



SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution)

COIMBATORE-35.



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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 6 : Bucket Wheel Excavator



CONTENT



- Introduction
- Need for Bucket Wheel Excavator
- Components
- Construction & Working
- Advantages & Disadvantages
- Applications
- Manufacturing Companies



INTRODUCTION



- A bucket-wheel excavator is a heavy equipment machine used in surface mining.
- The primary function of BWE is to act as a continuous digging machine in large-scale open-pit mining operations.
- It removes thousands of tons of overburden a day.





NEED FOR BUCKET WHEEL EXCAVATOR



- In Mining areas, the materials are dugged by backhoe loader and then the loosen material is carried by the dumper to the required destination.
- So totally two vehicles has been used for performing this work.
- By the use of bucket wheel excavator, the two works are done at a same time.

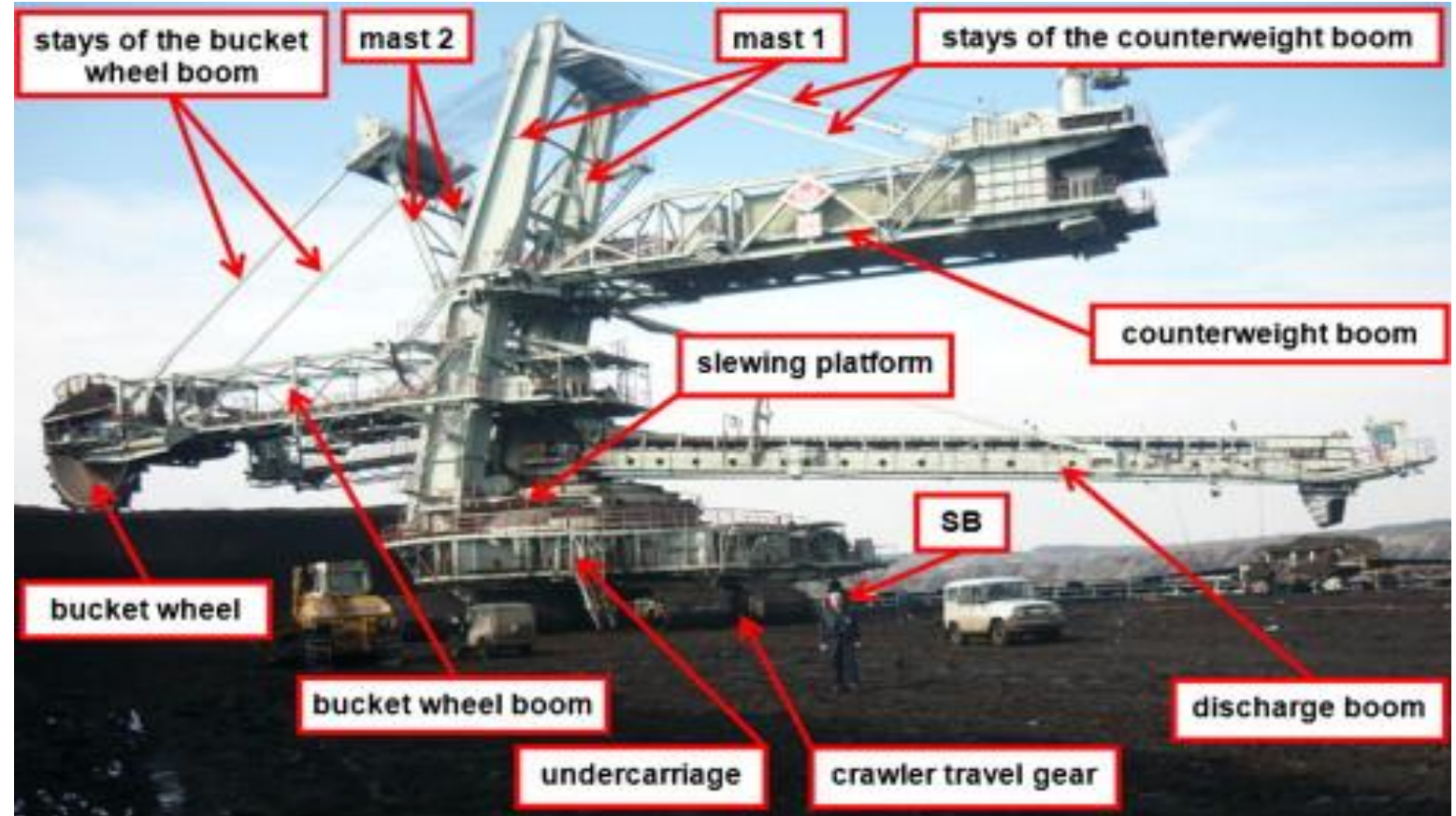




COMPONENTS



- Bucket wheel
- Mast (1&2)
- Slewing platform
- Under carriage
- Counter weight boom
- Discharge boom





CONSTRUCTION



- A bucket wheel excavator consists of a superstructure to which several more components are fixed.
- The bucket wheel from which the machines get their name.
- It is a large, round wheel with a configuration of scoops which is fixed to a boom
- It is capable of rotating.





CONSTRUCTION

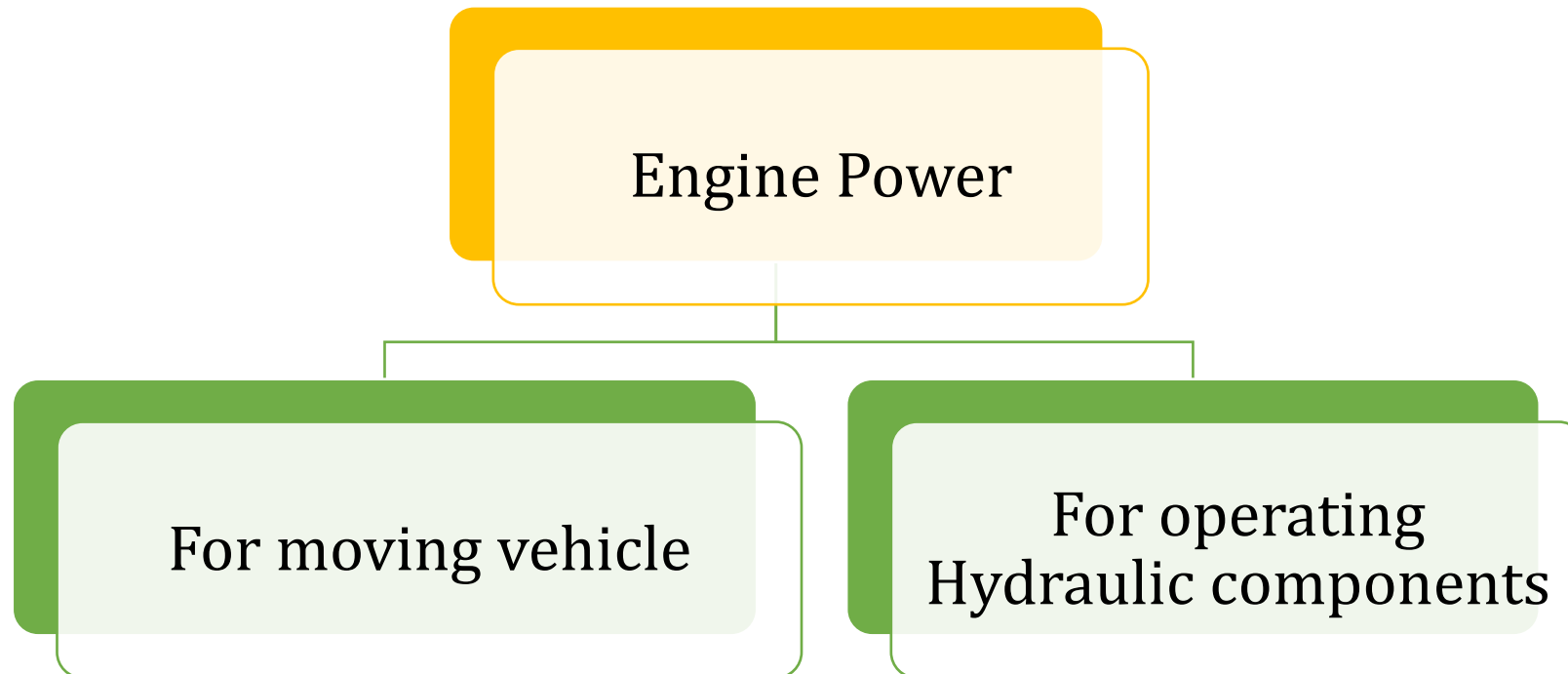


- A counterweight boom balances the cutting boom
- It is cantilevered either on the lower part of the superstructure or the upper.
- In the larger BWEs, all three booms are supported by cables running across towers at the top of the superstructure





WORKING





WORKING



- Material picked up by the cutting wheel is transferred back along the boom.
- A discharge boom receives material through the superstructure from the cutting boom.
- It carries it away from the machine, frequently to an external conveyor system.





ADVANTAGES



- Reduces man power
- More efficient work than manual process
- Less operating time
- Multiple Works can be done.





DISADVANTAGES



- High Capital cost
- High operating cost
- Not able to use in all terrains
- Requires Skill driver





APPLICATION



- Used in Mining areas
- Used for material handling





MANUFACTURING COMPANIES



- FAM
- FLSmidth Dorr-Oliver Eimco
- Sandvik Mining and Rock Technology
- TAKRAF





1. Mention the application of Bucket Wheel Excavator.
2. What is the use of Bucket Wheel Excavator?
3. Which model of the Bucket Wheel Excavator is the largest one?

ASSESSMENT



REFERENCE



- ❖ https://en.wikipedia.org/wiki/Bucket-wheel_excavator
- ❖ <https://www.youtube.com/watch?v=HKVvrQTwwPU>



THANK YOU !!!