



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 Vehicles

Topic 7 : Trencher Machine



CONTENT



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



INTRODUCTION



- A trencher is a piece of construction equipment used to dig trenches, especially for laying pipes or electrical cables, for installing drainage, or in preparation for trench warfare.
- Trenchers may range in size from walk-behind models, to attachments for a skid loader or tractor, to very heavy tracked heavy equipment.

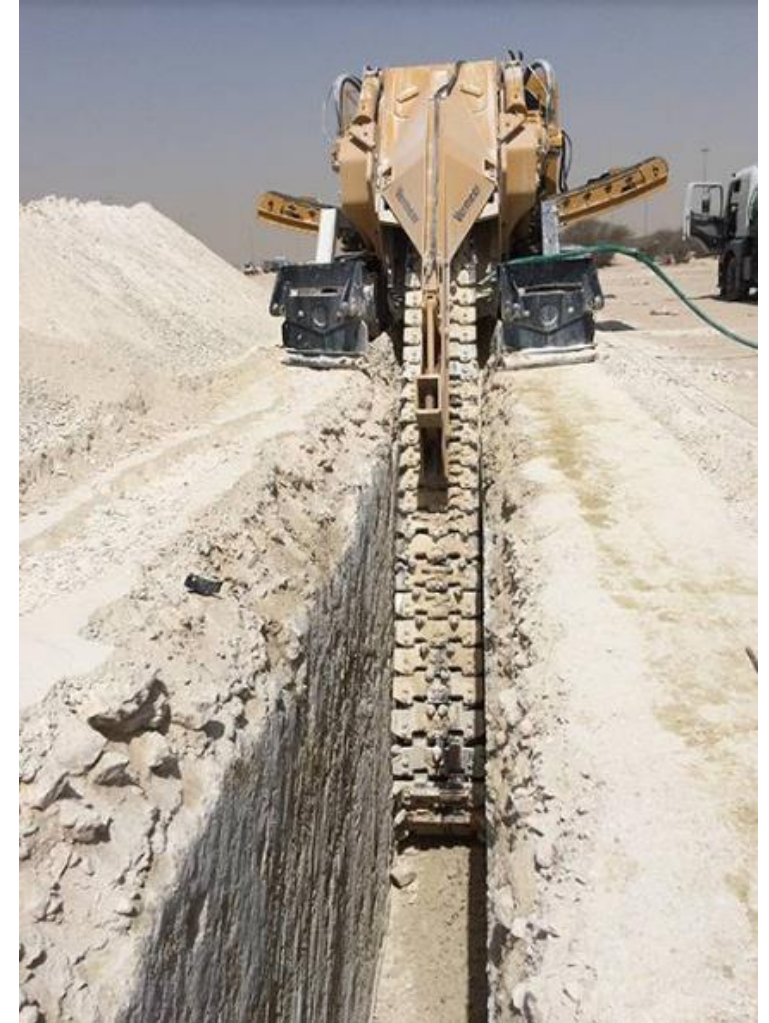




NEED FOR TRENCHER



- Normally the Backhoe Loaders used for digging purpose
- But the Backhoe loader cannot dig uniformly and needs more effort.
- By the use of Trencher we can easily dig and dispose the loosen material at the same time.

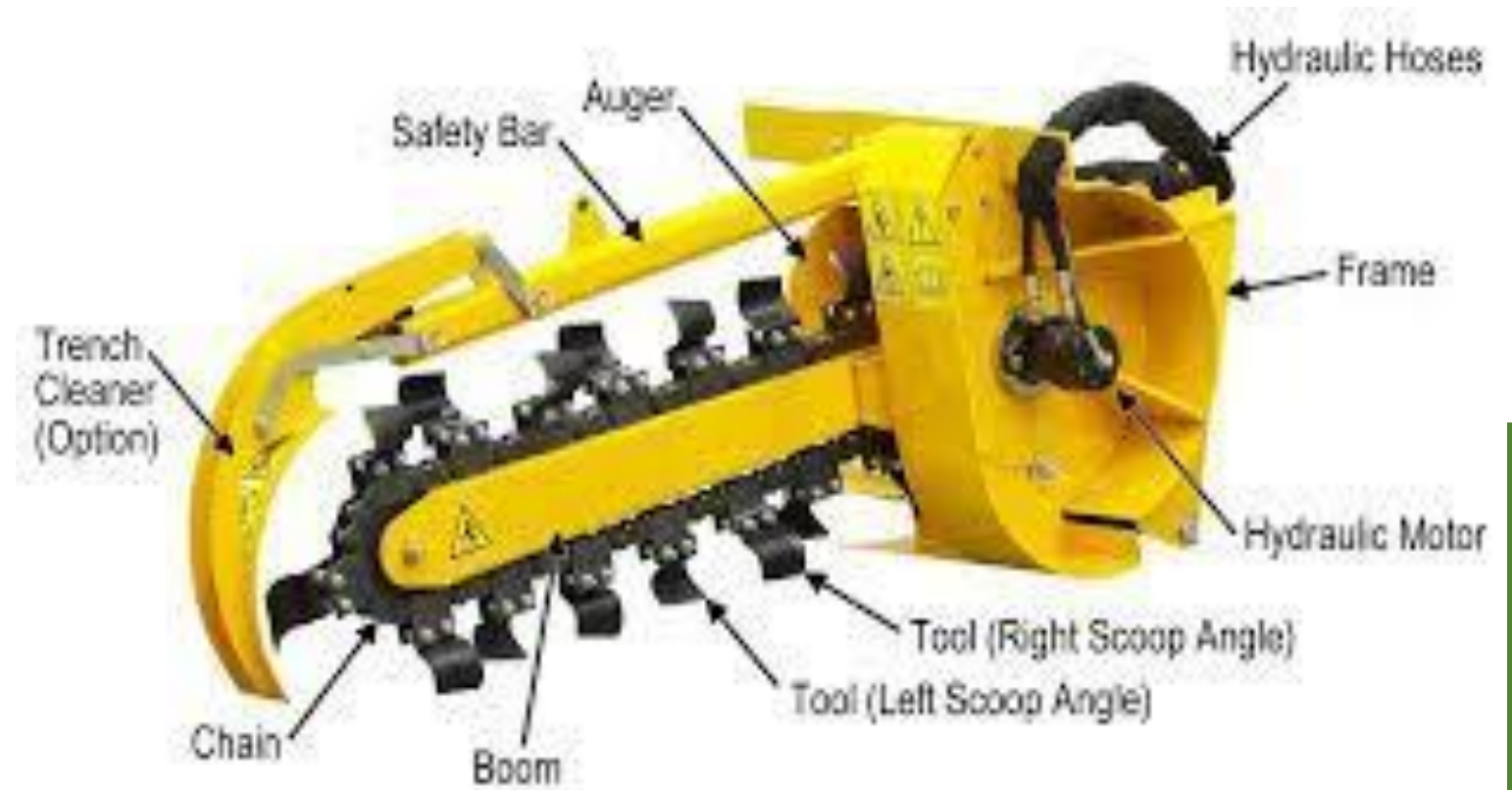




COMPONENTS



- Digging chain
- Digging boom
- Auger with slinger
- Crumber boom
- Crumber shoe
- Side shift locking pin
- Hydraulic motor
- Chain tension adjustment





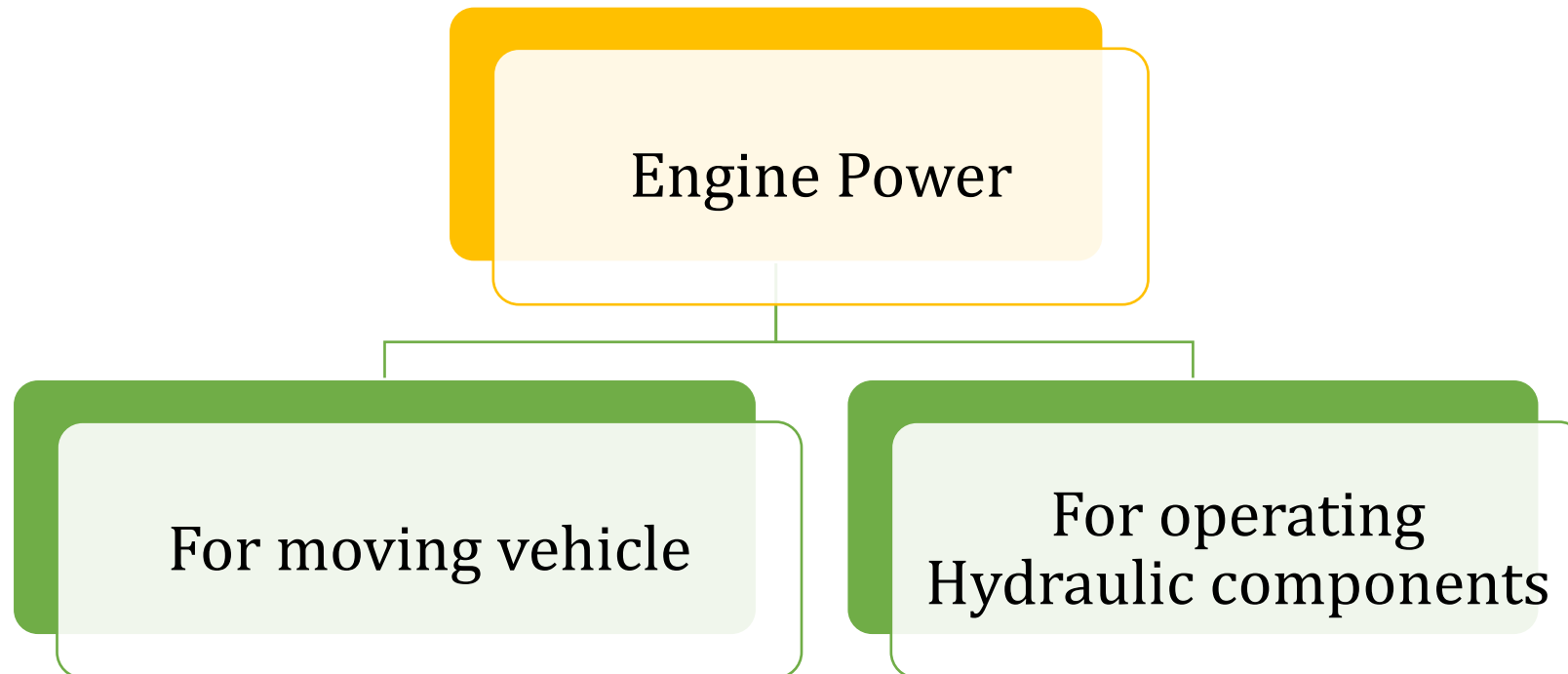
CONSTRUCTION



- In the chain trencher, the digging chain will run on the digging boom arm.
- One or two heavy-duty radial piston hydraulic motors are used in the trencher for controlling the speed of the digging chain.
- Also, the chain trencher design has included a drill to prevent the fall back of dug soil back into the trench.
- This soil will be raised using the high lift conveyor and then transported to trailers.



WORKING





WORKING



- The tilting, raising, or lowering of the entire trencher attachment is done using the hydraulic mechanism located on the construction machinery.
- Starting and stopping of the trencher are controlled by the auxiliary hydraulic control mechanism.
- Also, the auxiliary control system will control the speed of the trencher by adjusting the fluid flow through the circuit.



WORKING



- The crumber mechanism in the trencher is used for grabbing and removing loose dirt in the trench.
- The crumber boom and crumber shoe are the major components, and this shoe will be mounted on the boom.
- The position of these mounted shoes can be changed using the fluid-powered motor attached to the linkage mechanism.
- Also, the automatic locking device will hold the crumber shoe in a working position.



ADVANTAGES



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





DISADVANTAGES



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





APPLICATION



- Used for making trench for the purpose of laying pipeline





MANUFACTURING COMPANIES



- ❖ Volvo
- ❖ Caterpillar
- ❖ Kubota
- ❖ JCB
- ❖ Komatsu

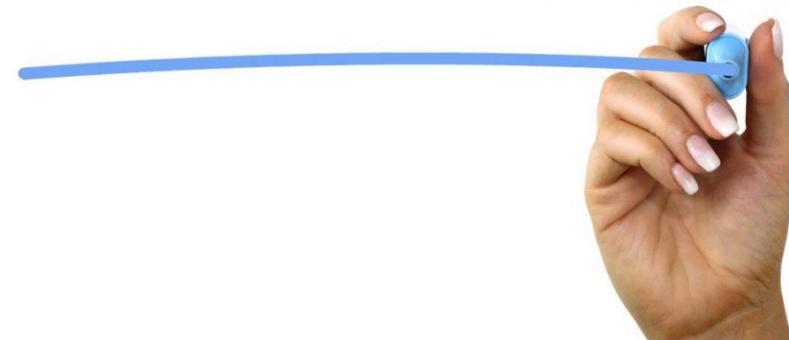


KOMATSU



1. Mention the components of Trencher Machine
2. What is the use of Crumber?
3. What is the cost of Trencher Machine?

ASSESSMENT





REFERENCE



- ❖ <https://whyps.com/hydraulic-working-of-trenchers#:~:text=The%20major%20components%20in%20the,on%20the%20digging%20boom%20arm.>
- ❖ <https://www.youtube.com/watch?v=r1iWZLD755w>
- ❖ https://www.youtube.com/watch?v=29_BB1edVoA



THANK YOU !!!