

4/17/2024

**FOR YOUR INFORMATION**

2024-70/3-12

2089798

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 Isolation Valve Switch 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 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](mailto:becky.l.hooey@nasa.gov).



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



## ACN 2089798

### DATE / TIME

Date of Occurrence	202402
Local Time Of Day	1201 to 1800

### PLACE

Locale	ZZZZ.Airport
State	FO
Altitude - AGL	0

### ENVIRONMENT

Flight Conditions	VMC
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### AIRCRAFT / EQUIPMENT X

Make Model Name	B737 Undifferentiated or Other Model
Operating Under FAR Part	121

### COMPONENT 1

Aircraft Component	Air Conditioning and Pressurization Pack
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### PERSON 1

Function - Flight Crew	Captain
Function - Flight Crew	Pilot Flying
ASRS Report Number	2089798

### PERSON 2

Function - Flight Crew	First Officer
Function - Flight Crew	Pilot Not Flying
ASRS Report Number	2089783

### EVENTS

Anomaly	Aircraft Equipment Problem - Less Severe
Detector - Person	Flight Crew
Result - General	Maintenance Action
Result - Flight Crew	Overcame Equipment Problem

### NARRATIVE 1

After normal engine start, the FO (First Officer) correctly configured the pressurization system for a planned bleeds-off takeoff with the isolation valve switch to the CLOSED position. During the Before Takeoff Checklist, the FO lightly touched the isolation valve switch and the switch moved to the AUTO position. The isolation valve switch was re-positioned to CLOSED and a normal takeoff and departure was performed with the FO, pilot monitoring, closely monitoring the pressurization panel.

The switch function was written up on Day 0 The ELB (Electronic Log Book) write-up stated, "AIR COND PANEL ISOLATION VALVE DOES NOT LOCK INTO CLOSE OR OPEN POSITION." When it should have stated, "AIR COND PANEL ISOLATION VALVE \*SWITCH\* DOES NOT LOCK INTO CLOSE OR OPEN POSITION."

The CA (Captain) and FO (combined 30,000+ B737 hours) both observed that the operation of this isolation valve switch was not normal and ACARS messaged Maintenance Control while inflight concerning the type and function of the isolation valve switch with no response received.

## NARRATIVE 2

Takeoff data was for a flaps 5, bleeds off takeoff from ZZZZ, Runway XX. Following the After Start Checklist, we decided to run the Before Takeoff Checklist since the taxi is short and requires a long back-taxi down Runway XX. During the flow I set up the bleeds/packs panel for the bleeds off takeoff. Upon running the checklist, I normally physically touch each of the switches to confirm they are in the correct position as I am reading the checklist aloud. Upon touching the Isolation Valve Switch, it sprung back in the center AUTO position. This was odd as I had never seen this before. I moved it back to the CLOSED position and lightly touched it again. Same thing happened, it moved back to the AUTO position. I then alerted the Captain and demonstrated to him what was going on. Both the Captain and I have ample hours in the 737 and have never seen this behavior. We decided to put the switch back to the CLOSED position, confirm the switch stayed in the CLOSED position without touching it, and continue the taxi and departure. It was the Captain's takeoff so I would cross-check on the takeoff roll that it stayed in the CLOSED position to comply with the takeoff data and re-configuration after takeoff. The switch stayed in the CLOSED position as set.

During cruise we looked at the switch and noticed even though the switch has 3 positions like the pack switches, it does NOT lock into place. In other words, the pack switches physically lock into the OFF, AUTO, or HIGH positions via a tooth on the switch and 3 dedicated detents on the switch body. The Isolation Valve Switch only locks into the AUTO position and there is NO dedicated detent for the CLOSED or OPEN positions, meaning it is easy to move it out of the commanded position and does not even require the operator to lift the spring loaded switch out.

Upon arriving at the gate in ZZZ, we exercised the Isolation Valve Switch and it was extremely easy to move from the CLOSED position and have it spring back to AUTO. I was able to do this by tapping it with the end of my pen to demonstrate the small amount of force needed to move it. We decided to write up the switch as we felt it should not move this freely. A major concern would be if rolling down a rough runway, like in ZZZZ1, where bleeds off takeoffs are commonly done in the summer months, a sudden jolt could move the switch out of position, resulting in the APU supplying bleed air to both packs and worse, if not noticed on the cleanup of the bleed/pack panel after takeoff, could result in the No. 2 Engine back flowing high pressure bleed air into the APU bleed system at a high power setting.

No error is being reported by the crew as we accomplished the bleeds off takeoff as published in the 737 Flight Manual. However, we feel the need to report this in case there is a potential design flaw of the Isolation Valve Switch and alert other crews of this potential behavior.

## SYNOPSIS

B737 flight crew reported the Isolation Valve Switch failed to stay in the "closed" position and would easily move into the "auto" position without any physical input from either of the flight crew. The flight continued onward to destination without incident.