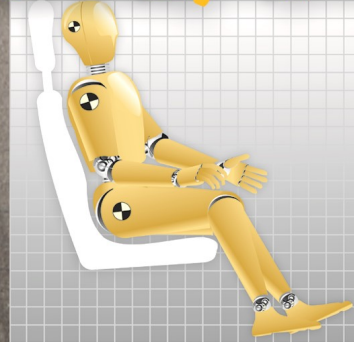


# CRASH TALK

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### My Air Bag Failed to Deploy!

The question is sometimes asked, "Why didn't my air bag deploy"? While there is potentially a defect, often the reason the air bag didn't deploy is because the collision circumstances didn't warrant deployment of a particular air bag. Front air bags inflate and deflate very rapidly (less than a second), so after a collision, an occupant may see a deflated air bag in front of them and think it didn't work. However, the inflation and deflation time is too fast to observe with the human eye.

The Air Bag Control Module (ACM) has a very short time to decide whether or not to deploy the air bags. The collision duration is typically 100 to 200 milliseconds (0.1 to 0.2 seconds). The air bags need to be deployed at the very start of the collision (typically within 50 to 65 ms), the ACM has to try and predict what's going to happen. If the ACM waits too long, the occupants may already be out of position and air bag deployment too late may do more harm than good.

Many vehicles have several air bags: front air bags that deploy from the steering wheel or dash, curtain air bags that deploy from the roof rails, side air bags that deploy from the seat backs, knee air bag for the driver, etc. Some curtain air bags are designed to deploy only in a lateral impact, not a rollover. So, when the curtain air bags did not deploy in the high-speed rollover, this was not a defect, as the curtain air bags weren't designed to deploy in that situation for that particular vehicle.


Front air bags are designed to protect front occupants from striking the front interior. This means there needs to be impact forces that cause the occupants to move



forward in order for the front air bag to be effective. There is no need for front air bags to deploy in a rear-end collision, or a purely lateral collision, as the occupants are not moving forward towards the air bags.

Air bags are not designed to deploy in low-speed collisions, as an occupant's seat belt should be all the protection that is needed and air bag deployment may do more harm than good. As the collision severity increases, air bag deployment may be warranted. However, the ACM may decide only the seat belt pre-tensioners should be deployed – not the air bags.

Lastly, there are cases where the rate of change of acceleration may not be sufficient to deploy the air bags. If a vehicle strikes a narrow object (pole), there may be a lot of crush (e.g. along the driver's side fender and door), but there may be insufficient deceleration for the ACM to deploy the air bags. This is also the case with an under-ride situation (e.g. car into back of higher truck). Large pickup trucks that strike smaller cars also fit into this category, as the larger mass and height of the pickup often over-rides the structural components of the smaller car.

In summary, air bag deployment is dependent on the particular vehicles involved and the type of collision scenario. There is often a reason an air bag did or did not deploy in a particular collision. Failing that, the potential for a defect can be explored. 

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# Takata Air Bag Recall

James W. Graham, P. Eng.


At present, there are approximately 22 million passenger vehicles on the road in Canada. When 4.3 million (1/5 of all Canadian vehicles) are recalled, that is a major concern. Worldwide, 100 million vehicles have been recalled, so the situation is serious.

The recall will address problems with the air bag systems in the affected vehicles. The air bag can inflate with too much force, rupturing the bag and/or sending fragments of metal and plastic not only into the cab, but also the occupants.

Through either faulty manufacturing or design, air bag propellant is degrading due to high temperatures, humidity and temperature cycles. The climate of the American South is such that this is where the majority of the issues have occurred. Fortunately for Canadians, these climatic conditions are not very prevalent in Canada.




Various 2001-2003 models of Honda/Acura, including Odyssey, Civic, Accord and CR-V are more likely to have the air bag defects. These vehicles were also some of the first to be flagged as problematic, with recalls issued in 2008 and 2010 and then periodically with the most recent recall issued in June 2016. However, a number of other makes of vehicles between model years 2001 to 2014 may also be affected. To find out if your vehicle has been recalled, check the Transport Canada safety recalls database ([www.tc.gc.ca/recalls](http://www.tc.gc.ca/recalls)). You may also contact your manufacturer through their website or service department using the 17-digit VIN from your vehicle or your registration.

Even though there have been roughly 100 incidents worldwide since 2008 and this is a major recall, according to Transport Canada, "the risk to Canadians is low", due to our colder and less humid conditions. Transport Canada has reported no incidents with Takata air bags in Canada to date. However, it is a serious recall and having repairs made can prevent injury. At present, with the number of vehicles recalled, there are few replacement parts available. Factories do not have the capacity to meet the demand. Currently, as replacement parts become available, they are being prioritized to places like Florida where the heat and humidity are more likely to cause problems. With time, the manufacturers will produce



enough parts to replace all affected vehicles. This is a major recall that affects the safe operation of vehicles. It is highly recommended that if your vehicle has a recall, that it be fixed as soon as the replacement part is available. 

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## Did You Know?

-  In 2016 there is 99% EDR (Event Data Recorder) coverage with manufacturers of passenger cars and light trucks sold in North America.
-  In 2016 88% of the EDR data is retrievable using our CDR download kit. The other 11% are downloadable via non-CDR manufacturer specific software/hardware.
-  Since 2000, many speedometers will "freeze" at the impact speed if there is an instantaneous power loss.

## Recalls

-  On Toyota Sienna models (2011-2016) some vehicles equipped with power sliding doors, under certain conditions, such as if the door becomes frozen with ice, the sliding door motor could stall when the door is operated. If this occurs with the sliding door latch mechanism in an unlatched position, the door could open while driving, increasing the risk of injury to a vehicle occupant. Transport Canada recall #2016586
-  On Mitsubishi RVR model years 2011, 2012 and 2016, the outer tubes of the rear liftgate support struts may have had insufficient anti-corrosion treatment applied during manufacturing. As a result, the outer tube could corrode and the liftgate support strut could rapidly lose pressure, which would allow the liftgate to drop suddenly, placing anyone beneath or near the gate at risk of injury. Dealers will replace the rear liftgate support struts with updated ones. Transport Canada recall #2016591

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