

After gaining radio clearance from the Sky-Dive Safety Officer to depart, I taxied out onto the eastern (departure) end of runway 27 for departure from John Nichol's Field. Once aligned on the runway, I applied power, gradually increasing it as the aircraft picked up speed. The aircraft tracked very true with very little rudder needed to maintain a straight course down the runway. At about 30 mph and 300 feet down the runway, at full power, the aircraft began to feel light and I applied back pressure on the stick to bring the nose up. As I did so, the aircraft left the ground almost immediately and began to climb, I continued to hold back pressure on the control stick intending to pull the nose up into the proper attitude for maximum rate of climb. However, as the aircraft reached an altitude of approximately 6 feet, it began to roll to the right. I immediately corrected back to the left with the control stick thinking that I had encountered a cross-wind gust of air. However, the aircraft continued to roll to the right. Alarmed, I immediately pushed the stick forward to arrest the climb and increase speed, and I responded to the roll with some left rudder. The roll slowed, but did not completely stop. I continued to push in more rudder until I had in all the left rudder as far forward as I could push it. At that point the rolling motion stopped and began to correct back to the left which I allowed it to do to level the wings.

Assessing my situation, I found I had control of the roll, but with almost no rudder or aileron travel available to the left. I was about 3/4 of the way down the runway, slightly to the right of its right boundary at about 8 or 10 feet AGL, but noticeably lower than the tree tops which were rapidly approaching ahead of me. I decided that I had insufficient control of the aircraft to continue to safely fly it, so I made the decision to attempt to land in the distance available in front of me. I pulled the throttle back to a high idle, and pushed the stick forward to establish a controlled descent. When I got close to the ground I pulled back on the stick to level the aircraft. I also pulled the throttle to full idle power. As I put back pressure on the stick, the aircraft once again began to roll to the right.

I was aware of the need to correct the severe crab to the left that I had the aircraft in, prior to landing, in order to get the nose pointed in the direction the aircraft was flying before touchdown. But I was afraid that any attempt to take pressure off of the left rudder pedal would result in a roll that would cause the right wing to strike the ground first and cause the aircraft to pivot and impact the ground nose first. I decided that my best option was to hold in the left crab as the airspeed dropped off, and continue to hold it in the left crab right down to the ground. I was now skimming over the ground at about 1 to 2 feet. In a short moment, as the airspeed dropped off, the aircraft began to sink. I immediately pulled back on the stick to bring the tail down and slow it even more before touch-down. But as I pulled the stick I felt the right wing dropping again. The aircraft touched down first on the right wheel, in an extreme crab to the left, and just kind of crumpled the right main landing gear. However, I think I achieved a full stall, two point landing (right main and tail-wheel initially). The impact forces were very mild, hardly more than you would experience in a normal landing.

When the dust cleared, I found myself sitting in the aircraft that was sitting on top of the right main gear wheel with the right wing down on the ground. The left main gear was splayed out to the left and the severe lean to the right was causing fuel to leak out of the right side, wing fuel tank vent port, onto the ground. I noticed immediately that the right forward wing spar tube was broken just outside of the lift strut attachment point, and that the aft lift strut was not attached to the rear spar. I assumed it was damaged in the crash. I turned off all the switches and exited the aircraft out the left side.

Shortly after I exited the aircraft, the Sky-dive folks came out to assist with removal of the aircraft which was lying in the runway over-run area and preventing them from continuing their operations.

They had also called 911 when they could not raise me on the radio. I had been unable to respond because for some reason, I was finding it difficult to activate the push-to-talk button. I think I was a bit shell-shocked. They picked up the aircraft and placed it, intact on the back of a low trailer they have and transported it back to my hanger where they placed in on the floor with the right wing up on a saw-horse.

I was very confused as to why it wanted to roll to the right, and very concerned that I had perhaps caused the accident myself by misinterpreting what was going on and cross-controlling the aircraft right into the ground. This was partly because I know how simple and secure the control system in this aircraft is. I could not imagine a malfunction occurring in the system from any cause. However, shortly after we had the aircraft back in the hanger, a young man who worked for Sky-Dive San Diego, and was an A&P mechanic, told me that he thought he found the cause of the problem, and he took me to the aft lift strut on the right wing. This was the same one that I had noticed earlier, and thought it had broken from its attachment in the crash landing. However, there was no damage to it, or the fitting it was supposed to attach to. There was only one possible explanation for that. The 5/16 inch bolt that was supposed to pass through the two holes in the strut and the hole in the fitting to secure them together, was not in there at the time of the crash. It had come out before the impact and the strut had separated from the fitting. This would cause exactly the kind of roll disturbance that I experienced, and that had caused the emergency. Obviously, the missing bolt had not been detected during the preflight check. And as soon as I knew that, I also knew why it had not been noticed. As I started my preflight walk-around that day, I could not find the preflight checklist I had that had been developed by Rans for that aircraft. I was not particularly disturbed by that fact, because I have done literally hundreds of preflights on the Aeronca Champ without a checklist, and I was confident I could do a good check on this aircraft as well. But my A&P mechanic who was working with me to prepare the aircraft for flight, insisted that I needed to make another checklist. I reluctantly agreed to write out a checklist as I did the preflight and he volunteered to help me. As it turned out, he preflighted the airplane and at the same time told me what to write down on the checklist. I was supposed to be checking the aircraft with him, but in reality, I found that trying to stay up with him telling me what to write, took so much time that I couldn't really do both. But he was an experienced mechanic, and a pilot too, so I trusted him to inspect the aircraft as we progressed around it. But, what I did not realize was that in fact, neither one of us was focused wholly on the aircraft. Both of us had our attention divided between inspecting the aircraft, and discussing the checklist. And neither one of us actually looked at that strut attachment point.

The strut was press-fitted over the attachment point, and it was a very tight fit and that tight fit allowed us to handle, taxi, and even lift the airplane by that wing, to place a scale under the right wheel for a weight and balance without separating. But the bolt had never been put through the strut and fitting and secured with a nut. But when the wing came under stress to lift the entire aircraft at full gross weight, it separated, and the trailing edge of the right wing was loose to basically weather vane at a zero angle-of-attack. This rendered the right aileron useless and also caused the right wing to consistently produce less lift than the left, and drop. The problem was exacerbated by anything that required that the wing incidence be increased, as with any control input featuring back pressure on the stick. So the roll tendency was higher when rotating to lift-off, or trying to flare to a landing. It would have been equally unmanageable when attempting to turn. But fortunately, because I opted to abort the take-off and land, I did not have to deal with that.