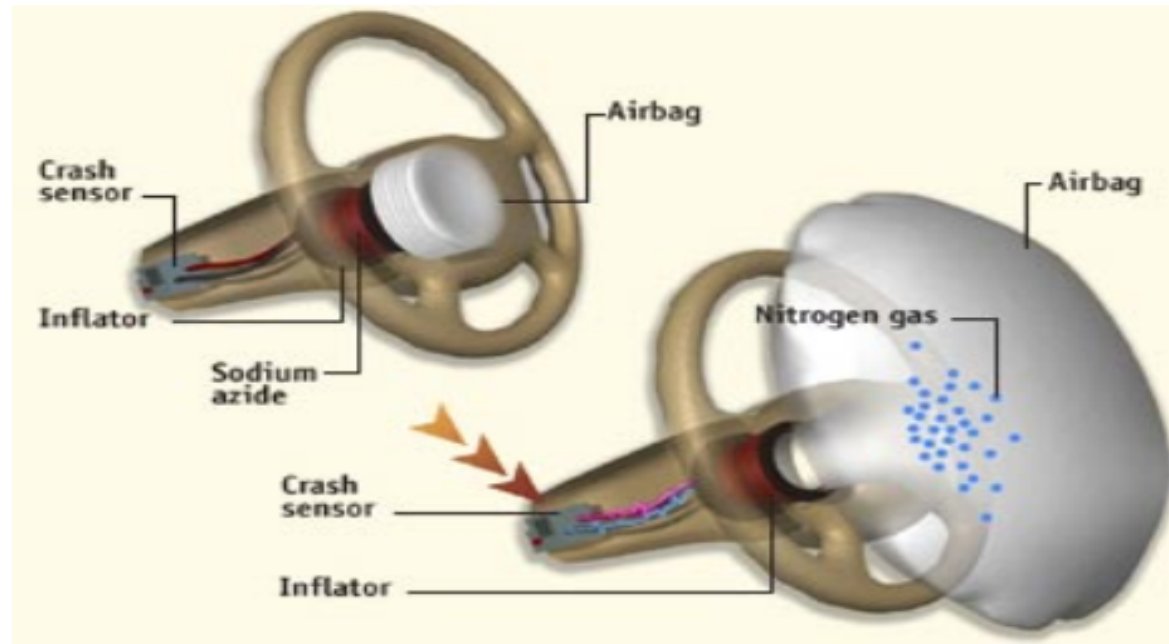


Section 16.3 The Evolving Air Bag



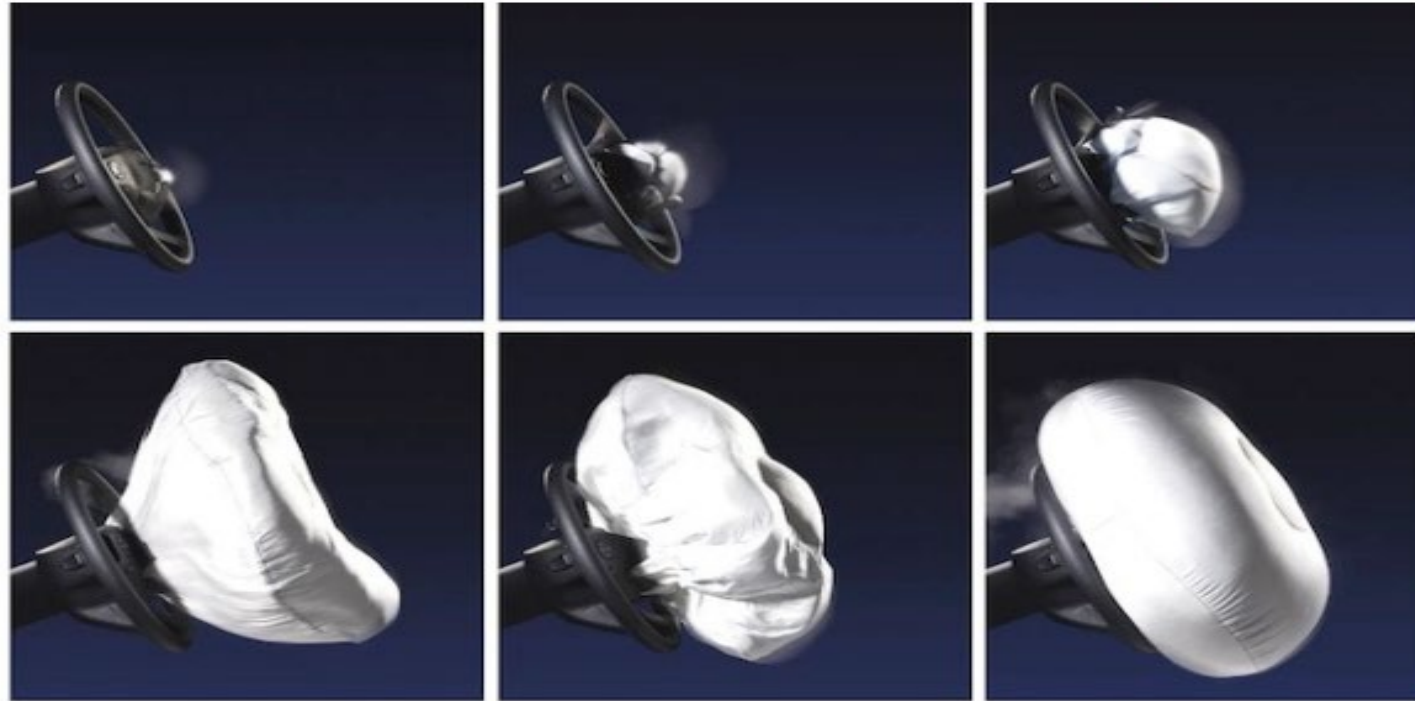
Air Bag

- rolled up inside the steering wheel and dashboard
- when activated, a chemical reaction causes the bag to inflate (from produced nitrogen gas)



- 130 g of sodium azide can produce 67 litres of nitrogen gas!!!

- air bag inflates in 30 milliseconds



First Generation Air Bags were built with adult male in mind. They inflated too much and too quickly causing injuries to smaller people.

Second Generation Air Bags should cushion a passenger more slowly. They deploy at a safer speed, safer force (20-25% less), and work with the seat belt to protect occupants.



Forever continued safety...

- **Third Generation Air Bags** are being developed that sense the mass of the occupant and adjust the force.
- Seats are being redesigned to cradle the body as occupants fly back into it.
- Head rests are more adjustable
- some airbags can be turned off if there is a child in the front seat



Describe the changes of Air bags and Seatbelts for Mercedes Benz over the last 40 years.

	Restraining Feature	Operational Feature	Structural Feature
roll cage			
side impact beams			
windshield			
seat belts			
headrest			
bucket seat(s)			
brakes			
headlights			
windshield wipers			
crumple zones			
air bag(s)			
steering			
signals			

Little Problems, Big Solutions Activity

Person in Figure	Length of Head	Length of Whole Body	Fraction (H/B)
fetus (2 months)			
fetus (5 months)			
newborn			
2 years			
8 years			
adult			

- complete this handout (handin)
- CYU (p291) #1-4
(p297) #1-5
(p301) #1-5
- Unit 4 Assignment - M. 08th
- Unit Review