



Flight Instructor Refresher Course Sample

We're excited that you're interested in our FIRC! This is just a small sample of one of our lessons.

Remember that you can join AceCFI with no risk -- If you are not satisfied with our course for any reason prior to graduating, we will give you a full refund.

Aircraft Class and Its Effect on Fixed-Wing GA Accidents

As indicated in Figure 12 below, we can see the overwhelming majority of accidents occurred in single-engine piston driven aircraft. However, the *lethality* of those accidents, when compared to single-engine turbine and multi-engine aircraft, was much lower.

The higher *rate* of accidents in single-engine piston driven aircraft is likely due to:

1. Single-engine piston driven aircraft being less reliable mechanically (only one engine instead of two)
2. A lower level of proficiency in the aircrews operating the aircraft.

Figure 12: Aircraft Class—Non-Commercial Fixed-Wing Accidents

Aircraft Class	Accidents	Fatal Accidents	Lethality
Single-Engine Fixed Gear	825 70.5%	125 56.8%	15.2%
SEF, Tailwheel	349	41	11.7%
Single-Engine Retractable	256 21.9%	65 29.5%	25.4%
Single-Engine Turbine	29	10	34.5%
Multiengine	90 7.7%	30 13.6%	33.3%
Multiengine Turbine	16	5	31.3%

Accident Data: CY 2012, 24th J.T. Nall Report

Tips on insights to discuss with your students:

Even though the accident *rates* for multi-engine and turbine aircraft are lower, the *lethality* is much higher

This is likely to the increased operating speeds of the aircraft, the subsequently higher kinetic energy at impact, and the increased likelihood of trauma related deaths as a result.

Light and Weather Conditions Effect on GA Accidents

As indicated in Figure 14 below, the vast majority of GA accidents occur during Day VMC conditions. The FAA estimates that 88% of fixed-wing flight time was logged in these conditions (Day VMC). As such, the accident *rate* in these conditions is slightly disproportionate (on the high side) when compared to other flight conditions. However, of the accidents which occurred under Day VMC conditions, only 15% are fatal.

On the contrary, as the conditions become more unfavorable (with combinations of either night, IMC, or both) the *lethality* of the accidents which occurred under those conditions was increased by anywhere from 200-540%.

Figure 14: Flight Conditions—Non-Commercial Fixed-Wing Accidents

Light and Weather	Accidents	Fatal Accidents	Fatalities
Day VMC	1031 88.0%	158 71.8%	219 65.4%
Night VMC*	85 7.3%	29 13.2%	53 15.8%
Day IMC	36 3.1%	22 10.0%	43 12.8%
Night IMC*	16 1.4%	10 4.5%	19 5.7%
Unknown	3 0.3%	1 0.5%	1 0.3%

Accident Data: CY 2012, 24th J.T. Nall Report

Tips on insights to discuss with your students:

Most GA accidents occur during Day VMC

IMC accidents, both Day and Night are proportionally much more deadly

Pilot Qualifications Effect on GA Accidents

The data collected on Pilot Qualifications is somewhat inconclusive with respect to the correlation between Pilot Qualification and the accident *rate* of their respective qualifications. However, it *could* be extrapolated that private pilots may be at a higher risk of involvement in an aviation accident than pilots with other qualifications. This is indicated by the fact that **private pilots were involved in 45% of all accidents, but they only make up 29% of all active U.S. pilots** (FAA 2014 US Civil Airmen Statistics). However, this data is slightly inconclusive since private pilots do not partake in commercial flights (due to restrictions on their certificates), and commercial flights are generally much less likely to result in an accident.

Figure 15: Pilots Involved in Non-Commercial Fixed-Wing Accidents

Certificate Level	Accidents	Fatal Accidents	Lethality
ATP	176 15.0%	29 13.2%	16.5%
Commercial	346 29.5%	61 27.7%	17.6%
Private	531 45.3%	115 52.3%	21.7%
Sport	21 1.8%	5 2.3%	23.8%
Student	77 6.6%	5 2.3%	6.5%
Other or Unknown	20 1.7%	5 2.3%	25.0%
Second Pilot on Board	174 14.9%	35 15.9%	20.1%
CFI on Board*	301 25.7%	42 19.1%	14.0%
IFR Pilot on Board*	681 58.2%	127 57.7%	18.6%

*INCLUDES SINGLE-PILOT ACCIDENTS

Accident Data: CY 2012, 24th J.T. Nall Report

Pilot Qualifications Insights

Here are some insights to discuss with your student about pilot qualification:

An interesting anomaly to note, as indicated in Figure 15, is that the *lethality* of accidents amongst the varying pilot qualifications is relatively even *except for* student pilots which have a *lethality* of only 6% (which is less than a quarter of the average of other pilots).

This is likely due to:

Student pilots flying in overwhelmingly Day VMC conditions, and

Remaining in the traffic pattern for a large portion of their flights. The flight operations in the traffic pattern (Day VMC, takeoff and climb, and landing) have relatively low fatality rates.



Training Scenario

You have a commercial pilot student with over 800 hours of private flying experience in his Piper Arrow. He decides he wants to work his way up to CFI, so he hires you to take him through his commercial training. You notice on the first few flights with him that while he has very positive, confident control of his Arrow, he's also very aggressive in the traffic pattern. He consistently pushes the edge of bank angle, stall, and aircraft performance. It makes you a bit uneasy. How would you handle this situation?

- A. As long as he has positive control and doesn't go beyond any limits or regulations, then there's no need to say anything.
- B. Talk to him about your concern, and tie it to real data about the risks of Loss of Control.
- C. Help him examine his knowledge and proficiency of aircraft control by discussing/practicing Stalls, Spins, Basic Aircraft Control, and Angle of Attack.
- D. Tell him not to do it that way. It's wrong, dangerous, and not what you're used to.

What would you do? And why?