ASRS Database Report Set

Multi-Engine Turbojet Aircraft Upsets Incidents

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

Update Number.....37

Date of Update.....January 10, 2024

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

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

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

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

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

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: 2025809 *(1 of 50)*

Synopsis

EMB-175 Captain reported a flight control anomaly where the control column moved momentarily during cruise flight without an EICAS warning message in flight. The crew diverted to an alternate airport and landed safely overweight.

ACN: 2025627 *(2 of 50)*

Synopsis

EMB-175 flight crew reported a violent vibration and ENG 2 FAIL message during takeoff roll. The crew rejected the takeoff and returned to the gate where the aircraft was turned over to maintenance.

ACN: 2023665 *(3 of 50)*

Synopsis

B737 pilot reported stabilizer trim and autothrottle malfunctions. Flight crew returned to departure airport and landed uneventfully.

ACN: 2021291 *(4 of 50)*

Synopsis

B737 First Officer reported uncommanded leading edge flap deployment in cruise flight. Flight crew made an uneventful landing at destination.

ACN: 2014154 *(5 of 50)*

Synopsis

B737 flight crew reported experiencing an abrupt pitch down event when engaging the autopilot system, resulting in an immediate return to the departure airport.

ACN: 2013480 *(6 of 50)*

Synopsis

CE-560XLS Captain reported a pitch runaway during descent from cruise altitude. Flight crew diverted and landed normally.

ACN: 2010881 *(7 of 50)*

Synopsis

Flight crew reported #1 thrust reverser deployed at 500 ft. on departure. Crew shut engine down per reverser deployed" checklist and returned to field.

ACN: 2009096 *(8 of 50)*

Synopsis

Air carrier First Officer reported severe turbulence resulting in an injured flight attendant. The reporter stated they encountered 30 to 45 degrees of uncommanded roll.

ACN: 2001837 *(9 of 50)*

Synopsis

CRJ flight crew reported uncommanded rudder and aileron trim movement after take-off. The flight crew performed an air turn back and made a precautionary landing at departure airport.

ACN: 2001065 *(10 of 50)*

Synopsis

B737NG Captain reported encountering wake turbulence departing LAS in trail of a B757.

ACN: 1999132 *(11 of 50)*

Synopsis

Pilot reported an uncommanded yaw during the takeoff roll. A rejected takeoff was performed and it was determined that both left main tires had deflated.

ACN: 1988714 *(12 of 50)*

Synopsis

Learjet 60 Captain reported aircraft loss of pitch and roll control at 41,000 ft., resulting in a loss of altitude. The Captain disconnected the automation to recover the aircraft at

38,500 ft. and received course changes from ATC. Once in smoother air, without aircraft damage or injuries, the flight continued to destination.

ACN: 1987335 *(13 of 50)*

Synopsis

B737-800 flight crew reported after a very smooth landing the speed brakes auto retracted and the auto throttles went to Go Around power. The Pilot Flying executed a go-around.

ACN: 1986485 *(14 of 50)*

Synopsis

CE750 First Officer reported encountering wake turbulence departing FLL in trail of an A320 that resulted in a 45 degree roll.

ACN: 1977462 *(15 of 50)*

Synopsis

A319 flight crew reported an inflight upset resulted when they encountered wake turbulence on arrival into EWR in trail of a B777.

ACN: 1973695 *(16 of 50)*

Synopsis

CRJ-900 Captain reported encountering wake turbulence on descent into JFK in trail of a B777.

ACN: 1973689 *(17 of 50)*

Synopsis

CRJ-900 flight crew reported encountering wake turbulence in trail of a B747 on approach to JFK.

ACN: 1971513 *(18 of 50)*

Synopsis

B767 flight crew reported a #1 Engine Failure in cruise followed by significant vibration. The flight crew diverted to make a precautionary landing.

ACN: 1966492 *(19 of 50)*

Synopsis

B737-800 pilot reported encountering sudden moderate to severe turbulence in the climb between FL370 and FL380 that resulted in airspeed and altitude deviations.

ACN: 1965014 *(20 of 50)*

Synopsis

CRJ-900 First Officer reported a Horizontal Stabilizer Trim Run Away condition during approach. The flight crew ran the QRH and the Run Away conditioned ceased. The flight crew continued the approach to landing at destination airport.

ACN: 1960739 *(21 of 50)*

Synopsis

EMB-505 Captain reported encountering wake turbulence on approach to LAS in trail of a B787.

ACN: 1959896 *(22 of 50)*

Synopsis

B747-400 First Officer reported severe turbulence in cruise flight resulting in temporary loss of aircraft control.

ACN: 1958049 *(23 of 50)*

Synopsis

CRJ-200 flight crew reported autopilot malfunction in cruise flight resulted in the airplane pitching up followed by a TCAS RA.

ACN: 1957644 *(24 of 50)*

Synopsis

B737-800 First Officers reported this particular 737 has yaw control problems. One pilot reported uncommanded rolls and the other pilot reported receiving information from other pilots and their own experience of perpetual problems. Both FOs refused to fly the aircraft.

ACN: 1955247 *(25 of 50)*

Synopsis

Gulfstream G-IV flight crew reported loss of both flight guidance computers on final approach. Reporter stated this is a recurring issue.

ACN: 1950812 *(26 of 50)*

Synopsis

B737-800 Captain reported loss of autopilot and hydraulic system failure caused controllability issues in flight. The flight crew performed a go around, regained aircraft control and landed at destination airport.

ACN: 1948076 *(27 of 50)*

Synopsis

Air carrier Captain reported two hard over events when connecting Autopilot A. Flight crew disconnected autopilot and hand flew aircraft back to departure airport.

ACN: 1948075 *(28 of 50)*

Synopsis

A321 flight crew reported flight control malfunction during departure climb resulting in a return to the departure airport.

ACN: 1946791 *(29 of 50)*

Synopsis

Air carrier flight crew flying an ERJ-170 aircraft reported autopilot and pitch trim failure inflight.

ACN: 1943170 *(30 of 50)*

Synopsis

CRJ-900 Captain reported encountering wake turbulence departing JFK in trail of a B757, noting that the recovery required full aileron deflection.

ACN: 1942032 *(31 of 50)*

Synopsis

EMB-175 Captain reported encountering severe turbulence, resulting in a momentary loss of aircraft control and an altitude deviation of 600 ft. After exiting the turbulent conditions, the flight continued to the destination airport, with only a minor injury sustained by a Flight Attendant.

ACN: 1940581 *(32 of 50)*

Synopsis

B737 Captain reported autoflight system malfunction. The Captain disengaged the autoflight system and returned to departure airport.

ACN: 1940427 *(33 of 50)*

Synopsis

B737-700 First Officer reported "...2 events of aileron roll resistance left/right followed by an excessive bank...".

ACN: 1939715 *(34 of 50)*

Synopsis

EMB-145 flight crew reported encountering wake turbulence on approach to CLT in trail of an A321 that resulted in an aggressive roll exceeding 45 degrees of bank angle.

ACN: 1841823 *(35 of 50)*

Synopsis

A CE 525 Pilot reported an autopilot malfunction caused the aircraft to roll to the right, resulting in a temporary loss of control.

ACN: 1837579 *(36 of 50)*

Synopsis

B737-800 Captain reported the aircraft suddenly skidded to the left during takeoff roll due to gusty crosswinds requiring corrective input.

ACN: 1831728 *(37 of 50)*

Synopsis

Light Transport Corporate Pilot reported encountering wake turbulence departing OAK in trail of an A321.

ACN: 1829597 *(38 of 50)*

Synopsis

B777 Captain reported rejecting the takeoff and returning to the gate when the aircraft initiated a hard left turn early in the takeoff roll.

ACN: 1829214 *(39 of 50)*

Synopsis

MD-11 Captain reported flight control computer issues during approach resulted in loss of all autoflight capability. Pilot also reported the aircraft had been previously refused due to flight control computer malfunctions.

ACN: 1828935 *(40 of 50)*

Synopsis

CRJ-200 Captain reported encountering wake turbulence on arrival into ATL in trail of a large transport.

ACN: 1827225 *(41 of 50)*

Synopsis

B737-700 flight crew reported hearing a loud bang from the nose gear area during the takeoff roll. In flight, the hydraulic system malfunctioned and the crew performed a manual gear extension prior to landing.

ACN: 1827224 *(42 of 50)*

Synopsis

B737-700 flight crew reported a flight control malfunction shortly after takeoff.

ACN: 1822078 *(43 of 50)*

Synopsis

CRJ-700 Captain reported a trim malfunction on descent and followed QRH procedures to land successfully.

ACN: 1821671 *(44 of 50)*

Synopsis

CRJ-900 Captain reported encountering wake turbulence on descent into ATL in trail of a B757, which was following of a Heavy B787.

ACN: 1821354 *(45 of 50)*

Synopsis

MD11 flight crew reported multiple systems failures that required attention and distracted them, resulting in exceeding an airspeed limitation.

ACN: 1820448 *(46 of 50)*

Synopsis

Captain reported an LSAS system failure caused control issues on descent and approach to landing resulting in a precautionary landing.

ACN: 1817242 *(47 of 50)*

Synopsis

B737 flight crew reported encountering jet blast from B777 on Taxiway TT while landing on ORD RWY 27C.

ACN: 1812451 *(48 of 50)*

Synopsis

EMB-145 flight crew reported an engine failure on takeoff resulting in an air turn back and a precautionary landing.

ACN: 1805782 *(49 of 50)*

Synopsis

CRJ-200 Captain reported a flap indication issue followed by an uncommanded pitch down movement. The crew contacted Dispatch and Maintenance Control and decided to return to the departure airport.

ACN: 1802901 *(50 of 50)*

Synopsis

EMB XRJ-145 Captain reported auto flight system malfunctioned during departure and arrival phase by uncommanded reversion to Roll-Go Around mode.

Report Narratives

ACN: 2025809 *(1 of 50)*

Time / Day

Date : 202308
Local Time Of Day : 1801-2400

Place

Locale Reference.ATC Facility : ZZZ.ARTCC
State Reference : US
Altitude.MSL.Single Value : 28000

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 : 3
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Flight Phase : Cruise

Component

Aircraft Component : Elevator Control Column
Aircraft Reference : X
Problem : Malfunctioning

Person

Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : Captain
Function.Flight Crew : Pilot Not Flying
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Instrument
Qualification.Flight Crew : Multiengine
ASRS Report Number.Accession Number : 2025809
Human Factors : Communication Breakdown
Communication Breakdown.Party1 : Flight Crew
Communication Breakdown.Party2 : Flight Crew

Events

Anomaly.Aircraft Equipment Problem : Critical
Anomaly.Deviation / Discrepancy - Procedural : Weight And Balance
Anomaly.Deviation / Discrepancy - Procedural : Published Material / Policy
Anomaly.Deviation / Discrepancy - Procedural : FAR

Anomaly.Inflight Event / Encounter : Other / Unknown
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Landed As Precaution
Result.Flight Crew : Diverted
Result.Flight Crew : Requested ATC Assistance / Clarification

Assessments

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

Narrative: 1

I was the Captain on Aircraft X. Aircraft X operated from ZZZ1 to ZZZ2. In cruise flight no turbulence, north of ZZZ the control column snapped forward and back to neutral very quickly. I assume the column went forward around 30 percent of its half range with neutral being zero. It was very sudden but caught both pilot's attention. I currently have around 6000 hours in the EMB-170 series aircraft and never witnessed the control column act in this manner. The autopilot did not disconnect, there was no EICAS messages. It did appear to have slightly nosed down but it was so sudden it was barely noticeable. I did note before this anomaly occurred the trim was 3.0 and after was at 3.4. Right after this anomaly occurred I took the controls and disconnected the autopilot. I hand flew the aircraft for a few minutes and the aircraft handled normally. Note: Our cruise altitude was FL280 out of RVSM. I then discussed with my FO (First Officer) if this aircraft is safe to continue flight. We both agreed that it couldn't have been the autopilot with such a sudden movement. Worse case it could be an elevator issue electronically/ACE (Actuator Control Electronics), or hydraulic/PCU (Power Control Unit). We decided to be safe and land. Closest airport was ZZZ3 but that would have required a rapid descent. ZZZ4 was straight ahead and 100 NM. I was the flying pilot at this moment, First Officer got the FMS loaded and performance landing numbers. All checklist were ran, the approach was briefed. I briefed the passengers and cabin crew of the divert. The reason was a control anomaly and that the aircraft was operating normally, this is a precautionary diversion. I realized the aircraft was going to have an overweight landing. I then [requested priority handling] as per SOP. I had the choice to burn fuel below max landing weight or land overweight. I chose the latter, having a flight control issue. I landed the aircraft very smoothly. Pulled the aircraft off the runway and had the Airport Fire and Rescue check the aircraft. Note: An Autoflight Control System Fault Fail message did appear on the EICAS upon landing. I then taxied to the gate normally. Suggestions - I had a choice to continue or to land. After First Officer and I discussed worse case being a ACE or PCU problem, Autopilot malfunction or something as small as a channel failure and the backup transition was not the smoothest. I chose to land not knowing what the problem was leaning toward the safest option.

Synopsis

EMB-175 Captain reported a flight control anomaly where the control column moved momentarily during cruise flight without an EICAS warning message in flight. The crew diverted to an alternate airport and landed safely overweight.

ACN: 2025627 *(2 of 50)*

Time / Day

Date : 202308
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 : 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 : Takeoff / Launch

Component

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

Person : 1

Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : Pilot Flying
Function.Flight Crew : Captain
Qualification.Flight Crew : Multiengine
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Instrument
ASRS Report Number.Accession Number : 2025627
Human Factors : Workload
Human Factors : Time Pressure

Person : 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 : Instrument
Qualification.Flight Crew : Multiengine
Qualification.Flight Crew : Air Transport Pilot (ATP)
ASRS Report Number.Accession Number : 2025630
Human Factors : Troubleshooting

Human Factors : Time Pressure
Human Factors : Workload

Events

Anomaly.Aircraft Equipment Problem : Critical
Anomaly.Deviation / Discrepancy - Procedural : Clearance
Anomaly.Ground Event / Encounter : Other / Unknown
Detector.Automation : Aircraft Other Automation
Detector.Person : Flight Crew
When Detected : In-flight
Result.General : Maintenance Action
Result.General : Flight Cancelled / Delayed
Result.Flight Crew : Rejected Takeoff
Result.Flight Crew : Returned To Gate

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

Pushed back from Gate XX. Started number one engine with no problems. Got permission from ramp to taxi to Spot X. Once we got the taxi clearance from Ground, we taxied onto [Taxiway] 1 and started number 2 engine with no abnormalities. We got clearance to take off. CA (Captain) advanced the thrust to 40% N1, all normal. CA advance thrust to TOGA and called for "check thrust". FO (First Officer) who was Pilot Monitoring didn't have time to say anything because as soon as the engines reached TOGA a violent vibration shook the aircraft, and then shoved us to the right. 1-2 seconds later engine 2 fail came on the EICAS and N1 showed engine failure while at 5-10 kts. We rejected the takeoff, told Tower, and slowly taxied off the runway. We found a place to sit to run checklist, contact Maintenance, Company, flight attendants, and passengers. Once we got the situation under control with checklists done we returned to the Gate. Cause: engine age maybe? Suggestions: always follow procedures, it saves lives. CA and FO were on top of what happened and responded quickly and correctly.

Narrative: 2

Standard and to procedure push off and start up of both engines, no abnormal indications during start up or through taxi. Line up and wait on Runway XXL, once cleared for takeoff, Captain (Pilot Flying) advanced thrust levers to 40%, no abnormal indications, then advanced thrust levers to TOGA and called "check thrust". We had just started the takeoff roll, I was monitoring the engine indications, about to call "thrust checked" when there was a sudden violent vibration, feeling of drag and unsteadiness on the right side. Received EICAS message of "ENG 2 FAIL" and "FAIL" indication on ENG 2. Per procedure, Captain brought the thrust levers back to idle & rejected takeoff. I informed Tower that we had an engine fail and were rejecting the takeoff, instructed by Tower to slow taxi down to the [Taxiway] 1 intersection to exit Runway XXL & asked if we needed any assistance. After confirming with the Captain, informed Tower we did not need any assistance at this time & was instructed to contact Ground after exiting the runway. After speaking with Tower, I checked with the Flight Attendants, everyone was okay in the back and confirmed no smoke or fire was emitting from ENG 2, let them know we had to reject the takeoff and would need to run some checklists & then return to gate, number 1 Flight attendant made a PA. While we continued our slow taxi down to [Taxiway] 1, I contacted Ops to get a return gate and was given [Gate] XX (the gate we had pushed from). Once clear of the

runway we contacted Ground letting them know we needed to return to gate XX via Spot XXX, but needed to run some checklists first. Was instructed to taxi via [Taxiways] 2 3 and hold on 3 to run our checklists, but prior to turning onto 3, was instructed to just hold on 2 to run our checklists, and asked if we needed Fire & Emergency to meet us at the gate. Confirmed we'd hold short of 3 on 2 and get back to them about Fire & Emergency after running the checklist. While we were taxiing several aircraft confirmed we did not have any exterior smoke or fire on the #2 engine. Once stopped, Captain made a PA informing passengers of situation and that we would be running some checklists & then returning to our gate. Accomplished QRH ENG 2 FAIL checklist & contacted Maintenance. Confirmed no other actions were required at that time. Informed Ground we would not need Fire & Emergency and ready to return to gate, instructed to taxi via 3. Ramp cleared us through Spot X and to the gate. Once back at the gate we communicated with Dispatch. Maintenance met us at the gate, Captain made appropriate MEL entry. After communicating with Maintenance and Dispatch we deplaned.

Synopsis

EMB-175 flight crew reported a violent vibration and ENG 2 FAIL message during takeoff roll. The crew rejected the takeoff and returned to the gate where the aircraft was turned over to maintenance.

ACN: 2023665 *(3 of 50)*

Time / Day

Date : 202308
Local Time Of Day : 1801-2400

Place

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

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
Mission : Passenger
Flight Phase : Takeoff / Launch
Airspace.Class B : ZZZ

Component : 1

Aircraft Component : Horizontal Stabilizer Trim
Aircraft Reference : X
Problem : Malfunctioning

Component : 2

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

Person

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 : 2023665
Human Factors : Workload
Human Factors : Troubleshooting

Events

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

Result.Flight Crew : Diverted
Result.Flight Crew : Returned To Departure Airport
Result.Flight Crew : Landed in Emergency Condition

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

Immediately after departure from ZZZ, the Captain (CA) Pilot Flying (PF) noticed no response while selecting nose down electric stabilizer inputs. PF asked Pilot Monitoring (PM) to attempt nose down electric trim as well to no avail. Both CA and First Officer (FO) controls had no nose down trim capability but electric trim and auto trim did work for nose up inputs. The CA (PF) directed the PM to request a vector from ATC and to maintain 8000 ft. and 250KIAS to establish a controllable flaps up/gear up flight regime. During the climb and level off, it was also determined that the auto-throttles did not respond appropriately to FMC or Mode Control Panel (MCP) speed window inputs. The last correct input from the auto-throttles was upon depressing the TOGA buttons for takeoff where it was apparent that the throttles were essentially in a "hold" mode. As a result, airspeed reached between 250-260KIAS during the climb prior to recognizing the auto-throttles were also inoperative. Because of workload concerns, initially the CA opted to [request priority handling] while determining the available control ability and choosing the appropriate checklist. Once leveled off and manually trimmed to a straight and level attitude, the flight controls and radios were transferred to the FO as planned during the Pre-Departure briefing. The CA then took the role of PM and handled the stabilizer trim inoperative, overweight landing, and non-routine landing checklists while communicating with Dispatch, Flight Attendants, and Passengers. A flaps 15, overweight (154k GW) landing was executed. We rolled to the end of the runway uneventfully where ZZZ fire and rescue met the aircraft for a hot brakes inspection. With company maintenance concurrence, we decided that there was no concern taxiing under our own power to parking. Brake temperatures were monitored by safety crew and where they continued to follow us to the gate. Recent 737 MAX training with emphasis on trim runaway situations played a substantial role in the safe and expeditious recognition of the aircraft malfunction. As a result, both CA and FO were very well prepared to execute the appropriate checklists without further incident.

Synopsis

B737 pilot reported stabilizer trim and autothrottle malfunctions. Flight crew returned to departure airport and landed uneventfully.

ACN: 2021291 *(4 of 50)*

Time / Day

Date : 202307

Place

Locale Reference.ATC Facility : ZZZ.ARTCC
State Reference : US
Altitude.MSL.Single Value : 32000

Environment

Flight Conditions : VMC

Aircraft

Reference : X
ATC / Advisory.Center : ZZZ
Aircraft Operator : Air Carrier
Make Model Name : B737 Undifferentiated or Other Model
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Flight Phase : Cruise
Airspace.Class A : ZZZ

Component

Aircraft Component : Flap Control (Trailing & Leading Edge)
Aircraft Reference : X
Problem : Malfunctioning

Person

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
Experience.Flight Crew.Total : 517.52
Experience.Flight Crew.Last 90 Days : 191.45
Experience.Flight Crew.Type : 517.52
ASRS Report Number.Accession Number : 2021291

Events

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

Result.Flight Crew : Overcame Equipment Problem
Result.Flight Crew : Landed in Emergency Condition

Assessments

Contributing Factors / Situations : Aircraft
Contributing Factors / Situations : Software and Automation
Primary Problem : Aircraft

Narrative: 1

While cruising at FL320 (about 40 minutes after departure) the trim wheel started moving backwards and the speed moved from cruise speed to 230 knots by itself. We scanned the aircraft while making sure we were not getting into a stall situation. The LE (Leading Edge) FLAPS TRANSIT light was on and the number 4 amber light in the upper flight controls panel was also on. We went thru the QRH procedure, contacted Dispatch and Maintenance. the QRH made us go down to flight level 200 pull flaps to 1 then back to UP to see if it would reset. the light remained on and talking to Dispatch we made a decision to continue to ZZZ. we would be landing with about an hour of fuel and no weather or other conditions were affecting ZZZ. We had positive control of the aircraft at all times. Another Company pilot had checked the wing as well as the Captain and it didn't seem like a significant difference between that LE FLAP and the rest of them. Once with ZZZ approach we told them that we required Runway XX and our final approach speed would be around 175 knots. ATC Then decided to treat it as [priority handling] at that point so we gave souls on board and fuel. CA (Captain) landed the plane without further incident.

Synopsis

B737 First Officer reported uncommanded leading edge flap deployment in cruise flight. Flight crew made an uneventful landing at destination.

ACN: 2014154 *(5 of 50)*

Time / Day

Date : 202307
Local Time Of Day : 1801-2400

Place

Locale Reference.ATC Facility : ZZZ.ARTCC
State Reference : US
Altitude.MSL.Single Value : 10000

Environment

Flight Conditions : VMC

Aircraft

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

Component

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

Person : 1

Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : Pilot Not Flying
Function.Flight Crew : First Officer
Qualification.Flight Crew : Multiengine
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Instrument
Experience.Flight Crew.Last 90 Days : 171
Experience.Flight Crew.Type : 906
ASRS Report Number.Accession Number : 2014154
Human Factors : Fatigue

Person : 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 : Multiengine
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Instrument
Experience.Flight Crew.Last 90 Days : 170
Experience.Flight Crew.Type : 3800
ASRS Report Number.Accession Number : 2014176
Human Factors : Fatigue

Events

Anomaly.Aircraft Equipment Problem : Critical
Anomaly.Deviation / Discrepancy - Procedural : Clearance
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Returned To Departure Airport
Result.Flight Crew : Landed in Emergency Condition
Result.Air Traffic Control : Issued New Clearance

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

Today was an incredibly long day. I had just finished a two-day the previous day out of ZZZ, where we were delayed getting back into ZZZ by almost 5 hours due to weather. So I was hoping for a simple day trip to ZZZZ today. That simply was not the case. I arrived at the airport for our report time at XA:50. I was able to meet with the CA (Captain) and discuss the upcoming day and flight. We met the previous crew of our aircraft on the jet bridge who went into great detail about the current MEL items on that specific aircraft. After discussing the situation with the crew and Dispatch, the CA and I both felt that it was the best course to not take this aircraft to ZZZZ due to the MEL items on the aircraft. We then waited another 3 or so hours for the next aircraft to become available. The CA and I boarded the new aircraft to find that there was an inbound write-up on the aircraft in regards to the brake pressure accumulator not being able to hold pressure and had lost about 800 psi in about 30 minutes. Maintenance personnel then boarded that flight and performed a test on the aircraft to see what the issue was and if it could be deferred or if the issue was more complex. The test took roughly 45 minutes to see if the brake pressure would hold or not. Maintenance informed the CA and I that the aircraft did not pass the test and would need to be taken out of service. The time now is roughly XG:30. The CA and I have been at the airport roughly 6 hours and are now looking for our 3rd aircraft to take to ZZZZ. However duty period was now an issue. We later received a phone call from Scheduling who informed us that we will now be going to ZZZ1 because we would not be legal to operate the previous flight to ZZZZ and back to ZZZ2. The CA and I again boarded our new flight to ZZZ1. We got everything ready to only have the Ramp close for about 30 minutes due to the storms in the area. Once the storms cleared we were able to push back from gate. However, due to the construction behind the gate, the Tow Driver needed to tow us in a specific area to clear the construction. We informed the driver of where to go but he was very confused and it was clear that he may not have gotten the proper training for towing in this area with the construction. Due to this confusion we ended up breaking the shear pin on the push. So we had to get Maintenance to come out and verify everything was ok before continuing on with the pushback. Once given the ok to go from Maintenance, we were able to push back to the proper area and

commence the flight. The time now is roughly XJ:15 and we were on our way for departure after 8.5 hours of delays and changes. There were still so many storms in the direction of which we were going but ZZZ2 was clear. We departed with no issues. We performed the after-takeoff check and continued our climb to 10,000 ft. It was around 8,000 ft. that the CA decided to put the autopilot on by pressing Command A. The autopilot engaged. I was the pilot monitoring and received a clearance to continue climb to 18,000 ft. At that moment within 30 - 60 seconds of the autopilot being on, there was a sudden violent jolt and pitch down of the aircraft. The autopilot remained engaged. The CA and I looked at each other trying to understand what just happened. The aircraft then did the same jolt and pitch down. The CA then clicked off the autopilot. We told ATC that we want to remain at 10,000 ft. and that we had a flight control issue. The CA and I then tried Command B autopilot. It appeared to be working normally. We then tried Command A autopilot and again within 30 - 60 seconds the jolt and nose down pitch occurred. We then saw the stab out of trim light appear. We ran through the checklist and decided that it was best to go back to ZZZ2 at that time. We advised ATC and got vectors back to ZZZ2. We notified Dispatch, the FAs (Flight Attendant), and customers. We did a great job using CRM to really divide and conquer at this time. We would meet back and regroup with each other. We ran the overweight checklist and proceeded to land at ZZZ2 with no issues. ARFF (Airport Rescue and Firefighting) verified the aircraft was ok on the taxiway before proceeding to the gate.

Narrative: 2

Our showtime for the original pairing was XA:50. We were assigned an aircraft that was removed from ETOPS operations due to an APU issue. I discussed this with Dispatch and requested either an airplane with an APU that was not degraded and certified to operate over water or in ETOPS or a route of flight that was mainly over land and closer to acceptable divert airports. Even though this flight was not ETOPS I do not operate our aircraft over water more than a distance that would provide for a safe and quick diversion in the event of system failures. The Dispatcher agreed to re-route our flight. Soon after discussing this aircraft and flight plan, we were assigned another aircraft. We were not told why this decision was made. The next aircraft was wrought with even more serious issues. In addition to having a cowl anti-ice valve wired in the open position, which required reference to flight manual procedures and information, it led to another MEL item that further complicated the flight crew duties including more referencing of the flight manual and MEL procedures. Bleed air and minimum power settings. as well as split throttle positions, on an approach are serious systems that require lots of attention. Had this flight been further complicated by other system failures not anticipated, we would have been up against an enormous amount of work just to get the aircraft on the ground safely. In addition to that, there were numerous areas of thunderstorm activity on and around our route of flight. We refused the aircraft. The next aircraft they gave us came in with a write-up of brake accumulator pressure bleeding down rapidly while parked. AMTs performed a required test on the brake system and it failed. This evolution took about an hour and further delayed our operation and the aircraft was eventually taken out of service. Following this evolution, the crew desk advised us that we would not be able to complete our one-day trip without going over our Part 117 limits of a 14-hour duty day. Thus, as is allowed by the [agreement] for irregular operations, we were reassigned to a two-day trip that was about to depart. That crew was reassigned to take our two-leg turn to ZZZZ. We spoke briefly with the swap crew on the jet bridge and began setting up the cockpit for our one-leg, first-day flight to ZZZ. The second day would have us flying a leg ZZZ - ZZZ1 followed by a deadhead back to ZZZ2, flying into our day off. This was the first time we had released the parking brake on what was a very long day. During the pushback, we received instructions to position the aircraft away from construction on the ramp with the jet facing north toward the concourse. The push crew was not familiar with

these instructions and had not been trained on the pushback necessary for the construction being done south of the concourse on Taxiway 1. The Tug Driver removed the tow bar pin after we set the brake, but the Ramp Controller informed us that we were not positioned correctly. We then had the Tug Driver hook up the tow bar again to reposition us correctly. This led to the shear pin being broken when the tow bar was reattached and we released the parking brake for repositioning. Following SOP, we were informed that the nose gear had to be inspected. The ground crew then reattached another tow bar and repositioned the aircraft at the gate and station maintenance personnel performed a successful inspection. We pushed back successfully and taxied for takeoff on Runway XX at ZZZ2. After an uneventful departure, we were climbing through about 8,000 ft. to level off at our assigned altitude of 10,000 ft. I engaged autopilot A/CMD and we experienced an abrupt jolt of the control column followed by two more. I immediately disengaged the autopilot and we began to look for an indication of any system malfunction. There were no abnormal signs or indications, including hydraulic pressure or fluid. We discussed the possibility that we had flown through another aircraft's wake and I engaged the autopilot again, followed by the same abrupt jolts. I disengaged the autopilot again and hand-flew the jet, leveling off at 10,000 ft. This time I noticed a flash of the STAB OUT OF TRIM light on the forward instrument panel. We also noticed lots of autotrimming of the trim wheel. The trimming was not indicative of a runaway trim condition. Autopilot B was engaged and it operated normally. The First Officer immediately referenced the flight manual for the associated light. We reviewed the checklist and performed the steps called for. We discussed our options and decided to return to ZZZ2 as the safest and most prudent course of action. We also decided to advise ATC as an extra precaution and to obtain priority handling from ATC. Dispatch was notified, crew and passengers were briefed, and we made a slow approach back toward ZZZ2 about 30 minutes after takeoff. Landing performance data was requested and received from Dispatch. We reviewed the overweight landing checklist, briefed, and flew an uneventful approach and landing to Runway XY at ZZZ2. We were followed by numerous emergency vehicles on rollout. We spoke with the Fire Commander via VHF radio and he informed us that there were no external signs of damage or overheating of the brakes. We taxied back to the gate, shut down normally, performed all checklists, and debriefed thoroughly. We sent write-ups for the system malfunction as well as the overweight landing. Together we also debriefed the Chief Pilot. He called us again a short time later and we answered questions for a human factors review. He called one last time later and informed us that we were released from duty for the remainder of the day and night.

Synopsis

B737 flight crew reported experiencing an abrupt pitch down event when engaging the autopilot system, resulting in an immediate return to the departure airport.

ACN: 2013480 *(6 of 50)*

Time / Day

Date : 202306
Local Time Of Day : 1201-1800

Place

Locale Reference.ATC Facility : ZZZ.ARTCC
State Reference : US
Altitude.MSL.Single Value : 32500

Aircraft

Reference : X
Aircraft Operator : Fractional
Make Model Name : Citation Excel (C560XL)
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 91
Flight Plan : IFR
Mission : Passenger
Flight Phase : Descent
Airspace.Class A : ZZZ

Component

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

Person

Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Fractional
Function.Flight Crew : Pilot Not Flying
Function.Flight Crew : Captain
ASRS Report Number.Accession Number : 2013480

Events

Anomaly.Aircraft Equipment Problem : Critical
Anomaly.Deviation - Altitude : Excursion From Assigned Altitude
Anomaly.Deviation / Discrepancy - Procedural : Clearance
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Landed in Emergency Condition
Result.Flight Crew : Requested ATC Assistance / Clarification
Result.Flight Crew : Overcame Equipment Problem
Result.Air Traffic Control : Issued New Clearance
Result.Air Traffic Control : Provided Assistance

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

Had a pitch runaway descending through FL325. Was supposed to level at 32000 ft. After performing the QRC items for runaway pitch trim, we [requested priority] as we were not able to maintain FL320 at that time. ATC gave us a descent to 13000 ft. and direct ZZZ. We accomplished the QRC and QRH items for pitch trim runaway. Notified pax and landed normally. We were met by Crash Fire Rescue and found no need for them upon landing.

Synopsis

CE-560XLS Captain reported a pitch runaway during descent from cruise altitude. Flight crew diverted and landed normally.

ACN: 2010881 *(7 of 50)*

Time / Day

Date : 202306
Local Time Of Day : 0601-1200

Place

Locale Reference.Airport : ZZZZ.Airport
State Reference : FO
Altitude.AGL.Single Value : 500

Aircraft

Reference : X
ATC / Advisory.Tower : ZZZZ
Aircraft Operator : Air Carrier
Make Model Name : Widebody, Low Wing, 3 Turbojet Eng
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Cargo / Freight / Delivery
Flight Phase : Initial Climb
Airspace.Class C : ZZZZ

Component

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

Person : 1

Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : Pilot Not Flying
Function.Flight Crew : Captain
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Multiengine
Qualification.Flight Crew : Instrument
ASRS Report Number.Accession Number : 2010881

Person : 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 : 2011189

Events

Anomaly.Aircraft Equipment Problem : Critical
Detector.Person : Flight Crew
When Detected : In-flight
Result.General : Flight Cancelled / Delayed
Result.General : Maintenance Action
Result.Flight Crew : Overcame Equipment Problem
Result.Flight Crew : Returned To Departure Airport
Result.Flight Crew : Landed in Emergency Condition
Result.Flight Crew : Inflight Shutdown

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

Climbing out of ZZZZ, First Officer (FO) leg, passing 500 ft. AGL, aircraft experienced sudden and significant air frame buffeting/vibration, and inability to climb or accelerate. Initial priority was to ensure aircraft did not descend or lose airspeed. FO stated that they required full right rudder. I took control of the aircraft, applying 5 degrees of manual rudder trim and FO selected the confirm engine out prompt. Level 1, REV 1 PRESS FAULT illuminated, in addition to red indication on #1 N1 gauge which was indicating 25%. We [requested priority handling], stating an issue with #1 engine. We were able to begin acceleration, climb, and cleanup. At 3000 ft. AGL, clean, 230 KIAS, significant vibration continued. Performed QRH procedure for reverser deployed or U/L or rev displayed in flight, which required shut down of #1 engine. Next, performed engine shutdown in flight checklist. Next, we reviewed the engine fire severe damage checklist, and determined that we could slow to 220 KIAS as our minimum clean airspeed, reducing some airframe vibration. Returned to ZZZZ for an uneventful landing. Maintenance determined that the #1 engine inboard reverser had fully deployed. Suspect #1 engine was operating at 25% reverse thrust until shut down.

Narrative: 2

We experienced an engine #1 failure on initial climb out departing out of ZZZZ. After passing 500 ft. and selecting PROF, the aircraft immediately banked to the left and was accompanied by a continuous moderate aircraft buffeting/vibration. A quick glance on the engine N1 gauges presented a red U/L indication on engine #1 and was operating in the 25-30% range. The other indication we received was a REV 1 PRESS FAULT level 1 message. I immediately applied the right aileron to counter the left wing drop and applied an appropriate amount of right rudder and rudder trim accordingly to stabilize the aircraft. Adjustments were made to control speed and climbout rate. After we fully realized what was happening, the Captain took control of the aircraft. I advised them, prior to exchanging flight controls, that I had full right rudder input. Upon exchanging flight controls, we [requested priority handling] with ZZZZ Tower. We quickly referenced the QRH for the REV 1 PRESS FAULT level 1 message. We then referred to the reverser deployed or U/L or rev displayed inflight checklist. This led us to bring the affected engine throttle to idle and an eventual shutdown of the #1 engine. We also referenced the engine shutdown inflight checklist. To ascertain that everything was covered concerning any engine damage, we also referred to the engine fire or severe damage checklist. However, we did not discharge any fire bottles as it was not warranted. We executed a successful flaps 35 landing on Runway XX. ZZZZ airport fire department performed a visual inspection of our #1 engine on Taxiway 1. They were able to confirm no visible damages or leaks to the engine. However, they did inform us that the thrust reverser was in the

open position. ZZZZ Line Maintenance later confirmed that the #1 inboard thrust reverser was fully deployed in the open position.

Synopsis

Flight crew reported #1 thrust reverser deployed at 500 ft. on departure. Crew shut engine down per reverser deployed" checklist and returned to field.

ACN: 2009096 *(8 of 50)*

Time / Day

Date : 202306
Local Time Of Day : 1801-2400

Place

Locale Reference.ATC Facility : ZZZ.ARTCC
State Reference : US
Altitude.MSL.Single Value : 37000

Environment

Flight Conditions : IMC
Weather Elements / Visibility : Turbulence
Weather Elements / Visibility.Visibility : 5
Light : Daylight
Ceiling.Single Value : 42000

Aircraft

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

Person

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 : Instrument
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Multiengine
Experience.Flight Crew.Last 90 Days : 120
Experience.Flight Crew.Type : 8620
ASRS Report Number.Accession Number : 2009096
Human Factors : Time Pressure
Human Factors : Workload
Human Factors : Distraction

Events

Anomaly.Flight Deck / Cabin / Aircraft Event : Illness / Injury
Anomaly.Deviation - Speed : All Types
Anomaly.Deviation / Discrepancy - Procedural : Published Material / Policy
Anomaly.Inflight Event / Encounter : Weather / Turbulence

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

Assessments

Contributing Factors / Situations : Weather
Primary Problem : Weather

Narrative: 1

We were flying the second leg of a ZZZ turn to ZZZ1. On the first flight, we had flown from ZZZ to ZZZ1 and went through the same storm system while encountering light to occasional moderate turbulence. We were filed on a similar path on the second flight. Approximately 30 minutes into the flight, in preparation of going through forecast light to moderate turbulence, we had the Flight Attendants sit down and discontinue service. The passenger seat belt sign also remained illuminated the entire time. There were other aircraft taking the same route, one that we mentioned in the cockpit that was at 35,000 ft. We were flying at 37,000 ft. in northern ZZZ2 when we deviated East of our track to avoid a thunderstorm cell to the West, staying approximately 20-25 miles to the East of the cell. Abeam the thunderstorm, we went back approximately due North to put a second cell East of our track by approximately 15-20 miles. While on the back side of the system, at approximately (XA00), we encountered continuous moderate and pockets of severe turbulence. We did not lose control of the aircraft at any time. Furthermore, the ride was not severely "choppy" or "jerky" but did induce severe performance changes so the nature of the turbulence was probably more evident in the flight station than the back of the aircraft. The aircraft's autopilot had a very difficult time keeping up airspeed, losing and gaining about 20 kts. At one point, while max continuous power was applied, the aircraft came to about the yellow airspeed bracket. The First Officer put the start switches in FLIGHT about halfway through the turbulence episode. We also encountered several uncommanded aircraft rolls of about 30 to 45 degrees and during the beginning of the episode, we had a ROLL AUTHORITY alert on the pilot flight display which corrected itself quickly. After about 5-7 minutes of the moderate-severe turbulence, the ride began to get better. At this time, we decided to descend to 35,000 ft. and the ride improved as we went North and descended. During the time of continuous moderate pockets of severe turbulence, we were near the tops of the clouds but not on top of them. We did not fly through any red portion radar returns on the weather radar. When we felt the worst of the turbulence had abated, we checked with the Flight Attendants. They had been seated the whole time and at the time said there were no injuries. After we landed, the D Flight Attendant said they had hurt their back. Next, we talked to air traffic control to report the severe turbulence. We also sent an ACARS message to Dispatch as well as to Maintenance. The rest of the flight went without incident, although after about 15 minutes of a smooth ride light turbulence continued off and on until we landed in ZZZ. After landing, I talked to Dispatch and Maintenance on a conference call. The Dispatcher and I also spoke to the Supervisor and the Chief Pilot briefly. It was during these calls that I found out the D Flight Attendant told us their back was hurt but I was unable to speak to them before they left. I wrote the turbulence encounter in the logbook and fully debriefed a Mechanic who took control of the aircraft after it was shut down.

Synopsis

Air carrier First Officer reported severe turbulence resulting in an injured flight attendant. The reporter stated they encountered 30 to 45 degrees of uncommanded roll.

ACN: 2001837 *(9 of 50)*

Time / Day

Date : 202305
Local Time Of Day : 1201-1800

Place

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

Environment

Flight Conditions : VMC
Light : Daylight
Ceiling : CLR

Aircraft

Reference : X
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 : Takeoff / Launch
Route In Use : Vectors

Component : 1

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

Component : 2

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

Component : 3

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

Person

Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : First Officer
Function.Flight Crew : Pilot Not Flying
Qualification.Flight Crew : Instrument
Qualification.Flight Crew : Multiengine
Qualification.Flight Crew : Air Transport Pilot (ATP)

ASRS Report Number.Accession Number : 2001837
Human Factors : Troubleshooting

Events

Anomaly.Aircraft Equipment Problem : Critical
Anomaly.Deviation / Discrepancy - Procedural : Clearance
Anomaly.Inflight Event / Encounter : Loss Of Aircraft Control
Detector.Automation : Aircraft Other Automation
Detector.Person : Flight Crew
When Detected : In-flight
Result.General : Flight Cancelled / Delayed
Result.General : Maintenance Action
Result.Flight Crew : Landed As Precaution
Result.Flight Crew : Overcame Equipment Problem
Result.Flight Crew : Regained Aircraft Control
Result.Flight Crew : Returned To Departure Airport
Result.Flight Crew : Requested ATC Assistance / Clarification
Result.Air Traffic Control : Provided Assistance

Assessments

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

Narrative: 1

We took the runway with checklist completed with takeoff configuration OK. Advanced throttles to TOGA power. We got through V1 and lifted off. Once in the air at about 50 ft., we got a configuration trim message for both aileron and rudder trim with full deflection to the left. Captain tried to center it and would not move. While inflight, the trims for both rudder and aileron went full left deflection and then corrected itself. The Captain was the Pilot Flying. The airplane was hand flown for the entire flight and the Captain mentioned the airplane was flying fine. We let ATC know that we needed to return back to the airport. When asked if we needed assistance, we told them yes we needed assistance and the trucks were waiting for us on the ground. We flew the ILS to Runway X back into ZZZ and landed safely.

Synopsis

CRJ flight crew reported uncommanded rudder and aileron trim movement after take-off. The flight crew performed an air turn back and made a precautionary landing at departure airport.

ACN: 2001065 *(10 of 50)*

Time / Day

Date : 202305
Local Time Of Day : 0601-1200

Place

Locale Reference.Airport : LAS.Airport
State Reference : NV
Altitude.AGL.Single Value : 0

Environment

Flight Conditions : VMC

Aircraft : 1

Reference : X
ATC / Advisory.Tower : LAS
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 : Takeoff / Launch
Airspace.Class B : LAS

Aircraft : 2

Reference : Y
ATC / Advisory.Tower : LAS
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 : Initial Climb
Airspace.Class B : LAS

Person

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
Experience.Flight Crew.Last 90 Days : 150
Experience.Flight Crew.Type : 12572
ASRS Report Number.Accession Number : 2001065
Analyst Callback : Attempted

Events

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

Assessments

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

Narrative: 1

Departure from Runway 26R LAS. It is common practice at LAS for ATC to ask crews to report departing aircraft in sight and upon acknowledgement clear following aircraft for takeoff. We were following a B757 and received takeoff clearance reference above criteria. Upon liftoff we flew through prior departing aircraft's wake and began numerous uncommanded rolling motions. Several corrective actions took large control movements and forward pressure (even verbally stating, "I'm pushing") to counter the wake induced roll. None of the prescribed parameters for an upset were ever breached, but I feel had not taking aggressive actions could have led to an undesired aircraft state. At the time of the event our aircraft was configured for a Flaps 1, Bleeds on, Reduced Thrust Take Off.

Synopsis

B737NG Captain reported encountering wake turbulence departing LAS in trail of a B757.

ACN: 1999132 *(11 of 50)*

Time / Day

Date : 202305
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 : A321
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Flight Phase : Takeoff / Launch

Component : 1

Aircraft Component : Main Gear Tire
Manufacturer : L/H I/B
Aircraft Reference : X
Problem : Failed

Component : 2

Aircraft Component : Main Gear Tire
Manufacturer : L/H O/B
Aircraft Reference : X
Problem : Failed

Person

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 : 1999132
Human Factors : Situational Awareness
Human Factors : Human-Machine Interface

Human Factors : Communication Breakdown
Human Factors : Confusion
Communication Breakdown.Party1 : Flight Crew
Communication Breakdown.Party2 : Flight Crew

Events

Anomaly.Aircraft Equipment Problem : Critical
Anomaly.Deviation / Discrepancy - Procedural : Clearance
Anomaly.Ground Event / Encounter : Loss Of Aircraft Control
Detector.Person : Flight Crew
Were Passengers Involved In Event : N
When Detected : In-flight
Result.General : Maintenance Action
Result.Flight Crew : Rejected Takeoff
Result.Flight Crew : Requested ATC Assistance / Clarification
Result.Flight Crew : Returned To Gate
Result.Air Traffic Control : Provided Assistance
Result.Aircraft : Aircraft Damaged

Assessments

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

Narrative: 1

While on the takeoff roll on Runway XXR at around 120-130 knots we get a strong yawing motion to the left and it felt similar to what we feel in the simulator during an engine failure. The captain called for the rejected takeoff and took control of the aircraft and we slowed down and were able to taxi off the runway and onto Taxiway 1 where we brought it to a stop and assessed the situation. After we determined that everything was fine and the aircraft could move back to the gate for the maintenance inspection we tried to taxi and were unable to move. An operations truck for the city of ZZZ was there and informed us that our left main tires had blown. After coordinating with ground and ZZZ operations we deplaned the passengers via air stairs and busses back to the terminal. It is my belief that we may have been hit by a dust devil on our takeoff roll and that is what caused the yaw to occur. The winds that day were mostly calm but, right before the yawing event and the rejected takeoff, I saw a piece of paper blowing very rapidly across the runway just in front of us. I noticed this at about the same time of the movement but I wasn't able to call out what I was seeing before we went through it. There isn't anything that I think would have been able to to prevent this event from happening. If it was in fact a dust devil that caused the yawing motion it was something that was unpredictable and happened so quickly we wouldn't have been able to avoid it.

Synopsis

Pilot reported an uncommanded yaw during the takeoff roll. A rejected takeoff was performed and it was determined that both left main tires had deflated.

ACN: 1988714 *(12 of 50)*

Time / Day

Date : 202304
Local Time Of Day : 1801-2400

Place

Locale Reference.ATC Facility : ZZZ.ARTCC
State Reference : US
Relative Position.Angle.Radial : 180
Relative Position.Distance.Nautical Miles : 25
Altitude.MSL.Single Value : 41000

Environment

Flight Conditions : VMC
Weather Elements / Visibility : Turbulence
Weather Elements / Visibility : Windshear
Weather Elements / Visibility.Visibility : 10
Light : Night
Ceiling.Single Value : 40000

Aircraft

Reference : X
ATC / Advisory.Center : ZZZ
Aircraft Operator : Air Taxi
Make Model Name : Learjet 60
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 135
Flight Plan : IFR
Mission : Passenger
Flight Phase : Cruise
Route In Use : Direct
Airspace.Class A : ZZZ

Person

Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Taxi
Function.Flight Crew : Captain
Function.Flight Crew : Pilot Flying
Function.Flight Crew : Flight Engineer / Second Officer
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Instrument
Qualification.Flight Crew : Multiengine
Qualification.Flight Crew : Flight Engineer
Qualification.Flight Crew : Flight Instructor
Experience.Flight Crew.Total : 29850
Experience.Flight Crew.Last 90 Days : 150
Experience.Flight Crew.Type : 4000
ASRS Report Number.Accession Number : 1988714
Human Factors : Communication Breakdown

Human Factors : Confusion
Communication Breakdown.Party1 : Flight Crew
Communication Breakdown.Party2 : Flight Crew

Events

Anomaly.Deviation - Altitude : Excursion From Assigned Altitude
Anomaly.Deviation - Speed : All Types
Anomaly.Deviation / Discrepancy - Procedural : Clearance
Anomaly.Inflight Event / Encounter : Weather / Turbulence
Anomaly.Inflight Event / Encounter : Loss Of Aircraft Control
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Took Evasive Action
Result.Air Traffic Control : Provided Assistance

Assessments

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

Narrative: 1

In cruise flight on top of overcast our aircraft experienced a shudder and sudden pitch down. The autopilot was still engaged, the rate of descent we estimated at about 10,000 feet per minute with pitch and roll oscillations. I disconnected the autopilot and attempted to stop the altitude loss. The aircraft stabilized after an altitude loss of 2,500 feet at FL385. All this time we were communicating a loss of control with Center, which cleared us block altitudes of FL370-410 as necessary. There was a few minutes of smoother air then a sudden updraft of 6,000 feet per minute with power at idle and wild airspeed fluctuations +- 20 kts as I was fighting pitch and speed variations. We were able to return to FL410 after two course changes towards the South East of our route. Center had advised another aircraft at FL450 had reported extreme turbulence estimated 50 NM north of us and another aircraft at FL310 was also diverting because of turbulence. Our on board radar indicated we had a level 5 cell tops FL500 at 35 miles north of our route. Center advised our track was in between a few small cells and looked good. We concurred. In debrief after the flight we agreed that our filed route should have been above the reported weather in the small portion of our route that there was any showing and the route changes we made may have prevented us from transiting even worse conditions. Prompt communications with ATC helped get course and altitude changes certainly helped prevent any injuries and airframe damage. I don't know what else we could have done.

Synopsis

Learjet 60 Captain reported aircraft loss of pitch and roll control at 41,000 ft., resulting in a loss of altitude. The Captain disconnected the automation to recover the aircraft at 38,500 ft. and received course changes from ATC. Once in smoother air, without aircraft damage or injuries, the flight continued to destination.

ACN: 1987335 *(13 of 50)*

Time / Day

Date : 202303
Local Time Of Day : 1801-2400

Place

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

Aircraft

Reference : X
ATC / Advisory.Tower : ZZZ
Aircraft Operator : Air Carrier
Make Model Name : B737-800
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 : Landing
Airspace.Class B : ZZZ

Component

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

Person : 1

Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Instrument
Qualification.Flight Crew : Multiengine
ASRS Report Number.Accession Number : 1987335
Human Factors : Distraction
Human Factors : Situational Awareness
Human Factors : Time Pressure
Human Factors : Workload
Human Factors : Confusion

Person : 2

Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : Captain
Function.Flight Crew : Check Pilot
Function.Flight Crew : Pilot Flying

Qualification.Flight Crew : Multiengine
Qualification.Flight Crew : Instrument
Qualification.Flight Crew : Air Transport Pilot (ATP)
ASRS Report Number.Accession Number : 1986734
Human Factors : Distraction
Human Factors : Confusion
Human Factors : Workload
Human Factors : Time Pressure
Human Factors : Situational Awareness

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Anomaly.Deviation / Discrepancy - Procedural : Published Material / Policy
Anomaly.Ground Event / Encounter : Loss Of Aircraft Control
Detector.Automation : Aircraft Other Automation
Detector.Person : Flight Crew
Were Passengers Involved In Event : N
When Detected : In-flight
Result.Flight Crew : Executed Go Around / Missed Approach

Assessments

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

Narrative: 1

The pilot flying executed a very soft landing. The speed brake handle initially deployed in a normal manner. Just prior to the nose wheel touching down the speed brake handle unexpectedly retracted. As the pilot flying redeployed the speed brake handle the autothrottles fire walled pitching the nose up slight and the aircraft briefly lifted off before settling back down on the runway. After a brief startle period the pilot flying called for a go around and re-stowed the speed brake handle before the crew proceeded to fly the go-around profile. The unexpected flap retraction and the uncommanded go around thrust. The pilot monitoring could have backed up the flying pilot by promptly arrested the movement of the throttles if they had not been distracted by and focused on the speed brake handle.

Narrative: 2

After touch down. speed brake handle extended and retracted causing nose to pitch up and power to increase to Go Around power. Lowered the nose to avert a tail strike, but at this point the aircraft became airborne. Executed a Go Around and returned back for landing. Soft landing and gusty winds during landing.

Synopsis

B737-800 flight crew reported after a very smooth landing the speed brakes auto retracted and the auto throttles went to Go Around power. The Pilot Flying executed a go-around.

ACN: 1986485 *(14 of 50)*

Time / Day

Date : 202303
Local Time Of Day : 1201-1800

Place

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

Environment

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

Aircraft : 1

Reference : X
ATC / Advisory.TRACON : MIA
Aircraft Operator : Air Taxi
Make Model Name : Citation X (C750)
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 135
Flight Plan : IFR
Mission : Passenger
Flight Phase : Climb
Route In Use.SID : HROCK1
Airspace.Class C : FLL

Aircraft : 2

Reference : Y
ATC / Advisory.TRACON : MIA
Aircraft Operator : Air Carrier
Make Model Name : A320
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Flight Phase : Climb
Airspace.Class C : FLL

Person

Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Taxi
Function.Flight Crew : First Officer
Function.Flight Crew : Pilot Flying
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Instrument
Qualification.Flight Crew : Multiengine
Experience.Flight Crew.Total : 4300

Experience.Flight Crew.Last 90 Days : 35
Experience.Flight Crew.Type : 1236
ASRS Report Number.Accession Number : 1986485
Analyst Callback : Completed

Events

Anomaly.Inflight Event / Encounter : Weather / Turbulence
Anomaly.Inflight Event / Encounter : Loss Of Aircraft Control
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Requested ATC Assistance / Clarification
Result.Flight Crew : Regained Aircraft Control
Result.Air Traffic Control : Provided Assistance

Assessments

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

Narrative: 1

During climb on the FLL HROCK1 near YOLOO at approximately 7000 ft. in smooth air, we suddenly experienced wake turbulence that rolled the aircraft 45 degrees to the left. The induced roll was enough to disconnect the Autopilot and cause the flight guidance computer to reset. As the Pilot Flying, I recovered the airplane and hand flew until the FGC (Flight Guidance Computer) reset about 30 seconds later. The Pilot Monitoring reported the wake turbulence to ATC who replied that we were 3 NM in trail of an Airbus A320 or 321. The PM (Pilot Monitoring) checked on the passengers who said they were okay. As it was below 10,000 ft., the passenger safety signs had not been turned off. Once we were at a safe altitude and low workload the PM checked on the passengers again to verify there were no injuries. There were no injuries.

Callback: 1

Reporter stated the roll was quite abrupt.

Synopsis

CE750 First Officer reported encountering wake turbulence departing FLL in trail of an A320 that resulted in a 45 degree roll.

ACN: 1977462 *(15 of 50)*

Time / Day

Date : 202302
Local Time Of Day : 0601-1200

Place

Locale Reference.ATC Facility : N90.TRACON
State Reference : NY
Altitude.MSL.Single Value : 3000

Environment

Flight Conditions : VMC

Aircraft : 1

Reference : X
ATC / Advisory.TRACON : N90
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 : Initial Approach
Airspace.Class B : EWR

Aircraft : 2

Reference : Y
ATC / Advisory.TRACON : N90
Aircraft Operator : Air Carrier
Make Model Name : B777 Undifferentiated or Other Model
Operating Under FAR Part : Part 121
Flight Plan : IFR
Flight Phase : Initial Approach
Airspace.Class B : EWR

Person : 1

Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : Pilot Flying
Function.Flight Crew : Captain
Qualification.Flight Crew : Multiengine
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Instrument
Experience.Flight Crew.Last 90 Days : 171
Experience.Flight Crew.Type : 1903
ASRS Report Number.Accession Number : 1977462
Analyst Callback : Completed

Person : 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 : Multiengine
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Instrument
Experience.Flight Crew.Last 90 Days : 164
Experience.Flight Crew.Type : 1533
ASRS Report Number.Accession Number : 1977461

Events

Anomaly.Deviation - Altitude : Excursion From Assigned Altitude
Anomaly.Deviation - Speed : All Types
Anomaly.Deviation / Discrepancy - Procedural : Clearance
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 : Maintenance Action
Result.Flight Crew : Regained Aircraft Control

Assessments

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

Narrative: 1

During approach getting radar vectored for EWR ILS 22L we were given a heading to join the localizer and reduce speed to 160 kias. The aircraft was configured for flaps 2 and 170 kias as previously assigned. A heading of 190 and a speed of 160 kias was assigned. Flaps 3 were selected and loc armed for capture on the 190 heading. As the aircraft banked to join the localizer, an upset was encountered. This resulted in approximately a 15 degree increase in bank to 35-37 from 20 degrees. Airspeed also increased to approximately 185 kts. with altitude gain of +200 ft. The autopilot and auto thrust were disengaged and upset prevention and recovery technique applied. The aircraft was returned to a stabilized state and the approach continued. However the event triggered a flap overspeed which was documented and reported to both Maintenance Control and Local Maintenance.

Callback: 1

Reporter stated wake encounters seem to be increasing.

Narrative: 2

Wake from 777. Base to final EWR 22L. No mention of 777. 3000 ft. slowing to 170 kts. selecting flaps 3. Wake turbulence [resulted in] uncommanded roll +15 degrees +15 kts. +200 ft. Upset recovery [was initiated]. Overspeed of flaps. Maintenance write up.

Synopsis

A319 flight crew reported an inflight upset resulted when they encountered wake turbulence on arrival into EWR in trail of a B777.

ACN: 1973695 *(16 of 50)*

Time / Day

Date : 202302
Local Time Of Day : 0001-0600

Place

Locale Reference.ATC Facility : ZNY.ARTCC
State Reference : NY
Altitude.MSL.Single Value : 18000

Aircraft : 1

Reference : X
ATC / Advisory.Center : ZNY
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 : Descent
Airspace.Class B : JFK

Aircraft : 2

Reference : Y
ATC / Advisory.Center : ZNY
Aircraft Operator : Air Carrier
Make Model Name : B777 Undifferentiated or Other Model
Crew Size.Number Of Crew : 3
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Flight Phase : Descent
Airspace.Class B : JFK

Person

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 : Instrument
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Multiengine
ASRS Report Number.Accession Number : 1973695
Analyst Callback : Completed

Events

Anomaly.Inflight Event / Encounter : Loss Of Aircraft Control
Anomaly.Inflight Event / Encounter : Wake Vortex Encounter
Detector.Person : Flight Crew

When Detected : In-flight
Result.Flight Crew : Took Evasive Action
Result.Flight Crew : Requested ATC Assistance / Clarification
Result.Flight Crew : Regained Aircraft Control
Result.Air Traffic Control : Issued New Clearance

Assessments

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

Narrative: 1

We were on NY Center descending through about 18,000 [ft.] for 250 [kts]/12,000 [ft.] at CCC. A 777 was in front of us about 10 miles initially. They were given the same altitude and speed restriction. We tried staying above their descent path. When we were passing FL180 [the 777] did a sudden speed reduction. We went from 10 to 5 [miles] in trail quickly. I told the First Officer (FO) to start slowing asap and keep an eye on the spacing. About 30 seconds later we saw 777's wake about 5 seconds before we hit it. The FO disengaged the autopilot and arrested the descent rate as much as he could. We hit the top portion of the wake. There was an initial roll about 35-40 degrees left then and bank to the right about 30 degrees with a couple smooth oscillations for about 20-30 seconds. Once we had the aircraft fully stabilized I told ATC we needed more spacing after the wake encounter. ATC gave us a turn to the right and kept us about 8-10 miles in trail the rest of the way in. 777 slowing before required from ATC restriction reducing spacing.

Callback: 1

Reporter stated his aircraft was definitely unstabilized by the wake encounter.

Synopsis

CRJ-900 Captain reported encountering wake turbulence on descent into JFK in trail of a B777.

ACN: 1973689 *(17 of 50)*

Time / Day

Date : 202302
Local Time Of Day : 1801-2400

Place

Locale Reference.ATC Facility : N90.TRACON
State Reference : NY

Environment

Flight Conditions : VMC
Light : Night

Aircraft : 1

Reference : X
ATC / Advisory.TRACON : N90
Aircraft Operator : Air Carrier
Make Model Name : Regional Jet 900 (CRJ900)
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Flight Phase : Initial Approach
Airspace.Class B : JFK

Aircraft : 2

Reference : Y
ATC / Advisory.TRACON : N90
Aircraft Operator : Air Carrier
Make Model Name : B747 Undifferentiated or Other Model
Operating Under FAR Part : Part 121
Flight Plan : IFR
Flight Phase : Initial Approach
Airspace.Class B : JFK

Person : 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 : 1973689
Analyst Callback : Completed

Person : 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)
Qualification.Flight Crew : Instrument
Qualification.Flight Crew : Multiengine
ASRS Report Number.Accession Number : 1973691

Events

Anomaly.Deviation - Altitude : Excursion From Assigned Altitude
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 : Requested ATC Assistance / Clarification
Result.Flight Crew : Regained Aircraft Control

Assessments

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

Narrative: 1

I was working with a student as a LCP (Line Check Pilot). I was pilot flying. The weather was night VFR at both airports. The flight was uneventful until the approach segment. We were assigned 4000 feet and getting vectors for the ILS 22L [at JFK]. As we were getting vectored I could tell that we were getting vectored behind a few preceding aircraft. ATC slowed us to 210 knots and continued to vector us. We encountered some light wake turbulence but nothing drastic. I was watching the TCAS and could see we were following an aircraft. As we continued to follow, ATC slowed us to 180 knots and I called flaps 8. About 10 seconds later I could see and feel the plane sway. I gripped the yoke in preparation. And sure enough we hit strong wake turbulence. I instinctively clicked off the autopilot as the plane began an uncommanded roll to the right. I fought it back to level only for another uncommanded roll to the left to happen. There was about 4 uncommanded rolls with the greatest bank angle nearing 40 degrees. I was able to keep altitude loss to about 120 to 150 feet and airspeed did fluctuate a good amount. We got clear and I reported it to ATC. It was a 747 about 7-10 miles in front of us that caused it. The rest of the approach and landing was uneventful. The cause was not enough separation between us and the 747 to allow for wake to dissipate. I suggest ATC give us more separation from larger aircraft when sequencing us in for landing.

Callback: 1

Reporter stated this was a strong wake encounter.

Narrative: 2

Wake turbulence event to JFK. I was First Officer and PM (Pilot Monitoring). We were on a vector for a modified base leg into JFK ILS 22L after delay vectors for high traffic. We were vectored in line behind a heavy 747. At 4000 ft MSL and level we experienced strong wake turbulence. The Captain was at the controls and quickly disconnected the autopilot just before the largest, uncommanded rolling motion to our left. While regaining control the

aircraft lost about 120 ft. We then deselected the autopilot and reported the event with JFK Approach Control. We landed without further event.

Synopsis

CRJ-900 flight crew reported encountering wake turbulence in trail of a B747 on approach to JFK.

ACN: 1971513 *(18 of 50)*

Time / Day

Date : 202302
Local Time Of Day : 0001-0600

Place

Locale Reference.ATC Facility : ZZZZ.ARTCC
State Reference : FO
Altitude.MSL.Single Value : 38000

Environment

Flight Conditions : VMC
Light : Night

Aircraft

Reference : X
Aircraft Operator : Air Carrier
Make Model Name : B767 Undifferentiated or Other Model
Crew Size.Number Of Crew : 3
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Flight Phase : Cruise

Component

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

Person : 1

Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : Pilot Not Flying
Function.Flight Crew : First Officer
Qualification.Flight Crew : Multiengine
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Instrument
Experience.Flight Crew.Last 90 Days : 190
Experience.Flight Crew.Type : 485
ASRS Report Number.Accession Number : 1971513

Person : 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)

Qualification.Flight Crew : Instrument
Qualification.Flight Crew : Multiengine
Experience.Flight Crew.Last 90 Days : 166
Experience.Flight Crew.Type : 226
ASRS Report Number.Accession Number : 1971564

Person : 3

Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : Pilot Flying
Function.Flight Crew : Captain
Qualification.Flight Crew : Multiengine
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Instrument
Experience.Flight Crew.Total : 3592
Experience.Flight Crew.Last 90 Days : 144
Experience.Flight Crew.Type : 373
ASRS Report Number.Accession Number : 1973285

Events

Anomaly.Aircraft Equipment Problem : Critical
Anomaly.Deviation / Discrepancy - Procedural : Clearance
Detector.Person : Flight Crew
When Detected : In-flight
Result.General : Flight Cancelled / Delayed
Result.Flight Crew : Diverted
Result.Flight Crew : Landed in Emergency Condition
Result.Flight Crew : Requested ATC Assistance / Clarification
Result.Air Traffic Control : Provided Assistance

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

I was the First Officer (FO) on Flight XXX ZZZ-ZZZZ that departed on Day 0. A little over an hour into the flight we were level at FL370, talking to ZZZZ Center, and the Relief Pilot was on first break. It was at this time the Captain and I felt a jolt, the airplane began to yaw, and a significant vibration began. We looked at the engine instruments and determined we had lost thrust on the Number 1 Engine with a rising EGT of 692 degrees at the time. The Captain was the Pilot Flying so they took control of the aircraft and called for the QRC and the Engine Fire, Severe Damage, Separation Checklist. After completing the appropriate QRC and Non-Normal checklists we [requested priority handling] with ZZZZ Center, requested FL250 (drift down ALT was 26700 ft. @ 244 kts), and decided to divert to ZZZZ1. At this point the Relief Pilot was back in the cockpit and the Captain delegated duties for them and myself to go over the checklists one more time, contact the Flight Attendants (FAs), contact Dispatch, monitor cross-feeding fuel, and set ourselves up for our approach into ZZZZ1. We had no center tank fuel so we did not dump fuel and our landing weight was 300,000 lbs. below maximum landing weight. We requested the ILS to Runway XX with an alternate missed approach of straight out runway heading and up to 3000 ft. Our arrival, approach, and landing were uneventful. After landing we stopped on

the runway and had Airport Rescue and Firefighting (ARFF) Personnel inspect the exterior of the aircraft, especially our Number 1 Engine. Once they gave us the all clear we taxi to the gate without any issue.

Narrative: 2

While on my rest break, I both felt and heard a large shudder and airframe vibration from the left side of the aircraft at approximately XA:00 UTC. Assuming we had had an engine failure, I left the rest area to the forward galley to speak with the Purser. The Purser was unsure of what was going on and informed me they had been trying to call the flight deck but was unsuccessful. I told them that I believed we had had an engine failure and that they would call back for me when they were ready. I then took a Flight Attendant jump-seat in the forward galley and awaited the phone call from the flight deck which happened about a minute later. We set up for me to enter the flight deck and proceeded in once it was secure. Upon arrival to the flight deck I found that indeed the Left Engine had failed and was vibrating quite badly as we could feel the airframe vibrations. The Captain and First Officer had already accomplished the Severe Engine Damage QRC and Engine Fire QRH. We were also already in our descent to a safe drift-down altitude and diverting to ZZZZ1. After I was briefed on what was happening and what the plan was, I was tasked with trying to reach Dispatch over the SATCOM. After several attempts to reach Dispatch over SATCOM I had to give up after receiving no answer. The phone would dial but there would be no answer. I informed the rest of the crew that I was unable to reach Dispatch over SATCOM so the Captain sent an ACARS message when time allowed in the descent. After this I took a look at the QRC/QRH procedures that had been accomplished and verified that everything had been done and started to monitor our fuel balance. Once all of this had been done I was delegated to keep the Flight Attendants informed of what was going on and give them their briefing. After concurring with the Captain, it was determined that we had about 15 mins of flight time left to ZZZZ1 at this point, we would have the Flight Attendants prepare for an evacuation, and we had no special comments. I passed this information along to the Flight Attendants and then we briefed the ILS XX and prepared to land at ZZZZ1. The Captain briefed us using our briefing card and we discussed the threats of having an engine failure, night landing, and unfamiliar airport. We also discussed that once on the ground we would come to a complete stop on the runway and then once stopped I would make an announcement to the passengers to Remain Seated, Remain Seated and we would have Airport Rescue and Firefighting (ARFF) inspect the Left Engine for any fire or cause for potential fire and then base our next steps after their findings. We then ran the deferred items Descent Checklist from the QRH. After we briefed and within the terminal area I identified the localizer for Runway XX and then quickly called to Door1L to update them on our time to touchdown which was about 5 minutes from that point. At this point we were on a downwind and being vectored for a 10 mile final for [Runway] XX. The Pilot Monitoring First Officer (FO) coordinated with ATC for a potential go around where we would need to fly runway heading up to 3000 ft. and this was approved if necessary. From here we continued to be vectored and set up for a flaps 20 landing as per the QRH and ran the deferred items Before Landing Checklist from the QRH. The Captain then made a stabilized approach and landing on Runway XX and stopped on the runway and accomplished what we had briefed in the air. I made a PA to the passengers to make them aware of the ARFF trucks approaching the airplane out of an abundance of caution and told them to remain seated. ARFF determined that there was no fire or fire hazard so we then coordinated with Dispatch about getting a gate which they already had and prepared to move the airplane under our own power to the gate. At this point I made another PA to the passengers informing them of this and that although we did have a gate it would take some time to get off the airplane as we would have to coordinate with Customs and that for the time being should remain seated until everything had been figured out. I then made a call to the Purser and told them the same information

and that it would be a couple mins before getting to the gate but that there was currently no threat of an evacuation and would proceed to the gate as normal. Once clear of the runway, the FO accomplished the after landing flow, we taxied to the gate, set the parking break and accomplished the parking flow and checklist and then except leaving the fasten seat belt sign on as we did not want the passengers to unnecessarily get up until it was determined that they could. The Purser then called asking if it was okay to disarm the doors and allow them to be opened which we said yes to and then opened the flight deck door and began coordinating with Authorities and Airport Personnel what our next steps would be.

Narrative: 3

At approximately XA30Z 100 NM east of ZZZZ1 on Day 0, Aircraft X, we experienced a sudden failure of the Left Engine. A loud bang, subsequent shake of the airplane and a significant vibration was experienced. Upon evaluation of the situation, I acting as Pilot in Command [requested priority handling] and requested diversion to ZZZZ1. We woke up the Relief Pilot. Briefed the Flight Attendants and passengers after all required checklists were completed. I made the decision to not make any large changes to airspeed, power settings, and flight path other than drift down because of the amount of vibration in the airplane, floor, and yoke. The airplane remained on the autopilot until approximately 1500 ft. with frequent checks for trim changes. My major concern was the structural integrity of the airplane after the violent failure and resulting vibration. I was very diligent to make sure changes in G loading were not large. The vibration was substantial and continuous. The only time the vibration lessened was upon extension of Flaps 1. The vibration got better but immediately returned when Flaps 1 was fully extended. We requested and turned a 10 NM final for Runway XX in ZZZZ1 and flew the ILS approach under clear skies with winds reported 280 degrees 17 gusts to 27 kts. We requested airborne that Crash Fire Rescue (CFR) meet the aircraft on the runway to inspect the left side of the aircraft for subsequent fire prior to taxiing to the gate. I landed the airplane manually without incident after obtaining all required data and safely stopped on the runway using auto brakes approximately 5500 ft. down the runway. The Relief Pilot as directed made a PA announcement for all passengers and crew to remain seated. We spoke directly with CFR on Tower frequency and determined the aircraft was safe to move and taxied to gate X and parked. We completed all required checklists for shutdown and parking, and after approximately 40 min we exited the airplane with Customs approval.

Synopsis

B767 flight crew reported a #1 Engine Failure in cruise followed by significant vibration. The flight crew diverted to make a precautionary landing.

ACN: 1966492 *(19 of 50)*

Time / Day

Date : 202301
Local Time Of Day : 1201-1800

Place

Locale Reference.ATC Facility : ZZZ.ARTCC
State Reference : US
Altitude.MSL.Single Value : 37000

Aircraft

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

Person

Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
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 : 1966492
Human Factors : Situational Awareness

Events

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

Assessments

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

Narrative: 1

During a climb from FL370 to FL380, we experienced a sudden moderate to severe turbulence event that caused the aircraft pitch to dramatically increase and approach a stall. The increase was so sudden that by the time I turned off the auto throttles and autopilot to manually increase thrust and take control, the aircraft altitude had reached approximately 300 ft. above FL380. To regain airspeed, the recovery required me to descend to approximately 200 ft. below FL380 where I then increased pitch to stabilize the climb back to FL380 while returning to level autoflight. No other moderate to severe turbulence was experienced and the flight continued without further incident.

Synopsis

B737-800 pilot reported encountering sudden moderate to severe turbulence in the climb between FL370 and FL380 that resulted in airspeed and altitude deviations.

ACN: 1965014 *(20 of 50)*

Time / Day

Date : 202301
Local Time Of Day : 0001-0600

Place

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

Environment

Flight Conditions : VMC
Light : Night

Aircraft

Reference : X
Aircraft Operator : Air Carrier
Make Model Name : Regional Jet 900 (CRJ900)
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Flight Phase : Initial Approach
Route In Use : Vectors

Component

Aircraft Component : Horizontal Stabilizer Trim
Aircraft Reference : X
Problem : Malfunctioning

Person

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 : Instrument
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Multiengine
ASRS Report Number.Accession Number : 1965014

Events

Anomaly.Aircraft Equipment Problem : Critical
Anomaly.Deviation / Discrepancy - Procedural : Published Material / Policy
Anomaly.Deviation / Discrepancy - Procedural : Clearance
Anomaly.Ground Event / Encounter : Loss Of Aircraft Control
Anomaly.Inflight Event / Encounter : Unstabilized Approach
Detector.Automation : Aircraft Other Automation
Detector.Person : Flight Crew
Were Passengers Involved In Event : N
When Detected : In-flight

Result.General : Maintenance Action
Result.General : Flight Cancelled / Delayed
Result.Flight Crew : Overcame Equipment Problem
Result.Flight Crew : Landed As Precaution
Result.Flight Crew : Returned To Departure Airport
Result.Flight Crew : Requested ATC Assistance / Clarification
Result.Air Traffic Control : Provided Assistance

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

We were given published hold at ZZZZZ with EFC of XA13. We did out numbers and concluded that we be able to make it close to the time given with a different alternate of ZZZ. Once cleared to exit the hold we proceeded the ZZZZZ1 landing south. On set up for the approach on ILSXX the Autopilot was having a hard time staying corrected, so I (Pilot Flying) took off Autopilot and proceeded to hand fly. Wind 240@13 gusting 39. We corrected the the winds but was unable to maintain stability. Captain called for go around at 800 ft. AGL. we were given a heading of 270 and altitude of 4,000 ft. MSL. Once we execute the missed, I found (Pilot Flying) that Stab Trim was trimming us for nose down. Captain and I both concluded that it was a Stab Trim Runaway. I exercised the procedures for Stab Trim Runaway. Captain took over flight controls, as I ran QRH. Stab Trim Runaway ceased, and were able to regain control. Both I and the captain agreed to proceed back into ZZZ1.

Synopsis

CRJ-900 First Officer reported a Horizontal Stabilizer Trim Run Away condition during approach. The flight crew ran the QRH and the Run Away conditioned ceased. The flight crew continued the approach to landing at destination airport.

ACN: 1960739 *(21 of 50)*

Time / Day

Date : 202212
Local Time Of Day : 1201-1800

Place

Locale Reference.Airport : LAS.Airport
State Reference : NV

Aircraft : 1

Reference : X
ATC / Advisory.Tower : LAS
Aircraft Operator : Fractional
Make Model Name : EMB-505 / Phenom 300
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 91
Flight Plan : IFR
Mission : Passenger
Flight Phase : Initial Approach
Airspace.Class B : LAS

Aircraft : 2

Reference : Y
ATC / Advisory.Tower : LAS
Aircraft Operator : Air Carrier
Make Model Name : B787 Dreamliner Undifferentiated or Other Model
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Flight Phase : Initial Approach
Airspace.Class B : LAS

Person

Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Fractional
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 : 1960739
Analyst Callback : Completed

Events

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

Result.General : Maintenance Action
Result.Flight Crew : Regained Aircraft Control
Result.Flight Crew : Requested ATC Assistance / Clarification
Result.Flight Crew : Took Evasive Action

Assessments

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

Narrative: 1

Cleared for the visual for [Runway] 26L following visual contact with a B787. We slowed down, 8 miles in trail, over Intersection PRINO at 8000 ft. MSL. We planned on going one dot above the glideslope. The aircraft hit the wake turbulence, tossing the aircraft into a 65-degree uncommanded left roll before counter inputs from my flying partner righted the ship. No altitude was lost and all control inputs felt normal after the encounter. We decided to continue the approach, flying above the glideslope, and no further wake was encountered. We promptly notified Tower of the incident and attempted to verbally contact Maintenance about my desire for a thorough mechanical inspection of the effects of the turbulence on the aircraft. I ended up having to write the aircraft up without speaking to Maintenance due to the extended hold time. Not sure if the EMB 505 is more susceptible to wake but maybe a study should be done about its susceptibility and perhaps an increased separation for this type of aircraft.

Callback: 1

Reporter stated the roll was quite abrupt.

Synopsis

EMB-505 Captain reported encountering wake turbulence on approach to LAS in trail of a B787.

ACN: 1959896 *(22 of 50)*

Time / Day

Date : 202212
Local Time Of Day : 1201-1800

Place

Locale Reference.ATC Facility : ZZZZ.ARTCC
State Reference : FO
Altitude.MSL.Single Value : 38000

Environment

Weather Elements / Visibility : Turbulence

Aircraft

Reference : X
ATC / Advisory.Center : ZZZZ
Aircraft Operator : Air Carrier
Make Model Name : B747-400
Crew Size.Number Of Crew : 4
Operating Under FAR Part : Part 121
Flight Plan : IFR
Flight Phase : Cruise

Person

Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : First Officer
Function.Flight Crew : Pilot Not Flying
Qualification.Flight Crew : Instrument
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Multiengine
ASRS Report Number.Accession Number : 1959896

Events

Anomaly.Flight Deck / Cabin / Aircraft Event : Illness / Injury
Anomaly.Deviation / Discrepancy - Procedural : Clearance
Anomaly.Inflight Event / Encounter : Weather / Turbulence
Anomaly.Inflight Event / Encounter : Loss Of Aircraft Control
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Returned To Clearance
Result.Flight Crew : Regained Aircraft Control
Result.Flight Crew : Became Reoriented

Assessments

Contributing Factors / Situations : Weather
Primary Problem : Weather

Narrative: 1

Severe turbulence after passing leading to 1500 ft. altitude deviation. Prior to the event, we had been working an issue WXR FAIL, for which the aircraft had also previously been written up for. There was no indication on the radar or from ATC of any significant weather or convective activity. We were in IMC, in what we expected to be a thin layer of stratus clouds. The flight had been smooth with low winds and wind shear number 2 (low) as projected from our flight plan. When the event occurred I was PM and the relief Captain was Pilot flying (PF), with the Captain in observer seat receiving a briefing before taking over command for approach and landing. The aircraft suddenly jolt followed by immediate altitude loss. The aircraft was in zero G and a brief moment of negative G loading, leading to everything in the aircraft not strapped down becoming airborne, including the blue water in our lav. Myself and the relief PIC was strapped in front left and right. The three other crew members onboard became airborne, with two hitting the ceiling and one experiencing headache and some neck pain. The aircraft lost approximately 1500 ft. and momentarily exceeded min and max maneuvering speeds with the stick shaker activating momentarily. The relief PIC who was PF disconnected the autopilot and auto throttles and maintained a constant pitch attitude, only a very minor roll movement was experienced. After the turbulence calmed, a climb back to FL380 was initiated and the event reported to ZZZZ Control and company via ACARS. We proceeded to ZZZZ as planned since it was the closest suitable airport. We alerted company to have medical personnel standing by in ZZZZ in case our potentially injured crew member needed assistance. We elected not to contact med link as we were already starting our descent phase and dedicated our attention to get the aircraft safely on the ground. The flight landed safely in ZZZZ without further incident. The jump seating crew member was examined by medical personnel and their decision was that they were fit to continue to ZZZZ1. After speaking with them, they also indicated that they were fit to continue. A severe turbulence entry was made in the logbook and after inspection, the aircraft and crew continued to ZZZZ1.

Synopsis

B747-400 First Officer reported severe turbulence in cruise flight resulting in temporary loss of aircraft control.

ACN: 1958049 *(23 of 50)*

Time / Day

Date : 202212

Place

Locale Reference.ATC Facility : ZZZ.ARTCC
State Reference : US
Altitude.MSL.Single Value : 31400

Environment

Flight Conditions : VMC

Aircraft : 1

Reference : X
ATC / Advisory.Center : 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
Mission : Passenger
Flight Phase : Cruise
Airspace.Class A : ZZZ

Aircraft : 2

Reference : Y
Make Model Name : Commercial Fixed Wing
Crew Size.Number Of Crew : 2
Flight Phase : Cruise
Airspace.Class A : ZZZ

Component

Aircraft Component : Autopilot
Aircraft Reference : X
Problem : Malfunctioning

Person : 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 : 1958049

Person : 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)
Qualification.Flight Crew : Instrument
Qualification.Flight Crew : Multiengine
ASRS Report Number.Accession Number : 1958051

Events

Anomaly.Aircraft Equipment Problem : Critical
Anomaly.Conflict : Airborne Conflict
Anomaly.Deviation - Altitude : Excursion From Assigned Altitude
Anomaly.Deviation / Discrepancy - Procedural : Clearance
Anomaly.Deviation / Discrepancy - Procedural : Published Material / Policy
Anomaly.Inflight Event / Encounter : Loss Of Aircraft Control
Detector.Automation : Aircraft RA
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Regained Aircraft Control
Result.Flight Crew : Returned To Clearance
Result.Flight Crew : Took Evasive Action
Result.Flight Crew : FLC complied w / Automation / Advisory

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

While in cruise at FL310 ATC advised us of crossing traffic, the First Officer (FO) and I both had the traffic in sight and the FO reported that to ATC. We then returned to our conversation while monitoring the traffic. We were flying with the auto pilot on and normally operating we suddenly and abruptly had an autopilot disengagement. As soon as the autopilot disengaged the airplane pitched up rather aggressively and started to climb. By the time I said autopilot disengage and got on the controls the airplane was already climbing at greater than 1200 FPM. This aggressive pitch then, nearly immediately after, caused a TCAS RA with another airplane. The FO reported the TCAS RA to ATC immediately and was giving excellent correcting call outs throughout the RA. I was fighting to get the airplane back into the green RA box by arresting the climb and beginning a descent. I believe we had gained approximately 400 ft. above FL310 at the highest point. The total duration of the event was approximately under 1 minute. After getting the clear of conflict call from the TCAS we were close to our original altitude and we returned to FL310 and reported to ATC that we were clear of the conflict and level at FL310. We also reported that we experienced an issue with our autopilot which caused the RA to ATC. Once level we attempted to re-engage the autopilot which did not work initially but did on the second attempt. The auto pilot functioned normally for the remained of the flight. There is little if anything to improve to prevent this due to the randomness of the autopilot disengagement. While flying in RVSM airspace there is simply less time for altitude deviations before they will set off a TCAS RA. It is not normal procedure to be actively shadowing the controls while in cruise with the auto pilot on.

Narrative: 2

While in cruise at FL310 we were advised of traffic passing above and opposite direction. I advised ATC we were "looking." The Captain and I both saw the other aircraft due to the contrails it was making. Having the traffic insight and being no factor the Captain and I resumed our conversation while keeping the traffic in sight. Approximately a minute after the autopilot disengaged. The Captain called "auto pilot disengage" while saying that we received a TA/RA to descend. I looked at the VSI which was indicating 1200 FPM climb the Captain was actively pushing the yoke down. I then looked to make sure I could still see the traffic, which was still above us. I advised ATC we had a TA/RA and were descending. We got clear of conflict and leveled back at FL310. We then were able to reengage the autopilot. I notified ATC we were back level at 310 and had an autopilot disengagement but appeared we had it reengaged. The event took a total of no more than a minute from autopilot disengagement, TA/RA, corrective action, back to level off at FL310. This event to me seemed to happen exactly as it does in the sim and the Captain and I reacted as taught. I felt our communication and coordination as a crew was exactly what we needed to do. The Captain acted promptly and effectively. The only way the Captain could have reacted any faster was like how it happens in the sim where you are on guard and actively shadowing the controls. Which during this phase of flight and this altitude it's not required to shadow the controls.

Synopsis

CRJ-200 flight crew reported autopilot malfunction in cruise flight resulted in the airplane pitching up followed by a TCAS RA.

ACN: 1957644 *(24 of 50)*

Time / Day

Date : 202212
Local Time Of Day : 1201-1800

Place

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

Environment

Weather Elements / Visibility : Turbulence

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 : Yaw Control
Aircraft Reference : X
Problem : Malfunctioning

Person : 1

Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : First Officer
Function.Flight Crew : Pilot Flying
Qualification.Flight Crew : Multiengine
Qualification.Flight Crew : Instrument
Qualification.Flight Crew : Air Transport Pilot (ATP)
ASRS Report Number.Accession Number : 1957644
Human Factors : Communication Breakdown
Human Factors : Other / Unknown
Communication Breakdown.Party1 : Flight Crew
Communication Breakdown.Party2 : Maintenance

Person : 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 : Multiengine
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Instrument
ASRS Report Number.Accession Number : 1958659
Human Factors : Communication Breakdown
Human Factors : Other / Unknown
Communication Breakdown.Party1 : Flight Crew
Communication Breakdown.Party2 : Other

Events

Anomaly.Aircraft Equipment Problem : Critical
Anomaly.Deviation / Discrepancy - Procedural : MEL / CDL
Anomaly.Inflight Event / Encounter : Loss Of Aircraft Control
Detector.Automation : Aircraft Other Automation
Detector.Person : Flight Crew
Were Passengers Involved In Event : N
When Detected : In-flight
Result.Flight Crew : Overcame Equipment Problem
Result.Flight Crew : Regained Aircraft Control

Assessments

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

Narrative: 1

This 737 has a history of a yaw damper malfunction. This issue has been written up, and signed off, multiple times. The MEL states that flying into known moderate or above turbulence is prohibited, and if encountered, the crew must exit the condition. Flaps 40 landings are also prohibited. On two instances of flying this aircraft, the crew unknowingly flew into moderate + turbulence. In both instances, the autopilot was engaged at the time the aircraft was inadvertently flown into said turbulence. In both instances, the crew encountered violent and abrupt yaw and rolling motions, and the autopilot disengaged after failing to maintain directional control of the aircraft. During both flights, the aircraft went into an abrupt un-commanded roll after the autopilot was disengaged, and the crew received a bank angle warning. I was scheduled to fly this aircraft, and noticed that not only was the yaw damper still MEL'd, but both flight directors were MEL'd. Upon speaking to other crew who have flown this aircraft, it was noted that the aircraft was having Mode Control Panel (MCP) issues, also inducing rolling motions and flight director failures. A write up by the Captain (CA) of another crew stated that the aircraft was unsafe to fly at night. Due to all MEL issues, and based on previous flights with the potential for turbulence in the vicinity of ZZZ1 (Cumulonimbus clouds at 2200 ft. were being reported) I made a call to the VP of safety voicing my concerns. I then spoke with the 737 program manager, as well as the Chief Pilot, and told the Captain my reasoning for refusing the aircraft. I was pulled off the flight, put on reserve, and the plane departed for ZZZ1 around XA00Z. Avoiding turbulence is an instance in which pilots are relying on PIREPs to avoid it. Another determining factor would be weather at the departure and arrival airports. One could infer that there would likely be turbulence in the presence of cumulonimbus cloud formations. In these two instances, the moderate turbulence was unreported and a surprise to the crew. On both flights, the crew reacted accordingly to regain aircraft control, and exited the turbulent condition as soon as possible. In any instance where the aircraft had the MEL signed off, a new write up was entered into the

logbook. The narrative by the CA who wrote that the aircraft was unsafe for flight at night should have been taken seriously. If a Captain has been signed off and passed check rides, and been made PIC of an aircraft, Maintenance should take what he or she says into serious consideration when determining if an aircraft is safe to fly, or if issues need to be resolved before the aircraft is flown again. Multiple crews have not only written up the same issues with the aircraft, but have informed maintenance that they have persisted. My encounter with the aircraft rolling un-commanded into a severe bank when the autopilot could not maintain directional control is not unique, nor are the Multi-function Flight Displays (MFD's) flickering on and off or navigational issues with regard to the aircraft. I would suggest that, in the future, any aircraft that has months of the same write up, be pulled off the line and grounded until a fix can be put into place. Not only does this ensure that safety is a priority, but that pilot concerns are taken seriously.

Narrative: 2

I was scheduled to fly this 737 from ZZZ to ZZZ1 and back. My report time was XC20L. I had cited safety concerns with this aircraft, and had already notified operations earlier that afternoon (around XB00L) I would not be accepting the aircraft upon arriving due to the issues plaguing the aircraft, reports from other pilots, and my own personal experiences. I was informed that there would either be a tail swap or the flight would be canceled by the Chief Pilot. I arrived early, and when I noticed there had not been a tail swap or a cancellation, I called Dispatch. They informed me they had not been told about a cancellation or tail swap. While at the airport, I waited to see what would transpire. Shortly thereafter, crew resources called me and told me I was free to go home, after I had shown up for duty. However, they illegally assigned me to a reserve period beginning at XA00L that morning, ending at XC00L that evening. This should have started at my original report time, and followed 8 hours after that. They illegally assigned me a reserve that ended before my report time. Crew scheduling assigned an illegal assignment after pulling me off a flight after citing safety concerns. The Reserve period should have started at XC20L, and going until the following morning. I informed the company of the safety concern early enough to where I could have been taken off the flight before my report time.

Synopsis

B737-800 First Officers reported this particular 737 has yaw control problems. One pilot reported uncommanded rolls and the other pilot reported receiving information from other pilots and their own experience of perpetual problems. Both FOs refused to fly the aircraft.

ACN: 1955247 *(25 of 50)*

Time / Day

Date : 202212
Local Time Of Day : 1801-2400

Place

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

Environment

Flight Conditions : VMC
Light : Night

Aircraft

Reference : X
Aircraft Operator : Corporate
Make Model Name : Gulfstream IV / G350 / G450
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 91
Flight Plan : IFR
Mission : Passenger
Flight Phase : Initial Approach

Component : 1

Aircraft Component : Autoflight System
Manufacturer : FGC-1
Aircraft Reference : X
Problem : Malfunctioning

Component : 2

Aircraft Component : Autoflight System
Manufacturer : FGC-2
Aircraft Reference : X
Problem : Malfunctioning

Person : 1

Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Corporate
Function.Flight Crew : Pilot Not Flying
Function.Flight Crew : Captain
Qualification.Flight Crew : Multiengine
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Instrument
ASRS Report Number.Accession Number : 1955247
Human Factors : Troubleshooting
Human Factors : Confusion

Person : 2

Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Corporate
Function.Flight Crew : Pilot Flying
Function.Flight Crew : First Officer
Qualification.Flight Crew : Multiengine
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Instrument
ASRS Report Number.Accession Number : 1955248
Human Factors : Troubleshooting
Human Factors : Confusion

Events

Anomaly.Aircraft Equipment Problem : Critical
Anomaly.Inflight Event / Encounter : Loss Of Aircraft Control
Detector.Automation : Aircraft Other Automation
Detector.Person : Flight Crew
When Detected : In-flight
Result.General : Flight Cancelled / Delayed
Result.Flight Crew : Took Evasive Action

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

While on the RNAV (GPS) X Runway XX approach to ZZZ, between waypoints ZZZZZ and ZZZZZ1 and just after completing the before landing check with the aircraft fully configured for landing, we experienced a simultaneous failure of both Flight Guidance Computers (FGCs). Aircraft entered an uncommanded nose-down pitch attitude at which time the "FGC 1-2 FAIL" CAS message appeared along with audible alert. Autopilot, autothrottle, flight director, electric pitch trim and yaw damper all disconnected. PF (Pilot Flying) immediately took control of the airplane and corrected the pitch attitude while remaining on the approach course. We assessed and discussed the situation and decided due to our low altitude and close proximity to the runway that the best course of action was to continue the approach and landing without attempting to troubleshoot the anomalies. PF flew the aircraft while PM (Pilot Monitoring) manipulated the manual trim wheel at the PF's command. Aircraft landed safely without further incident. This was the second simultaneous dual FGC failure in the G-IV fleet (two different aircraft) in the last two weeks. Both failures occurred during the approach phase of flight, and both occurred in cold weather environments (ZZZ1 and ZZZ). Suggest getting Gulfstream and/or Honeywell involved in identifying and remedying the root cause(s) of these failures. The potential for a catastrophic outcome from a similar failure under less optimal weather conditions or with a less experienced crew is rather high.

Narrative: 2

On an 8 mile final to Runway XX in ZZZ we experienced a dual flight guidance computer failure while flying the RNAV-GPS X Runway XX. The aircraft experienced an uncommanded pitch down as all automation including auto-throttles disconnected. The pitch trim and yaw dampener also failed. The aircraft was flown manually with no automation, no auto throttles, and manual pitch trim to an uneventful landing using raw

data. Please investigate with Gulfstream to fix the problem. Had this occurred in IMC with the slightest distraction the result could have been very different.

Synopsis

Gulfstream G-IV flight crew reported loss of both flight guidance computers on final approach. Reporter stated this is a recurring issue.

ACN: 1950812 *(26 of 50)*

Time / Day

Date : 202211
Local Time Of Day : 1201-1800

Place

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

Environment

Flight Conditions : IMC
Weather Elements / Visibility : Rain
Light : Daylight

Aircraft

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

Component : 1

Aircraft Component : Horizontal Stabilizer Trim
Aircraft Reference : X
Problem : Malfunctioning

Component : 2

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

Component : 3

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

Person

Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : Captain
Function.Flight Crew : Pilot Not Flying
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Instrument

Qualification.Flight Crew : Multiengine
ASRS Report Number.Accession Number : 1950812
Human Factors : Workload
Human Factors : Troubleshooting
Human Factors : Time Pressure

Events

Anomaly.Aircraft Equipment Problem : Critical
Anomaly.Deviation / Discrepancy - Procedural : Clearance
Anomaly.Ground Event / Encounter : Loss Of Aircraft Control
Anomaly.Inflight Event / Encounter : Weather / Turbulence
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Executed Go Around / Missed Approach
Result.Flight Crew : Overcame Equipment Problem
Result.Flight Crew : Regained Aircraft Control
Result.Flight Crew : Requested ATC Assistance / Clarification
Result.Air Traffic Control : Provided Assistance

Assessments

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

Narrative: 1

On left downwind Runway XXC into ZZZ we experienced a loss of flight control effectiveness. Condition were IFR with light to moderate Rain and visibility of 2/1/2 mile at the surface. Pilot flying (PF) was First Officer (FO), and I was the pilot monitoring (PM). We were given a descent clearance to be followed by a base turn to final. While descending on the downwind, FO stated that the aircraft was making an uncommanded turn. With his hands on the control the Autopilot disengaged. FO struggle to regain control indicating strong control force and a pitch down trim force. Concern was a possible runaway trim. I immediately deployed the trim wheel handle and began to trim airplane aft according to FO instruction. My only concern at the time was flying the airplane and regaining control. The only indication I remember up to this point was the red Autopilot annunciator illuminated. ATC called several time to issue turn instruction. We did not respond, due to the urgency of aircraft control. After regaining control, there were concerns about the trim as express by the FO. I decided to eliminate confusion and cutoff the stab trim switches. I informed the FO that switches were cutoff and that we were now manual trim. I then responded to ATC and [requested priority handling]. ATC acknowledged the request and requested the standard passenger count and fuel onboard. I want to land ASAP, now that we had control under what seemed to be manual reversion. The FO was doing a great job turn and descending. We were able to turn and descent to 4,000 ft. and establish ourselves on final. There was much dialog and sense of urgency in our communication in the flight deck. I wanted to land immediately, since time was a factor and weather was not in our favor. As we started to configure with flaps, we attempted to extend the gear. The gear did not extend. At this point it became an approach to landing would not be feasible. I requested a straight out miss and maintaining 4,000 ft. ATC granted that request and shortly thereafter gave us a climb to 8,000 ft. and a turn to the east. At this point, we got busy in a hurry. FO wanted to clean up the flaps. This made sense as first and then I reconsidered. Valuable time was being wasted trying to climb and configure, I also did not see any advantage to clean up with a hydraulic issue.

I did not want to lose the use of flaps and then complicate issue more. This was discussed between the FO and I. We agreed not to clean up completely. We left the flaps a 1, the indicator stop a 5. I instructed ATC that we were going to stop the climb at 5,000 ft. They gave us clearance to maintain 5,000 ft. This helped us focus on the gear problem. At this point, I also decided to bring the jump seat pilot into helping us. I instructed him to plug in a headset. Up to this point, everything was just happening too fast and I needed to slow things down and get the gear down. I opened the QRH and started the Manual gear extension checklist. I had the Jump Seat Pilot extend the gear since he had great access to these handles. Right gear was dropped first, this caused a yaw to the right and a pitch down attitude. More manual trim required. Then nose and left gear. This stabilized the yaw. At this point, I was ready to come back for the approach and advised ATC. They started to give us headings back to ILS XXC. I ask the FO is he was OK, or needed a break. He informed me that he was good to continue pilot flying. I then instructed the Jump Seater to monitor FO and keep him focus and talk to him and the same time, I instructed FO to keep the turns to no more than 10 degrees. I advised ATC, that we need a shallow intercept to final. I notice that HYD B system was at 60 percent and brake pressure just above 2,500 PSI. I coordinated with the FO and we agreed that he would only fly the plane. I had the Thrust Levers and the trim. We settled on a speed of 170 kts. for approach. Again, Flap handle was at 1 while indicator was at 5. We broke out at 400 ft. AGL with runway in sight and light showers. Once landing was assured, I set the power to idle. FO needed back trim to arrest the sink rate. I trim back aggressively. We landed and max brake was applied. Control was exchanged and I was able to turn off slowly clearing the runway. We were towed to our gate. Time, Weather and operating in a terminal area under IFR condition with no Autopilot.

Synopsis

B737-800 Captain reported loss of autopilot and hydraulic system failure caused controllability issues in flight. The flight crew performed a go around, regained aircraft control and landed at destination airport.

ACN: 1948076 *(27 of 50)*

Time / Day

Date : 202211
Local Time Of Day : 1201-1800

Place

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

Environment

Flight Conditions : VMC
Work Environment Factor : Glare

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
Flight Phase : Climb
Flight Phase : Initial Climb

Component

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

Person

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 : Instrument
Qualification.Flight Crew : Multiengine
Qualification.Flight Crew : Air Transport Pilot (ATP)
ASRS Report Number.Accession Number : 1948076
Human Factors : Troubleshooting

Events

Anomaly.Aircraft Equipment Problem : Critical
Anomaly.Ground Event / Encounter : Loss Of Aircraft Control
Detector.Person : Flight Crew
When Detected : In-flight
Result.General : Flight Cancelled / Delayed
Result.General : Maintenance Action
Result.Flight Crew : Regained Aircraft Control

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

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

Turning right into the sun out of 5000ft, eyes started to water, with aircraft trimmed, I selected autopilot A. Immediate, abrupt, right hard over exceeding autopilot parameters and it disconnected. Hand flew aircraft to 12,000 checking trim, overhead, assessing for any obvious issues. Nothing unusual was noted. I ensured aircraft was in trim, while flying wings level in a climb, and selected autopilot A again. Repeat of previous abrupt/violent hard over to the right, exceeding autopilot parameters, with resulting autopilot disconnect. Ran the checklist for uncommanded autopilot disconnect. Elected to return to the airport as it was an extreme autopilot disconnect. Ran non-routine landing checklist. Burned down fuel to max landing as the aircraft was flying as expected and without issue by hand. Landing uneventful. Cause - Startle effect is real. I missed the "my aircraft" call getting the aircraft under control the first time. (I'm not sure if flight recorders are checked, but there was likely some expletives in place of the "my aircraft" call, I apologize.) My First Officer (FO) did say "your aircraft." When we ran the checklist for uncommanded autopilot disconnect, it did not say to select the other autopilot, although we discussed it, and decided the airplane was flying fine manually, and the disconnect on A was extreme enough that we didn't want to experience issues with B. That said, the first thing maintenance asked, was if we tried B. Suggest revising the checklist if they want the crews to try the other autopilot regardless of a hard over. Suggestions - Mechanical failures happen no matter how good a maintenance program. I don't see how this could have been prevented.

Synopsis

Air carrier Captain reported two hard over events when connecting Autopilot A. Flight crew disconnected autopilot and hand flew aircraft back to departure airport.

ACN: 1948075 *(28 of 50)*

Time / Day

Date : 202210
Local Time Of Day : 1201-1800

Place

Locale Reference.Airport : ZZZ.Airport
State Reference : US
Altitude.AGL.Single Value : 800

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
Mission : Passenger
Flight Phase : Initial Climb
Flight Phase : Climb
Airspace.Class B : ZZZ

Component

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

Person : 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 : 1948075

Person : 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)
Qualification.Flight Crew : Multiengine
Qualification.Flight Crew : Instrument
ASRS Report Number.Accession Number : 1950171

Events

Anomaly.Aircraft Equipment Problem : Critical
Anomaly.Deviation / Discrepancy - Procedural : Clearance
Anomaly.Deviation / Discrepancy - Procedural : Published Material / Policy
Anomaly.Deviation / Discrepancy - Procedural : Weight And Balance
Anomaly.Inflight Event / Encounter : Loss Of Aircraft Control
Detector.Person : Flight Crew
When Detected : In-flight
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 : Aircraft
Primary Problem : Aircraft

Narrative: 1

I was the Pilot Flying (PF), First Officer's (FO) take-off. During the take-off phase on XXR out of ZZZ, we took off behind an aircraft. Once airborne, at approximately 800 ft. the aircraft began an uncommanded slow roll to the left. I responded by displacing the FO's flight control to the right with an amount that I believed was equal to counter the left roll. The aircraft did not respond to my flight control input and continued to roll left so I displaced more right stick to counter the left roll. The aircraft continued to roll left, at one point I ran out of right stick input by actually hitting the physical limit to displace the FO side stick. The aircraft began to slowly roll to the right, and I began to think that the aircraft was not responding in kind to my right side stick inputs. I began displacing my side stick to the left slowly moving to center my control stick thinking that the aircraft was responding now. The aircraft had not achieved wings level before the aircraft began another slow roll to the left. I countered with more right side stick and again the aircraft did not respond in kind to my right side stick input to counter the left roll. I hit the physical limit of travel on my control stick again, only briefly before the aircraft began a slow roll back to the right to wings level position. The whole time we were climbing out. By this time we were above 1000 ft. AGL, I was still hand flying. The aircraft seemed to be responding normally to my control inputs by this time. I activated autopilot 2 and the aircraft responded normally. We brought up the flight control page on the monitor to see if there were any unusual inputs on the page. But there was none. We climbed out on the ZZZZZ departure with a normal climb out in managed mode. The aircraft made all the constraints in managed mode. Once we were not as task saturated, me and the Captain discussed what we should do. The decision was made by both of us to not continue the flight all the way to ZZZ1 if there was a possible flight control issue. We decided to coordinate with ATC for a precautionary landing back at ZZZ, we were not overweight, we made an uneventful landing, and taxied the aircraft back to the gate to hand the aircraft over to maintenance. Just a side note, there were no electronic warnings that would've let us know that there was a problem with the flight controls. Not sure what causal factors could've caused this. Again, I don't know what caused this so I don't know how to prevent it from occurring again.

Narrative: 2

During the take-off phase at ZZZ, passing approximately 800 ft. AGL, the aircraft began an un-commanded roll to the left. The First Officer (FO) who was Pilot Flying (PF) countered the roll with increasing side stick movement to the right until achieving full right side stick displacement. The left roll was arrested at approximately 15 degrees of bank

and began a slow roll back to the right at which time the PF began to move the side stick to the left to re-center and match the aircraft attitude. However, prior to achieving center stick, the aircraft again began rolling left causing the PF to again displace the side stick full right to arrest the un-commanded roll. The un-commanded roll to the left was again arrested and reversed to approximately straight and level, at which time the PF matched the side stick position to the aircraft attitude. The PF then explored all axis's of control input with the side stick, to which all seemed normal. The rest of the take-off phases of flight were normal. We then discussed the event in detail to ascertain an external cause; we could not. The wind was constant with no gusts and there were no other weather phenomenon in the area. We were following an aircraft on departure that could not have generated a wake to cause such an event. Considering also that the aircraft generated no system warnings or messages, we were unable to positively identify the cause of the event. We decided that with an unknown flight control issue the safest course of action would be to land. We then coordinated for, and accomplished an uneventful landing at ZZZ. Collect flight data, pilot reports and any other and all sources available from this type of aircraft to ascertain if there is a flight control issue.

Synopsis

A321 flight crew reported flight control malfunction during departure climb resulting in a return to the departure airport.

ACN: 1946791 *(29 of 50)*

Time / Day

Date : 202210
Local Time Of Day : 1201-1800

Place

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

Aircraft

Reference : X
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 : Descent
Airspace.Class B : ZZZ

Component : 1

Aircraft Component : Autopilot
Aircraft Reference : X
Problem : Failed

Component : 2

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

Person

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 : Instrument
Qualification.Flight Crew : Multiengine
Qualification.Flight Crew : Air Transport Pilot (ATP)
ASRS Report Number.Accession Number : 1946791
Human Factors : Communication Breakdown
Human Factors : Distraction
Human Factors : Troubleshooting
Communication Breakdown.Party1 : Flight Crew
Communication Breakdown.Party2 : ATC

Events

Anomaly.Aircraft Equipment Problem : Critical
Anomaly.ATC Issue : All Types

Anomaly.Deviation / Discrepancy - Procedural : Clearance
Detector.Automation : Aircraft Other Automation
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Landed in Emergency Condition

Assessments

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

Narrative: 1

I was PM (Pilot Monitoring) on Aircraft X to ZZZ while the FO (First Officer) was PF (Pilot Flying). During a continuous descent from higher altitude, passing around I believe FL200 down to FL190, when we felt three or four partial rolls, almost like wake. The AP was kicked off, right about the time we received a clearance to descend to 11000 and 250 at ZZZZZ. We told ATC we would not be able to make the restriction, and would need some vectors and a delayed descent to work through the QRH procedures. The AP Fail and Pitch trim fail cautions were displayed, I opted to start with the pitch message; however, was interrupted several times with questions or requests to do a hold when we had asked for vectors so we could complete QRH procedures. After ATC eventually gave us discretion with doing a slow 360 back to the airport, We initiated the pitch trim malfunction procedure, finding that the message came back nearly immediately after the trim cut out switches were cycled, we concluded that checklist with the abnormal procedure which required us to cut off the pitch trim, [advise ATC] and land. We determined our best course was to continue to ZZZ as it was close, and would afford time to work through the trim malfunction descent and Landing checklists, as well as communication with Dispatch, FAs (Flight Attendants), and passengers. We [advised ATC], I followed with the AP fail checklist, and then moved to the descent checklist. Once the runway setup was completed, landing distance calculated, and landing speeds entered, I relieved the FO of flying as she had been flying without trim for some time now, and opted to have her finish the flight as PM (Pilot Monitoring) where she contacted Dispatch, kept the passengers informed, and worked the radios and checklists until landing. The remainder of the flight consisted of setting up for a long final, configuring to different speeds early to assess the controllability of the aircraft without pitch trim and landing at ZZZ without further issues. We taxied to the gate without further incident, contacted Dispatch, and then contacted Maintenance. Several interruptions by ATC initially when we told them we needed to stop descent and might need delay vectors to run QRH procedures delayed me several times, just trying to index the first procedure and was interrupting communication between the FO and myself. Additional problems were added to our list when rather than giving vectors as we asked, ATC gave us a present position hold, which initially I had selected in the FMS, and then as I was entering the direction of turn, the FMS suddenly cleared the hold and refused to allow present position holds to be placed in the flight plan. We spent several minutes trying to setup holds rather than dealing with the QRH before we ultimately told ATC we were unable. If ATC has been told that an aircraft needs time for procedures, there needs to be some awareness that asking a new question every 10-20 seconds only prolongs the problem.

Synopsis

Air carrier flight crew flying an ERJ-170 aircraft reported autopilot and pitch trim failure inflight.

ACN: 1943170 *(30 of 50)*

Time / Day

Date : 202210
Local Time Of Day : 1201-1800

Place

Locale Reference.Airport : JFK.Airport
State Reference : NY
Altitude.MSL.Single Value : 1300

Aircraft : 1

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

Aircraft : 2

Reference : Y
ATC / Advisory.Tower : JFK
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 : Initial Climb
Airspace.Class B : JFK

Person

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 : Instrument
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Multiengine
ASRS Report Number.Accession Number : 1943170
Analyst Callback : Completed

Events

Anomaly.Ground Event / Encounter : Loss Of Aircraft Control
Anomaly.Inflight Event / Encounter : Wake Vortex Encounter
Detector.Person : Flight Crew

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

Assessments

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

Narrative: 1

We were departing Runway 22R at JFK. I was PM (Pilot Monitoring) and FO (First Officer) was PF (Pilot Flying). A 757 was the departure prior to us. After the 757 started its departure roll we were instructed to line up and wait. After a short wait, we were given a takeoff clearance for runway heading up to 5000. At 600 ft. AGL the FO called for the autopilot and it was turned on. On schedule the FO commanded an acceleration for clean up. As we were accelerating at roughly 1300 ft. AGL the aircraft entered an uncommanded roll to the right and reached approximately 20-25 degrees of bank. The autopilot kicked off and the FO promptly reestablished control via his yoke. We were about 170-180 KIAS and the FO held a full scale left deflection of his control wheel to stop the roll and return the aircraft to a 0 degree bank. The aircraft rolled notably slower than what I would expect for the amount of control input. I helped talk the FO into fixing the rest of the deviations caused by the sudden roll and we re-established a climb and turn to an ATC assigned heading. I felt that we were a normal distance behind the 757 from what I've experienced at JFK and other large hub airports for being in trail of 757 or heavy aircraft. We were fairly heavy with a somewhat forward CG, so it wouldn't surprise me if the 757 was outperforming us on the initial climb, especially if they were lightly loaded. The winds were also fairly sporadic in the NYC area. The surface winds were generally 10 kts. or so during our departure. But up at 4000 ft. they were closer to 40-50 kts. so it also wouldn't be surprising if the wake turbulence was dissipating at unequal rates based on the odd shifts in the winds during initial climb. We were perhaps too close and following the 757 for too long as indicated by the fact that we hit their wake. Perhaps a sooner turn from ATC after departure or us performing a full thrust takeoff to get off the ground quicker and above the wake sooner could have avoided the encounter.

Callback: 1

Reporter stated he was surprised by the intensity of the roll.

Synopsis

CRJ-900 Captain reported encountering wake turbulence departing JFK in trail of a B757, noting that the recovery required full aileron deflection.

ACN: 1942032 *(31 of 50)*

Time / Day

Date : 202210
Local Time Of Day : 1801-2400

Place

Altitude.MSL.Single Value : 35000

Environment

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

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
Flight Phase : Cruise

Person

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 : 1942032
Human Factors : Time Pressure
Human Factors : Situational Awareness

Events

Anomaly.Flight Deck / Cabin / Aircraft Event : Illness / Injury
Anomaly.Deviation - Altitude : Excursion From Assigned Altitude
Anomaly.Inflight Event / Encounter : Weather / Turbulence
Anomaly.Inflight Event / Encounter : Loss Of Aircraft Control
Detector.Person : Flight Crew
When Detected : In-flight
Result.General : Physical Injury / Incapacitation
Result.Flight Crew : Returned To Clearance
Result.Flight Crew : Regained Aircraft Control
Result.Air Traffic Control : Provided Assistance

Assessments

Contributing Factors / Situations : Weather
Primary Problem : Weather

Narrative: 1

I was the Pilot in Command (PIC) and Pilot Flying (PF) of the flight ZZZ1 to ZZZ2. Metar for ZZZ2 was 10kt winds -RA Few036 BKN 050 and TAF called for 09005kt 6sm -shra sct025 ovc040. Multiple squall lines present associated with a cold front at departure time to the north, south and southeast of filed route effecting most of the southeast US and the gulf moving east. I briefed the Flight Attendants (FAs) and passengers prior to departure, and at cruise altitude in smooth air that we would be flying around weather in the near future in case someone wanted to use the facilities. Approximately 40-50 minutes left in flight time I turned the seat belt sign back on, slowed to turbulence penetration speed, and made the PA announcement for everyone to return to their seats as we were getting close to areas of known weather. The majority of the storms were in a mass about 50 miles north of our filed route with widely scattered storms to the south extending to the southern tip of the US. We requested deviations to the right of course (south) due to lightning along our filed route and up to 20 degrees was approved. Onboard weather radar showed a wide gap in the line of storms which we headed for and I could see over the top of the storms with city lights in the distance and stars above at level 350 on an easterly heading. Suddenly we encountered a rising dark wall of weather. The First Officer (FO) warned me immediately but it was too late and we were in the developing storm. The aircraft rolled and yawed violently kicking off the Autopilot (AP). I quickly regained control started hand flying and yelled I need lower now. The FO relayed severe turbulence and the need to descend immediately to ATC. We were cleared to FL 240 and the FO selected it with VS down. However due to the updraft intensity the aircraft climbed approximately 600 ft. before we began a slow descent. I was doing my best to keep the aircraft speed around the turbulence penetration speed so I did not force a pitch down to prevent overstressing the aircraft. Although I have been told the event may have lasted minutes it felt like 15-20 seconds at most. My FO immediately notified company via acars called the FAs. FA 1 reported FA 2 had hit their head on the door however did not need medical attention. FA 1 informed me the passengers were indeed seated and no injuries were reported at that time. I called FA 2 again and said they had a headache but medical assistance was not required. The remainder of the flight was uneventful and we landed safely at ZZZ2. Having access to real time weather radar via internet in this instance would have greatly supplemented onboard wx radar and enhanced situational awareness.

Synopsis

EMB-175 Captain reported encountering severe turbulence, resulting in a momentary loss of aircraft control and an altitude deviation of 600 ft. After exiting the turbulent conditions, the flight continued to the destination airport, with only a minor injury sustained by a Flight Attendant.

ACN: 1940581 *(32 of 50)*

Time / Day

Date : 202210
Local Time Of Day : 1201-1800

Place

Locale Reference.ATC Facility : ZZZ.TRACON
State Reference : US
Altitude.MSL.Single Value : 8000

Environment

Flight Conditions : VMC

Aircraft

Reference : X
Aircraft Operator : Air Carrier
Make Model Name : B737 Undifferentiated or Other Model
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Mission : Passenger
Flight Phase : Climb

Component

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

Person

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
Experience.Flight Crew.Last 90 Days : 144
Experience.Flight Crew.Type : 4798
ASRS Report Number.Accession Number : 1940581

Events

Anomaly.Aircraft Equipment Problem : Critical
Anomaly.Flight Deck / Cabin / Aircraft Event : Other / Unknown
Anomaly.Deviation / Discrepancy - Procedural : Clearance
Anomaly.Deviation / Discrepancy - Procedural : Published Material / Policy
Anomaly.Inflight Event / Encounter : Loss Of Aircraft Control
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Diverted

Result.Flight Crew : Landed As Precaution
Result.Flight Crew : Regained Aircraft Control
Result.Flight Crew : Returned To Departure Airport
Result.Flight Crew : Landed in Emergency Condition

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

On climb out departing ZZZ while hand flying, the yoke became stiff. After a certain amount of roll was initiated the roll rate increased drastically. After assessment by both myself and the First Officer, we agreed that the best option was to return to ZZZ. I [advised ATC] and returned to ZZZ. On final approach with A/P engaged at approximately 2500 feet, we experienced a left and right uncommanded roll. I disengaged A/P,A/T and hand flew the approach to an over weight landing.

Synopsis

B737 Captain reported autoflight system malfunction. The Captain disengaged the autoflight system and returned to departure airport.

ACN: 1940427 *(33 of 50)*

Time / Day

Date : 202210
Local Time Of Day : 1201-1800

Place

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

Environment

Flight Conditions : VMC

Aircraft

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

Component

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

Person

Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : First Officer
Function.Flight Crew : Pilot Not Flying
Qualification.Flight Crew : Instrument
Qualification.Flight Crew : Multiengine
Qualification.Flight Crew : Air Transport Pilot (ATP)
Experience.Flight Crew.Last 90 Days : 160
Experience.Flight Crew.Type : 349
ASRS Report Number.Accession Number : 1940427
Human Factors : Distraction
Human Factors : Time Pressure
Human Factors : Troubleshooting
Human Factors : Workload
Human Factors : Confusion

Events

Anomaly.Aircraft Equipment Problem : Critical
Anomaly.Inflight Event / Encounter : Loss Of Aircraft Control
Detector.Person : Flight Crew
Result.General : Flight Cancelled / Delayed
Result.Flight Crew : Overcame Equipment Problem
Result.Flight Crew : Requested ATC Assistance / Clarification
Result.Flight Crew : Landed in Emergency Condition
Result.Flight Crew : Returned To Departure Airport
Result.Air Traffic Control : Issued New Clearance

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

Climbing out we experienced 2 events of aileron roll resistance left/right followed by an excessive bank below 26,000 ft, confirmed by both pilots with positive exchanges of controls. The Captain requested the trucks to meet us on landing. The Captain then informed company, Flight Attendants (FAs) and passengers. On return to ZZZ, we prepared for an overweight landing of 135,000 lbs. On approach we experienced an uncommanded roll left/right at 2,500 ft. [with the] autopilot on. On touchdown the "Takeoff Config" light illuminated. After thorough inspection by Airport Rescue and Firefighting we got the green light ("All Safe") and continued taxing to the gate.

Synopsis

B737-700 First Officer reported "...2 events of aileron roll resistance left/right followed by an excessive bank...".

ACN: 1939715 *(34 of 50)*

Time / Day

Date : 202210
Local Time Of Day : 1201-1800

Place

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

Environment

Flight Conditions : VMC

Aircraft : 1

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

Aircraft : 2

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

Person : 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 : 1939715
Analyst Callback : Completed

Person : 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)
Qualification.Flight Crew : Instrument
Qualification.Flight Crew : Multiengine
ASRS Report Number.Accession Number : 1940021

Events

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

Assessments

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

Narrative: 1

While flying a visual approach to Runway 36L in Charlotte we encountered wake turbulence from the aircraft in front of us. Aircraft Y had started the approach at a higher altitude and further distance from our position and had been sequenced in front of us. Between LONIA and CUNUK our aircraft started an uncommanded roll to the right about 20 degrees. It then settled for a second and then started an extremely aggressive roll to the right exceeding 30 degrees. I immediately disconnected the autopilot and leveled the wings. We did not see the exact angle the aircraft rolled to but we estimate it might have exceeded 45 degrees before we recovered. After leveling the aircraft I established the aircraft on the localizer above glide slope. We then contacted ATC to let them know and request a slower speed. We continued the approach and made a successful landing. I also had the First Officer call the Flight Attendant to make sure they and the passengers were ok. Aircraft flying a higher profile need to be sequenced behind lower aircraft to prevent this issue. Also I could have flown upwind of course or above glideslope to prevent this. Disconnecting the autopilot at the first sign of it may have helped as well.

Callback: 1

Reporter stated he was surprised at the intensity of the roll.

Narrative: 2

We were flying a visual approach to [Runway] 36L in CLT and encountered wake turbulence from Aircraft Y ahead of us. Aircraft Y had been started their approach at a higher altitude and farther out than we were but were sequenced in front of us. Between LONIA and CUNUK our aircraft began a relatively gentle uncommanded roll to the right roughly 20 degrees, seemed to settle and then aggressively rolled further to the right. The Captain immediately disconnected the autopilot and I assisted in leveling the wings. We estimated the roll had exceeded 45 degrees and took some effort to counteract the roll forces to the right. The Captain asked that I report the wake turbulence encounter and ask for a slower approach speed to increase separation from the preceding aircraft. The

Captain further mitigated any possible additional wake turbulence activity by establishing the aircraft slightly above glide slope. The Captain requested I call the Flight Attendant to make sure all the passengers were ok and we made a safe and successful landing. Proper sequencing of lower aircraft in front of higher aircraft and better spacing might have helped. We could have asked to extend downwind slightly and flown a higher glide slope in anticipation of wake turbulence.

Synopsis

EMB-145 flight crew reported encountering wake turbulence on approach to CLT in trail of an A321 that resulted in an aggressive roll exceeding 45 degrees of bank angle.

ACN: 1841823 *(35 of 50)*

Time / Day

Date : 202109
Local Time Of Day : 1201-1800

Place

Locale Reference.Airport : ZZZ.Airport
State Reference : US
Altitude.MSL.Single Value : 13000

Environment

Flight Conditions : IMC
Weather Elements / Visibility : Haze / Smoke
Light : Dusk

Aircraft

Reference : X
ATC / Advisory.TRACON : ZZZ
Aircraft Operator : Personal
Make Model Name : Citationjet (C525/C526) - CJ I / II / III / IV
Crew Size.Number Of Crew : 1
Operating Under FAR Part : Part 91
Flight Plan : IFR
Mission : Personal
Flight Phase : Descent
Airspace.Class E : ZZZ2

Component

Aircraft Component : Autopilot
Aircraft Reference : X
Problem : Malfunctioning

Person

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 : Air Transport Pilot (ATP)
Qualification.Flight Crew : Instrument
Qualification.Flight Crew : Multiengine
Qualification.Flight Crew : Flight Instructor
Experience.Flight Crew.Total : 4400
Experience.Flight Crew.Last 90 Days : 60
Experience.Flight Crew.Type : 150
ASRS Report Number.Accession Number : 1841823
Human Factors : Workload
Human Factors : Human-Machine Interface
Human Factors : Troubleshooting

Events

Anomaly.Aircraft Equipment Problem : Critical
Anomaly.Deviation - Track / Heading : All Types
Anomaly.Deviation / Discrepancy - Procedural : Clearance
Anomaly.Inflight Event / Encounter : Loss Of Aircraft Control
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Became Reoriented
Result.Flight Crew : Overcame Equipment Problem
Result.Flight Crew : Regained Aircraft Control

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

An uncommanded roll to the right caused a deviation from the lateral course. I disconnected the autopilot via the control yoke disconnect button. I still had to physically overcome the control pressure so I also pulled the trim circuit breaker in case it was a factor. This did not change the control pressure. I used physical force to level the wings and turned the aileron trim which was very stiff and this abruptly changed the control pressure. I was able to hand fly and coordinate the rest of the procedure with ATC. Once in visual conditions I tried to see if the autopilot would work and it started a turn to the right again. I disconnected without any issue and hand flew the rest of the flight. Once on the ground I called ZZZ1 [Tracon] to ensure they were aware of my conditions and make sure no further actions were needed with their involvement.

Synopsis

A CE 525 Pilot reported an autopilot malfunction caused the aircraft to roll to the right, resulting in a temporary loss of control.

ACN: 1837579 *(36 of 50)*

Time / Day

Date : 202109
Local Time Of Day : 1201-1800

Place

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

Environment

Light : Daylight

Aircraft

Reference : X
ATC / Advisory.Tower : ZZZ
Aircraft Operator : Air Carrier
Make Model Name : B737-800
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Flight Phase : Takeoff / Launch

Person

Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : Pilot Flying
Function.Flight Crew : Captain
ASRS Report Number.Accession Number : 1837579

Events

Anomaly.Ground Event / Encounter : Weather / Turbulence
Anomaly.Ground Event / Encounter : Loss Of Aircraft Control
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Took Evasive Action

Assessments

Contributing Factors / Situations : Weather
Primary Problem : Weather

Narrative: 1

On takeoff roll, Runway XX, with gusty left crosswinds, the aircraft suddenly and without warning, "skidded" left. Corrected the ground track and continued the takeoff without further incident. FAs (Flight Attendants) reported being aggressively shoved sideways in their seats.

Synopsis

B737-800 Captain reported the aircraft suddenly skidded to the left during takeoff roll due to gusty crosswinds requiring corrective input.

ACN: 1831728 *(37 of 50)*

Time / Day

Date : 202108
Local Time Of Day : 0601-1200

Place

Locale Reference.Airport : OAK.Airport
State Reference : CA
Altitude.AGL.Single Value : 700

Environment

Flight Conditions : IMC
Weather Elements / Visibility : Turbulence
Weather Elements / Visibility.Visibility : 10
Light : Daylight
Ceiling.Single Value : 700

Aircraft : 1

Reference : X
ATC / Advisory.Tower : OAK
Aircraft Operator : Corporate
Make Model Name : Light Transport, Low Wing, 2 Turbojet Eng
Crew Size.Number Of Crew : 1
Operating Under FAR Part : Part 91
Flight Plan : IFR
Mission : Passenger
Flight Phase : Initial Climb
Route In Use.SID : CNDEL FOUR
Airspace.Class C : OAK

Aircraft : 2

Reference : Y
ATC / Advisory.Tower : OAK
Aircraft Operator : Air Carrier
Make Model Name : A321
Crew Size.Number Of Crew : 2
Flight Plan : IFR
Mission : Passenger
Flight Phase : Initial Climb
Airspace.Class C : OAK

Person

Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Corporate
Function.Flight Crew : Pilot Flying
Function.Flight Crew : Single Pilot
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Instrument
Qualification.Flight Crew : Multiengine

Qualification.Other
Experience.Flight Crew.Total : 9000
Experience.Flight Crew.Last 90 Days : 50
Experience.Flight Crew.Type : 5500
ASRS Report Number.Accession Number : 1831728
Human Factors : Situational Awareness
Analyst Callback : Attempted

Events

Anomaly.ATC Issue : All Types
Anomaly.Deviation - Altitude : Crossing Restriction Not Met
Anomaly.Deviation - Altitude : Overshoot
Anomaly.Deviation / Discrepancy - Procedural : Clearance
Anomaly.Inflight Event / Encounter : Weather / Turbulence
Anomaly.Inflight Event / Encounter : Loss Of Aircraft Control
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Regained Aircraft Control
Result.Flight Crew : Became Reoriented
Result.Air Traffic Control : Issued New Clearance

Assessments

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

Narrative: 1

I was preparing to conduct a Part 91 IFR flight from OAK. My clearance was Runway 30, CNDEL4 Departure EBAYE AVE EHF and to climb via the SID. Upon reaching Runway 30, I was holding on Taxiway Whiskey behind an A321. After the A321 started its takeoff roll, I watched and noted the point at which it lifted off. At the same time I was instructed to "Line up and wait". After what I thought to be a very short time, less than a minute from lining up, I was cleared for takeoff with a caution warning for wake turbulence. Upon reaching Vr and prior to the A321's rotation point, I rotated and began my initial climb. I had 1900 ft set in my Altitude Select as I was to cross LECHE at or below 2,000 ft, on a heading of 296 degrees which I had set on my DG's bug. At approximately 600 ft I engaged the autopilot. Almost immediately after entering IMC conditions at approximately 700 ft, I entered very heavy turbulence. I disengaged the autopilot at which time the plane entered an un-commanded roll to the left. I tried to recover but the plane was shaking very violently and kept wanting to violently roll to the left between 35 to 40 degrees of bank angle. The plane was really not responding to my control inputs, at least not according to my flight director. I really had no idea what was happening at the time and was very startled. At first I thought I might have a control surface failure. Then I realized that I must have flown through and was now within the A321 wake vortices. I had a very hard time controlling the aircraft. I was worried if I could not keep the plane out of an upset condition, I was way too low for a successful recovery. I could also hear that my passengers were very uncomfortable. At this point, I just reverted to flying 101, aviate, navigate, communicate. I hit my Takeoff/Go-Around switch which also disengaged the yaw damper and put my command bars at a 10 degree nose up and wings level command. At that point I was just trying to concentrate on putting the airplane symbol into the command bars and just keep wings level. All the while keeping my eye on my TCAS for

any aircraft near or around me. (I never got one traffic warning or alert during this whole event). At some point a controller came on and began giving me vectors. I had not yet talked to the controllers or advised them of my situation as I had not gotten to the "communicate" part yet. I was also told to squawk my assigned transponder code. I had selected the code prior to taxi but failed to enter it. At approximately 1800 feet I began to try to level the airplane but was having a hard time doing so. I did not want to push down too hard and put the plane in an excessive negative G situation. I think I passed the max altitude by 150 ft but, immediately corrected to 1800 ft. When I was switched to the next frequency I was still attempting to regain my composure and just follow the controller's instructions. The turbulence completely disappeared out of about 2,500 feet. Out of 10,000 feet, I cancelled IFR and continued VFR with flight following. The rest of the flight was uneventful until I was advised by NorCal of a possible pilot deviation and was given a phone number to call upon landing. How the problem arose: Inadvertent flight into wake turbulence. Contributing Factors: Too early release behind a heavy aircraft. IMC Conditions. Failure to ask for a possible short delay to my takeoff clearance due to wake turbulence. How it was discovered: Difficulty in controlling the aircraft due to violent and uncommanded aircraft attitudes. Corrective Actions: Maintain wings level attitude. Follow ATC Instructions. Perceptions: Fear of possible loss of control in IMC conditions and very low altitude for recovery. Judgements: Just fly the plane. Aviate, Navigate, Communicate. Decisions: Do whatever it takes to keep wings level attitude. Factors affecting the quality of human performance: The startle effect. Actions or Inactions: Have hand written, "Enter Squawk Code", in my Pre-Taxi Checklist. Just did what I could to fly my plane out of an inadvertent but bad situation.

Synopsis

Light Transport Corporate Pilot reported encountering wake turbulence departing OAK in trail of an A321.

ACN: 1829597 *(38 of 50)*

Time / Day

Date : 202108
Local Time Of Day : 1201-1800

Place

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

Environment

Flight Conditions : VMC
Weather Elements / Visibility.Other

Aircraft

Reference : X
ATC / Advisory.Tower : ZZZ
Aircraft Operator : Air Carrier
Make Model Name : B777-200
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Flight Phase : Takeoff / Launch

Component

Aircraft Component : Nosewheel Steering
Aircraft Reference : X
Problem : Malfunctioning

Person

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 : 1829597

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Anomaly.Ground Event / Encounter : Loss Of Aircraft Control
Detector.Person : Flight Crew
Result.Flight Crew : Rejected Takeoff
Result.Flight Crew : Returned To Gate

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

During initial takeoff roll, at takeoff thrust setting and less than 30 kts, aircraft began uncommanded hard left turn. Initiated slow speed reject, tried to counter with full right rudder and full right nose wheel steering. Tiller was binding, only 10 degrees of travel available as if fighting left tiller inputs. Continued manual braking to a full stop with the aircraft nose close to 45 degrees left of centerline with the aircraft fully blocking taxiway. We informed Tower of the rejected takeoff and that we required a tow back to the ramp. Suspected nose wheel steering malfunction

Synopsis

B777 Captain reported rejecting the takeoff and returning to the gate when the aircraft initiated a hard left turn early in the takeoff roll.

ACN: 1829214 *(39 of 50)*

Time / Day

Date : 202108
Local Time Of Day : 1201-1800

Place

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

Environment

Flight Conditions : VMC
Light : Daylight

Aircraft

Reference : X
ATC / Advisory.Tower : ZZZZ
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 / Delivery
Flight Phase : Descent
Route In Use : Vectors
Airspace.Class C : ZZZZ

Component : 1

Aircraft Component : FCC (Flight Control Computer)
Aircraft Reference : X
Problem : Malfunctioning

Component : 2

Aircraft Component : Flight Director
Aircraft Reference : X
Problem : Malfunctioning

Person

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 : 1829214
Human Factors : Troubleshooting
Human Factors : Time Pressure
Human Factors : Communication Breakdown

Human Factors : Situational Awareness
Communication Breakdown.Party1 : Flight Crew
Communication Breakdown.Party2 : Flight Crew

Events

Anomaly.Aircraft Equipment Problem : Critical
Anomaly.Deviation - Altitude : Excursion From Assigned Altitude
Anomaly.Deviation - Speed : All Types
Anomaly.Deviation - Track / Heading : All Types
Anomaly.Deviation / Discrepancy - Procedural : Published Material / Policy
Anomaly.Deviation / Discrepancy - Procedural : Maintenance
Anomaly.Deviation / Discrepancy - Procedural : FAR
Anomaly.Deviation / Discrepancy - Procedural : Clearance
Detector.Person : Flight Crew
Were Passengers Involved In Event : N
When Detected : In-flight
Result.General : Maintenance Action
Result.Flight Crew : Became Reoriented
Result.Flight Crew : Overcame Equipment Problem

Assessments

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

Narrative: 1

Descending through approx 12-13,000 feet for landing at ZZZZ, my FMS timed out as they occasionally do. Gave it a few moments to catch up and then selected the FMC1 prompt in the upper left hand corner of the FMC. Not only did it not reset, there was no standby option listed and I then noticed my First Officer's FMC had also lost all data. On a descent into ZZZZ at about 10,000 feet I decided it would be best if I assumed control of the airplane and we did a positive transfer of control. At about the same time I glanced over at the approach chart for ILS XXR went to the NAV page and manually entered the frequency and inbound course for ILS runway XXR. We had a Level 1 alert to set field altitude manually and I tasked that duty to my First Officer. I also said I had the radios at the time. I called ATC and informed them we had lost most of our normal navigation equipment, that we would be unable to proceed directly to any fix and that I would need vectors to join the runway XXR localizer. Passing 10,000 feet I would estimate we were approx 20-25 miles from the field. Several times the flight director was commanding directives that did not comply with our ATC directives so I was forced to turn it off as it was a distraction. The autothrottles also were not responding in an appropriate manner either and rather than trying to fight them I disconnected them as well. Conditions at the field were day VMC. On a vector and once cleared for the approach approach mode armed although I doubt it did any good I looked for the localizer to come alive and when it did I attempted to track it manually. There were a couple S turns as I was in real time having to adjust my scan away from looking for a flight director and towards just a localizer needle and a heading and trying to bracket it. Things became more stable as we continued down the localizer until we had the runway in sight still at many thousands of feet above the ground I transitioned to line up visually and then cross checking my localizer it showed right of course and I realized the piece of pavement many miles in front of me was the taxiway not the runway and shifted back to the left onto localizer at I would estimate

2,500-3,000 ft AGL. We probably should have asked for a visual approach at that time but we were too busy to even think of it. Now hand flying the airplane fully manually with no automation nor flight director assistance at around 2,000-2,500 feet I would estimate I leveled the airplane as the glide slope was approx 1 dot below us to join it. I did not even look at the approach plate to see were intercept altitude was as we were in visual conditions and I was too focused on maintaining manual aircraft control to be distracted looking away from the panel. ATC did ask us several times during the approach are you stabilized. We had the situation under control so I told me First Officer tell her yes. We were fully configured on glide slope and localizer with landing checklist complete by 1,000 feet AGL (actual more like 1,500-2,000 ft). There was a high speed foot on the airspeed indicator but no low speed foot. Based upon our landing weight and my prior experience in the airplane I flew the approach at 165 knots flaps 35. The approach and landing from 1000 feet AGL to touchdown was uneventful. This airplane had recent prior multiple flight control computer malfunctions that caused a prior crew to have a sudden pitch down moment according to the prior Captain. My goal was to get it on the ground as soon as it was safely possible and try to separate the automation from control of the aircraft to a reasonable extent. When we lost all our navigation data from both FMS so close to the airfield and with day VMC conditions at the field and my First Officer focusing on another checklist and given the recent history of this airplane, I decided the safest course was to revert back to old school flying and not waste time trying to manage the problem through running an extended Dual FMS Loss checklist and focus our efforts on getting the airplane on the ground. The prior day I witnessed two aircraft mechanics on this same jet in conflict over whether the airplane should be returned to service or not. One mechanic thought there was only 1 flight control computer having issues the other thought both computers were malfunctioning. One mechanic said the airplane was AOG to me 2 times. After that I went into the cockpit to observe their trouble shooting. One mechanic was simply trying to clear the fault in the CFDS (Centralized Fault Display System) the other wanted to know why and wanted more time to diagnose it. When one mechanic said to me the airplane is AOG a 3rd time I took the extraordinary step of calling the Duty Officer and telling him I was not crewing this airplane until the mechanics were given some time to troubleshoot and requested we be placed into rest. After minimum rest we came back to the jet and I spoke with the mechanic that was objecting to the return to service the previous night and he now seemed comfortable releasing the jet to fly. I personally witnessed one mechanic trying to pressure another to push the jet back on the line and I commend the mechanic who resisted. I don't know what happened after we left the airplane to then make him comfortable having it signed off, but I was told there would be 2 replacement flight control computers sent to this jet after I left it. Not sure if that actually occurred. I know we have a business to run but one of the mechanics told me at least one of the flight control computer issues was a repeat write up. Maybe we need to give more time and attention to issues that are repeatedly written up with a common problem source.

Synopsis

MD-11 Captain reported flight control computer issues during approach resulted in loss of all autoflight capability. Pilot also reported the aircraft had been previously refused due to flight control computer malfunctions.

ACN: 1828935 *(40 of 50)*

Time / Day

Date : 202107
Local Time Of Day : 1801-2400

Place

Locale Reference.Airport : ATL.Airport
State Reference : GA
Altitude.MSL.Single Value : 8000

Aircraft : 1

Reference : X
ATC / Advisory.TRACON : A80
Aircraft Operator : Air Carrier
Make Model Name : Regional Jet 200 ER/LR (CRJ200)
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Flight Phase : Initial Approach
Airspace.Class B : ATL

Aircraft : 2

Reference : Y
ATC / Advisory.TRACON : A80
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
Flight Phase : Initial Approach
Airspace.Class B : ATL

Person

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 : Instrument
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Multiengine
Experience.Flight Crew.Last 90 Days : 60
ASRS Report Number.Accession Number : 1828935
Analyst Callback : Attempted

Events

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

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

Assessments

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

Narrative: 1

[We] encountered two wake turbulence events while on the downwind at 8,000 feet with Atlanta approach control. First Officer maintained control of the aircraft on both occurrences. After the second sudden right roll we observed the large aircraft we were in trail of and now was below our altitude. We realized the roll was likely not associated with a shear event from the cell nearby. We notified ATC. I would not classify either event as a severe wake turbulence event. There was no "bank angle" aural. Perhaps ATC separation issue.

Synopsis

CRJ-200 Captain reported encountering wake turbulence on arrival into ATL in trail of a large transport.

ACN: 1827225 *(41 of 50)*

Time / Day

Date : 202107
Local Time Of Day : 1201-1800

Place

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

Environment

Light : Daylight

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 : Takeoff / Launch
Route In Use : Vectors
Airspace.Class A : ZZZ

Component : 1

Aircraft Component : Nose Gear Wheel
Aircraft Reference : X
Problem : Malfunctioning

Component : 2

Aircraft Component : Hydraulic Main System
Aircraft Reference : X
Problem : Malfunctioning

Person : 1

Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : Pilot Flying
Function.Flight Crew : Captain
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Instrument
Qualification.Flight Crew : Multiengine
Experience.Flight Crew.Last 90 Days : 182
ASRS Report Number.Accession Number : 1827225

Person : 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 : Multiengine
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Instrument
Experience.Flight Crew.Last 90 Days : 60
Experience.Flight Crew.Type : 2435
ASRS Report Number.Accession Number : 1826293

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Anomaly.Deviation / Discrepancy - Procedural : Published Material / Policy
Detector.Person : Flight Crew
Were Passengers Involved In Event : N
When Detected : In-flight
Result.General : Maintenance Action
Result.Flight Crew : Requested ATC Assistance / Clarification
Result.Flight Crew : Landed in Emergency Condition
Result.Air Traffic Control : Provided Assistance
Result.Aircraft : Aircraft Damaged

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

[There was a] nose gear tire issue followed by a loss of System A Hydraulics. We were flying Flight XXXX from ZZZ to ZZZ1 on (date). As we were rolling down the runway, we heard a loud bang from the nose gear area. It went away as quickly as it arrived, engine parameters were normal as well as directional control. After the takeoff, we talked about what it could have been. During the climb to our cruising altitude, we decided to call ZZZ Tower back and ask them to inspect Runway XR for any clues to what had happened during our takeoff roll. It took a while before we got an update from ZZZ Tower. They had found a two feet by two piece of rubber. We immediately contacted Dispatch and Maintenance, and we discussed various options. We were now in cruise and still bound for ZZZ1, when all of sudden the Number 1 Eng Hyd A LOW PRESSURE light started to come on and off a few times. We got the QRH Checklist and ran the HYDRAULIC PUMP LOW PRESSURE. I looked down on the instrument panel and noticed the System A Hydraulics quantity was down in the low 20's percent. We could watch that number was dropping fast. We now went quickly over to another chapter in the QRH, to LOSS OF SYSTEM A. We also [requested priority landing] with Center, and they immediately gave us direct to ZZZ1 airport. We determined that it was likely that a possibly piece of rubber had hit some of the Hydraulic lines. We quickly updated Dispatch about our loss of Hydraulic A quantity, and that we had [requested priority landing]. Dispatch gave us the Landing Distance information data, and we compared it to our own. We were all in agreement to continue and land in ZZZ1. We informed our Flight Attendants about our situation and what they could expect from our landing. We flew overhead ZZZ1 airport, and manually extended our landing gear per QRH. After completing all the steps in the QRH, we lined up with Runway XXL and landed. I immediately noticed the tiller was «locked» and unusable upon

landing, and had to use rudder and differential braking to get back on center line. Both NORM and ALT nose wheel steering where both unavailable. We elected to stop the aircraft on the runway, and asked the Fire Trucks to visually inspect the aircraft from the outside. After getting the OK from them, we had Company Maintenance meet us on the runway with a tug, and to tow us clear of the runway. We had just cleared [Runway] XXL when the tow bar snapped, and they had to get another one. Once we got the second one, we were towed over to Gate X where our passengers were able to deplane.

Narrative: 2

Departed ZZZ Runway XR. On takeoff roll, prior to rotation, a noise was heard similar to a hand slap on the front of the aircraft. Takeoff was continued with no adverse indications. As we continued to climb, the Captain and I assessed the probable cause of the noise. ZZZ Tower was advised of possible FOD on the runway. Before we were out of range of ZZZ Tower, we inquired for any findings of the FOD. Tower advised a piece of tire rubber was found on the runway. Still unsure whether the rubber was from our aircraft or a piece we hit on takeoff roll, we continued the assessment. Dispatch was brought into the loop and we all agreed to continue. As we continued to discuss the current situation, the #1 HYD LOW PRESSURE light illuminated and we ran the HYDRAULIC PUMP LOW PRESSURE QRH Checklist. SYSTEM A HYDRAULIC quantity was noted to be around 20 percent. SYSTEM A HYDRAULIC quantity continued to drop. LOSS OF SYSTEM A QRH Checklist was started. [After] reassessment of the loss of HYDRAULIC SYSTEM A and the noise heard at takeoff, [they] led us to believe that we had blown a tire which had damaged the hydraulics. A [priority landing was requested] with Center and direct ZZZ1 was issued. We continued discussions with Dispatch, as well as informed the Flight Attendants of our current conditions, plans and what to expect on arrival in ZZZ1. All went as planned with the completion of the LOSS OF SYSTEM A Checklist and landing on Runway XXL in ZZZ1. The only unexpected item on landing was no nose wheel steering on landing. Both NORM and ALT nose wheel steering was inoperative upon landing so we were unable to exit runway. CFR (Crash Fire Rescue) met the aircraft on the runway to assist. Aircraft was towed to the gate from the runway.

Synopsis

B737-700 flight crew reported hearing a loud bang from the nose gear area during the takeoff roll. In flight, the hydraulic system malfunctioned and the crew performed a manual gear extension prior to landing.

ACN: 1827224 *(42 of 50)*

Time / Day

Date : 202107
Local Time Of Day : 1201-1800

Place

Locale Reference.Airport : ZZZ.Airport
State Reference : US
Altitude.MSL.Single Value : 1500

Environment

Light : Dawn

Aircraft

Reference : X
ATC / Advisory.Tower : ZZZ
Aircraft Operator : Air Carrier
Make Model Name : B737-700
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Flight Phase : Takeoff / Launch
Airspace.Class B : ZZZ

Component

Aircraft Component : Wing Flight Control Surface
Aircraft Reference : X
Problem : Malfunctioning

Person

Location Of Person.Aircraft : X
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
Experience.Flight Crew.Last 90 Days : 164
Experience.Flight Crew.Type : 17600
ASRS Report Number.Accession Number : 1827224
Human Factors : Human-Machine Interface
Human Factors : Troubleshooting
Human Factors : Confusion

Events

Anomaly.Aircraft Equipment Problem : Critical
Anomaly.Deviation / Discrepancy - Procedural : Published Material / Policy
Detector.Person : Flight Crew
Result.Flight Crew : Overcame Equipment Problem

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

Departing Runway XXR at ZZZ over the shoreline at approximately 1,500 feet AGL, the Pilot Flying (PF) began a required turn to the left for heading of 210. The PF immediately verbalized a flight control abnormality stating that he is feeling resistance in the control wheel and that it couldn't be turned more than about half-scale deflection to the left, as if it was hitting the designed maximum stop. We continued the climb and the PF asked the Pilot Monitoring (PM) to take controls to see if the resistance was the same on both sides. The PM took the controls and agreed that the resistance was the same on both sides. Neither the PF nor the PM tried to force the control wheel beyond the point of resistance since the plane was still controllable in the normal range of operation up to 30 degrees angle of bank. The PM pulled out the QRH section 9.8 Jammed or Restricted Flight Controls. The PF continued to fly the SID as the PM ran the QRH and discussed the situation. The first thing we noticed about the QRH was that Step 4 required the use of Maximum Force to overpower a restricted system; however, this step did not seem to apply to us because the aircraft was controllable in the normal flight regime. This step introduced some doubt and confusion with the crew. We agreed that we didn't have a jam, but the maximum control deflection was restricted. Upon reaching Step 7, we had to decide whether the controls were normal or not normal. This step also introduced some confusion because we reasoned that since we both were able to make right and left turns under normal conditions up to 30 degrees angle of bank, the controls were for all intents and purposes normal. However, we still had the restriction, which gave us concern, and that full control wheel deflection was not normal. At this point, the crew decided to contact Maintenance and Dispatch on ARINC VHF radio and use all available resources to discuss the situation. The radios were very scratchy and there was a lot of feedback when the company keyed their microphones. All parties agreed that QRH 9.8 was the appropriate checklist for the situation, but the decision to continue or divert to the nearest suitable airport was still to be determined. As a crew, we felt that we were in a gray area between normal and not-normal flight controls but relayed to Maintenance that we felt comfortable continuing on to our destination. All parties agreed. En route, we continued to discuss the situation and it occurred to us that even though we could maneuver the plane normally, it was unknown whether an upset recovery might be diminished or not in the event of an encounter with wake turbulence, jet wash, or a rudder hard-over event. Such a condition might require Step 4 of the QRH to overpower the restriction with both Pilots. As a precaution, the crew asked ATC to keep the aircraft clear of potential wake turbulence due to restricted flight controls but that we were not declaring an emergency at this time. On final approach in full configuration, the PF experienced some ground convective turbulence and verbalized that he hit the resistance once during the approach as he was trying to counter the turbulence. This was unexpected, but the crew was able to land the aircraft safely.

Synopsis

B737-700 flight crew reported a flight control malfunction shortly after takeoff.

ACN: 1822078 *(43 of 50)*

Time / Day

Date : 202107
Local Time Of Day : 1201-1800

Place

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

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 : Descent
Route In Use : Vectors
Airspace.Class B : ZZZ

Component

Aircraft Component : Horizontal Stabilizer Trim
Aircraft Reference : X
Problem : Malfunctioning

Person

Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : Pilot Not Flying
Qualification.Flight Crew : Instrument
Qualification.Flight Crew : Multiengine
Qualification.Flight Crew : Air Transport Pilot (ATP)
ASRS Report Number.Accession Number : 1822078

Events

Anomaly.Aircraft Equipment Problem : Critical
Anomaly.Deviation / Discrepancy - Procedural : Published Material / Policy
Detector.Person : Flight Crew
Were Passengers Involved In Event : N
When Detected : In-flight
Result.General : Flight Cancelled / Delayed

Result.General : Maintenance Action
Result.Flight Crew : Overcame Equipment Problem

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

Upon receiving approach clearance for the ZZZZZ XX Approach, [the] FO (First Officer) disengaged autopilot and began [a] gradual descent on approach while configuring to Flaps 20 and slowing to 170 kt. As I read back approach clearance to ATC, we crossed ZZZZZ1 and I heard the trim clacker activate. I thought that this was [the] FO adjusting to nose down trim as we were descending and configuring. After a few seconds, I asked if he was commanding the abnormally long trim down and he replied that he wasn't. The trim then stopped and appeared to remain stable. It then started a nose-up motion uncommanded. I verified that [the] FO did not inadvertently have his finger on the trim switch, and I [was] certain that mine was not. I then realized that this appeared to be a stab trim malfunction and went through and verbalized the immediate action items. Upon successfully disconnecting the stab and Mach trim, I asked [the] FO if he needed assistance in adding extra pressure on the controls and he informed me that they felt fine, just marginally heavier than normal. I elected to continue the approach as the uncommanded action was no longer occurring and I determined that an approach to landing would have been the safer, more stable option over quickly changing configuration and executing a go-around in a nose-down trim. We continued and landed without further incident. I sent Dispatch a text informing them of the event, and contacted Maintenance Control following entering a discrepancy in the aircraft maintenance logbook.

Synopsis

CRJ-700 Captain reported a trim malfunction on descent and followed QRH procedures to land successfully.

ACN: 1821671 *(44 of 50)*

Time / Day

Date : 202107
Local Time Of Day : 0601-1200

Place

Locale Reference.ATC Facility : ZTL.ARTCC
State Reference : GA
Altitude.MSL.Single Value : 30000

Aircraft : 1

Reference : X
ATC / Advisory.Center : ZTL
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 : Descent
Airspace.Class A : ZTL

Aircraft : 2

Reference : Y
ATC / Advisory.Center : ZTL
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 : Descent
Airspace.Class A : ZTL

Aircraft : 3

Reference : Z
ATC / Advisory.Center : ZTL
Make Model Name : B787 Dreamliner Undifferentiated or Other Model
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Flight Phase : Descent
Airspace.Class A : ZTL

Person

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

Qualification.Flight Crew : Multiengine
Experience.Flight Crew.Last 90 Days : 150
ASRS Report Number.Accession Number : 1821671
Analyst Callback : Completed

Events

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

Assessments

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

Narrative: 1

We experienced the wake turbulence encounter on the descent through FL300, initial uncommanded roll 15 to 20 deg left followed by 25 to 30 deg to the right, rolled out and escaped from the encounter. We asked Center what type of aircraft we were flying behind. The reply was a Boeing 757, which we had on screen TCAS at about 10 miles ahead of us. However there was another aircraft farther ahead of the 757 that we could also see on screen. The Center Controller allowed us to take a heading off course to remain clear of the threat. However we ran into the wake again in the vicinity of GLAVN, and was not as much of a problem during that encounter. and I thought it was strange I have never had a 757 wake encounter roll the aircraft like that. Shortly after we were on approach control into Atlanta airport we discovered that the 757 was what appeared to be slightly less than 10 miles in trail of a heavy B787. I find it unusual to be in that type of upset due to 757 wake turbulence. We followed them all the time. I think it could be possible that the 757 was so close to the preceding aircraft that the heavy aircraft's wake was not a problem for the 757, but became one for us. Given the current conditions the winds were pushing the wake in our direction [so] obviously more spacing would've helped. I don't mind a vector off course. I would greatly appreciate more spacing behind heavier aircraft.

Callback: 1

Reporter stated he was surprised at the intensity of the wake from the preceding B757.

Synopsis

CRJ-900 Captain reported encountering wake turbulence on descent into ATL in trail of a B757, which was following of a Heavy B787.

ACN: 1821354 *(45 of 50)*

Time / Day

Date : 202107
Local Time Of Day : 0601-1200

Place

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

Environment

Flight Conditions : IMC
Light : Dawn

Aircraft

Reference : X
Aircraft Operator : Air Carrier
Make Model Name : MD-11
Crew Size.Number Of Crew : 3
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Cargo / Freight / Delivery
Flight Phase : Climb
Flight Phase : Initial Climb
Route In Use : Vectors
Airspace.Class B : ZZZ

Component : 1

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

Component : 2

Aircraft Component : Leading Edge Slat
Aircraft Reference : X
Problem : Malfunctioning

Person : 1

Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : Pilot Flying
Function.Flight Crew : Captain
Qualification.Flight Crew : Multiengine
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Instrument
ASRS Report Number.Accession Number : 1821354
Human Factors : Troubleshooting
Human Factors : Situational Awareness
Human Factors : Communication Breakdown

Human Factors : Distraction
Communication Breakdown.Party1 : Flight Crew
Communication Breakdown.Party2 : Flight Crew

Person : 2

Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : Relief Pilot
Function.Flight Crew : First Officer
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Instrument
Qualification.Flight Crew : Multiengine
ASRS Report Number.Accession Number : 1821353
Human Factors : Communication Breakdown
Human Factors : Distraction
Human Factors : Troubleshooting
Communication Breakdown.Party1 : Flight Crew
Communication Breakdown.Party2 : Flight Crew

Events

Anomaly.Aircraft Equipment Problem : Critical
Anomaly.Deviation - Speed : All Types
Anomaly.Deviation / Discrepancy - Procedural : Published Material / Policy
Anomaly.Deviation / Discrepancy - Procedural : FAR
Anomaly.Deviation / Discrepancy - Procedural : Clearance
Anomaly.Deviation / Discrepancy - Procedural : Weight And Balance
Anomaly.Inflight Event / Encounter : Loss Of Aircraft Control
Anomaly.Inflight Event / Encounter : Fuel Issue
Detector.Person : Flight Crew
Were Passengers Involved In Event : N
When Detected : In-flight
Result.Flight Crew : Regained Aircraft Control
Result.Flight Crew : Overcame Equipment Problem
Result.Flight Crew : Became Reoriented

Assessments

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

Narrative: 1

During an 18-hour duty day with multiple discrepancies, write-ups, MEL's, a rejected takeoff, a turnback to the gate, and other issues, we departed Runway XXL at ZZZ for the ZZZZZ RNAV departure. We had just finished 5 hours on the ground dealing with a hydraulic 3 elevator shutoff valve and inoperative 3-2 non-reversible motor pump, and had briefed the possibility of an associated flight control problem on departure. During the initial climb, we were instructed to maintain 250 kts and acknowledged. Our speed did not require a high-speed climb. Repeatedly during this event (prior to slat retraction, and intermittently all the way to final cruise altitude), we got am amber-boxed engine 1

compressor vibration indication, averaging 4.5 units of vibration. This required retarding power on engine 1 (up to one knob-width, and up to 7-10% N1 reduction), to bring the vibration out of the amber range. When reaching 3,000 feet and just beyond ZZZZZ1 on the ZZZZZ, we began the clean-up process on schedule, and upon slat retraction, the airplane rolled left. I countered with considerable right aileron. The strong rolling moment occurred coincident with slat retraction. Shortly after, we got a master caution and two level 1 EAD messages (SEL LSAS LOB OFF, SEL LSAS RIB OFF), for which I called for the [Relief Pilot] and FO (First Officer) to address and confirm before selecting off. As that occurred, we got a caution light with a lateral fuel imbalance (LAT FUEL UNBAL), which occurred three more times (four total), along with a 2,000 kg drop in fuel quantity (repeat write-up). While focused on the control issue, I allowed airspeed to increase briefly above the 250 kts limit, estimated to be 270 kts, before decreasing speed again to maintain 250 kts to 10,000 feet ATC did not mention the overspeed, but the [Relief Pilot] did call "airspeed." The ZZZZZ departure includes a restriction to remain below 3,000 until ZZZZZ1, then a climb to 15,000 or above, by ZZZZZ. My priority was addressing the control issue, but adjusted pitch per the flight director to return to 250 kts. No further variations from the speed schedule occurred during the remainder of the climb, or flight. Additional distractions occurring in series (except the engine vibration indication, which occurred intermittently throughout the event), one after the other, did not cause the airspeed excursion, but certainly worked to divert attention, and increase cockpit workload. I became aware of the amber boxed vibration indication about the time we entered the 1100 ft. ceiling, departing ZZZ. I became aware of the rolling moment immediately upon slat retraction, and the airspeed excursion upon the "airspeed" call by the [Relief Pilot]. I did note the pitch attitude below that commanded by the flight director, and noted speed increasing, but the intent was to increase airspeed through slat retract speed to 250, and I focused on the immediate concern, the rolling moment. I did not notice the speed exceed 250 until the [Relief Pilot] brought it to the crew attention with the "airspeed" call. At that time, I observed approximately 270 on the airspeed indication, and increased pitch to the flight director pitch bar to reduce speed. The FO was occupied retracting slats, and performing the follow-up flow associated with my call, "slats retract, after takeoff checklist." Aside from being distracted by the rolling moment, the illumination of the amber compressor vibration indication on engine 1, subsequent LSAS failure, and fuel imbalance were contributing errors to detection, and detection was voiced by the [Relief Pilot]. I became aware of the LSAS issue, and the lateral fuel imbalance issues, with illumination of the master caution light. The LSAS issue caused loss of autopilot 2. I delayed autopilot engagement until the series of issues were addressed, given that they included flight control and subsequent autopilot engagement problems. Once those were addressed and we were outside the busier airspace, the enroute climb and remainder of the flight until descent, were largely uneventful, except for continued monitoring and adjusting of engine 1 throttle position to prevent high compressor vibration. The period of time between detection of the event and the filing of this report is accounted by the end of a long duty day, the necessity of filing another report on the previous leg rejected takeoff in ZZZ1, and then flying home. We had briefed the possibility of a flight control problem, given the return to the gate for the system 3 Hydraulic elevator shutoff valve, and associated 3-2 non-reversible motor pump. The fix on the ramp had been to add another two gallons of fluid to system three, with the explanation that "maybe the gauge is just reading high." I did not find that explanation satisfactory, but following an engine run in which the problem did not reoccur, maintenance was satisfied, the write-up was signed off, and we departed. About the time we entered the cloud layer, the amber-boxed engine 1 compressor vibration alert illuminated, and power was reduced on engine 1 slightly (up to one knob width) to reduce the vibration indication. This indication came and went, as we climbed, necessitating further slight reductions in power. The flight control problem which occurred after departure (strong left rolling moment, coincident with slat retraction)

did not match the potential problem (possible elevator shutoff valve actuation and NRMP malfunction), but did merit attention, during which time I let the airspeed slip. I focused on leveling the wings and reduced angle of attack. I should have maintained pitch with the flight director, but divided the task of roll and pitch to prioritize directional control, while addressing the uncommanded rolling moment. Additional subsequent illumination of the master caution with the LSAS failure, and the lateral fuel imbalance level 2 warning and master caution illumination, were peripheral distractions, as was the engine vibration issue. I was hand flying at the time, and believe it was better to be hand-flying with the potential to feel a problem, than have it masked by the autopilot. Had the autopilot been flying, the speed excursion would likely not have occurred, but we may not have seen or felt the rolling moment as much, if at all. I did feel a shift in the controls when the LSAS was selected off, but couldn't say afterward exactly what I'd felt. In retrospect, the best course would have been to focus on the flight director while addressing the roll. The natural tendency when experiencing that event (rolling moment), for me, was to decrease angle of attack slightly, which I did, which resulted in the excess speed as we accelerated while cleaning up. The rolling moment was caused, I am certain, by asymmetric slat retraction; the degree of asymmetry I couldn't say, but it was significant in feel and the amount of aileron deflection needed to counter the roll. There was no buffet. It was significant enough that on arrival in the ZZZ2 area, we briefed the possibility of the same event when extending slats, and I hand flew the descent and arrival, configuring slats early. A rolling moment did occur, but not to the same degree as departing ZZZ. (We also experienced a strong rolling motion that resulted in heading change, with autopilot engaged, when deploying speed brakes, and observed speed brake asymmetry on the configuration synoptic page, and determined not to use speed brakes further on the subsequent ZZZ2 arrival). These aircraft discrepancies, while important, should not have detracted from the basic task of flying the airplane, or maintaining the assigned/required 250 kts. on departure from ZZZ. Additionally, the subsequent illumination of the master caution light several times with LSAS failure and lateral fuel imbalance issues served as peripheral distractions. The tendency for engine 1 compressor vibration to show high with amber-boxed indication, repeatedly, and to require the engine power to be retarded repeatedly, was also a distraction. Retarding power on the no. 1 engine further caused a slight yawing motion, and subsequent potential rolling moment. Flying all night and then a five hours of trouble shooting on the ramp in a hot airplane didn't help, prior to this takeoff. My reaction to the high compressor vibration indication on engine 1 was to retard the No. 1 throttle slightly; the problem was known and a recurring one which had become a repeat write-up. My reaction to the "airspeed" call was to note the speed and increase pitch to the flight director pitch bar, after observing airspeed in excess of 250 kts. I followed the flight director command while re-acquiring and holding 250 kts, and flying the departure. My reaction to the subsequent master caution illumination was to direct the First Officer and [Relief Pilot] to work together, specifically on the LSAS issue, because with one FCC affected, I wanted confirmation on selecting the correct switches off. The lateral fuel level 2 warning was familiar, as it keeps happening and keeps being written up on this airplane. On arrival, I wrote it up again. The engine vibration was a repeat write-up that was squawked multiple times, and was subsequently written up again on arrival in ZZZ2. On arrival in ZZZ2, the [Relief Pilot] asked if I thought we should file an report, and I advised that yes, I thought it prudent. I advised the crew to file what they saw, individually. After that, I was occupied discussing multiple discrepancies and write-ups with Maintenance, and with the incoming crew as they arrived. It was a very long night and day, and a full duty day. We had a rejected takeoff, ATC directed, at ZZZ1 on the first leg, and I had to write a report for that, after arriving at the hotel. I made that report, and the next day flew home, where I slept for an extended period. This report is submitted outside the 24-hour window, when I had rested adequately to be awake to write it. I did write up the flight control issues, to be addressed by Company Maintenance Personnel. My

actions were my own, and my responsibility. I was the Pilot Flying, and the Captain, and I was hand flying, and regardless of distractions, should not have allowed the airspeed excursion to occur. That said, we should not be seeing so many discrepancies and issues, especially on one flight (let alone one phase of flight simultaneously or subsequently in close succession, and especially not items which have been written up multiple times). These issues ranged from multiple flight control issues to fuel system indications and issues, engine vibration, and even a TCAS fail during the initial climb. The subsequent issues that occurred on the flight including multiple items that were repeat write ups, including a level 2 fuel lateral fuel imbalance several times during the departure. The LSAS failure is also a repeat write-up. I do not include these as excuses for failing to maintain the airspeed at 250 kts, as that was my responsibility, but these are certainly things which do not need to be happening on every flight, as a regular part of flight operations, and this can be fixed. So far as preventing this specific event from occurring again, my counsel is to point my finger at myself and what I would say to anyone else: "fly the damn airplane." I need look no farther than myself as the reason for failing to maintain 250 kts as cleared, and as required by the regulation, and as the captain, the buck stops with me. We can prevent it, in my cockpit, by my not allowing it to occur again. The question will arise why the autopilot was not engaged earlier in the series of events. I had briefed a hand-flown departure. The engine vibration, while a distraction, did not rise to the level of needing automated intervention, and was familiar, having occurred previously and been a repeat write-up. The rolling moment was not something I wanted masked by engaging the autopilot, and the LSAS failure on the heels of the slat retraction impacted autopilot use. At that point we were above the marine layer and climbing in the clear, flight control was good, speed restored, and the problems in hand between the FO and [Relief Pilot]. None of the events warranted a return to land at ZZZ3, and we continued the climb away from busier airspace. We were light enough that the power reduction on engine 1 did not hinder our ability to eventually reach FL390, though with each step climb, reduced power on engine 1 was required, due to compressor vibration indications. I did not see secondary engine instrument indications suggesting a complication or a return, and the indications matched what has been seen on previously flights, written up, and signed off each time. Transitioning to automation was neither necessary, nor in my opinion, the right choice at the time of occurrence, and the airspeed overage was simply due to my momentary focus on the rolling moment. The issue of this report is the airspeed above 250, and the other events discussed are peripheral, to establish the setting.

Narrative: 2

After getting handed off to approach ATC instructed us to limit our speed to 250 kts. However because of multiple issues going on and the flight deck our speed had increased to 300 kts. Once I called airspeed the Captain and then proceeded to reduce the speed to 250. Use auto pilot in airspace in which is busy and cockpit work load is heavy. Have a proper scan and use auto pilot when workload is heavy.

Synopsis

MD11 flight crew reported multiple systems failures that required attention and distracted them, resulting in exceeding an airspeed limitation.

ACN: 1820448 *(46 of 50)*

Time / Day

Date : 202107
Local Time Of Day : 1801-2400

Place

Locale Reference.Airport : ZZZZ.Airport
State Reference : FO
Altitude.MSL.Single Value : 2600

Environment

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

Aircraft

Reference : X
ATC / Advisory.Center : ZZZZ
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 / Delivery
Flight Phase : Descent

Component

Aircraft Component : Stall Protection System
Aircraft Reference : X
Problem : Malfunctioning

Person

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 : Multiengine
Qualification.Flight Crew : Instrument
Qualification.Flight Crew : Air Transport Pilot (ATP)
ASRS Report Number.Accession Number : 1820448

Events

Anomaly.Aircraft Equipment Problem : Critical
Anomaly.Deviation - Altitude : Excursion From Assigned Altitude
Anomaly.Deviation - Track / Heading : All Types
Anomaly.Deviation / Discrepancy - Procedural : Published Material / Policy
Anomaly.Deviation / Discrepancy - Procedural : Clearance

Anomaly.Inflight Event / Encounter : Unstabilized Approach
Anomaly.Inflight Event / Encounter : Weather / Turbulence
Detector.Person : Flight Crew
Were Passengers Involved In Event : N
When Detected : In-flight
Result.General : Maintenance Action
Result.General : Flight Cancelled / Delayed
Result.Flight Crew : Overcame Equipment Problem
Result.Flight Crew : Landed in Emergency Condition
Result.Flight Crew : Requested ATC Assistance / Clarification
Result.Air Traffic Control : Provided Assistance

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

Requested priority for flight control malfunction on descent into ZZZZ. For approximately 5 minutes I was unable to comply with assigned altitude and course while regaining control of the aircraft. We received 3-4 "STAB OUT OF TRIM Level 2" alerts. Alert would be presented for 15-20 seconds, disappear, then return after a minute or two. Reviewed stab out of trim level 2 in QRH. Late in the descent, roughly simultaneously, AP1 (Autopilot 1) failed to capture final approach altitude of 2,600 feet, descending and FO (First Officer) reported LSAS (Longitudinal Stability Augmentation System) "ALL FAIL" alert, which I was unable to confirm as I was simultaneously manually arresting the uncommanded descent, close to ground, IFR, night in moderate turbulence and rain, slow, configure, determine what if any stab trim was available, and navigate the aircraft to final. Disconnected AP, slowed and configured the aircraft with FCP speed commands and the pedestal long trim handles. Flew the rest of the ILS XXL manually in approach/ land. Stopped on taxiway for inspection by fire personnel, nothing noted, taxi to gate.

Synopsis

Captain reported an LSAS system failure caused control issues on descent and approach to landing resulting in a precautionary landing.

ACN: 1817242 *(47 of 50)*

Time / Day

Date : 202106
Local Time Of Day : 1201-1800

Place

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

Aircraft

Reference : X
ATC / Advisory.Tower : ORD
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 : Landing
Airspace.Class B : ORD

Person : 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 : Instrument
Qualification.Flight Crew : Multiengine
ASRS Report Number.Accession Number : 1817242
Human Factors : Other / Unknown

Person : 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)
Qualification.Flight Crew : Instrument
Qualification.Flight Crew : Multiengine
ASRS Report Number.Accession Number : 1817212
Human Factors : Other / Unknown

Events

Anomaly.ATC Issue : All Types
Anomaly.Ground Event / Encounter : Jet Blast
Anomaly.Inflight Event / Encounter : Other / Unknown

Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Regained Aircraft Control

Assessments

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

Narrative: 1

On approach into [Runway] [27C] in Chicago it was by all accounts a normal day. A storm had passed about 2 hours prior giving way to the benign conditions usually experienced after the passing of a storm. The wind was hardly noticeable I had nearly no crosswind correction in on the approach. As we approached the final approach fix Tower cleared a 777 to cross our landing runway. We continued, the aircraft was fully across the runway by the time we reached 1,000 feet AGL and parked on Taxiway TT. I assume he was waiting for a clearance from Ground to continue further. We continued on the approach and right as I was bringing the thrust levers back to idle a sudden jolt of firm left aileron and right rudder were needed to continue a safe ground track and land the aircraft. I am not sure exactly what bank angle was achieved but the proximity to the ground made it seem like quite a lot. My guess is around 10-12 degrees of bank at 10 feet off the ground. Some comments from passengers sounding the alarm that things where not correct when they got off the airplane make me think things where perhaps worse than I know due to the speed at which this all happened. The incident all happened approximately 10 ft AGL. Due to the suddenness and nature of the incident the best course of action was to land the aircraft. I had plenty of runway available to safely execute a full stop landing. Had the event happened at say 50 or 100 feet, a go-around would have certainly been necessary. The landing overall was completed without further incident. We taxied to gate, deplaned. And other than a few comments from Flight Attendants and passengers it was a normal operation. The cause of this sudden change and necessity for rudder and aileron was due to the 777 parked on Taxiway TT attempting to taxi right as I was landing. He was headed out for takeoff so I assume he was all loaded up and needed a lot of thrust to get moving. This is what caused such a dramatic necessity for correction very close to the ground. I hope out of this pilots and Controllers are made aware of the possibility of incidents like this in the future if we're not operationally prepared in some way. The cause of the event was the new taxi procedures and runway configuration due to the addition of 27C in Chicago. When cargo carriers taxi on TT they're putting anyone landing at risk of jet blast. At least a note could be added to our company pages alerting pilots about the possibility of this happening. But maybe even a change in how Chicago does taxi operations.

Narrative: 2

There is a significant safety threat to aircraft landing on Runway 27C in ORD, due to jet blast from aircraft crossing 27C on taxiway TT. This taxiway is approximately 1,100 - 1,200 feet from the departure end, so it is perfectly situated to impact aircraft in the landing flare. To make matters worse, aircraft that cross 27C are instructed to contact Ground on TT and are therefore not on frequency when given an instruction to continue their taxi. In this particular case, a 777 had crossed 27C, then stopped on TT, presumably awaiting further taxi instructions from Ground. They were not on our frequency. At under 10 feet we were hit with a really bad amount of jet blast from the 777. The First Officer did a fantastic job of getting the roll event back under control for a safe touchdown. We advised Tower of the event. Something with regard to the above needs to change. Either,

aircraft should cross somewhere else; Controllers should advise aircraft crossing 27C at TT to use minimal power when resuming taxi; Controllers advise pilots of the jet blast potential, or at the very least, there should be a note on a chart.

Synopsis

B737 flight crew reported encountering jet blast from B777 on Taxiway TT while landing on ORD RWY 27C.

ACN: 1812451 *(48 of 50)*

Time / Day

Date : 202106
Local Time Of Day : 1201-1800

Place

Locale Reference.ATC Facility : ZZZ.TRACON
State Reference : US
Altitude.MSL.Single Value : 4000

Environment

Flight Conditions : VMC
Light : Daylight

Aircraft

Reference : X
ATC / Advisory.TRACON : 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
Flight Phase : Initial Climb
Route In Use : Vectors
Airspace.Class E : ZZZ

Component

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

Person : 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 : Multiengine
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Instrument
Experience.Flight Crew.Total : 1300
Experience.Flight Crew.Last 90 Days : 50
Experience.Flight Crew.Type : 20
ASRS Report Number.Accession Number : 1812451

Person : 2

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)
Qualification.Flight Crew : Multiengine
Qualification.Flight Crew : Instrument
Experience.Flight Crew.Total : 4750
Experience.Flight Crew.Last 90 Days : 121
Experience.Flight Crew.Type : 2246
ASRS Report Number.Accession Number : 1812455

Events

Anomaly.Aircraft Equipment Problem : Critical
Anomaly.Deviation / Discrepancy - Procedural : Published Material / Policy
Detector.Person : Flight Crew
Were Passengers Involved In Event : N
When Detected : In-flight
Result.General : Flight Cancelled / Delayed
Result.General : Maintenance Action
Result.Flight Crew : Inflight Shutdown
Result.Flight Crew : Returned To Departure Airport
Result.Flight Crew : Returned To Gate
Result.Flight Crew : Requested ATC Assistance / Clarification
Result.Air Traffic Control : Provided Assistance
Result.Aircraft : Aircraft Damaged

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

During initial climbout, I was the pilot flying. We were flying runway heading off of [Runway] XX to 4,000 feet as assigned. We had not yet received our clearance to climb higher. I began to reduce power and pitch in order to level off at 4,000. At 3,500 feet, and speed 240 KIAS, we were instructed to climb and maintain 10,000 MSL. I then smoothly added thrust and adjusted pitch to continue climbing utilizing FLC. Once I increased thrust, there was a loud bang, followed by the engine indications and crew alerting system indicating engine # 1 was out. Additionally, a yawing tendency towards the INOP engine. Once identified by both pilots, controls were transferred to the Captain and I assumed PM duties. Normal checklists were complete, ATC and company was notified and the QRH procedure for engine out was accomplished. Engine fluid levels were normal, and the engine was shut down, which did not require the pulling of the #1 fire extinguishing handle. Once concluded a restart was not advised after discussion, due to the loud bang and sudden shutdown, we then were directed by the QRH to execute one engine inoperative approach and landing. The FA was notified and provided a [crew] brief, followed by the passenger announcement. We then coordinated with ATC for radar vectors for the visual, backed up by the RNAV XX in ZZZ. Once landed, we stopped on the runway, had the engine inspected by the ZZZ fire department. Verification was made that there was no fire, fluid leakage and we then taxied off the runway and parked at [the] gate for

deplaning. Loud bang, aircraft yaw and EICAS indications by both pilots leading to the engine out procedure. Cause is still to be determined, from the initial inspection, the mechanical issue caused small metal fragments found in the compressor blades. After identifying the issue, we transferred flight controls, had a brief discussion and executed the pertinent QRH procedures for engine failure and a single engine approach and landing. No suggestions to report at this time.

Narrative: 2

We were climbing out of ZZZ of Runway XX on runway heading and were just about to level off at 4,000 ft so the FO (PF) reduced thrust. Just before we leveled off we were given a continued climb up to 10,000 ft. While reintroducing thrust at 4,000 ft we heard a loud bang followed by aircraft yaw. I immediately looked at the EICAS and saw an abrupt stop in the #1 engine. I called for my Aircraft. The First Officer and I briefly discussed the situation then promptly ran the QRH for Engine OUT. The engine was shut down and our fluid levels (hydraulic/oil) looked normal so we decided against pulling the fire extinguishing handle. We discussed the possibility of restarting the engine but decided against it because of the loud bang we had heard followed by the abrupt shutdown of the engine. We were then led to [procedure] and proceeded to get set up for the Single engine approach. After finishing talking to the passengers, flight attendant and sending a message to dispatch we completed all other normal checklists. We then executed the visual approach backed up by RNAV RWY XX into ZZZ without any further event. We landed and had the fire department check out our engine for signs of smoke, fire, or fluid leak and then proceeded to the gate. The first indication of the Engine failure was a loud bang followed by aircraft yaw. We then looked at the EICAS and saw the indications of a #1 engine failure. We were not given a definitive cause for the failure. It seems to have been a mechanical issue inside the Engine. Upon inspection after landing chunks of metal were found inside the compressor blades. After noticing the event. We transferred flight controls then briefly discussed our situation and decided to run the checklist for Engine Failure in the QRH .

Synopsis

EMB-145 flight crew reported an engine failure on takeoff resulting in an air turn back and a precautionary landing.

ACN: 1805782 *(49 of 50)*

Time / Day

Date : 202105
Local Time Of Day : 1201-1800

Place

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

Aircraft

Reference : X
ATC / Advisory.Center : 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
Mission : Passenger
Flight Phase : Cruise
Airspace.Class E : ZZZ

Component

Aircraft Component : Flap/Slat Control System
Aircraft Reference : X
Problem : Malfunctioning

Person

Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : Captain
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Instrument
Qualification.Flight Crew : Multiengine
Experience.Flight Crew.Last 90 Days : 108
ASRS Report Number.Accession Number : 1805782

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Anomaly.Deviation - Altitude : Excursion From Assigned Altitude
Detector.Automation : Aircraft Other Automation
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.Flight Crew : Overcame Equipment Problem

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

Enroute to ZZZ1 at 12,000 and 300 kts with AP on, I saw the flap indicator appear on ED1 and momentarily display flaps extended before returning to zero. Approx 1-2 seconds later, the aircraft pitched nose down slightly and descended about 200 feet before leveling off and returning to our assigned altitude. We notified Dispatch and Maintenance, and decided that the best course of action would be an air return to ZZZ. We flew back to ZZZ and landed without further incident. Cause - The FO and I initially both suspected a momentary uncommanded flap movement due to the indication and the pitch down moment we experienced. We discussed the situation with Operations and they requested we return to ZZZ, a decision that we agreed with. Later discussions with Maintenance brought up the possibility that an erroneous sensor indication may have caused the auto trim system to trim the aircraft nose down.

Synopsis

CRJ-200 Captain reported a flap indication issue followed by an uncommanded pitch down movement. The crew contacted Dispatch and Maintenance Control and decided to return to the departure airport.

ACN: 1802901 *(50 of 50)*

Time / Day

Date : 202104
Local Time Of Day : 0601-1200

Place

Locale Reference.Airport : ZZZ.Airport
State Reference : US
Altitude.MSL.Single Value : 7600

Environment

Flight Conditions : VMC

Aircraft

Reference : X
ATC / Advisory.TRACON : 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 : Takeoff / Launch
Flight Phase : Initial Approach
Route In Use : Visual Approach
Airspace.Class E : ZZZ

Component

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

Person

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 : 1802901
Human Factors : Troubleshooting
Human Factors : Human-Machine Interface

Events

Anomaly.Aircraft Equipment Problem : Critical
Anomaly.Deviation - Altitude : Excursion From Assigned Altitude
Anomaly.Deviation / Discrepancy - Procedural : Clearance
Anomaly.Deviation / Discrepancy - Procedural : Published Material / Policy
Detector.Person : Flight Crew
When Detected : In-flight
Result.General : Maintenance Action
Result.Flight Crew : Overrode Automation
Result.Flight Crew : Overcame Equipment Problem
Result.Flight Crew : Returned To Clearance
Result.Flight Crew : Regained Aircraft Control

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

During departure and approach phases, FMS switched to ROLL-GA (Go Around) modes without pilot command. On takeoff from ZZZ, performing the ZZZZZ1 departure from runway XX in HDG (heading) mode, PF (Pilot Flying) called for and PM (Pilot Monitoring) confirmed PITCH mode at acceleration altitude. PM also selected and confirmed E CLB (climb), as had been briefed prior to takeoff. While in the turn to heading XXX to intercept ZZZ RXXX to ZZZZZ, the FMS spontaneously and uncommanded switched to ROLL-GA modes. PF was hand flying, recognized the mode switch, and was able to disregard the flight director's direction. PM re-sequenced FMS for ZZZ - ZZZZZ leg and selected CLB thrust and HDG, PITCH modes with LNAV selected for course interception. After course intercept, autopilot was engaged. FMS performed nominally until ZZZ1 terminal area. Cleared from base leg for descent to 7000', given vector to intercept localizer for ILS XXR, and cleared for visual approach, PF selected VS mode to begin descent and assigned heading in HDG mode with LNAV pre-selected for intercept. Autopilot was engaged. Again, spontaneously and uncommanded, FMS switched to ROLL-GA modes. Autopilot initiated climb. PF recognized the malfunction, switched off the autopilot, arrested climb, re-trimmed, and hand flew approach to landing. PM selected CRUISE thrust. (GA mode climbed aircraft from about 7400' MSL to about 7600' MSL before recovery and pilot resumption of descent.) PM attempted several times to re-sequence approach in FMS; FMS kept returning to ROLL-GA mode. Additionally, attempts to turn off distracting Flight Director and use raw green needle LOC/GS data for visual approach were unsuccessful. PF landed visually. After arrival at gate and aircraft shutdown, malfunction was entered into maintenance logbook and Maintenance control was contacted.

Synopsis

EMB XRJ-145 Captain reported auto flight system malfunctioned during departure and arrival phase by uncommanded reversion to Roll-Go Around mode.