ALERT BULLETIN

AB 2025:7/3-4
4/16/2025
2214544

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

SUBJ: B737-900ER Stabilizer Trim Binding

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 a report from a B737-900ER Captain describing a problem with the horizontal stabilizer trim. Reporter stated that after takeoff the control wheel trim switches were inoperative on both the Captain and First Officer control yokes. Manual trimming of the horizontal stabilizer was accomplished, but there was binding in the mechanism and the physical effort to operate the trim wheel was very high. Post flight inspection reportedly revealed wear and damage to the trim wheel gears.

ASRS has previously alerted on a similar B737-900 stabilizer trim issue. Alert 2021:8/3-4 is also enclosed.

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 2214544	
DATE / TIME	
Date of Occurrence	202502
Local Time Of Day	0601 to 1200
PLACE	
Locale	ZZZ.Airport
State	US
Altitude - MSL	2200
ENVIRONMENT	
Flight Conditions	VMC
AIRCRAFT / EQUIPMENT X	
ATC / Advisory - Tower	ZZZ
Make Model Name	B737-900
Operating Under FAR Part	121
COMPONENT 1	
Aircraft Component	Horizontal Stabilizer Trim
COMPONENT 2	
Aircraft Component	Horizontal Stabilizer Control
PERSON 1	
Function - Flight Crew	Captain
Function - Flight Crew	Pilot Flying
ASRS Report Number	2214544
EVENTS	
Anomaly	Aircraft Equipment Problem - Critical
Detector - Person	Flight Crew
Result - General	Flight Cancelled / Delayed
Result - General	Maintenance Action
Result - Flight Crew	Overcame Equipment Problem
Result - Flight Crew	Requested ATC Assistance / Clarification
Result - Flight Crew	Returned To Departure Airport
Result - Air Traffic Control	Provided Assistance
NARRATIVE 1	

The narrative follows: All ground operations were normal. Immediately after takeoff, attempting to trim the aircraft during climb-out, my control yoke trim switches were inoperative. I looked at the pedestal-mounted switches: they were in the normal position. I announced the situation and asked FO to try to trim the aircraft with his switches. His were also inoperative.

We continued to fly the departure, keeping the flaps at takeoff configuration (5). After ensuring terrain clearance, we cycled both trim cutout switches several times with no success. I also put the stab trim override switch to override, and reset it to normal after that failed to change our lack of trim. At no point did we regain electric trim control.

I then retracted flaps, ran the after-takeoff checklist, and then tried all the prior troubleshooting. Again, no success. There are different trim rates with the trim motor based on flaps up or down. We coordinated with ATC to stay in the ZZZ airspace, took vectors for spacing, a block altitude of 16,000 to 18,000 for terrain clearance, and ran the stabilizer trim inoperative (NG) checklist. I flew the aircraft while FO ran the checklist.

Manually trimming the aircraft was extremely difficult. There were two locations in the trim wheel rotation where it felt jammed. These locations were 180 degrees apart. The force required to overcome these two points (which location stayed constant) was very large. I have never felt that kind of resistance in any other manual trim wheel operation. Using unloading maneuvers did not change the “sticking.” FO and I both regularly work out with weights. This was a SIGNIFICANT reason why were able to successfully operate the manual trim wheel.

We configured the aircraft per the checklist, made all required calls and coordination, and commenced the approach, ILS XXL. We established final configuration and speed approximately 15 miles out. After landing, we had Fire/Rescue inspect the brakes, then taxied to the gate to deplane the passengers and let Maintenance take the aircraft.

CALLBACK 1

Reporter stated the aircraft was a B737-900ER and that Maintenance inspected the manual trim gears and stated they were "messed up" and not operating smoothly.

SYNOPSIS

B737-900ER Captain reported right after takeoff the control yoke trim had become inoperative and the flight crew was unable to regain electric trim control. Manually trimming the aircraft was difficult and the reporter mentioned there were two locations in the trim wheel rotation where it felt jammed.

Previous Alert

ALERT BULLETIN

AB 2021:8/3-4
5/26/2021
1797878

TO: Boeing Commercial Airplane Company

INFO: FAA (AVP-1, AVP-200, AFS-200, AFS-900, AFS-280, AFS-100, AIR-720, AIR -780, AIR-360, SEA-AEG, AQS-230), 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

SUBJ: B737-900 Stabilizer Trim Failure

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 a report from a B737-900 flight crew describing the failure of the stabilizer trim. First Officer stated he and the Captain noted a STAB OUT OF TRIM light intermittently illuminated in cruise flight, and in descent the electric trim was found to be inoperative for both pilots. Reportedly, the manual trim backup system required considerable effort to operate.

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 1797878

DATE / TIME	
Date of Occurrence	202103
Local Time Of Day	1201 to 1800
PLACE	
Locale	ZZZ.Airport
State	US
Altitude - MSL	3500
AIRCRAFT / EQUIPMENT X	
ATC / Advisory - TRACON	ZZZ
Make Model Name	B737-900
Operating Under FAR Part	121
COMPONENT 1	
Aircraft Component	Horizontal Stabilizer Trim
PERSON 1	
Function - Flight Crew	First Officer
Function - Flight Crew	Pilot Flying
ASRS Report Number	1797878
PERSON 2	
Function - Flight Crew	Captain
Function - Flight Crew	Pilot Not Flying
ASRS Report Number	1797876
EVENTS	
Anomaly	Aircraft Equipment Problem - Critical
Anomaly	Deviation - Altitude - Overshoot
Anomaly	Deviation / Discrepancy - Procedural - Clearance
Detector - Person	Flight Crew
Result - Flight Crew	Landed in Emergency Condition

NARRATIVE 1

During cruise STAB OUT OF TRIM light illuminated intermittently. Complied with STAB OUT OF TRIM QRH procedure. Maintenance notified via ACARS. Descending with autopilot and autothrottle on, aircraft did not level off at the preselected 4,000 feet. I disconnected the autopilot and autothrottle and began to return to 4,000 feet. I tried the electric trim and found it to be inoperative. I notified the Captain of the inoperative electric trim. The Captain tried his electric trim and also found it to be inoperative. Captain conferred with me about disconnecting the STAB TRIM CUT OUT switches. I agreed and the STAB TRIM CUT OUT switches were disconnected. Captain opened the QRH and we complied with the STAB OUT OF TRIM QRH procedure. The STAB OUT OF TRIM QRH procedure directed us to the STABILIZER TRIM INOPERATIVE procedure, which we complied with. I tried to operate the manual trim with my left hand could not move the trim wheel through a full rotation. I notified the Captain of this and he tried the manual trim. Captain seem to require both hands to operate the manual trim. Captain notified ATC and we requested delay vectors. We requested the longer Runway of XXR. We performed a flaps 15 landing on XXR. Descended below assigned altitude of 4,000 feet due to malfunctioning elevator trim.

NARRATIVE 2

This report is being submitted to cover the altitude deviation on approach into ZZZ. The altitude deviation was a direct result of a malfunction of the stabilizer/stabilizer trim system. The other required category reports will be covered in a separate irregularity report.

Approximately two hours after departure and level at FL350, the STAB OUT OF TRIM (amber) light illuminated. We ran the STABILIZER OUT OF TRIM QRH procedure. Autopilot B was engaged and remained engaged while the light was eliminated, the aircraft maintained altitude and airspeed in light mountain wave and light chop conditions. Since the auto pilot appeared to be trimming the aircraft normally and in accordance with QRH, we continued normal operation. We notified maintenance control and Dispatch via ACARS and made a maintenance logbook entry for the condition. Dispatch acknowledged receiving the message. The light remained illuminated for approximately 10 mins. During this time both the first officer and myself reviewed not only the QRH, but Stabilizer Trim Inoperative QRH procedure in the event that these stabilizers stopped trimming at some subsequent point. We also reviewed be available information in both the flight handbook as well as the systems handbook.

The STAB OUT OF TRIM light continued to illuminate intermittently in durations that ranged from several minutes to just a few seconds. We also climbed to FL370 with no abnormal indications and with the B autopilot remaining engaged. I observed some movement of the trim wheel at various times.

During the cruise portion of the flight, the light was extinguished most of the time, but we did have the intermittent illuminations periodically. We informed dispatch and maintenance control that the light was illuminating intermittently.

On the arrival into ZZZ we were given several intermediate level offs as well as crossing altitude and airspeed restrictions all of which were met with autopilot B engaged.

While being vectored around some weather, for a visual approach to Runway XXL, we were kept somewhat high on the profile and were in a fairly aggressive dissent to 4,000 feet. Autopilot B remained engaged throughout this descent. At 4,000 feet the flight directors commanded a level off but the aircraft continued to descend below 4,000 feet and did not capture the altitude, the first officer (pilot flying) immediately disengaged the auto pilot and auto throttles and began to correct The flight path, but due to the out of trim condition of the stabilizer the aircraft descended to approximately 3,500 feet before being able to level off the aircraft with considerable back pressure on the yoke.

We informed ZZZ Approach that we had a stabilizer issue and were attempting to correct back to 4000 feet. They directed us to maintain 3000 feet. At about this time, the first officer informed me that "I don't have any trim" and I saw him activate the yoke stabilizer trim switches for nose up and nose down trim with no movement of the stabilizer trim wheels. I attempted to trim the stabilizer using the yoke switches on my side with no effect as well. The first officer was holding a great deal of back pressure on the yolk and stated "I need nose up trim" at this point with his concurrence after having verified that neither yolk could trim the stabilizer electrically, I selected both stabilizer trim cut out switches to cut out.

At this point I told the first officer that he was going to continue to be the pilot flying and also have the radios while I reviewed the QRH procedures. After I verified that we had accomplished all of the steps and had been directed to the next QRH section. Well I was reviewing the QRH procedures the first officer attempted to trim the aircraft manually and stated "I can't move the wheel". It was at this point I believe where I [requested priority] with approach and told them that we had a stabilizer trim failure and we were attempting to trim the aircraft manually we requested and received a vector to do this and we reported our souls on board as well as fuel and requested ARFF assistance at the airport. At this point I attempted to trim the stabilizer nose up manually from my side but was unable to turn the stabilizer trim wheel. I directed the first officer to attempt to slow the aircraft to clean maneuver speed in an attempt to unload the stabilizer so that we could trim the aircraft manually. At some point approaching clean maneuver speed I was able to begin moving the trim wheel nose up but it was still quite difficult and required a significant two-handed effort to move the wheel at all. I managed to get several turn nose up trim and the first officer said "that's good". At this point, we were in a more or less in trim condition at clean maneuver and clean. We continue to execute QRH and requested the longer Runway (XXR). It was at about this point I believe that I informed the flight attendants of our situation and that we would be landing in about 5 to 10 minutes, to expect a normal landing but that there would be fire trucks standing by.

We completed QRH and had a normal flaps 15 landing on Runway XXR

We rolled out normally and cleared the runway and informed ground control and the ARFF captain that we did not require any further assistance.

We taxi to the gate and shut down the aircraft, debriefed the flight attendants, and spoke with maintenance on the ground about our situation.

SYNOPSIS

B737-900 flight crew reported Stab Trim failure resulted in an altitude overshoot and limited control ability.