

Members report door-open-in-flight scenarios in Bonanzas and Barons WITH & WITHOUT VORTEX GENERATORS

We've reported experiences of ABS members who fly Barons modified with vortex generators (January 2006 issue, page 9426). VGs alter air flow over the top of the wing (and in some installations, the tail) to increase control effectiveness and lower stalling speeds.

ABS has received isolated reports of control vibration ranging from a slight buffeting to severe "control pumping" when the forward cabin door of VG-equipped Barons opens in flight.

BPPP has a long-established policy of not conducting the "door open in flight" portion of its flight training programs in VG-equipped Barons because of its experience with this scenario. Other members say they have not noticed any control difficulties in similar occurrences.

To get more data, we asked you to send us your experiences in Barons and Bonanzas, with and without vortex generators.

—Tom Turner, ABS Manager of Technical Services

SEVERAL YEARS AGO, a door-opening event on my B55 in level flight at cruise speed did not result in any significant control issues, either then or during the approach and landing. It was the only time I ever had this happen and the first and last time that anyone other than I closed the door. There was light/moderate buffeting, but no yoke pumping.

I have the original Micro VGs with the small hooks on the top, no nacelle cuffs and VGs only on the left side of the vertical stabilizer. I have IO-550s and winglets, but doubt they play a role one way or the other.

—Ron Vickrey, Port Orange, Florida

IHAVE HAD THREE OR FOUR Bonanzas pop the doors in flight, uneventful with no control problems or buffeting. The door was open approximately two to three inches.

My experience with the B55 was entirely different. The door popped

open at the usual time, so at this 2,600' strip an abort was out of the question—just continue around the patch, land, close the door. This one was VERY different. As I recall, the door was way open, maybe a foot or more, and there was moderate to severe buffeting of the stabilizer and elevator, and about a 2" and 4-cycle per second rapid pumping of the control yoke.

As I progressed around the pattern at about blue line speed, the buffeting and pulsing stayed about the same. As I approached short final with reduced power, the buffeting and pulsing lessened and with throttles closed over the threshold, it all but stopped. We exited the airplane and performed a thorough inspection and found no damage. This aircraft had no VGs and no de-ice boots.

—Ben Olson, Gig Harbor, Washington

WE OWN A 1975 B55 with Micro AeroDynamics vortex generators I installed in 1999. In 2000 we had a cabin door come open in high speed (the yellow arc) descent. The front lower hinge failed and the door was hanging only by the upper hinge.

The airplane was being flown by my wife Dianne, and she had no problems with control. We landed safely and without incident. No other damage was noted then or since to the airframe.

—Richard S. Moore, Port Orange, Florida

WE HAD A RASH OF DOOR POPS while chasing down a loose striker plate and a broken door roll pin on our VG-equipped Baron ('65 B55). All of the door pops were nonevents with one possible exception. On one of the door pops I noticed a subtle change in handling characteristics; it seemed to wobble a tiny bit in pitch on final. This may have been purely the power of suggestion, since it happened right after the [ABS] article.

—Derek deBastos, Laytonsville, Maryland

AS A MULTI-INSTRUMENT-RATED pilot, most of my 1300 hours are in my 1981 B55. I purchased N2367P in 1995 and had it flown to Minnesota where Beryl D'Shannon put on the VG kit. Therefore, I have never flown the Baron without VGs.

I have had four cabin door opening incidents over the years and can give the following advice: *Always, always, always close the door yourself—and feel the two clicks!*

Incident #1 - Off KDPA after having a new interior installed. Door popped at liftoff; noise was very high. When I realized all I had to do was turn up the volume on the comm radio to talk to the tower, the landing was a non-event. Unfortunately, I lost all my charts and my handheld GPS out the door. It turned out the "welp cord" used to trim around the door was too large in diameter, not allowing the door to close.

Incident #2 - Off KUES with an overweight CFI in the right seat who I had allowed to close the door. Door popped at high speed on the takeoff run. I pulled the throttles, latched the door and went back for a "redo."

Incident #3 - Off KHAO with my wife and dog in the back. I was the only one in the front, so I closed the door. Door popped on liftoff. It was very noisy and there was buffeting and lots of vibration. I had not raised the gear; maybe that contributed. No problem after a relatch, except to the marital relationship.

Incident #4 - Off KRAC after a runup with my A&P who closed the door from the outside and I latched it. I took off alone. The door popped at liftoff. I had lots of runway so I chopped the throttles and set it down with plenty of room left. No problem in second attempt.

My advice is to make special note to the door closure on the checklist and the pilot is the one who should close and latch.

—Jerry Baker, West Chester, Pennsylvania

THREE "DOOR-OPEN-IN-FLIGHT" experiences have occurred in my VG-equipped B55 with no unusual control issues. If the pilot does not maintain rudder coordination, the door might swing open more fully than usual. I can see where that could affect airflow and cause control difficulties.

I suggest having a right-seat passenger, if available, hold the door as firmly closed as possible if it should pop open
—John Altintop, Sunland, California

MY BARON DOES NOT HAVE vortex generators. However, I've had four door openings. The first three occurred in a 1975 Baron I had for several years. In all three, the cause was the latch that was not assembled properly. Each time, the door opened just as the wing got lift on takeoff.

The first time, it was overcast with ceilings about 900'. As I departed, the door popped open with a loud noise. Because my Jepps were on the passenger seat, I reached for them to keep them from going out. I couldn't move the door to close it and called the tower and landed on another runway. What I found was an offset between the "suction" to pull the door out and the onrushing air. The door was frozen at about 6-8" open. It couldn't be pushed further open, nor closed.

The second two times, I was on a long enough runway that I could pull power and get back on the cement.

The last time was in my current Baron (1976 Colemill President II). I was taking the plane home from the seller and had brought an instructor to check me out. He hadn't closed it completely, and it popped open at liftoff. I immediately pulled power and stayed on the ground. (It startled him, but my reflexes are tuned to staying alert to this potential and I react quickly.)

In this case, the new leather interior pushed against the door, making it hard to close (since corrected). It is critical you get the second "snap" as you lock the door. He had only got the first, and it opened. I'm careful to always

confirm I get that second part of the action before considering it secured.

I can't imagine how you can have a door open far in flight because of the outside pressure against the door. Perhaps the VGs have something to do with it.

—Jim Ciernia, San Luis Obispo, California

MY A55 DOES NOT HAVE vortex generators. About five years ago the door came open on rotation. I was full of fuel, but lightly loaded, with no passengers. The choice was to fly around the patch and close the door.

On a single-engine Comanche that I also own, the PA24 door will open about 2" and stay right there. This is not the case with the Baron.

Rapid and dangerous pumping of the control column was definitely the scenario I encountered. The door was pumping in and out at the same rate as the control column. I didn't have time to look back at the elevator to check for tail flutter. I have not identified any damage to the tail, no loose rivets or cracked skin. I am an A&P and know what to look and feel for.

I remained at or slightly above Vyse while going around the patch to land. I'm not exaggerating to say the yoke was moving in and out over an inch in its travel. It seemed that with every pulse of the prop blast, the door would react by pulsing an inch to a couple inches from the fuselage. I attributed the elevator excursions to the airflow disruption by the pulsating door.

My first reaction was to fly the airplane, followed by a strong urge to stop the door pulsations (not a good idea; I couldn't have held it steady if my life depended on it), then back to what my life did depend on: FLY THE AIRPLANE!

The pulsations were very strong; they could not be appreciably damped. I was concerned about airspeed changes making matters worse, therefore the reason I stayed close to Vyse.

—Rick A. Foree, North Richland Hills, Texas

DURING AT LEAST ONE DOOR opening in an E55 with the later design Micro AeroDynamics VGs, I did not notice any handling problems.

I confess to having had doors pop on Bonanzas and both the E55 and a B58. All were due to my failure to completely latch the door, and all occurred at rotation. In each case, I flew around the pattern, landed and closed the door.

—Larry Slade, Port Orange, Florida

IHAVE FLOWN MY 1974 58 with 2-blade props and vortex generators, with a Colemill conversion (Foxstar Baron) with 4-blade props and vortex generators, and the same Colemill Foxstar Baron with 4-blade props without vortex generators.

I have flown each configuration with the door open. The first time was transition training. The second time was as a customer at a BPPP clinic.

The third time was to show that it was no big deal to fly with the door open. It consistently flew with little difficulty; it just required about five extra knots on the flare to maintain easy control. This is similar to the many Barons and Bonanzas I've instructed in at BPPP clinics.

—Greg Ricca, Jonesboro, Arkansas

MY E55 IS EQUIPPED WITH VGs. The door came open on one occasion, and I experienced a fairly violent pumping of the elevator. I immediately landed and there was no damage to the airplane.

—Bob Hecoeks, Grass Valley, California

IAM A NEW BONANZA OWNER, having bought my 1985 A36 (N4736M) in August of 2005. During the time I was flying with the door open, I did not experience any adverse control characteristics. With the exception of the noise from the open door, the aircraft flew about the same as it did while the door was closed.

—Darren Beyer, Winter Park, Florida

