

9/30/2016

**FOR YOUR INFORMATION**

2016-17/3-7

1314098

To: Boeing Commercial Airplane Company

Info: FAA (AVP-1, AVP-200, AFS-200, AFS-900, AFS-280, AFS-300, ANM-100, SEA-ACO, SEA-AEG, AQS-230), A4A, ALPA, AMFA, ASAP, ATSG, CAPA, IAM, ICAO, ICASS, IFALPA, IPA, NTSB, PAMA, SWAPA, TWU

From: Linda J. Connell, Director  
NASA Aviation Safety Reporting System

Re: B737-700 Uncommanded Fuel Transfer

We recently received an ASRS report 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 Dennis Doyle at (408) 541-2831 or email at [dennis.j.doyle@nasa.gov](mailto:dennis.j.doyle@nasa.gov)



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



**ACN: 1314098**

**Time**

Date: 201511

Local Time Of Day: 1201-1800

**Place**

Locale Reference.ATC Facility: ZZZ.ARTCC

State Reference: US

Altitude.MSL.Single Value: 23000

**Environment**

Flight Conditions: VMC

**Aircraft 1**

ATC / Advisory.Center: ZZZ

Make Model Name: B737-700

**Component 1**

Aircraft Component: Fuel Crossfeed

**Person 1**

Function.Flight Crew: Captain

Function.Flight Crew: Pilot Flying

ASRS Report Number: 1314098

**Events**

Anomaly.Aircraft Equipment Problem: Critical

Anomaly.Deviation - Procedural: Published Material / Policy

Anomaly.Inflight Event / Encounter: Fuel Issue

Detector.Person: Flight Crew

Result.General: Maintenance Action

Result.General: Release Refused / Aircraft Not Accepted

Result.Flight Crew: Overcame Equipment Problem

Result.Aircraft: Automation Overrode Flight Crew

**Narrative 1**

We pushed back with a fuel load of 18700. Our main tanks were full, in the neighborhood of 8600 each side and the center tank had about 1500 pounds. During climbout, all fuel pumps were on and operating normally, the crossfeed valve was closed, and the fuel was balanced.

Around FL180, our center tanks were showing empty so I turned off the center pumps. A few minutes later, passing through about FL230, the FO (PM) pointed out that the center tank was gaining fuel, at that moment about 500 pounds and increasing quickly, and we had about a 500 pound imbalance between the main tanks, the left main being the low one, and the imbalance was increasing quickly; at about the same rate as the center tank quantity was increasing. I mistakenly directed the FO to consult the QRH "Inadvertent Transfer of Fuel into Center Tank" Checklist. He looked for but could not find that checklist because it does not exist for the newer model aircraft.

During this time, the center tank was getting more and more full, nearing 1000 pounds, and the main tank imbalance was increasing as well, also nearing 1000 pounds. We decided to turn on the left center pump, while leaving the crossfeed closed, to simultaneously address the

imbalance and the increasing fuel quantity in the center tank. About that time we also coordinated with ATC to level off at FL260 while we worked the problem.

Once the imbalance was corrected and the center tank empty, we reconfigured the fuel panel with the center pumps off, the main pumps on and the crossfeed valve closed (and verified closed by cycling open, then closed and observing bright/dim/bright/off operation of the light) but the problem recurred almost immediately. The center tank quantity began increasing and the left main tank began decreasing more quickly than the right main tank, creating an imbalance at the same rate and of the same amount as the center tank quantity. This time we let the imbalance and the center tank quantity get to only about 500 pounds each before repeating the above process to empty the center tank and balance the fuel.

At some point we contacted Dispatch and Maintenance Control via [Commercial Radio] to consult with Maintenance and see if they had any other ideas. The Maintenance Controller stated that the only thing he could tell us was to follow the QRH. After correcting the imbalance and emptying the center tank again, we once again restored the fuel panel to its normal configuration with center pumps off, main pumps on, and crossfeed valve closed. The problem did not recur. We continued our climb and proceeded to destination with no further problems. [At destination], I made a logbook write up and described the problem to Maintenance personnel. They said they were pulling the aircraft out of service.

I should have been aware there was no "Inadvertent Transfer of Fuel to Center Tank" Checklist for newer model aircraft, only for older model aircraft. But there needs to be a checklist for this problem! After discussing it with a Chief Pilot and after he researched it with Company Technical Pilots, Maintenance and others, he was told there is no checklist for inadvertent transfer to the center tank "because that cannot happen." But it did (and the Chief Pilot in question agrees with me). I am 100% certain neither the FO nor I miss-analyzed the problem. This was not a case of center tank fuel quantity showing empty during climb then showing a few hundred pounds after leveling off. First, it happened during climb AND level flight. Second, when center tank quantity goes up after level off, it does not create an imbalance of the exact same amount as the fuel in the center tank. And [finally], it does not create said imbalance at the exact same rate as the center tank is filling.

Theoretically, it may not be possible to inadvertently transfer fuel into the center tank of a newer model aircraft because of the pump and check valve differences from an older model, but it happened. Also, the FOM and AOM state that Maintenance Control can only tell us to consult the QRH, but in this case, that was doubly unhelpful because there was no QRH checklist to consult.

### **Callback 1**

Callback with the reporter revealed no further information.

### **Synopsis**

A B737-700 Captain reported the left wing fuel tank transferred fuel into the Center tank creating an imbalance. A checklist procedure did not exist for the anomaly.