ALERT BULLETIN

AB 2024:5/3-2
2/13/2024
2066110, 2065852

TO: Textron Aviation (Cessna), FAA (AFS-100)

INFO: FAA (AVP-1, AVP-200, AFS-260, AFS-800, AFS-200, AIR-360, AIR-780, MKC-AEG, ANM-100), AMFA, AOPA, ASAP, ATSG, GAMA, IAM, IBT, ICASS, NBAA, NTSB, PAMA, TWU

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

SUBJ: Cessna 162 Cabin Door Opened In Flight

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 two separate reports from Cessna 162 pilots describing incidents involving the cabin entry door opening in flight.

(ACN 2066110) C162 pilot reported a cabin entry door opened in flight.

Reporter stated the door was checked closed and latched before takeoff, but opened on downwind leg in the pattern.

(ACN 2065852) C162 pilot reported a loss of control due to the aircraft's entry door opening in flight after not being properly secured.

ASRS has alerted on this issue. Alert 2014-39/3-9 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 2066110	
DATE / TIME	
Date of Occurrence	202312
Local Time Of Day	1201 to 1800
PLACE	
Locale	ZZZZ.Airport
State	FO
Altitude - MSL	1000
AIRCRAFT / EQUIPMENT X	
ATC / Advisory - Tower	ZZZZ
Make Model Name	Cessna 162 Skycatcher
Operating Under FAR Part	91
COMPONENT 1	
Aircraft Component	Exterior Pax/Crew Door
PERSON 1	
Function - Flight Crew	Pilot Flying
ASRS Report Number	2066110
EVENTS	
Anomaly	Aircraft Equipment Problem - Critical
Anomaly	Deviation / Discrepancy - Procedural - Published Material / Policy
Anomaly	Inflight Event / Encounter - Loss Of Aircraft Control
Detector - Person	Flight Crew
Result - Flight Crew	Landed in Emergency Condition
Result - Flight Crew	Regained Aircraft Control
Result - Aircraft	Aircraft Damaged
NARRATIVE 1	

At around XA40 Z I conducted a complete aircraft preflight inspection in accordance to the CE-Skycatcher M162 POH, Section 4, pg. 4-4 to 4-24. (4-6. Cabin Door - CHECK [security and condition]) The doors were checked for condition and security, and everything was found in normal operating condition.

Just before takeoff I once again checked the doors on both sides as per CE-Skycatcher M162 POH, Sec. 4, pg. 4-18 (3. Cabin Doors - CLOSED and LOCKED) They appeared both to be closed and latched. I closed my door, and the passenger closed the door on his side as I instructed him. Furthermore, I told him to give the door a forearm "bump" with his shoulder as I was taught by my instructor pilot to ensure closure.

The takeoff was uneventful, with normal performance, airspeed, and engine indication. During the climb phase up to pattern altitude the flight was normal, with no noises or vibrations from the doors.

How it happened:

The downwind was established at the local pattern altitude for ZZZZ as the airspeed increased and power reduced. Suddenly, a loud blowing noise was felt I immediately noticed my door (Left-hand) had opened and broken.

My first reaction was to fly the aircraft, the handling was somewhat difficult in my opinion (never had this happened before), and I was experiencing significant drag caused by the hanging door. At one point I added full throttle because the aircraft was losing altitude at a high rate. At this point, I contacted the tower and requested priority handling. The Tower cleared me to land on Runway X. From that point, onward the approach and landing were uneventful and safe at XB22 (Z) local.

In retrospect, I can't determine how this event occurred. I have several assumptions, first I did not secure the latching mechanism properly, although I emphasized the importance of locking and securing the door to the passenger which included the forearm bump. We both did it. Second, the latching mechanism was probably locked but due to tear and wear and combined subtle airframe or engine vibration, it unlocked itself. (As a pilot with little experience I may not know how to assess that issue). Third, maybe the door alignment may have allowed airflow over the fuselage to force the latching mechanism to fail, case in point the event occurred while the aircraft was accelerating in the downwind phase. Or it failed as would any mechanical component.

After this experience, I will be more alert to checking the door latching mechanism more thoroughly during preflight. I will include two events of opening and closing to ensure it is operational and it feels like a tight latch. I will continue to use the checklist as taught.

SYNOPSIS

C-162 pilot reported a cabin entry door opened in flight.

ACN 2065852	
DATE / TIME	
Date of Occurrence	202312
Local Time Of Day	1201 to 1800
PLACE	
Locale	ZZZ.TRACON
State	US
Altitude - MSL	4500
ENVIRONMENT	
Flight Conditions	VMC
AIRCRAFT / EQUIPMENT X	
ATC / Advisory - TRACON	ZZZ
Make Model Name	Cessna 162 Skycatcher
Operating Under FAR Part	91
COMPONENT 1	
Aircraft Component	Exterior Pax/Crew Door
PERSON 1	
Function - Flight Crew	Pilot Flying
Function - Flight Crew	Single Pilot
ASRS Report Number	2065852
EVENTS	
Anomaly	Aircraft Equipment Problem - Critical
Anomaly	Deviation / Discrepancy - Procedural - Published Material / Policy
Anomaly	Inflight Event / Encounter - Loss Of Aircraft Control
Detector - Person	Flight Crew
Result - Flight Crew	Diverted
Result - Flight Crew	Landed in Emergency Condition
Result - Flight Crew	Regained Aircraft Control
Result - Aircraft	Aircraft Damaged
NARRATIVE 1	

We were conducting a personal flight from ZZZ to ZZZ1. No anomalies were found during preflight. We performed a run-up on the ramp, got a clearance, and taxied to the assigned runway XXL. After stopping at the hold-short line I started performing the pre-takeoff checklist but was interrupted by tower instructing us to line up and wait on [runway] XXL ("Aircraft X runway XXL line-up and wait"). We taxied onto the runway and got our take-off clearance immediately after getting into position. I completed the checklist item I had started earlier and advanced the throttle for takeoff. After an uneventful climb and approximately 5 minutes of flight at cruise altitude (4500 feet MSL, 3500 feet AGL) at about 95kt TAS the aircraft performed an uncommanded and rather violent roll to the right and pitched up significantly. I instinctively pushed the yoke forward, leveled the wings, and ensured proper airspeed. I realized that the cause for this behavior was that the left door popped open. The Cessna 162 has wing doors that allow for easy entry and exit but require two door latches to be secured (one at the rear end and one at the front end). I realized that when allowing myself to be rushed

into position on the runway I skipped part of the take-off checklist, which included checking that the second door latch is secured.

We immediately turned back towards ZZZ and advised ATC. We were cleared for runway XL. The added drag of the open and bent door required us to trade altitude for speed even at full throttle. We managed to arrive at short final for [runway] XL with about 500 feet of altitude left. After a successful landing we taxied back to the hangar to evaluate the damage. The door was folded up halfway since the rear latch held (but eventually failed) while the front of the door opened due to the unsecured latch.

I made the mistake of not completing the take-off checklist before entering the runway. I should have declined the line-up and wait instruction and instead go through the checklist items before contacting tower. The sense of urgency the received instruction conveyed led me to rush the normal take-off procedure. In the future I will decline such an instruction in the event that I am not fully ready for take-off yet, even if that causes a delay for my departure and the departure of following aircraft. More broadly, it is a reminder that I am responsible for the safety of the flight and have the right to decline any clearance and instruction provided by ATC to ensure a safe outcome.

I realize that the unusual attitude training received during my recently completed primary training has helped me handle the situation once it arose. I did not hesitate to advise ATC and was ready to land in a field in case we would not make it back to the runway.

SYNOPSIS

C-162 pilot reported a loss of control due to the aircraft's entry door opening in flight after not being properly secured.

Previous Alert

6/12/2014 **FOR YOUR INFORMATION** 2014-39/3-9

1152315

To: Textron Aviation

Info: FAA (AVP-1, AVP-200, AFS-800, MKC-AEG, AQS-230, AFS-280, AFS-200), AMFA, AOPA, ATSG, GAMA, IAM, NAFI, PAMA, TWU

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

Re: Cessna 162 Skycatcher Cabin Door Open In Flight

We recently received an ASRS report describing a safety concern which 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

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

ACN: 1152315

Time
Date: 201402
Local Time Of Day: 1201-1800

Place
Locale Reference.Airport: ZZZ1.Airport
State Reference: US
Altitude.MSL.Single Value: 1800

Environment
Flight Conditions: VMC

Aircraft 1
Make Model Name: Cessna Aircraft Undifferentiated or Other Model

Person 1
Function.Flight Crew: Pilot Flying
Function.Flight Crew: Single Pilot
ASRS Report Number: 1152315

Events
Anomaly.Aircraft Equipment Problem: Less Severe
Detector.Person: Flight Crew
Result.General: Maintenance Action
Result.Flight Crew: Diverted
Result.Flight Crew: Landed As Precaution
Result.Aircraft: Aircraft Damaged

Narrative 1

I performed twelve touch and go landings at several airports before arriving at ZZZ1 where I stopped for a short break. After the break, checklist items prior to startup taxi and takeoff were abbreviated in that the mag check and carb heat check were deleted due to the fact that these had been performed earlier prior to departure. The ZZZ ATIS was as follows: the wind was from 190 degrees 12 KTS and the visibility was 10 miles with a few clouds at 8,000 FT. The temperature at ZZZ was -9 C and the dew point was -15 C. During the takeoff roll, and as with some of the other touch and goes, some "bumps" were encountered. The climbout was uneventful until I reached an approximate altitude of 1,800 FT MSL. At that point and while about a mile south from the airport, I heard a loud "bang" and heard and felt the rush of wind. Papers from back of the airplane landed on my lap. I took note that the pilot side door was fully open to the horizontal position and that the plunger or hydraulic strut attached to it was tilted aft. The Plexiglas window in the pilot side door was shattered. As the ZZZ Airport, which was my destination, was ten miles away, and the ZZZ1 Airport was but a mile or two away, I opted to return to the ZZZ1 Airport. At that time, there was one other airplane in the ZZZ1 traffic pattern. I chose the longest runway for landing. The landing was uneventful.

After the landing I taxied back to the departure end of the runway and examined the aircraft. Beyond a bend in the door, a slight paint scuff on the left wing strut, and the shattered pilot side door window, I could discern no damage. The wing, tail section, landing gear, fuselage all appeared intact. During the return to the airport, I noted the aircraft flew normally. I was able to close the door and secured the door with the front door latch. With realization that the aircraft was intact (minus the Plexiglas pilot side window) and that aircraft such as this are regularly flown with doors removed (such as in carrying skydivers), and that the flight would be brief and less than 11 nautical miles, there would only be the discomfort of the cold for which I was suitably dressed with which to contend. As it appeared that the door would need some repair, and as I wanted to have the repair performed at the dealer facility where I purchased the airplane, I elected to depart ZZZ1 Airport to return to the ZZZ Airport for any temporary repair that might be needed, such as replacing the Plexiglas. The flight was

uneventful other than the wind noise. Again Approach Control was contacted and I was cleared for a straight-in approach. The landing and taxi back to the hangar were uneventful. Again, the distance between ZZZ1 and ZZZ was less than 11 nautical miles.

I contacted the repair facility and advised the receptionist I would be bringing the aircraft in for repair. The next day, an A&P mechanic inspected the aircraft and determined that the Plexiglas could be replaced and that the door could be made secure for flight. After returning to the hangar in ZZZ, I examined the pilot side door of the aircraft. In addition to the broken Plexiglas, the upper forward edge of the door was bent outward, and there was a deep diagonal crease at the lower rear of the door, as if the door had been pried open from the front. To me, this would indicate that the pilot side front door latch was either not closed or was jarred to the open position and that the rear of the door was latched. During the takeoff roll, there were two or three good 'bumps' either due to ice on the runway or unevenness in the runway surface. These jolts might have caused my left knee to accidentally contact the forward door latch and move it to the open position. The door of the Cessna Skycatcher is hinged at the top, and this is often referred to as a gull-wing type door. In my opinion this is the basic source of the door problem with the Cessna Skycatcher. In most general aircraft, the cabin doors are hinged at the front or forward edge. With the door hinged at the front edge, and if the door would open during flight, nothing much would happen, other than that there is a lot of wind noise and perhaps a loss of some paper charts. The door would be held 'in trail' by the slipstream and there would be no damage to the airframe. Instructors with whom I have had flown in the Skycatcher have warned that if the door does open in flight that there will be damage and the Skycatcher Operations Manual does mention of this.

Beyond the basic flaw of the 'gull-wing' door design, in the original design, the door of the Skycatcher was latched at the rear by a lever mounted in the top of the door sill at the base of the window. The lever is clearly visible. Because of inadvertent door openings and actual losses, Cessna then added a secondary latch to the front or leading edge of the door. This, in itself, is an admission of the design error in the latching mechanism. Even still, the latching mechanisms are insufficient and flawed in that the interior of the aircraft is black and the knobs on the secondary door latches are also black and sit below knee level. Thus, they are mostly out of sight. The open and closed positions can only be really verified by moving the door latch handles. The aircraft involved is a late serial number 2013 Skycatcher and is equipped with forward and aft door latches. It is my understanding that what happened here is not uncommon for the Skycatcher, whether equipped with either single or dual door latches. In the prevention of such further incidents, and beyond the diligent attention to checklist items, I would suggest as follows:

1) Cessna should replace the black knobs on the secondary forward latch handles with a white or preferably 'luminous' white knobs so that they would be more visible in day or night conditions.
2) Even better and in addition to the above, there should be LED indicator lights - both red and green to be placed on the left and right of the instrument panel for both pilot and co-pilot doors. The red would indicate that the forward latch is not closed and the green would indicate that the forward door latch is in the closed position.
3) Perhaps beyond practicality and certainly more fail-safe would be an interlock between the forward door latch and magneto switch, such that the ignition could not be activated without the forward door latch being in the closed position.

Callback 1

The reporter cannot be absolutely positive that the forward latch was engaged prior to takeoff on the incident flight or if it was bumped during the takeoff due to the rough runway. Either way the latching handle should be made more visible by installing a contrasting knob.

Synopsis

Cessna 162 Skycatcher pilot describes the circumstances leading up to a door coming open in flight, causing significant damage to the door.