

ALERT BULLETIN

AB 2021:13/1-1

8/19/2021

1797877

TO: Embraer-Empresa Brasileira Aeronautic S/A

INFO: FAA (AVP-1, AVP-200, AFS-200, AFS-280, AFS-100, MKC-AEG, AIR-360, AFS-300, AFS-900), A4A, ALPA, ASAP, ATSG, CAPA, IAM, IBT, ICASS, IFALPA, IPA, NBAA, NTSB, PAMA, RAA, TWU

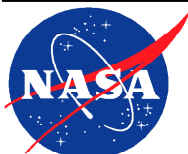
FROM: Becky L. Hooley, Director
NASA Aviation Safety Reporting System

SUBJ: EMB-175 Autoflight Anomaly

We recently received ASRS reports describing a safety concern that may involve your area of operational responsibility. We do not have sufficient details to assess either the factual accuracy or possible gravity of the report. It is our policy to relay the reported information to the appropriate authority for evaluation and any necessary follow-up. We feel you should be aware of the following:

ASRS received reports from an EMB-175 flight crew describing autoflight anomalies during departure climb. Reporters stated the departure was normal in the initial climb with the autopilot engaged, but upon leaving approximately 14,000 feet the aircraft initiated a soft turn that became an abrupt right turn off course "...for a total of 40-50 degrees..." and pitched down 4-5 degrees. The autopilot was disconnected and track and attitude corrected to normal parameters.

To properly assess the usefulness of our alert message service, we would appreciate it if you would take the time to give us your feedback on the value of the information that we have provided. Please contact Dr. Becky Hooley at (408) 541-2854 or email at becky.l.hooley@nasa.gov.



Aviation Safety Reporting System
P.O. Box 189 | Moffett Field, CA | 94035-0189



ACN 1797877

DATE / TIME

Date of Occurrence	202103
Local Time Of Day	1201 to 1800

PLACE

Locale	ZZZ.ARTCC
State	US
Altitude - MSL	14000

AIRCRAFT / EQUIPMENT X

ATC / Advisory - Center	ZZZ
Make Model Name	EMB ERJ 170/175 ER/LR
Operating Under FAR Part	121

COMPONENT 1

Aircraft Component	Autopilot
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PERSON 1

Function - Flight Crew	First Officer
Function - Flight Crew	Pilot Not Flying
ASRS Report Number	1797877

PERSON 2

Function - Flight Crew	Captain
Function - Flight Crew	Pilot Flying
ASRS Report Number	1797887

EVENTS

Anomaly	Aircraft Equipment Problem - Less Severe
Anomaly	Deviation - Track / Heading - All Types
Anomaly	Deviation / Discrepancy - Procedural - Clearance
Anomaly	Deviation / Discrepancy - Procedural - Published Material / Policy
Anomaly	Inflight Event / Encounter - Loss Of Aircraft Control
Detector - Person	Air Traffic Control
Detector - Person	Flight Crew
Result - Flight Crew	FLC Override Automation
Result - Flight Crew	Overcame Equipment Problem
Result - Flight Crew	Regained Aircraft Control
Result - Flight Crew	Took Evasive Action
Result - Air Traffic Control	Issued Advisory / Alert

NARRATIVE 1

I was PM (Pilot Monitoring) on our flight to ZZZ. We departed the runway and flew the ZZZZZ departure. All was well through 10,000 feet and shortly thereafter, the A/P was coupled. We were VMC and it was a normal, 270 knot climb. Approximately 8 miles before ZZZZZ, maybe climbing through 14,000 feet, the aircraft began an uncommanded, soft turn to the right of course. It then increased to a more abrupt banking turn to the right, accompanied with about 4-5 degrees of nose-down pitch attitude. The turn to the right was approximately 40-50 degrees total. The airspeed quickly increased and I saw airspeed tape up to, but not into, the barber pole. I don't recall any aural warning and the EICAS was clear. This evolution was quick. The CA (Captain) and I exchanged a few words as he detected the error, followed by an A/P disconnect and a manual

recovery, which began with a pitch input and throttle adjustment. I was talking to Center as this began and was queried immediately. I replied that we experienced a perceived autopilot anomaly, but were correcting. We were instructed to rejoin the departure at ZZZZZ and continue from there. The CA and I discussed the event, and once back on profile, we re-engaged A/P and continued the flight in normal fashion.

I'm still not sure what happened. The DP (Departure Procedure) was loaded directly from the FMS data base, with no modifications. We were climbing VIA, in magenta FLCH. When the aircraft began to stray, the A/P was following the flight director cue the whole time. The pitch down was concerning and both of us suspected a trim runaway at first, but as the yoke was pushing forward from the A/P, the CA quickly de-coupled the A/P and recovered back on course. Looking back, we performed normally and programmed the FMS normally. I have no explanation for this event, but I am grateful we were VMC at the time and that we recovered in a timely manner. The CA did further consulting once we landed in ZZZ.

NARRATIVE 2

I was PF (Pilot Flying). We departed the runway and flew the ZZZZZ departure. All was well through 10,000 feet and shortly thereafter, the A/P was coupled. We were VMC and it was a normal climb. Approximately 8 miles before ZZZZZ, maybe climbing through 14,000 feet, the aircraft began an uncommanded, soft turn to the right off course. It then increased to a more abrupt banking turn to the right, the airspeed quickly increased and I saw airspeed tape up to, but not into, the barber pole. I don't recall any aural warning and the EICAS was clear. This evolution was quick. The FO (First Officer) and I exchanged a few words I disconnect the auto pilot and a manual recovery, which began with a pitch input and throttle adjustment. FO was talking to Center as this began and was queried immediately. He replied we experienced an anomaly, but were correcting. We were instructed to rejoin the departure at ZZZZZ and continue from there. Hand flew for a few minutes once back on course, we re-engaged A/P and continued the flight, which was uneventful.

SYNOPSIS

EMB-175 flight crew reported an autopilot anomaly resulting in a momentary loss of aircraft control.