



# **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 2- Constructional Vehicles**

**Topic 4 : Motor Grader**



# CONTENT



- Introduction
- Need for Motor Grader
- Components
- Construction & Working
- Advantages & Disadvantages
- Applications
- Manufacturing Companies



# INTRODUCTION



- A motor grader is a construction machine with a long blade used to create a flat surface during the grading process.
- The earliest models were towed behind horses or other powered equipment.
- **Grader** in excavation, precision finishing vehicle for final shaping of surfaces.





# NEED FOR BUCKET WHEEL EXCAVATOR



- The construction of road require more even surfaces.
- Levelling the surface by using man power is a time consuming process.
- In order to complete the process in a less time, the motor graders were used for levelling the surface.

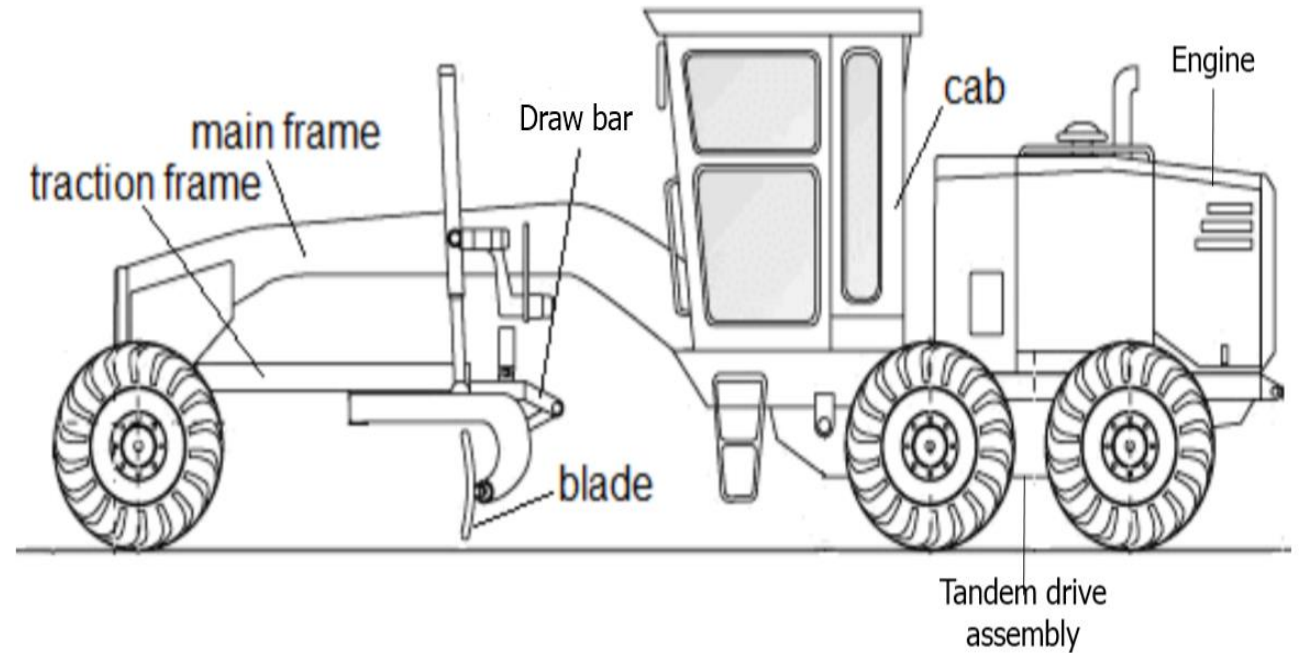




# COMPONENTS



- Engine
- Driver cab
- Blade
- Hydraulic system
- Ripper or Blade or Compactor







# CONSTRUCTION



- Typical models of Motor graders have three axles.
- With the engine and cab situated above the rear axles at one end of the vehicle.
- Third axle at the front end of the vehicle, with the blade in between.
- Most motor graders drive the rear axles in tandem, but some also add front wheel drive to improve grading capability.





# CONSTRUCTION

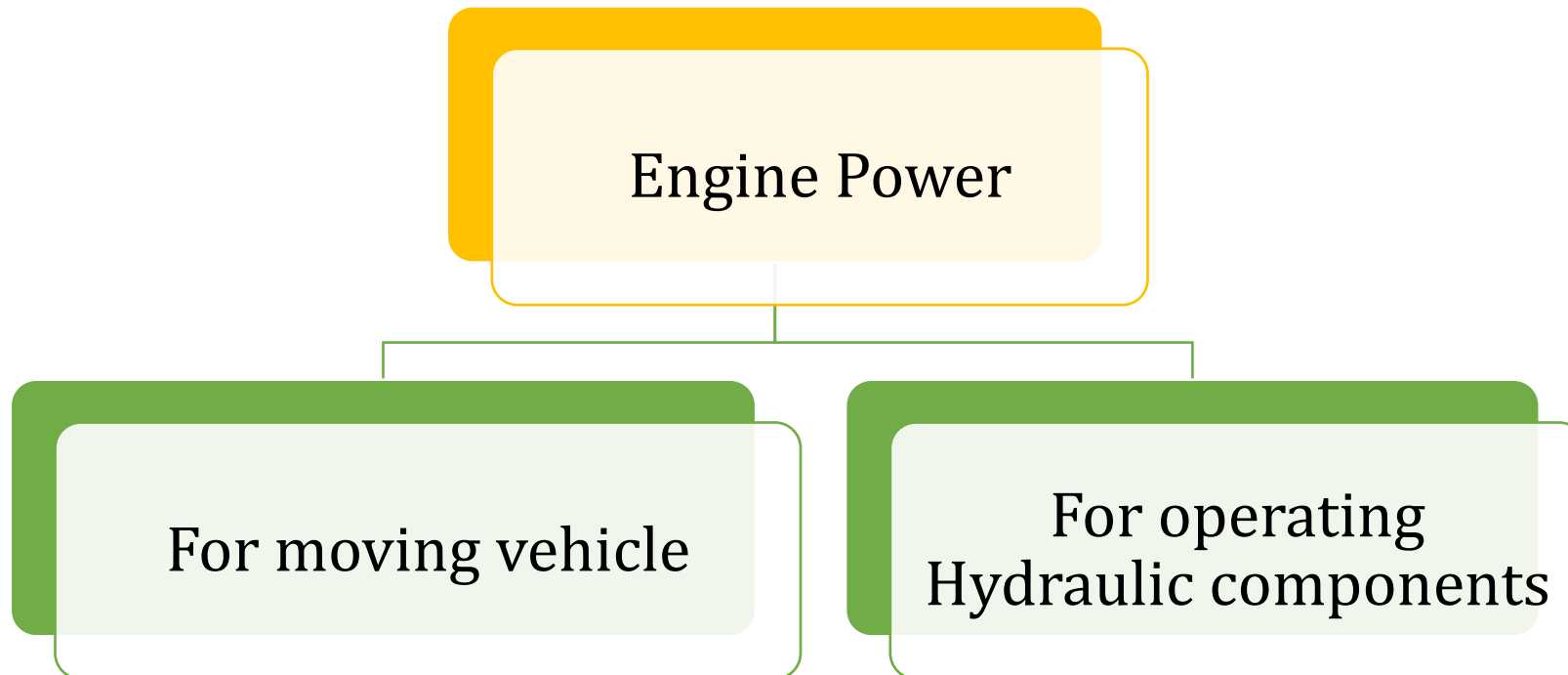


- Many graders also have optional attachments for the rear of the machine which can be ripper, blade, or compactor.
- Other implement functions are typically hydraulically powered.
- The blade can be adjusted at the required angle.
- The same blade is used for levelling the surface





# 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
- Can easily level surfaces.
- More efficient work than manual process
- Less operating time
- Multiple Works can be done.





# DISADVANTAGES

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







# APPLICATION

- Used in the construction and maintenance of dirt roads and gravel roads.
- Used in the construction of paved roads
- Used to prepare the base course to create a wide flat surface upon which to place the road surface.
- Graders can produce inclined surfaces, to give camber to roads.





# MANUFACTURING COMPANIES



- Caterpillar
- John Deere
- Komatsu
- Volvo
- JCB



**JOHN DEERE**



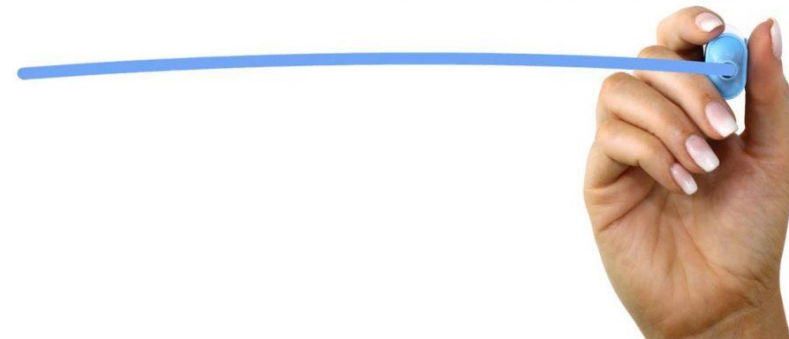
**KOMATSU**





1. Where the engine is located in Motor Grader.
2. What is the use of Motor Grader?
3. What is the cost of Motor Grader?

ASSESSMENT





## REFERENCE



- ❖ <https://en.wikipedia.org/wiki/Grader>
- ❖ <https://www.youtube.com/watch?v=dDzXwtAsf5k>



**THANK YOU !!!**