

The CRASH of American Eagle Flight 4184

Background:

- An ATR 72-212 aircraft operated by Simmons Airlines was on course from Indianapolis International Airport, Indiana traveling to O'Hare International Airport, Chicago. The flight was held at certain altitudes longer than it should have been due to air traffic control at the O'Hare airport.
- The weather at these holding altitudes caused an ice build up on the wings of the plane. The build up prevented the wing flaps from opening which allows the plane to fly at a slower speed. This caused the plane to lose control and it eventually crashed into a soybean field near Roselawn, Indiana. The crash on October 31, 1994 resulted in 68 deaths (64 passengers, 4 crew members) – the entire flight.

ATR 72-212 aircraft



This is the same type of aircraft that was involved in the crash.
Image courtesy of: www.skyworld.co.uk

The image on the right depicts icing on the wings of a plane – the 0-20 degree C is what would have occurred on this particular flight.



Image courtesy of: www.newscientist.com

Meteorology cause of crash:

- Weather conditions in Chicago caused air traffic control to hold the plane at 10,000 ft altitude, not allowing them to land
- Holding in place caused atmospheric icing, which is ice build up due to supercooled water droplets in contact with the plane
- Pilots were instructed to descend to 8,000 ft and hold again; more atmospheric icing occurred
- Holding of the plane lasted over 30 minutes in a cloudy atmosphere with liquid precipitation and temperatures at or below freezing
- Icing caused covering of the lower and upper surfaces of the wings
- Covering of these surfaces prevented the extended flaps from opening, which led to losing control of the plane

Aviation cause of crash:

- Due to icing on the wings, flaps were unable to be extended which allows the plane to fly at slower speeds
- Without extended flaps, the plane began to lose speed and lift under the wings
- Un-commanded roll excursion which disengaged auto-pilot (plane completed one roll)
- Second roll followed shortly after
- Crew lost control of flight; contact with aircraft was lost
- Flight crashed at uncontrollable speed of 375 knots (695 km/h)

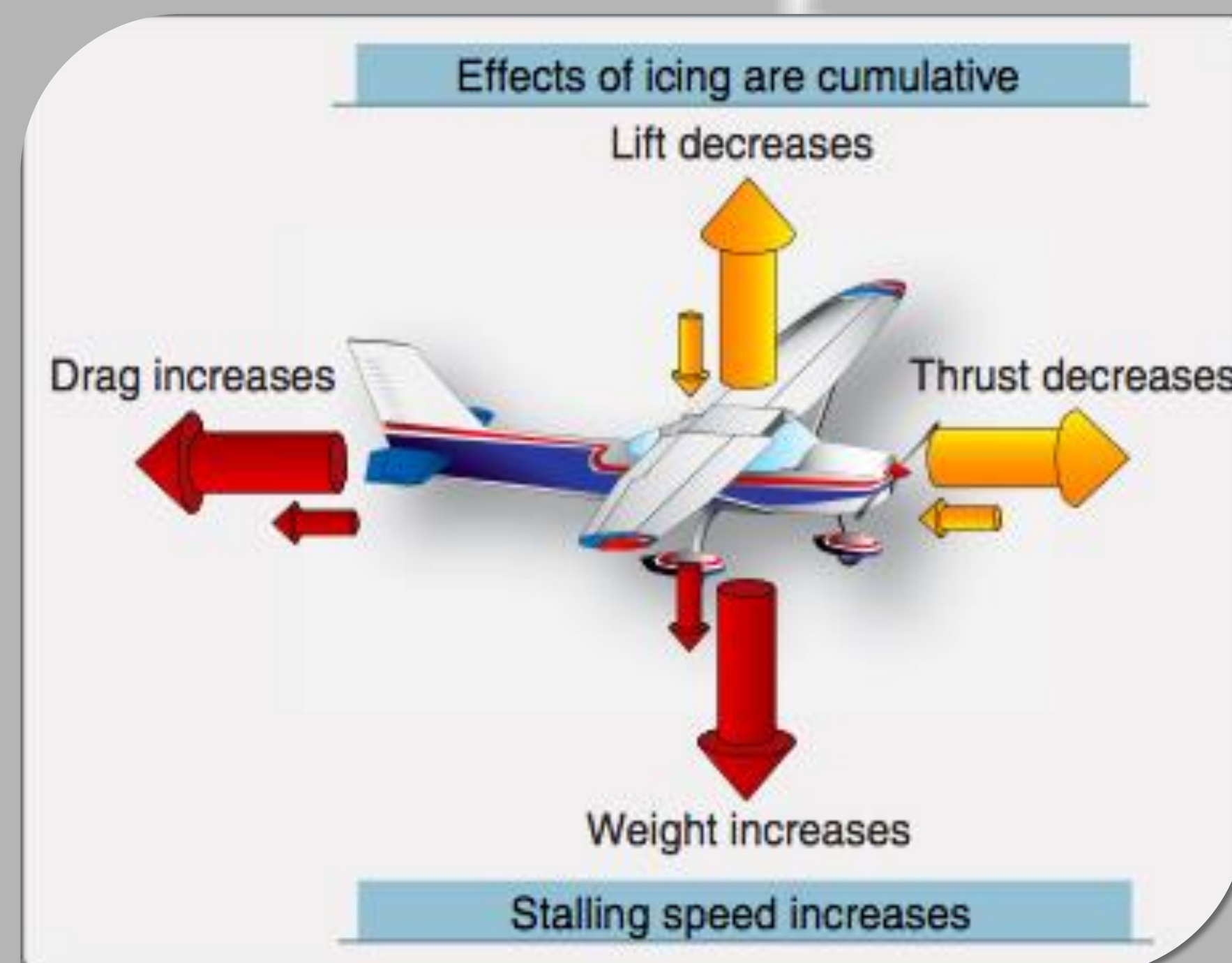


Image courtesy of: www.faa.gov

“Icing on a plane increases the stalling speed, which allows the plane to fly at lower speeds. Ice build up increases the weight. Lift and thrust both decrease and the plane will not have enough air under the wings to stay in flight ultimately causing it to fall from the sky.” – Quote from an American Eagle pilot who wished to be unnamed.



Image courtesy of: www.tailstrike.com

Plane wreckage from the crash. Emergency crews rushed to the scene. However, “There were no lives to save, no fires to put out.” – Quote from a first responder on the scene (courtesy of news article on www.indystar.com)



Image courtesy of: www.indystar.com

Result/impact of the crash:

- Two weeks of clean up. Unidentified remains were buried in a mass burial (without notifying relatives)
- FAA ordered new instructions for flying in icy conditions and American Eagle improved equipment that breaks ice off wings
- The crash angered relatives of victims, resulting in the creation of the Aviation Disaster Family Assistance Act of 1996
- Act forged a new responsibility to create the Transportation Disaster Assistance (TDA)
- TDA was charged with coordinating the resources of federal, state, and local agencies, transportation carriers, and the American Red Cross to meet the needs of family members and survivors following a transportation accident
- TDA serves as the primary resource for investigative information for family members and survivors