ACN: 1590012

Time / Day

Date : 201810
Local Time Of Day : 0001-0600

Place

Locale Reference.Airport : ZZZ.Airport
State Reference : US
Altitude.AGL.Single Value : 1000

Environment

Light : Daylight

Aircraft

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

Component

Aircraft Component : Autothrottle/Speed Control
Aircraft Reference : X
Problem : Improperly Operated

Person

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : Pilot Flying
Function.Flight Crew : Captain
Qualification.Flight Crew : Multiengine
Qualification.Flight Crew : Instrument
Qualification.Flight Crew : Air Transport Pilot (ATP)
Experience.Flight Crew.Last 90 Days : 419
ASRS Report Number.Accession Number : 1590012
Human Factors : Confusion

Events

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

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

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

After 1000 feet I noticed a decrease in aircraft performance. I picked up that the autothrottles were not moving to commanded position even though they were engaged. I'm sure they were set properly for takeoff but not sure when the discrepancy took place. My scan wasn't as well developed since I've only flown the MAX once before. I manually positioned the thrust levers ASAP. This resolved the threat, we were able to increase speed to clean up and continue the climb to 3000 feet.

Shortly afterwards I heard about the (other carrier) accident and am wondering if any other crews have experienced similar incidents with the autothrottle system on the MAX? Or I may have made a possible flying mistake which is more likely. The FO (First Officer) was still on his first month and was not able to identify whether it was the aircraft or me that was in error.

Synopsis

B737-MAX8 Captain reported the autothrottles failed to move to the commanded position during takeoff and climb.

ACN: 1593017

Time / Day

Date : 201811

Place

Altitude.AGL.Single Value : 0

Aircraft

Reference : X
Aircraft Operator : Air Carrier
Make Model Name : B737 Next Generation Undifferentiated
Flight Phase.Other

Person

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : Captain
Qualification.Flight Crew : Air Transport Pilot (ATP)
ASRS Report Number.Accession Number : 1593017
Human Factors : Confusion
Human Factors : Training / Qualification

Events

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

Assessments

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

Narrative: 1

The recently released 737 MAX8 Emergency Airworthiness Directive directs pilots how to deal with a known issue, but it does nothing to address the systems issues with the AOA system.

MCAS (Maneuvering Characteristics Augmentation System) is implemented on the 737 MAX to enhance pitch characteristics with flaps UP and at elevated angles of attack. The MCAS function commands nose down stabilizer to enhance pitch characteristics during steep turns with elevated load factors and during flaps up flight at airspeeds approaching stall. MCAS is activated without pilot input and only operates in manual, flaps up flight. The system is designed to allow the flight crew to use column trim switch or stabilizer aisle stand cutout switches to override MCAS input. The function is commanded by the Flight Control computer using input data from sensors and other airplane systems.

The MCAS function becomes active when the airplane Angle of Attack exceeds a threshold based on airspeed and altitude. Stabilizer incremental commands are limited to 2.5 degrees and are provided at a rate of 0.27 degrees per second. The magnitude of the stabilizer input is lower at high Mach number and greater at low Mach numbers. The function is reset once angle of attack falls below the Angle of Attack threshold or if manual stabilizer commands are provided by the flight crew. If the original elevated AOA condition persists, the MCAS function commands another incremental stabilizer nose down command according to current aircraft Mach number at actuation.

This description is not currently in the 737 Flight Manual Part 2, nor the Boeing FCOM, though it will be added to them soon. This communication highlights that an entire system is not described in our Flight Manual. This system is now the subject of an AD.

I think it is unconscionable that a manufacturer, the FAA, and the airlines would have pilots flying an airplane without adequately training, or even providing available resources and sufficient documentation to understand the highly complex systems that differentiate this aircraft from prior models. The fact that this airplane requires such jury rigging to fly is a red flag. Now we know the systems employed are error prone--even if the pilots aren't sure what those systems are, what redundancies are in place, and failure modes.

I am left to wonder: what else don't I know? The Flight Manual is inadequate and almost criminally insufficient. All airlines that operate the MAX must insist that Boeing incorporate ALL systems in their manuals.

Synopsis

B737MAX Captain expressed concern that some systems such as the MCAS are not fully described in the aircraft Flight Manual.

ACN: 1593701

Time / Day

Date : 201811
Local Time Of Day : 1201-1800

Place

Locale Reference.Airport : ZZZ.Airport
State Reference : US
Altitude.MSL.Single Value : 33000

Environment

Light : Daylight

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

Component

Aircraft Component : FMS/FMC
Aircraft Reference : X
Problem : Improperly Operated

Person

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : First Officer
Function.Flight Crew : Pilot Not Flying
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Multiengine
Qualification.Flight Crew : Instrument
Experience.Flight Crew.Last 90 Days : 454
Experience.Flight Crew.Type : 454
ASRS Report Number.Accession Number : 1593701
Human Factors : Distraction
Human Factors : Training / Qualification

Events

Anomaly.Deviation - Altitude : Undershoot
Anomaly.Deviation - Procedural : Clearance
Result.Flight Crew : Returned To Clearance

Assessments

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

Narrative: 1

We were climbing from FL 330 given a clearance to FL 360. Aircraft briefly leveled at initial cruise altitude FL 340 before Aircrew intervention. [Center] queried if we received the clearance to FL 360. As a result of the brief delay [Center] issued brief off course vectors to both us and converging traffic. Causal factors were equipment: not much experience in MAX-800, as a result, still have to search for everything. Automation: Upon receipt of FL 360 clearance and after the Captain dialed the MCP Altitude 36,000 FT, I should have, but failed to, ensured the cruise altitude reflected FL 360. Engaging the ALT INTV button would have facilitated the process. The solution is to Verify/Verbalize/Monitor. Verifying the CDU cruise altitude (NAV 2/3) would have prevented the temporary level off. Monitoring would have mitigated the delay at FL 340 but could have been timelier. As a relatively new First Officer, I had not seen this issue. However, I could have done a better job with VVM (Verbalize, Verify, Monitor) to back up the Captain with his duties while flying. Had I seen the momentary level off, I might have been able to alert ATC of it, avoiding any confusion or deviation of what the expectations were.

Synopsis

B737 MAX8 First Officer reported an altitude deviation due to an intermediate level off by the aircraft automation.

ACN: 1597286

Time / Day

Date : 201811

Place

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

Aircraft

Reference : X
ATC / Advisory.Tower : ZZZ
Aircraft Operator : Air Carrier
Make Model Name : B737-800
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Nav In Use : FMS Or FMC
Flight Phase : Takeoff
Airspace.Class C : ZZZ

Component

Aircraft Component : Autopilot
Aircraft Reference : X
Problem : Malfunctioning

Person

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : Pilot Not Flying
Function.Flight Crew : First Officer
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Instrument
Qualification.Flight Crew : Multiengine
Experience.Flight Crew.Last 90 Days : 511
ASRS Report Number.Accession Number : 1597286
Analyst Callback : Attempted

Events

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

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

Day 3 of 3 departing in a MAX 8 after a long overnight. I was well rested and had discussed the recent MAX 8 MCAS guidance with the Captain. On departure, we had strong crosswinds (gusts > 30 knots) directly off the right wing, however, no LLWS or Micro-burst activity was reported at the field. After verifying LNAV, selecting gear and flaps up, I set "UP" speed. The aircraft accelerated normally and the Captain engaged the "A" autopilot after reaching set speed. Within two to three seconds the aircraft pitched nose down bringing the VSI to approximately 1,200 to 1,500 FPM. I called "descending" just prior to the GPWS sounding "don't sink, don't sink." The Captain immediately disconnected the autopilot and pitched into a climb. The remainder of the flight was uneventful. We discussed the departure at length and I reviewed in my mind our automation setup and flight profile but can't think of any reason the aircraft would pitch nose down so aggressively.

Synopsis

B737 MAX First Officer reported that the aircraft pitched nose down after engaging autopilot on departure. Autopilot was disconnected and flight continued to destination.

ACN: 1597380

Time / Day

Date : 201811

Place

Locale Reference.ATC Facility : ZZZ.TRACON
State Reference : US
Altitude.MSL.Single Value : 2000

Environment

Weather Elements / Visibility : Rain
Weather Elements / Visibility : Snow

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
Nav In Use : FMS Or FMC
Flight Phase : Climb
Airspace.Class B : ZZZ

Component

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

Person

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : Captain
Function.Flight Crew : Pilot Flying
Qualification.Flight Crew : Instrument
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Multiengine
Experience.Flight Crew.Last 90 Days : 626
ASRS Report Number.Accession Number : 1597380
Human Factors : Human-Machine Interface
Human Factors : Confusion

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Detector.Automation : Aircraft Other Automation

Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : FLC Overrode Automation
Result.Flight Crew : Overcame Equipment Problem
Result.Aircraft : Equipment Problem Dissipated

Assessments

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

Narrative: 1

It was day three of six for me and day three with very good FO (First Officer). Well rested, great rapport and above average Crew coordination. Knew we had a MAX. It was my leg, normal Ops Brief, plus I briefed our concerns with the MAX issues, bulletin, MCAS, stab trim cutout response etc. I mentioned I would engage autopilot sooner than usual (I generally hand fly to at least above 10,000 ft.) to remove the possible MCAS threat.

Weather was about 1000 OVC drizzle, temperature dropping and an occasional snow flake. I double checked with an additional personal walkaround just prior to push; a few drops of water on the aircraft but clean aircraft, no deice required. Strong crosswind and I asked Tug Driver to push a little more tail east so as not to have slow/hung start gusts 30+.

Wind and mechanical turbulence was noted. Careful engine warm times, normal flaps 5 takeoff in strong (appeared almost direct) crosswind. Departure was normal. Takeoff and climb in light to moderate turbulence. After flaps 1 to "up" and above clean "MASI up speed" with LNAV engaged I looked at and engaged A Autopilot. As I was returning to my PFD (Primary Flight Display) PM (Pilot Monitoring) called "DESCENDING" followed by almost an immediate: "DONT SINK DONT SINK!"

I immediately disconnected AP (Autopilot) (it WAS engaged as we got full horn etc.) and resumed climb. Now, I would generally assume it was my automation error, i.e., aircraft was trying to acquire a miss-commanded speed/no autothrottles, crossing restriction etc., but frankly neither of us could find an inappropriate setup error (not to say there wasn't one).

With the concerns with the MAX 8 nose down stuff, we both thought it appropriate to bring it to your attention. We discussed issue at length over the course of the return to ZZZ. Best guess from me is airspeed fluctuation due to mechanical shear/frontal passage that overwhelmed automation temporarily or something incorrectly setup in MCP (Mode Control Panel). PM's callout on "descending" was particularly quick and welcome as I was just coming back to my display after looking away. System and procedures coupled with CRM (Resource Management) trapped and mitigated issue.

Synopsis

B737MAX Captain reported an autopilot anomaly in which led to an undesired brief nose down situation.