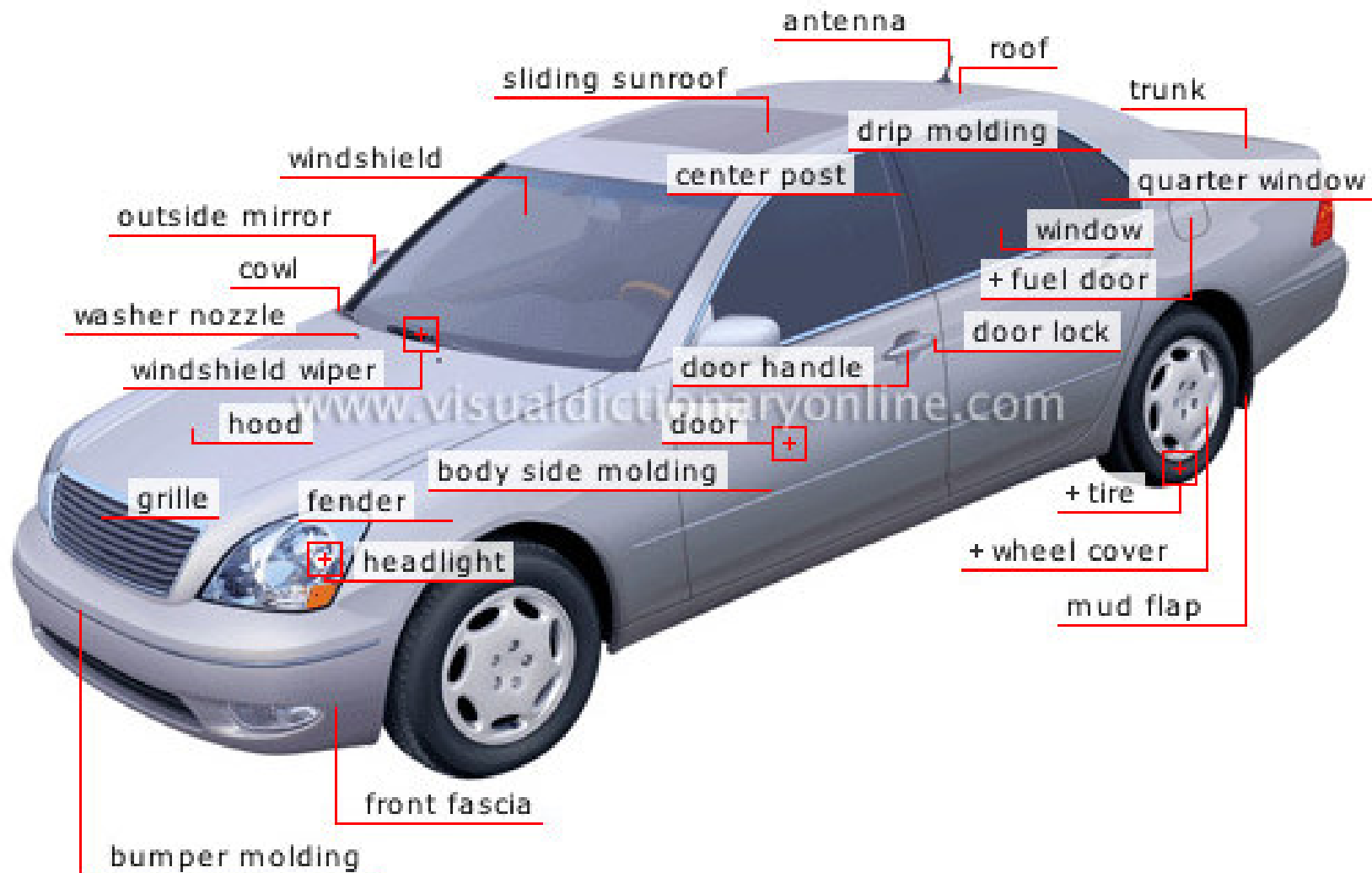
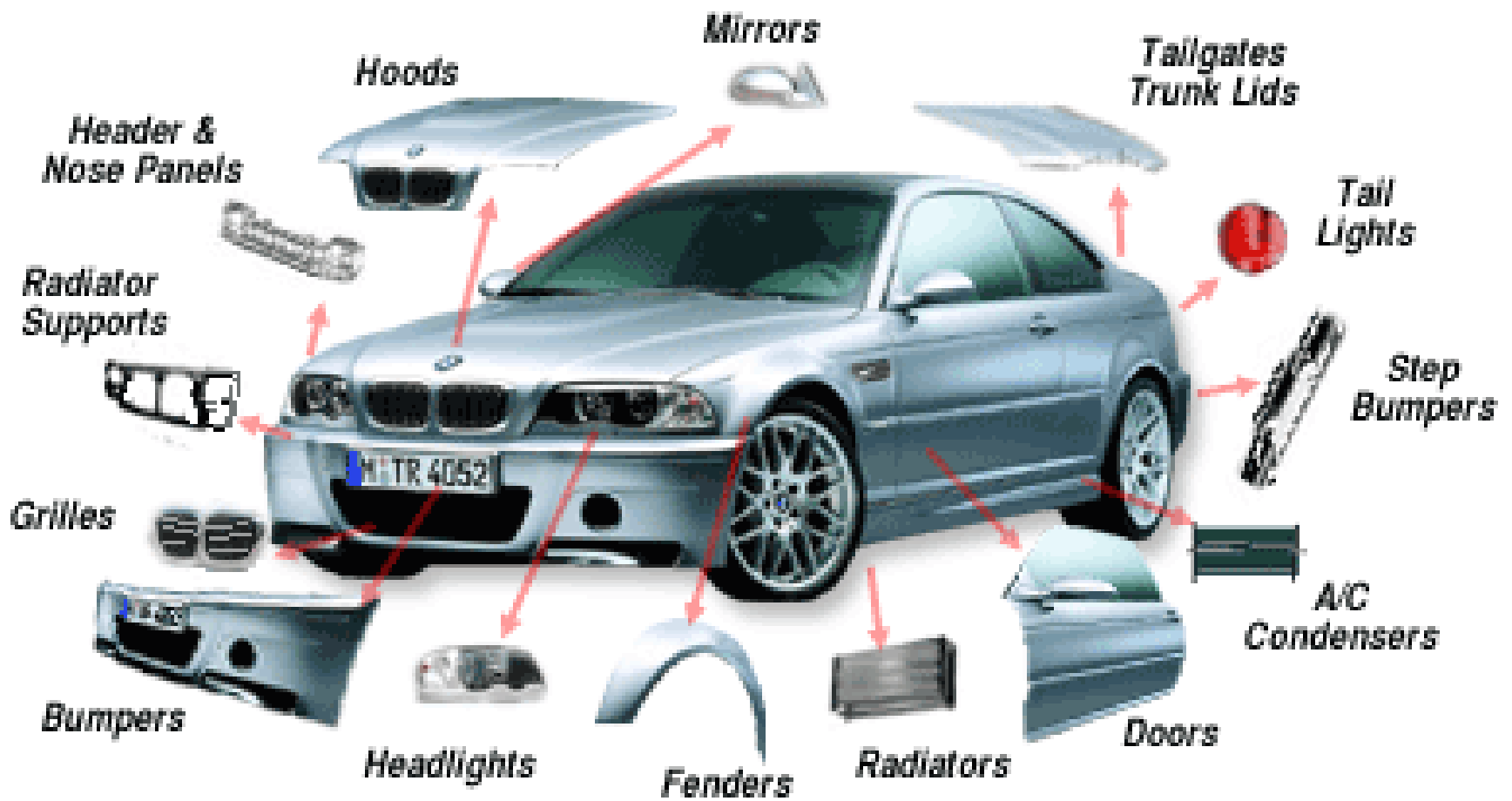


# Vehicle Parts Identification and Body Construction

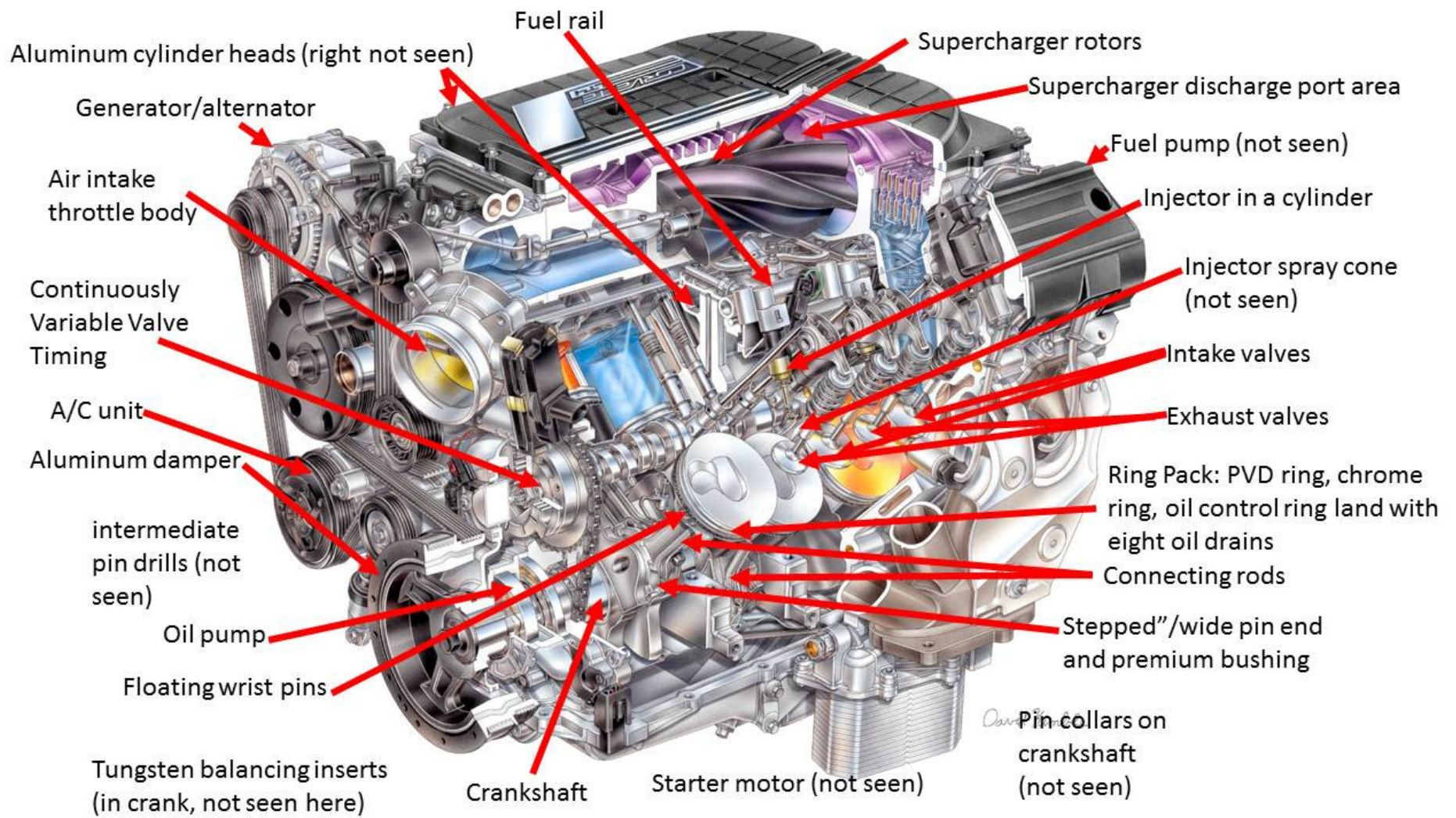


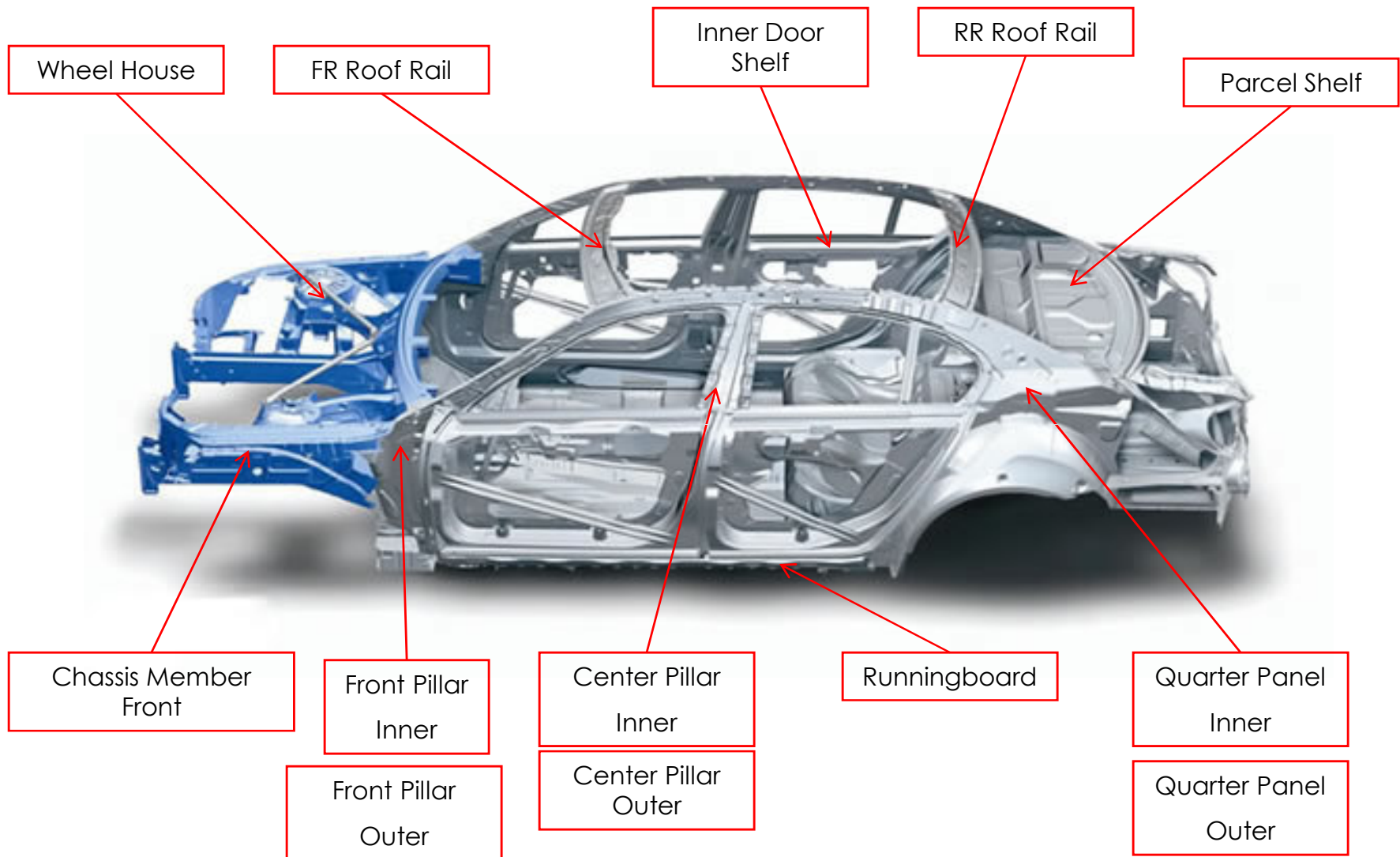




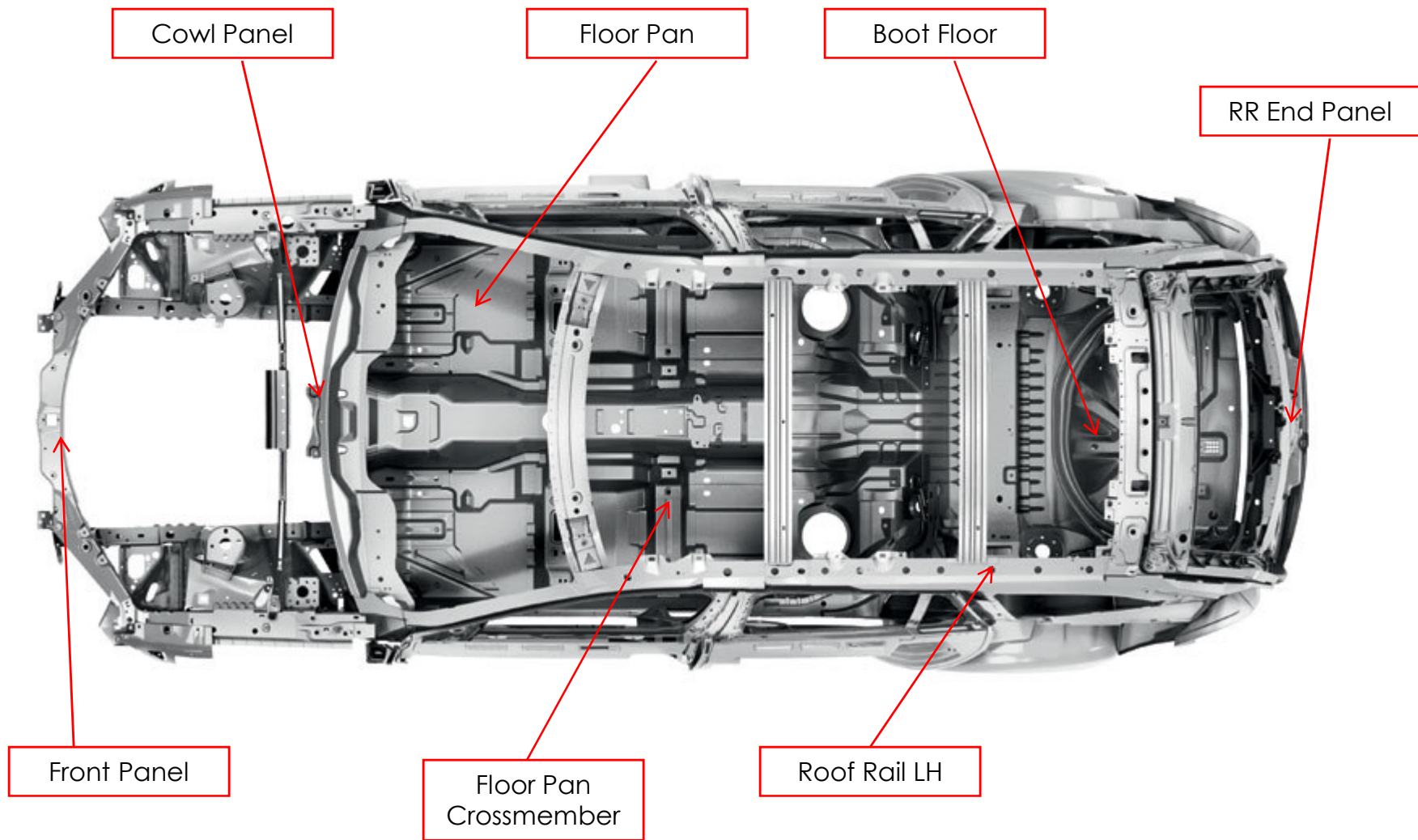
# Car







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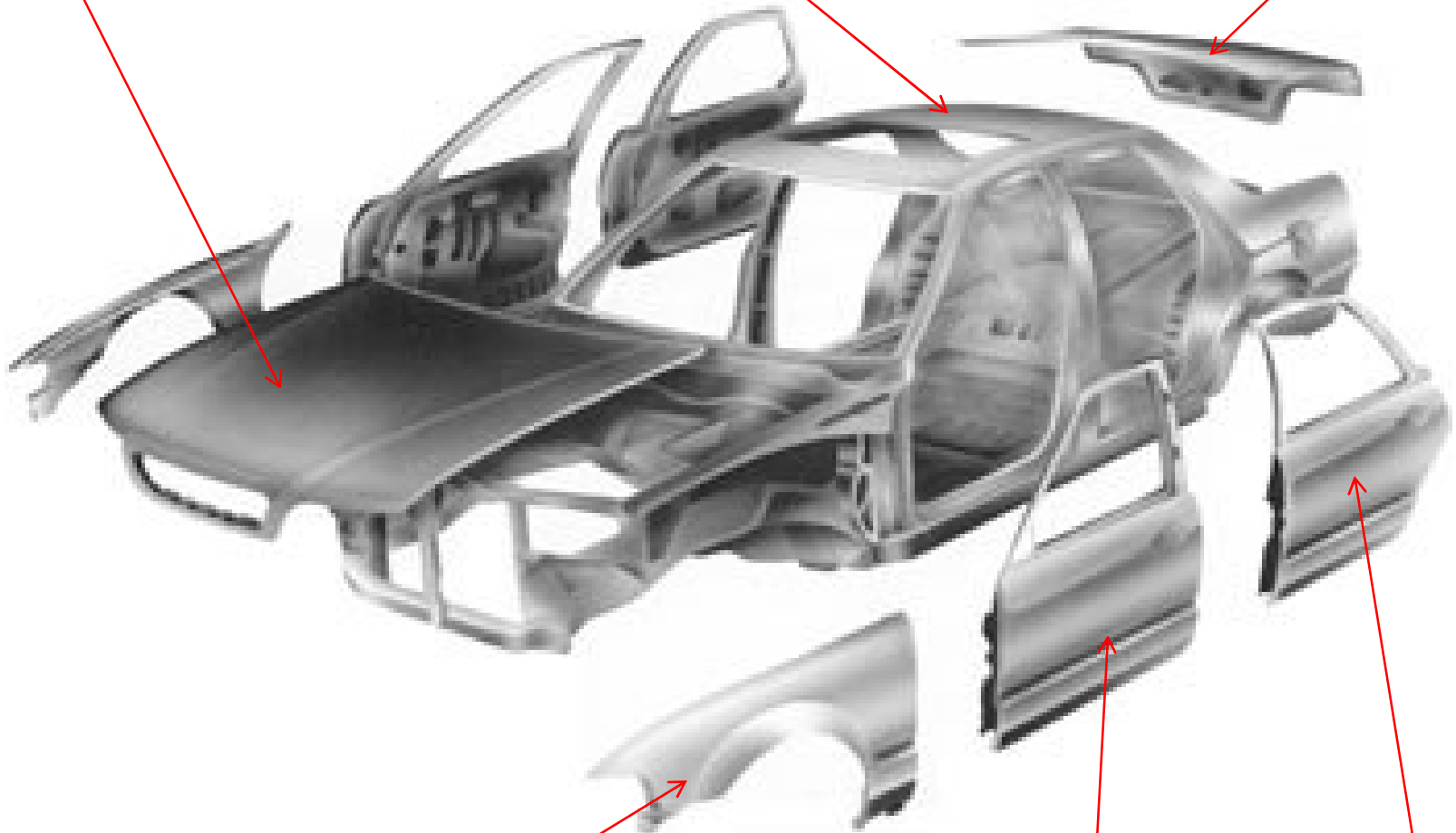
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Bonnet

Roof

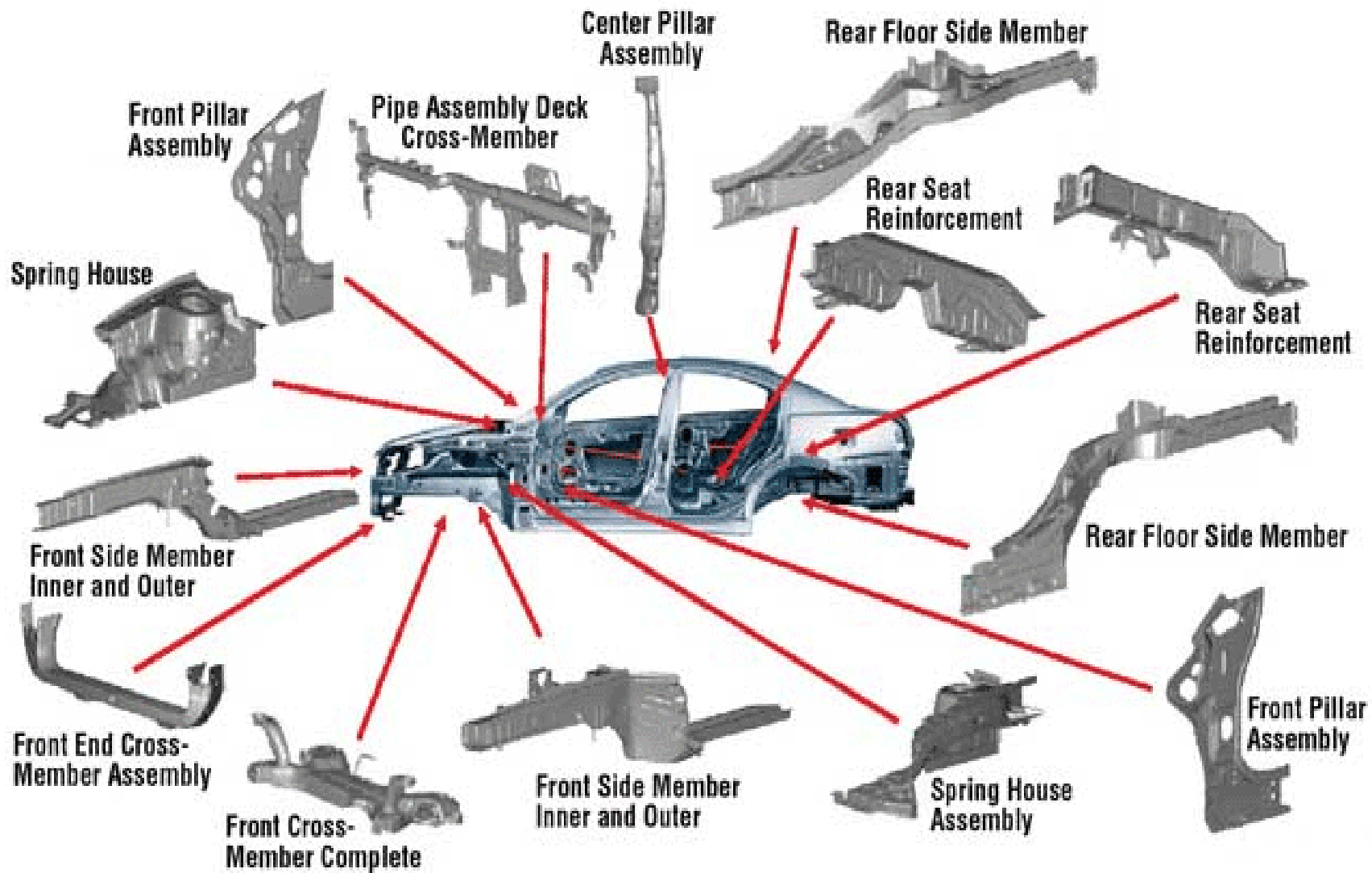
Boot Lid



Fender

Door Front LH

Door Rear LH



# VEHICLE DESIGN

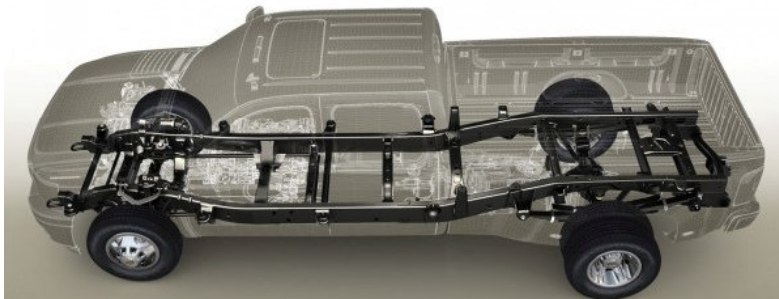


## Body Frame Styles

Three (3) main types....

1. Unibody (Monoque)
2. Body-over-Frame (BOF)  
or Full Frame
3. Space Frame

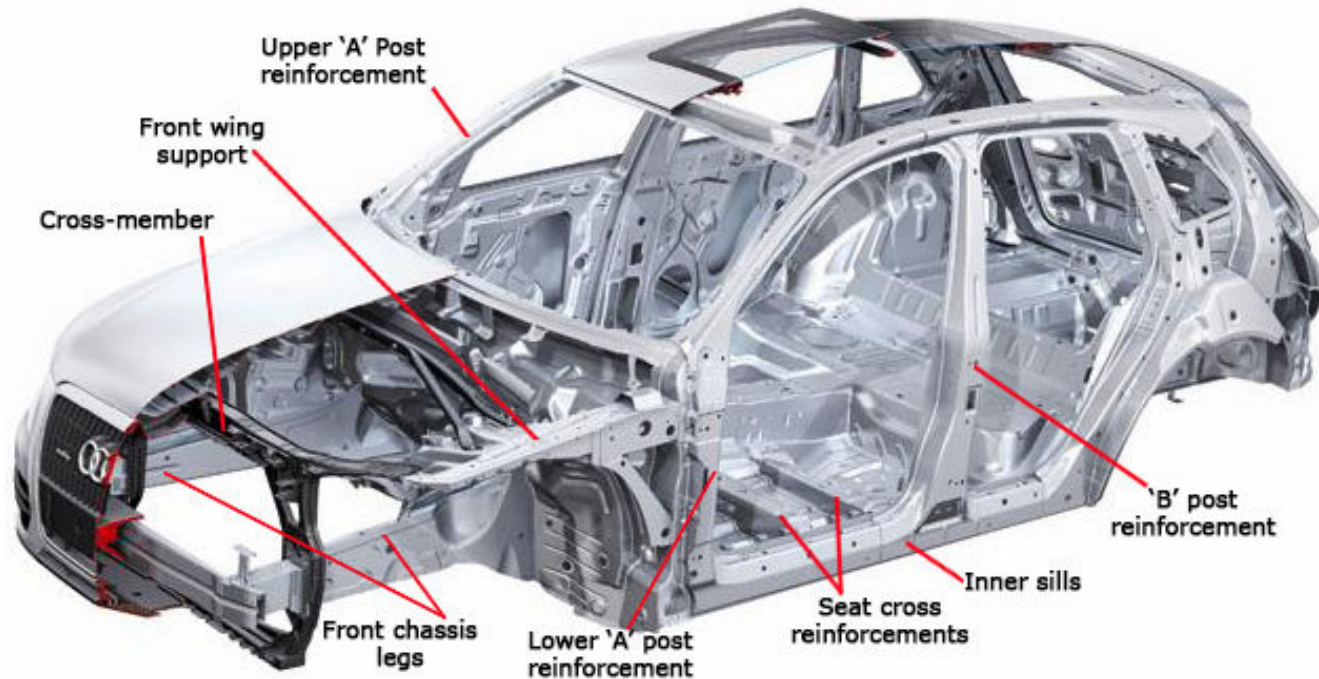
***BODY-ON-FRAME***



***UNIBODY CONSTRUCTION***



# Unibody Construction

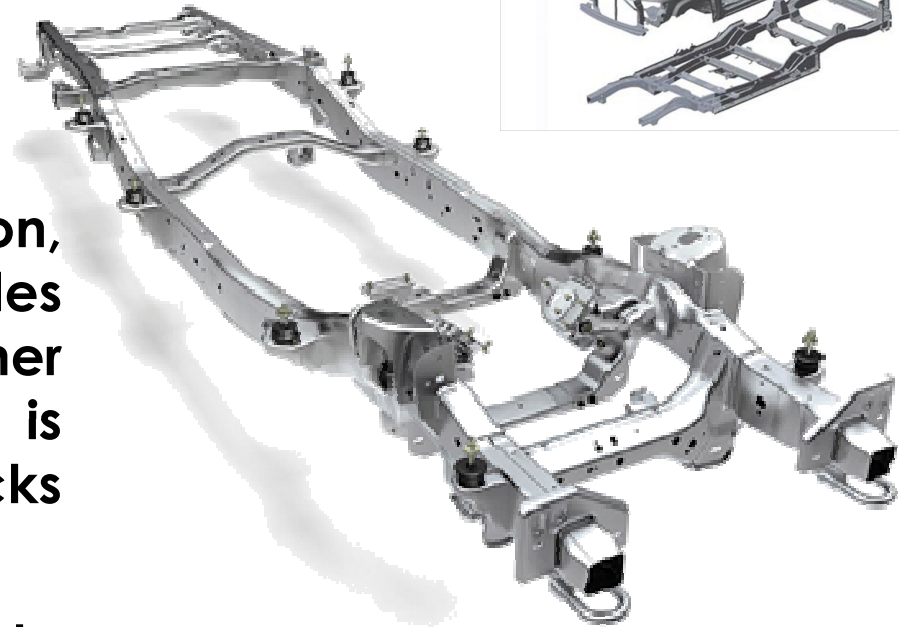


Unibody (*Monocoque*) construction welds major body panels together to form the frame for attaching the engine, drive train, suspension, and other parts. This type of construction is commonly used on cars.

# Body-over-Frame Construction



With body-over-frame construction, a thick gauge steel frame provides the foundation for holding other parts. This type of construction is commonly used on large trucks and SUVs.



Two very different methods used to construct modern vehicles: **unibody** and **body-over-frame** construction



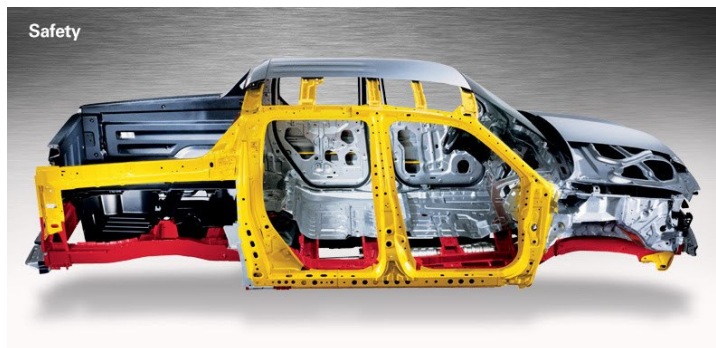
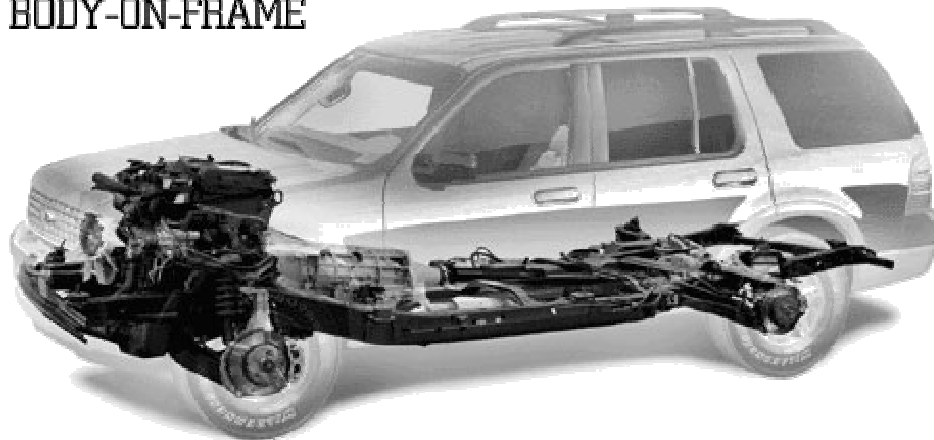
Chassis Frame Construction - Magic Marks.mp4



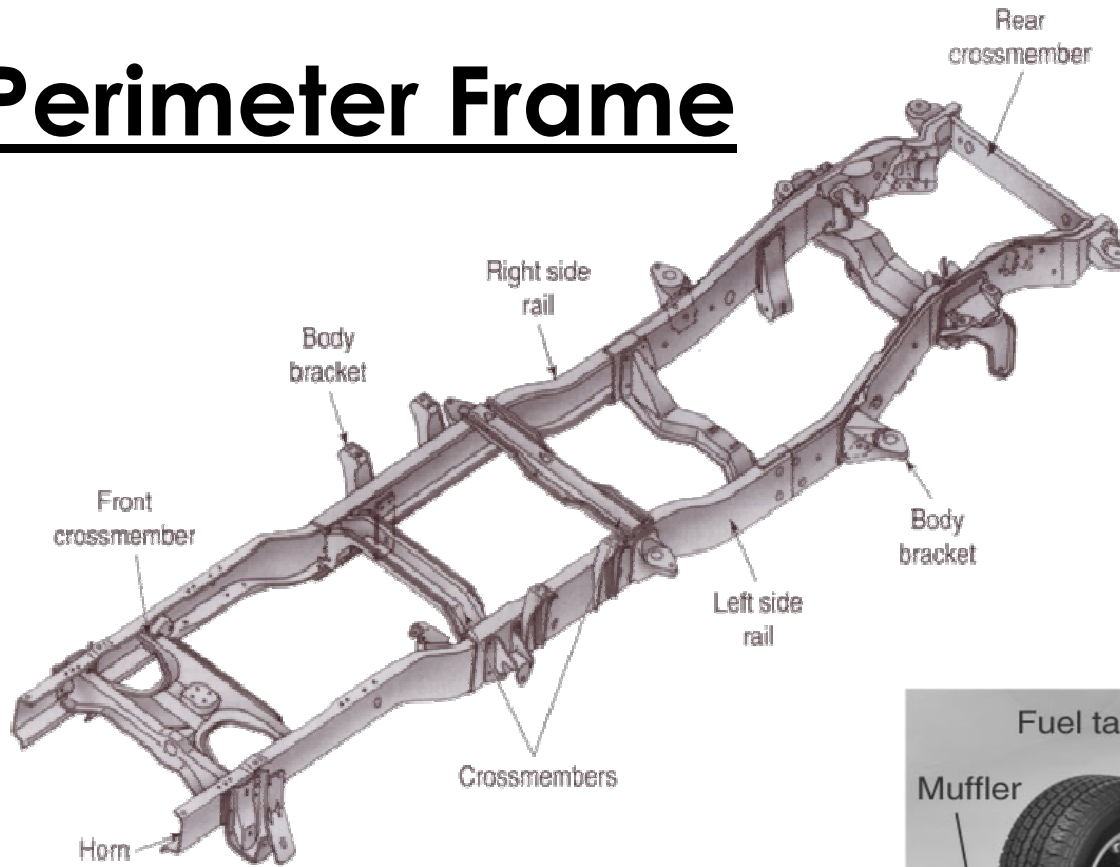
Introducing the Ultra Light Commercial Vehicle (Short Version).mp4

# FULL FRAME (4X)

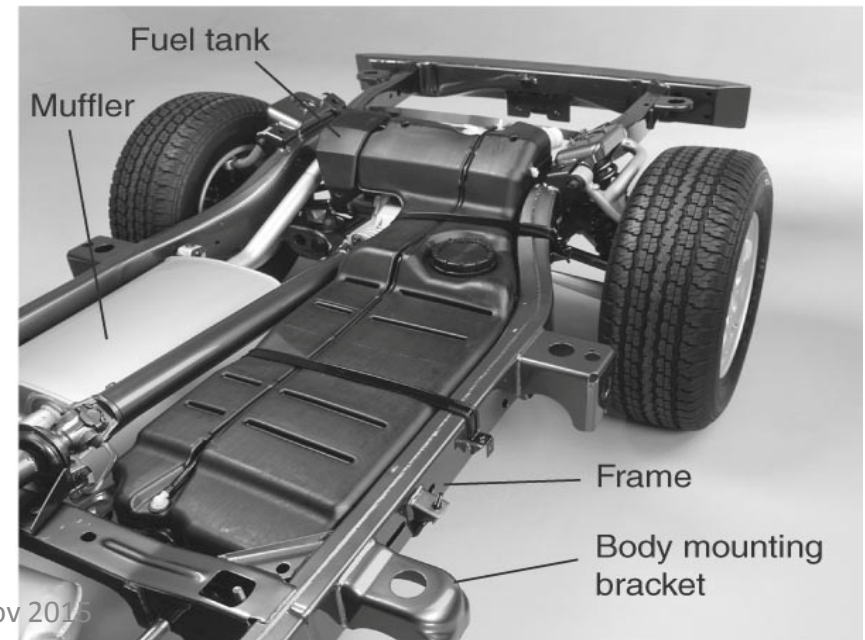
BODY-ON-FRAME



# Perimeter Frame



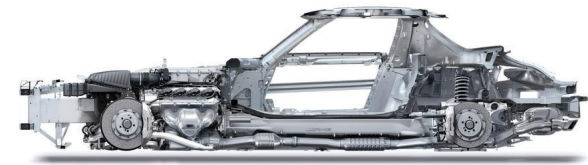
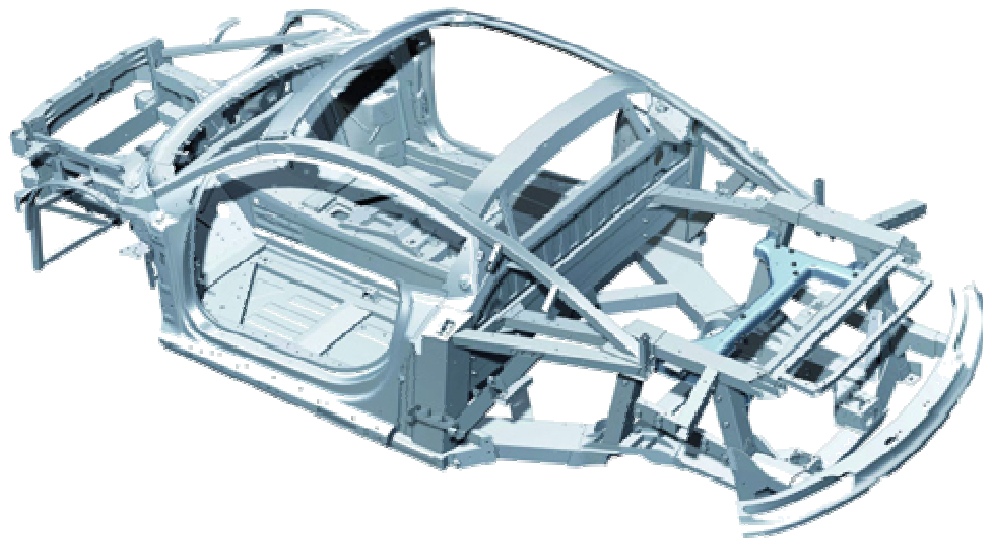
Newly redesigned frame uses more high-strength steel, cutting weight by 30 pounds (Ram image at allpar.com)



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# Space Frame Construction



**Space Frame construction make up a small percentage of vehicle constructions – fibreglass, aluminium, etc. These frames are used for high performance cars such Ferrari, Lotus, race cars**



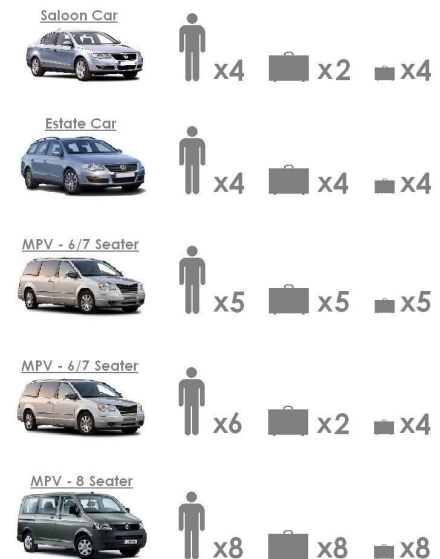
## Engine Locations, Drivelines continue

- **Rear-engine, rear-wheel drive (RRD) has engine in back**
  - *Transaxle transfers power to rear drive wheels*
- **All-wheel drive uses two differentials for all wheels**
- **Front-engine, rear-wheel drive (RWD) has engine in front and drive axel in rear**



# Types of Vehicle Sizes

- **Compact car** is smallest body classification
  - Normally uses a 4-cylinder engine
  - Lightweight, gets the highest fuel kilometer
- **Intermediate car** is medium in size
  - Uses a 4-, 6- or 8-cylinder engine
  - Usually has a unibody construction
- **Full-size car** is large, heavy and often has a high performance V8 engine
  - Either unibody or body-over-frame construction



ENERGY EFFICIENT VEHICLES (EEV) PAULTAN.ORG

EEV SPECIFICATION FOR CARS

SEGMENT	DESCRIPTION	CURB WEIGHT (KG)	FUEL EFFICIENCY (L/100KM)
A	Micro Car	< 800	4.5
	City Car	801 – 1,000	5.0
B	Super Mini Car	1,001 – 1,250	6.0
C	Small Family Car	1,251 – 1,400	6.5
	Large Family Car	1,401 – 1,550	7.0
D	Executive Car	1,550 – 1,800	9.5
E	Executive Car	1,801 – 2,050	11.0
F	Luxury Car	2,051 – 2,350	11.5
J	Large 4x4	2,351 – 2,500	12.0
Others	Others		

ed 30-Nov 2015



# Classification of Cars



## b. Based on body styles

The body is the portion of the vehicle that carries people or luggage.



Hatch back



Sedan / Notch back



Pick up



MPV



SUV



Saloon



Estate



Coupe



Hatchback



Convertible