



# **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 : 19AUE308 - SPECIAL VEHICLES**

**III YEAR /VI SEMESTER**

**Unit 1- Earth Moving Equipments**

**Topic 2 : Front End Loader**



# CONTENT



- Introduction
- Need for Front end loader
- Components
- Construction & Working
- Advantages & Disadvantages
- Applications
- Manufacturing Companies



# INTRODUCTION



- Front end loader is commonly used to move a loosen material from ground level.
- Deposits the loosen material into an dump truck or into an open trench excavation.
- The loader assembly may be a removable attachment or permanently mounted.
- Often the bucket can be replaced with other devices or tools.





# NEED FOR FRONT END LOADER



- Normally the dumpers used for carrying the loosen materials from one place to another.
- But the dumper cannot grab the loosen material from the ground surface.
- By the use of front end loader we can grab the loosen materials from the ground.
- We can also transmit that loosen material to the required destination.

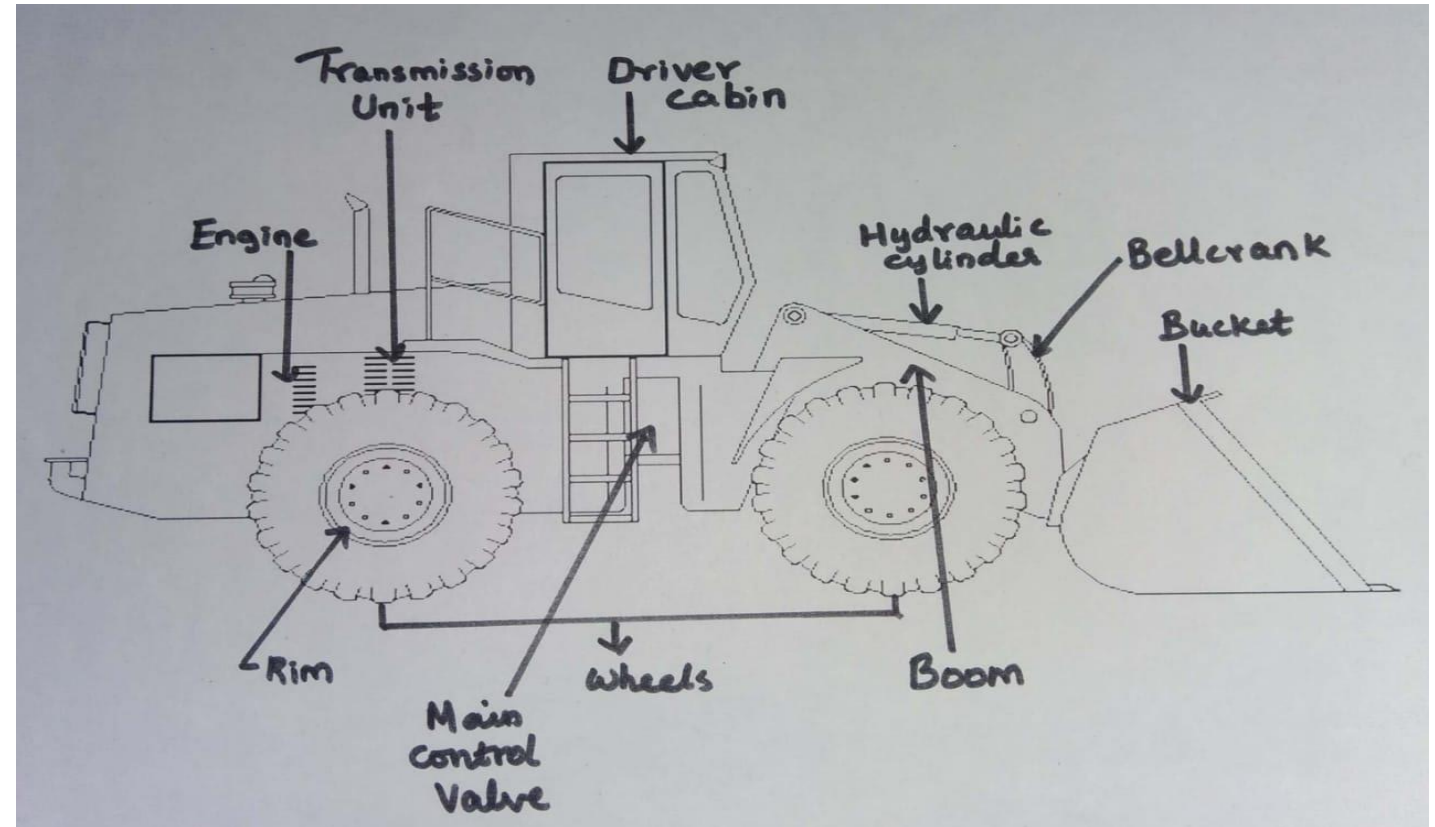




# COMPONENTS



- Engine and Transmission unit
- Hydraulic Assembly
- Main control valve
- Front Bucket
- Boom
- Wheel or track
- Driver cabin
- Orbitrol Steering system





# CONSTRUCTION

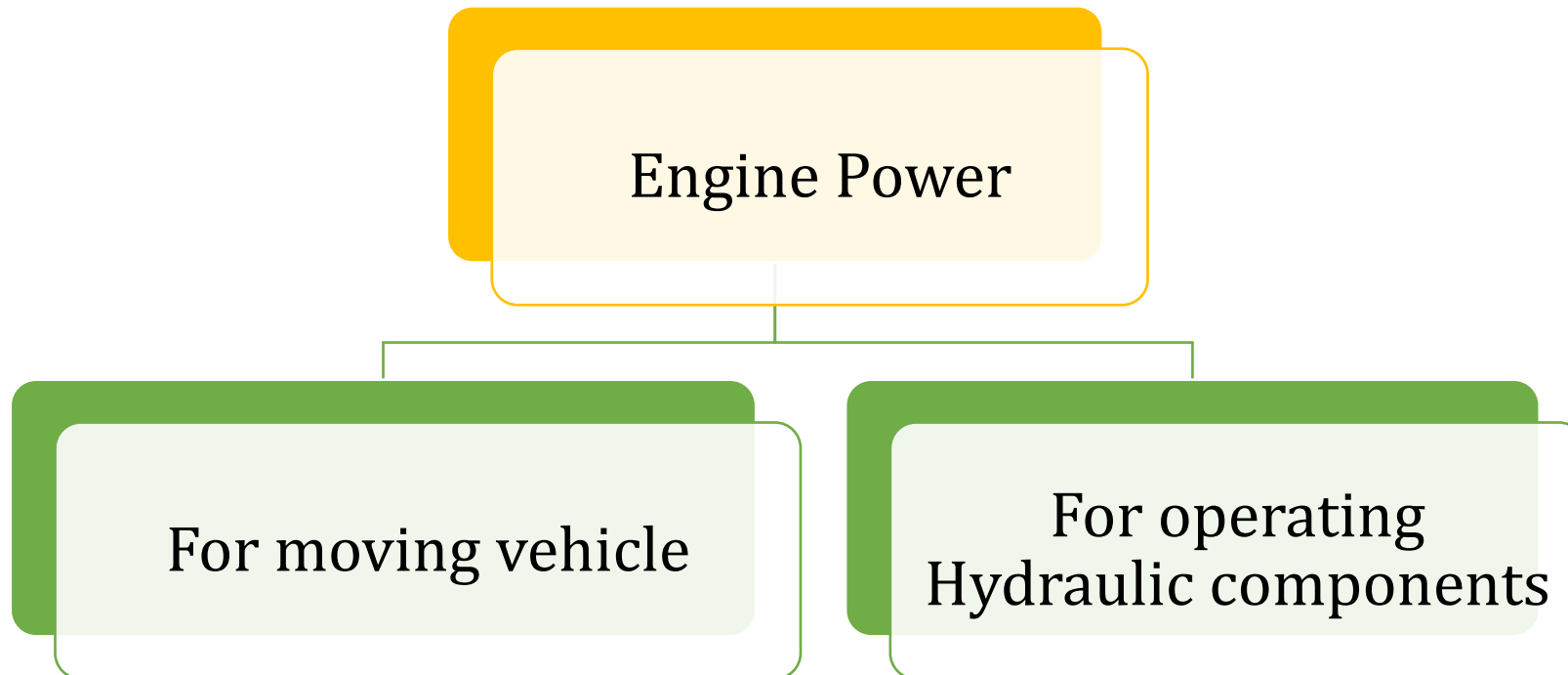


- The Front end comprises of a bucket supported by the boom for loading purpose.
- The Engine is provided at the rear end of the vehicle.
- Steering system is provided at the front end.





# WORKING







# WORKING



- The engine power runs the hydraulic pump.
- The hydraulic pump forces the hydraulic fluid to the hydraulic cylinder.
- Through the movement of the hydraulic cylinder, the required job is done.
- The controlling of the hydraulic system is done by the use of valve control lever.







# ADVANTAGES



- Reduces man power
- Less operating time
- More efficient work than manual process

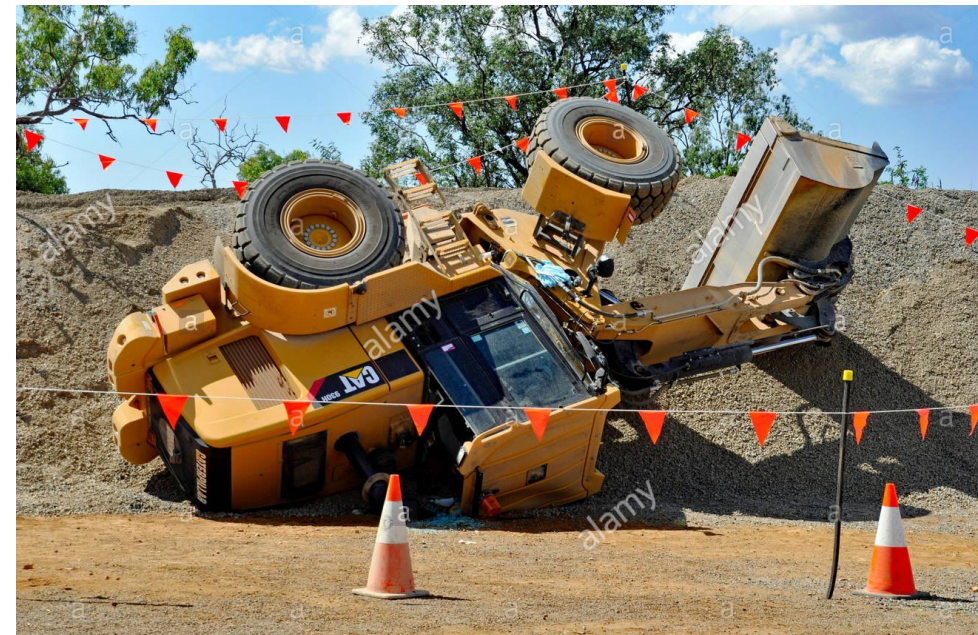




# DISADVANTAGES



- High Capital cost
- High operating cost
- Requires Skill driver







# APPLICATION

- In construction areas loaders are also used to transport building materials.
- Transporting the loosen materials to the dump truck.
- Front loaders are commonly used to remove snow.
- Levelling the ground surface.
- Used in Mining areas





# MANUFACTURING COMPANIES



- ❖ Volvo
- ❖ Caterpillar
- ❖ Mahindra
- ❖ JCB
- ❖ Komatsu



# KOMATSU



1. Mention the type of steering system used in Front end loader.
2. Where the engine is located in Front end Loader?
3. What is the cost of Front end loader?

ASSESSMENT





## REFERENCE



- ❖ [https://en.wikipedia.org/wiki/Loader\\_\(equipment\)](https://en.wikipedia.org/wiki/Loader_(equipment))
- ❖ [https://www.youtube.com/watch?v=eLYVCQ1\\_aGY&t=1s](https://www.youtube.com/watch?v=eLYVCQ1_aGY&t=1s)



**THANK YOU !!!**