along the route of flight as well as a malfunctioning aircraft with incorrect indications provided by the instrumentation. The most significant factor was the uncommanded pitch down by the autopilot due to not hand flying sooner. That would stand out to me as our biggest error. We both were unsure of what was going to happen with the autopilot in charge so allowing the autopilot to take it for as long as we did was not necessarily wise. It did, however, free up both of our brains a bit more to decide what was happening and how to respond. The only positive I can take from this was we were at least watching the airplane like a hawk ready to take corrective action immediately if a proper pitch attitude wasn't maintained. As soon as it was apparent

the autopilot wasn't up to the task, we took over. We experienced a very nasty mix of major task saturation which couldn't be aided by an autopilot as well as honest to goodness fear. Stalling the airplane in IMC was hard to not think about, nor did I wish to try. Aviate-Navigate-Communicate was definitely our approach. It doesn't do any good to flip through a QRH while death spiraling toward the ground after a stall. That being said, at no time did I ever make a decision to not follow the QRH. I simply did not have enough free resources to get there before the messages eventually cleared and the PFD's appeared normal again. With so much going on, including the water vapor and suspected icing, working with ATC to get us to ZZZ, having to consider the weather and the TSRA in the ATIS, getting numbers for the runway, setting up frequencies, briefing approaches and running the arrival check and sending a diversion report to dispatch, I simply never had the time. Had this been a sim where the consideration of myself and other peoples lives were not on the line, I probably would have been better able to address the EICAS messages which may or may not have corrected our instrument indications. Unfortunately, this was the real world and we both did the best we could with everything which was thrown at us.

While I feel overall we did ok with the situation presented to us, there are always things you could do better. Certainly as previously mentioned, the autopilot should have been disconnected sooner in order to prevent the need to take sudden corrective action. I do wish I had been able to get to the QRH after the initial ADC (Air Data Computer) reversion. I really tried my best to clear my mind and focus on the tasks required. Unfortunately, I couldn't stop hyper focusing on the aircraft state and trusting the Captain to fly correctly. It wasn't because I didn't generally trust his skills, it was simply a scenario which is very rare (never happened in my experience) and had a severe enough outcome (high altitude stall) if improperly executed that I felt backing him up took priority. Especially since with all that had gone wrong, my trust of any indication outside of the standby indicator (even my trust here wasn't very strong) was gone, despite what they were or were not reading.

Synopsis

EMB145 flight crew reported an airspeed indication failure at FL370 in IMC with thunderstorms nearby. The flight diverted to the nearest suitable airport with airspeed returning to normal during the approach.

ACN: 1432329 *(50 of 50)*

Time / Day

Date : 201703
Local Time Of Day : 0001-0600

Place

Locale Reference.ATC Facility : ZZZ.ARTCC
State Reference : US
Altitude.MSL.Single Value : 20000

Environment

Flight Conditions : VMC

Aircraft

Reference : X
ATC / Advisory.Center : ZZZ
Aircraft Operator : Air Carrier
Make Model Name : A300
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 : Turbine Engine
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)
ASRS Report Number.Accession Number : 1432329

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 : 1432561

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 As Precaution

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

At FL200 Number 2 engine rolled back suddenly. All fuel pumps had been on since preflight. A lot of yaw and bank. Disconnected auto flight and throttles. Started descent. Checked engine rotating and turned on continuous relight. Left ECAM disappeared or diminished. Was it at idle or sub idle? I don't know. Lights but no horn.

Checked that the engine responded to throttle movement then left it at idle and flew with auto throttles disconnected. Only used the engine for thrust reverse on landing and to taxi.

Did the long checklist. Contacted ATC. They asked if we wanted the trucks ready or rolled. While I was thinking they made the decision. I would have rolled the trucks also. I think they could have gotten in place sooner as I had a lot of localizer wobble and had to disengage the autopilot. I wonder if the trucks crossed the beam? I forgot to ask the fire chief.

Had to stay high longer due to TCAS alert. I slowed rate of descent to avoid RCAS. After the traffic passed I used boards to get down.

MEL for bad pack on the side of the good engine. Made airflow path in case we lost the engine with the good pack. I could have used APU for pressurization and I would have if we were really single engine.

I planned on using both engines in the event of a go around. And certainly would have used number two if anything happened to number one.

Didn't turn off stuff in the checklist since the engine was still running. I probably should have started the APU a little earlier (before we got to it in the checklist) although it was backup only.

Did a 20 flap landing at 151 knots. Very smooth just under max landing gross weight. Thrust reversers on both engines. Min auto brakes. Cleared runway. Stopped as requested then continued taxi to hangar gate and transloaded.

Great backup and initiative by the FO. For example, when we shut down, he told me the stairs were on the wrong side for the MEL slide inop. And I was busier than normal with manual throttles and he assumed some of my duties in addition to his own. Very nicely done on his part.

Talked to fire chief. They have three levels of alert. I think it would be good info to incorporate in training.

Cause: Engine failed or went to idle, so quickly that I thought it had failed.

Narrative: 2

[Report narrative contained no additional information].

Synopsis

A300 flight crew reported returning to departure airport after Number 2 engine abruptly rolled back to idle.