

12/19/2022

FOR YOUR INFORMATION

2022-142/3-19

1943576

To: Boeing Commercial Airplane Company

Info: FAA (AVP-1, AVP-200, AFS-200, AFS-900, AFS-260, AFS-100, AIR-720, AIR-780, AIR-360, SEA-AEG), A4A, ALPA, AMFA, ASAP, ATSG, CAPA, IAM, IBT, ICAO, ICASS, IFALPA, IPA, NTSB, PAMA, RAA, SWAPA, TWU

From: Becky L. Hooey, Director
NASA Aviation Safety Reporting System

Re: B737 MAX 8 Landing Altitude Indicator Errors

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 enclosed deidentified report.

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 Hooey at (408) 541-2854 or email at becky.l.hooey@nasa.gov.



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



ACN 1943576**DATE / TIME**

Date of Occurrence	202210
Local Time Of Day	1801 to 2400

PLACE

Locale	ZZZ.Airport
State	US
Altitude - AGL	0

AIRCRAFT / EQUIPMENT X

Make Model Name	B737 MAX 8
Operating Under FAR Part	121

COMPONENT 1

Aircraft Component	FMS/FMC
--------------------	---------

PERSON 1

Function - Flight Crew	Captain
Function - Flight Crew	Pilot Flying
ASRS Report Number	1943576

EVENTS

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

NARRATIVE 1

Landing Altitude Reference Bar and Landing Altitude Indicator Error in 737 MAX-8. I have now experienced two anomalies associated with the improper display of the Landing Altitude Reference Bar and the Landing Altitude Indication on the 737 MAX-8 aircraft. The Landing Altitude Indication (LAI) is an amber crosshatched area that shows the FMC-generated Landing altitude for the destination runway. It is displayed on the altimeter tape. The Landing Altitude Reference Bar (LARB) is a vertical line that is displayed just to the left of the altimeter on the PFD. It extends upward from the LAI showing height above touchdown, 0-500 ft., amber, 500-1,000 ft., white. Both are generated by the FMC and are displayed to warn the Pilots that they are close to the landing elevation. On (date) I operated Aircraft X from ZZZ-ZZZ1. While parked at the gate in ZZZ, and after loading our routing and completing all preflight duties, I noticed that the LAI and LARB were not displaying correctly on the PFD. While the altimeter was correctly showing an elevation of X,XXX ft. at the gate, the LARB was indicating that we were already 1,000 ft. in the air. The LARB extended downward on the display and the LAI was not visible because it was off the scale. In other words, the LAI amber crosshatched area was not shown just below the current elevation, as is normal when at the gate, and the LARB was indicating that we were already 1,000 ft. above the airport elevation. ZZZ Maintenance responded to our call and could not initially determine what was wrong.

The problem did not trip any fault codes, so they tried reinitializing the IRSs, which had no effect. Next, they tried resetting FMC circuit breakers, which caused the LARB to disappear, but did not return the display to a normal state. In consultation with Company Manager on call, we finally tried reloading the FMC route through the MCDU. This step finally restored the display to a normal state. Apparently, something in the FMC database

was corrupt, after we initially loaded the route, before noticing the problem, and was not corrected, until we re-loaded the route a second time. This was very concerning. Had we not noticed it, the LARB and LAI would not have displayed correctly on takeoff or landing, and could have led to a lot of confusion, especially if operating in IMC. The second time I have experienced this anomaly was while airborne, flying a 737 MAX 8 from ZZZ2 to ZZZ3 several months ago. After intercepting the ILS final approach course to Runway XX at 2,000 ft. altitude, we began slowing and configuring the aircraft. Just as we captured the glideslope, the LARB jumped up in elevation and indicated that we were just above 1,000 ft. above the landing elevation.

The altimeter was still showing approximately 1,800 ft. and descending on the glideslope, but the LARB was displaying erroneous information. We executed a go-around and tried to figure out what was going on. I had the FO reload the ILS XX Approach into the FMC and basically start from scratch with our approach planning. The second approach to the ILS XX went normally with normal indications of the LARB and LAI. Again, it seems that there was some sort of corruption, or hiccup in the FMC database, that caused the erroneous indications. Thankfully, we were in VMC rather than IMC and the problem was visually evident. In conversation with several other pilots about this problem, I was told of at least one other event, while on approach, that was very similar to my experience in ZZZ3, but occurred at 6,000 ft., while descending. I believe that this problem is worth noting and researching, that an alert to our Operations is warranted and that it is certainly worth warning other operators of the 737 MAX-8 about. The potential is there for serious cockpit confusion, depending on other conditions.

SYNOPSIS

B737 MAX Captain reported an FMC database error which causes incorrect indication of the landing altitude indication and landing altitude reference bar.