



# **SNS COLLEGE OF TECHNOLOGY**

**(An Autonomous Institution)**

**COIMBATORE-35.**



Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A++' Grade  
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.

## **DEPARTMENT OF AUTOMOBILE ENGINEERING**

**COURSE NAME : 23AUT101 – ELEMENTS OF AUTOMOTIVE SYSTEM**

**I YEAR /II SEMESTER**

**Unit 1- VEHICLE STRUCTURE**

**Topic : Ladder Chassis & Integral Body**



Ladder Type C-IN-C frame assembly for MUV's

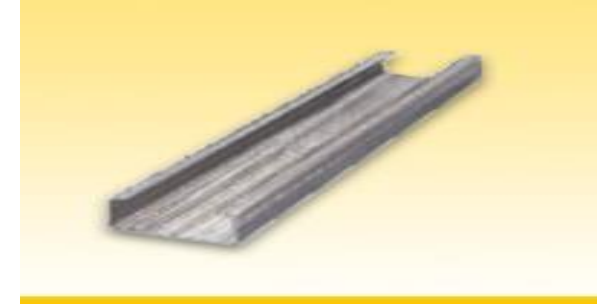
## Ladder Type Frame

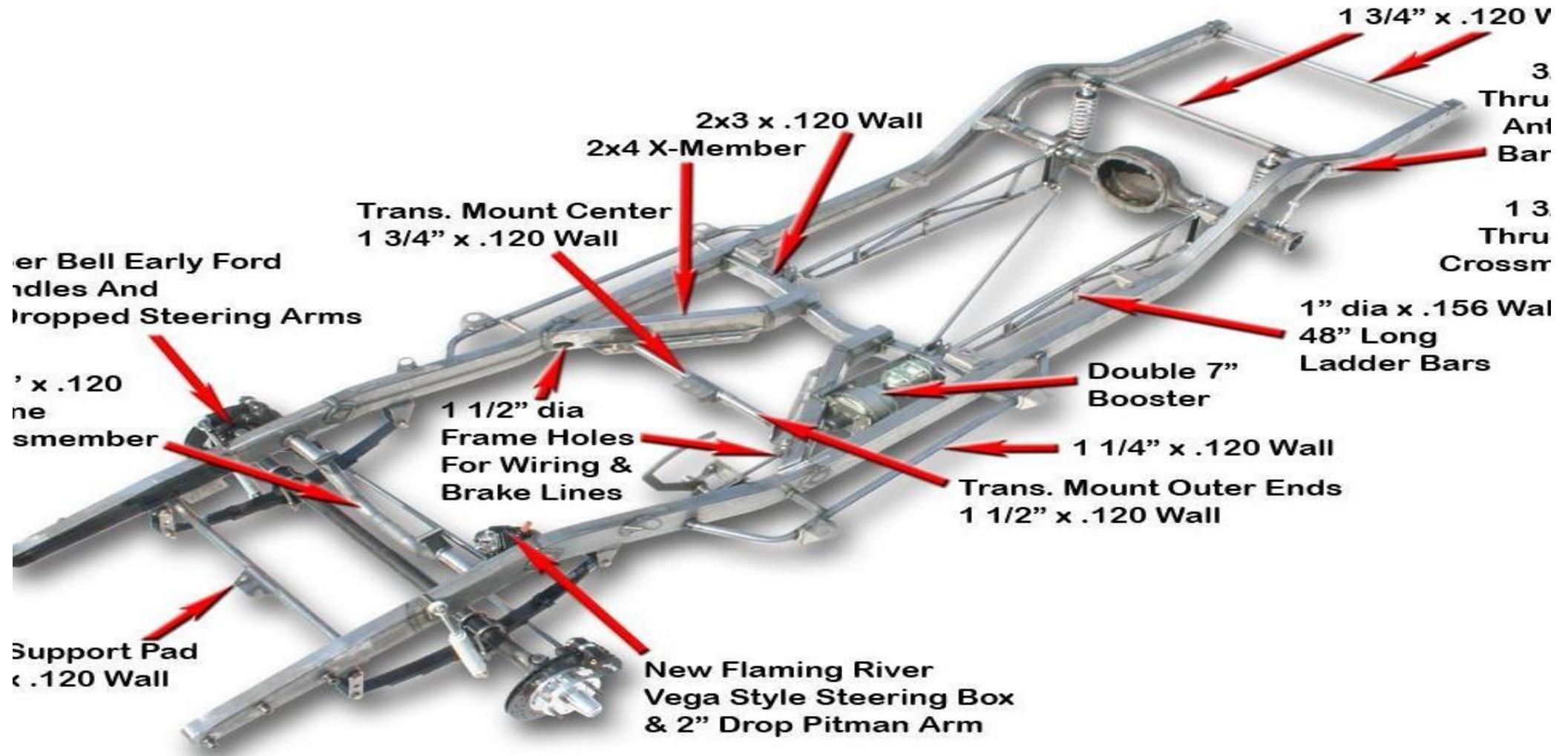


# Types of Frames Section



- ❖ Channel Section
- ❖ Long member of the frame- Bending
  
- Box Section  
short member of the frame-Bending & Torsion
  
- Tubular Section  
Three wheeler , scooter - Torsion









# Ladder frame



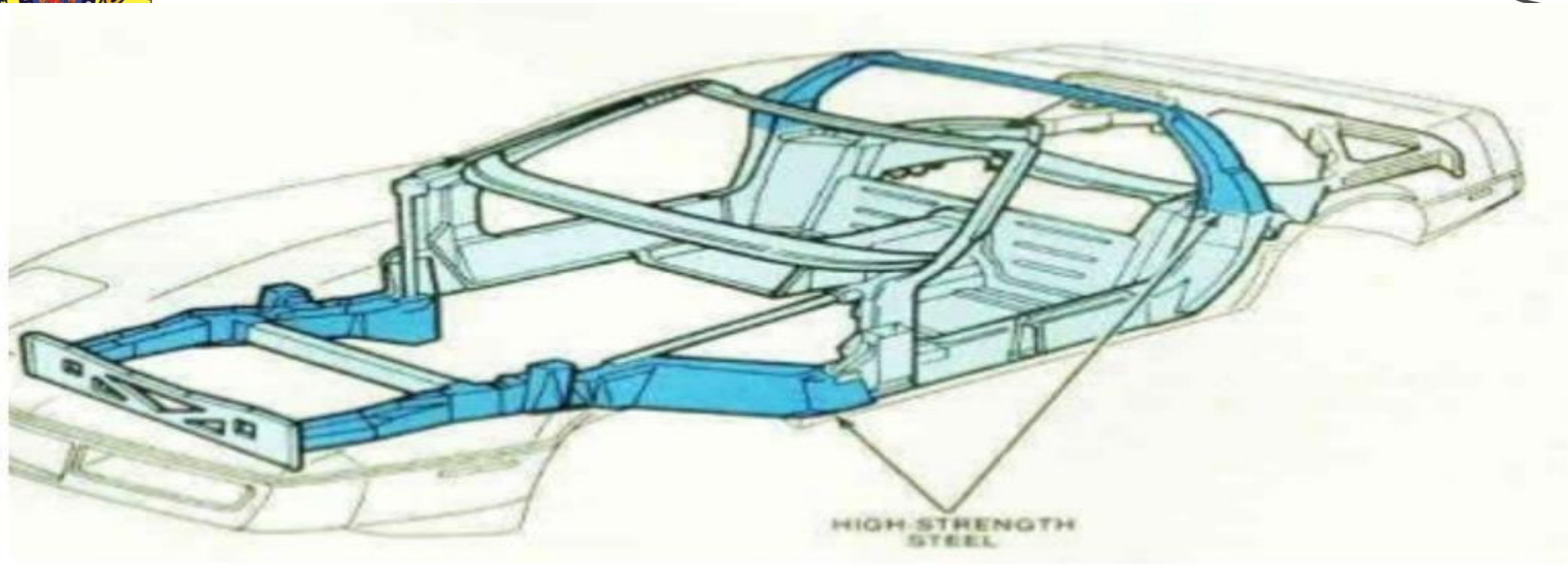
- Total Loads of the vehicle is transferred to the suspension by the frame
- Body is isolated from the frame deflection with help of the rubber mounting
- Frame taper from the rear to front to permit adequate movement of the steering wheel.
- Upward at the rear end , allow for vertical movement of rear wheel
- Frame is heavy



# Semi- Integral Frame



- In some vehicles half frame is fixed in the front end on which engine gear box and front suspension is mounted.
- In this case the rubber mountings used in conventional frame between frame and suspension are replaced by more stiff mountings.
- Because of this some of the vehicle load is shared by the frame also. This type of frame is heavier in construction.
- It has the advantage when the vehicle is met with accident the front frame can be taken easily to replace the damaged chassis frame.
- This type of frame is used in some of the European and American cars







# Monocoque or Integral Frame



- There is no frame and all assembly units are attached to the body. The chassis, floor are assembled by welding.
- Light weight and allows a lower floor.
- The chassis , floor and body are assembled by from a large number of mild steel pressings.
- This is the modern form of construction for almost all cars and lighter commercial vehicles.



› Chassis and Structure Systems



**Integral Type Frame**

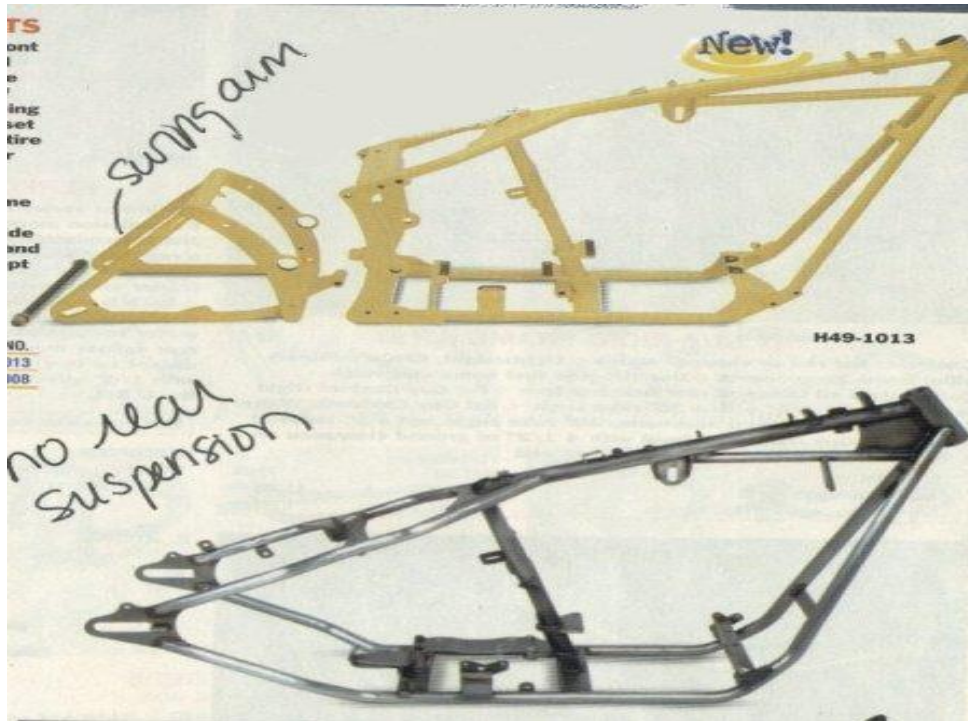




# Sub Frame



- The Engine and gear box are carried on a sub-frame supported by a main frame usually three points.
- Isolate the components from the effects of twisting and flexing of the main frame.



**Two wheeler Frame**



THANK YOU