

Pitts Model 12 Canopy Departure



1 The Subject Airplane, N82BW

I've had the following conversation so many times, basically every time I've given an acro ride.....

"So what is this lever for?"

"That's the canopy release lever. It's used to jettison the canopy, in the case where we have to bail out of the airplane. All aerobatic airplanes are required to have the ability to jettison the canopy or the door. But don't worry, the odds of us needing to use that lever are very very very low. Negligible really. And I have the same lever in the back seat, so in the unlikely case that we would need to bail, I'll manage the canopy."

"Ok I'll just ignore that then."

"Perfect! Don't worry about it, and for sure DON'T TOUCH IT!"

Saturday, Sept. 15, 2018 dawned with perfect weather. My friends Cindy and Bruce Limbach, who own our flight school, Blue Sky Aero, were hosting their annual fly-in pig roast on this day. This pig roast, held at Cindy and Bruce's private airstrip, is quite the show. We have about 30 to 50 airplanes fly in, and maybe as many as 500 guests. Almost all of the airplanes present are taildraggers, because we as a group are incredibly biased towards aircraft without a "training wheel". Many of the airplanes are acro mounts. We have an acro box located right over the airport. We give free rides all day long in a whole variety of airplanes, including Stearmen, Citabrias, various Pitts, Cessna 170s, and others. My job this

day was to give rides in my Pitts S-2B and also in a Pitts Model 12 that belongs to my friend Martin Boguszko. Martin is gracious enough to allow his Model 12 to be flown at the party, and he's also gracious enough to let me be the lucky one to do the flying.



2 N82BW With Her Owner, Martin Boguszko

Rides started at 10:00. My first ride of the day was a very good friend that I've known for a very long time. Let's call him Keith. Keith has owned a Stearman for at least the last 15 years, and he's allowed his Stearman to be used as part of the flight school. We've given more dual, rides, and overall aviation debauchery in his Stearman than in any other airplane that I know of. Keith wanted a ride in the Model 12 and he, of all folks, deserved one. So in he went, and off we went.

As we climbed for altitude (which takes but a few seconds in a Model 12), Keith told me that he wanted to "really experience the airplane", and that I should "let him have it", and "hold nothing back". Hmmmmm. Ok, this should be fun!



3 Martin And The Author At Airventure 2018

I use my S-2B in the flight school and we give all forms of acro dual, Pitts checkouts, and acro rides in it. Over the years, I've developed a number of "standard routines" that I use for giving rides. If someone is a total newbie, then it's a very gentle and gradual exposure to unusual attitudes and g-forces, increasing the attitudes and g's as the person shows their ability to tolerate the ride. If someone is an experienced acro passenger, then we might start out a bit more aggressively. Regardless, I'm normally very cautious, and err on the side of gentleness. It is, after all, extremely difficult to clean stomach contents from the interior of a Pitts, and so it is certainly to my benefit to keep the passenger from hurling, and absolutely nobody has fun when they are feeling sick. Well, today wasn't a "normal" day and for some reason I was feeling a bit more "spunky" than usual, and with Keith egging me on, well.... you get the picture!

We get to altitude and dive to enter the box. Since my intention is to "get a little wild", I hit the box with quite a bit of smash and rolled inverted. As soon as we get inverted I see that we've got an issue. I realize that I had not checked Keith's belts to insure they were tight enough. Because Keith is such an experienced pilot, I assumed that he would know how to tighten belts to "acro" tightness. Normally during loading of the passenger I check and make absolutely sure that the passenger's belts are tight enough but today I had not done that. With a newbie I also religiously do a gentle belt check early in the flight. Today, that didn't happen either. And as soon as we got inverted I realized my errors, as I

saw Keith move several inches toward the canopy, far enough that his headset actually contacted the canopy. His headset shifted sufficiently that he could no longer hear me.

“Keith, you Ok? Keith? Looks like your belts are too loose. Let’s roll upright and fix that.”

By this time, which was only a few seconds, Keith had enough of being upside down, and started to flail his arms a bit in an attempt to grab onto something. I initiated a roll to upright. Right then, as we began to roll back upright, I noticed the canopy open slightly.

“Wow, that’s strange. I swear that I latched the canopy before runup. I always latch the canopy. Why is it open?”

Everything slowed down. For a very brief moment, my brain went into overdrive. Why was the canopy open? How did it get open? Did I forget to latch it? Did the latch fail? This just seems so strange, it can’t really be happening, can it?

The canopy hovered in an opened position, just opened a few inches. It took a minute for my brain to catch on, but suddenly my brain was talking to me: “Hey dummy, reach for it, grab the canopy!” So I reached with my left hand. With my right hand, I unconsciously increased the roll rate back to upright. As I did so the centrifugal force from the roll yanked the canopy wide open and out of my reach. I had missed my chance. Now the canopy was all the way open. Holy &^\$#%, this isn’t good.

A split second later the canopy, now exposed to the full force of the wind (my guess is that we were going about 150 mph at this point), literally ripped off the airplane. The front of the canopy went upward, twisting the canopy hinges until they fatigued and broke. The canopy itself headed aft so quickly that it was out of view in a fraction of a second. With my brain now on full adrenaline and processing information extremely quickly, I waited for the impact with the tail. “Holy #%^, if the canopy takes out the tail, we’re going to have to bail.” The thought of that made my adrenaline spike even higher! This is ridiculous, I’m too old for this much adrenaline!

I had definitely NOT planned on bailing out of this perfectly good airplane. What am I going to tell Martin? This is NOT the way to treat his airplane, and it’s not why he entrusted me with his airplane. It’s amazing how quickly the brain processes thoughts at a time like this. Wow, Martin is going to be sooooo pissed. And Keith can’t be having a good time either. And the WIND! Dang, it’s WINDY! It’s so windy and loud that I can’t even shout to Keith, so how am I going to tell him it’s time to bail? I can’t bail without him. I’ve got to stay with this airplane. But, is it really time to bail? Maybe not! I came out of panic mode and took stock of the situation.

I ever-so-gently wiggled the stick. Nose responds properly. I pull a bit harder. Yup, I’ve got elevator. Tail is still on. Ailerons work, even the rudder works. We’ve still got an airplane.

Wow. All I could think of was “Wow”. I momentarily felt paralyzed. What now? Interestingly, instinct and training, well, experience really, took over at this point. So now for a bit of a flashback.....

I really enjoy being part of our flight school. We have loads of fun! We have a great group of people. THE BEST group of people! We do lots of activities and keep things fresh all the time. One of the many forms of “fun” that we have is the sport of toilet paper cutting. For those who are unfamiliar, the sport

is engaged by taking several rolls of toilet paper, climbing to altitude, and hucking a roll overboard. (An airplane that can open a door or canopy during flight is required which unfortunately rules out the two-place Pitts, because it would otherwise make an excellent TP-cutting airplane). The roll unravels, and falls to earth quite slowly, in a vertical position, looking like a spinning toilet-paper DNA strand. I suppose we should get some video of that, but to my knowledge nobody has ever taken a video of a falling TP strand. Anyway, I regress..... our job as pilot, then, is to make multiple passes on the falling DNA strand and cut it to smithereens! Loads of fun! But the trick is, once you drop it, you have to immediately turn and look for it because if you don't you'll lose sight of it, never to be seen again.

Ok, so now back to the present. Something just fell off the airplane. Toilet-paper induced training kicked in, and I instinctively turned the airplane so that I could see the canopy. There it was. Falling, fluttering. NOT AT ALL like toilet paper! More like a plexiglass brick.

Where is it going to land? Is it going to hurt anyone? Is there a way to recover it? It'll be impossible to find it in this HUGE corn field. Maybe it's going to land in the woods. It looks like it's going to land in the woods. We circled the descending canopy, just like I've circled falling skydivers on many occasions. Maybe that's why this seemed strangely familiar, only windier. Wow, it's taking a long time for that canopy to get to the ground. Poof! It's gone! Gone! No trace of it. I think it went into the corn about there. I made a mental note of where I thought it went into the corn. Ok, time to land. And to think about my passenger! For the last few seconds I had focused on my situation and the falling canopy. Now my thoughts snapped towards Keith. What about him? How's he doing? He didn't bargain for any of this! I called to him on the intercom. Since we both had chinstraps on our headsets, our headsets were still on. But it was so windy that we couldn't communicate. He was strapped in, (albeit loosely!) and he looked like he was fine. Just get it on the ground now.

First thing is to reduce the wind. Throttle to idle, nose to the sky, airspeed to MCA. Ok, now the wind is not that bad. Airplane is controllable. Wind is tolerable. No need to bail. We're staying with this airplane.

The acro box is located right over the airport. As luck would have it, even after all of the twists and turns we'd done, we happen to be midfield downwind. How convenient! Landing was actually quite uneventful. The worst part was the wind. Anyone who's landed a Pitts knows that you can't see a thing straight ahead, so a slip is standard procedure. As soon as I slipped the airplane, the wind from the side about took my head off. I had to brace myself for the wind on final. The wind caused my eyes to water terribly. But I'm not about to give in to some watery eyes at this point, just grin and bear it. We're over the runway, I've got the edge of the runway, we're leveled out, this is totally normal. We're down. Taxi to parking.

We taxi to the party, and I shut her down. I realize that I so totally need to apologize to Keith for this whole disaster. The only thing I can think of is that I forgot to latch the canopy. As soon as the engine stops and our headsets are off, Keith's first words are "Dude, I am SOOOO sorry! I hit the canopy release when we were upside down!" Ah, so THAT'S what happened! At least the mystery is solved. But poor Keith feels absolutely terrible.

And that's the end of the canopy departure story. Martin took the news with the usual grace and style that he always displays. Keith and I were both unscathed (although we had the "windblown look" for a while). The airplane was virtually undamaged. The canopy had departed without touching the airplane

at all (thanks for that part of the design Kevin!). Not a scratch was on the tail. The Model 12 canopy has a gas strut that supports it, and in this case the gas strut did it's job and helped the canopy depart gracefully without beating the side of the airplane to death.

Many, many lessons were learned from this incident. The biggest lesson? Don't get complacent. Ever. This is a lesson that seems to just keep getting re-learned. I didn't think I was getting complacent. But, clearly I was. This event helped snap me back to reality. The other big lesson is that if there is a big party going on with a group of people and you're in a Model 12, whether you realize it or not you're doing a "Hey y'all, watch THIS" moment. I didn't realize I was in that mode, but in hindsight I was. Thankfully, very little harm was done. Well, except to my ego and reputation.

Be safe out there!



4 Back Safely In the Hangar, Without a Canopy

Pitts Model 12 Canopy Recovery

Shortly after landing, the realization hit Keith and I that the canopy was somewhere in a the corn field. We both saw it disappear into the corn. It's important to understand that in mid-September in Illinois, the corn is still 10 feet high. The canopy disappeared as soon as it hit the top of the corn. We both realized, deep down, that the canopy was gone. Never to be recovered. But we both had so much adrenaline running through our bodies that we had to do something with it. There was no way we were going to just sit around at the party. So Keith jumped on a 4-wheeler and I jumped into a KitFox with a friend of mine, Carl Giudici. Carl did the flying and I did the vectoring. I told him where I believed the canopy should be. We flew right over the spot. The corn field, which belongs to our friend Doug Harford, was expertly planted and the top of the corn stalks all uniformly created a perfect, unblemished carpet 10 feet above the surface. We flew over the spot and saw nothing. We flew over again. And again. And again. Finally, we started to notice a tiny blemish in the otherwise perfect carpet of corn. That blemish, could that be the entry point of the canopy? Hard to know, but it's the only blemish that we can see anywhere, and it's right where I believe the canopy should be. So we marked the spot on our GPS, and went back to the party.

We explained the situation to folks at the party. The consensus was that the canopy was gone. Maybe Doug would find it when he harvested, and if we were lucky, he would see it before he hit it with the combine. Bruce Limbach, ever the creative one, overheard the conversation and said a single word: "Drone".

Within a few minutes, he had his drone in his hand, loaded the GPS coordinates in it, and dispatched it to the location. The drone took a stable hover position right over the "blemish" in the field. The camera looked straight down. And there, on the screen, was the canopy! I was sure that canopy had exploded on impact and would look like an egg dropped off the roof of a building. But, while it was hard to see the exact condition of the canopy, it appeared to be intact! Wow, how could that happen?



5 Canopy In CornField, As Seen By Drone

So now we knew where the canopy was. And we knew that it was intact. Now the question was, how do we get it out of there? Anyone who has walked into a cornfield in September in Illinois, knows that within just a few seconds of entering the field there is a complete and overwhelming sense of disorientation. There's really no way to know where you are, which direction you're pointed (with the exception of using the direction of the rows as a reference), and there is certainly no way to know how far into the field you've walked, or how you would get out of the field. So how could we get this canopy out before the combine eats it?

Once again, Bruce came up with the winner ideas. The first thing he did was to find some young folks at the party that seemed to need some adventure. Initially we thought that we'd be lucky to find one guy who would be willing to go into the corn field. But, when word got out, we ended up with an entire herd of kids that wanted to go! The next idea was to hover the drone over the canopy, and then fly the drone directly down the corn row all the way to the edge of the field, and then land the drone directly at the edge of the row. Now, we knew exactly what row the canopy was in!

The group of adventuresome kids grabbed some blankets in the hopes that they would find a canopy that was worthy of wrapping up and protecting, and in they went! They were having a great time! After quite a while, those of us standing at the edge of the field got the report that they had found the canopy and that it was indeed intact. A few minutes more, and the canopy and the kids emerged from the field.



6 The Recovered Canopy

The canopy recovery effort was truly a demonstration of modern technology in action. It was amazing to watch and to be a part of. And for me, I was incredibly thankful for all of the help that I received in this effort. As always, I am amazed, and blessed, to be a part of this wonderful group of people.