

Don't Want to Go-Around? \$15,000 Please!

How do we know this is a problem?

I do a lot of flight checks (stage-checks) and currency flights working as a flight instructor. In the past four months, I have done about 12 of these flights and incredibly, each pilot, for some reason, inevitably pushed the nose down to reduce their altitude over the runway while trying to land.

This is obviously a very common practice but one that can really cause a lot of airplane damage.

One of my best friends and I did one of these currency flights in late July. During one of his landings, he ballooned in the Cessna 182T we were flying, and as so many pilots do, he pushed the nose down! Luckily, I caught it in time, pulled the yoke back and instructed him to add a little power to reduce his descent rate. He did just that and we settled to the ground very softly, nose wheel up. My friend was very happy with his landing, but if he had been allowed to keep the nose pushed down, the landing could have been a disaster.



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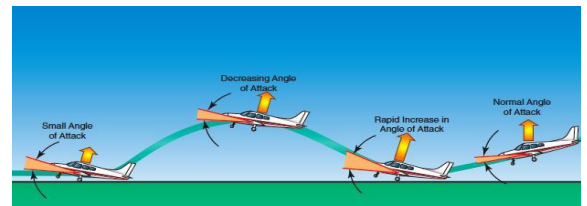
All of us have it - the wish to do the best that we can, and no one wants to fail. When it comes to flying, the problem with this idea is that both property and lives can be negatively affected if we let our ego get the best of us.

In the past three months, I have seen three aircraft make poor landings resulting in fire wall damage here in Livermore. This damage is directly related to both the landing method and level of pilot ego since a go-around is always an option.

Many factors are involved with a poor landing with just a few listed here:

1. When leveling out the airplane before flare, ground effect changes the characteristics of both lift and drag.
2. The pilot is too impatient to get the airplane onto the ground.
3. If airspeed is too high during the flare, the plane can easily balloon back into the air.
4. The pilot flares too much causing the airplane to balloon. If airspeed is too high as well, this can be a real problem.

Contrary to popular belief, an airplane wants to fly and it is usually the pilot's impatience that causes it to land dangerously. Ballooning and porpoising is the leading cause of fire wall damage but one that can be easily avoided.

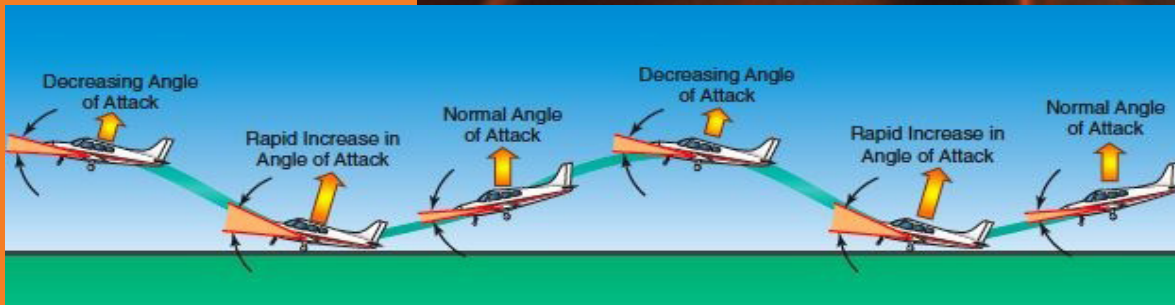


The picture above can be found in the Airplane Flying Handbook (FAA) and shows an airplane ballooning during its landing phase.

Ballooning occurs when:

- Too high of an Airspeed during the flare.
- Airspeed is correct, with too much flare.
- Both of the above.

Ballooning itself isn't the problem, it's how the pilot reacts to it. The absolute worst thing the pilot can do is push the nose down once the airplane balloons or bounces back into the air. These situations are where fire wall damage occurs the most.



What happens when you push the nose down?

- Airspeed increases
- Lift decreases
- Drag decreases
- The plane fly's quickly towards the ground

Everything listed above can cause you real problems when trying to land because of ground affect and the airplane's proximity to the pavement.

Porpoising

What's worse than a simple bounce is something called porpoising. Porpoising occurs when you push the nose down after bouncing or ballooning and the nose wheel contacts the runway pavement. Your first reaction is to pull back on the yoke which will bring the nose back up off the pavement, forcing the main gear to make contact



with the runway. Since the nose is back up and the angle of attack has increased, lift on the wings increases causing the airplane to become air born again. The pilot will then push the nose back down to get back onto the ground forcing the whole cycle to start over. I've done it, and it isn't pretty. What's more, the airplane's fire wall can have too much stress placed on it, a propeller could strike the ground, landing gear could be damaged and additional structural damage could occur.

The Damage

What can happen during a bounce or porpoising?

- Since the nose gear is attached to the airplane's fire wall, the stress caused by a nose-first landing can easily buckle or bend the fire wall. This in itself can cause structural damage not only to the fire wall, but also to the 'skin' of the aircraft. The cost? Around \$10,000.00
- On a tricycle gear aircraft, all of the stresses experienced by the airplane during landing are meant to be taken up by the main gear.

During a nose-first landing, undue stress is placed on the nose gear causing it too to become damaged. The cost? Around \$3,000.

- Structural supports that are attached to the fire wall can also easily be damaged. The cost? Around \$1,500.
- Since the engine is attached to the fire wall, the engine mount and/or propeller could be damaged. The cost? Around \$5,000.

The Solution

Be patient while landing and never push the nose down. Reduce power to descend, increase power to reduce the speed of your descent. A Go-Around is always an option and much less embarrassing than a propeller strike..

THE WORD TODAY

Patience,
Patience,
Patience!

While in ground effect, your airplane is not going to want to touch down on the pavement as quickly as you would like. Experience helps the pilot to understand this, but being patient during level-out and flare is the key to the LANDING problem. Once you level out, just be patient and wait. If your airspeed is right and your throttle is set to idle, you won't have long to wait. If your altitude is a little high, you'll obviously wait longer, but your landing will be a much safer one if you're just patient and you keep your nose up. Look at the far end of the runway during level out and slowly pull back on the yoke and hold it there until the mains touch down and use power to control your descent.

GO-AROUND?

If all else fails and you've ballooned or perhaps even bounced back up into the air, your stress level will inevitably be pretty high, so just set the throttle to full, bring the flaps up, climb and try your landing again. A go-around isn't embarrassing while a propeller strike is!