EQUIPMENT USED TO RIP ROCK

FRESNO STATE Discovery Diversity Distinction

CEA CONSTRUCTION EMPLOYERS' ASSOCIATION

LEARNING OBJECTIVES (LO)

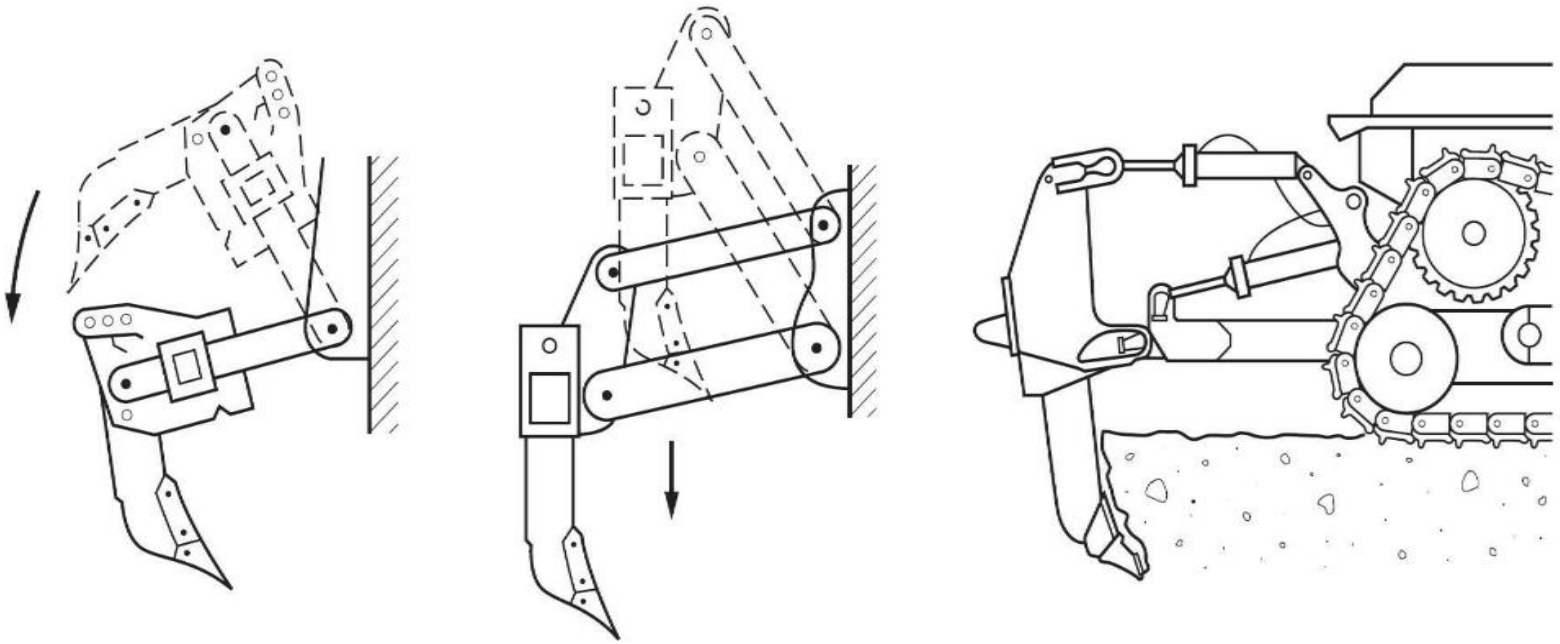
1. Understand Ripper
2. Understand Ripper Attachments
3. Understand The Quick Method Formula
4. Understand The Seismic-Velocity Method
5. Understand Ripper Operating Techniques

- Rippers are additional equipment that can be equipped on the crawler tractors to rip rock

- Its primary function is to break up hard or compacted materials such as rocks, concrete, asphalt, and frozen ground.

- Ripper attachments are typically attached at the end of the crawler tractors.

- There are three (3) types of mounting: fixed radial, fixed parallelogram, or parallelogram linkage.



Radial

Parallel

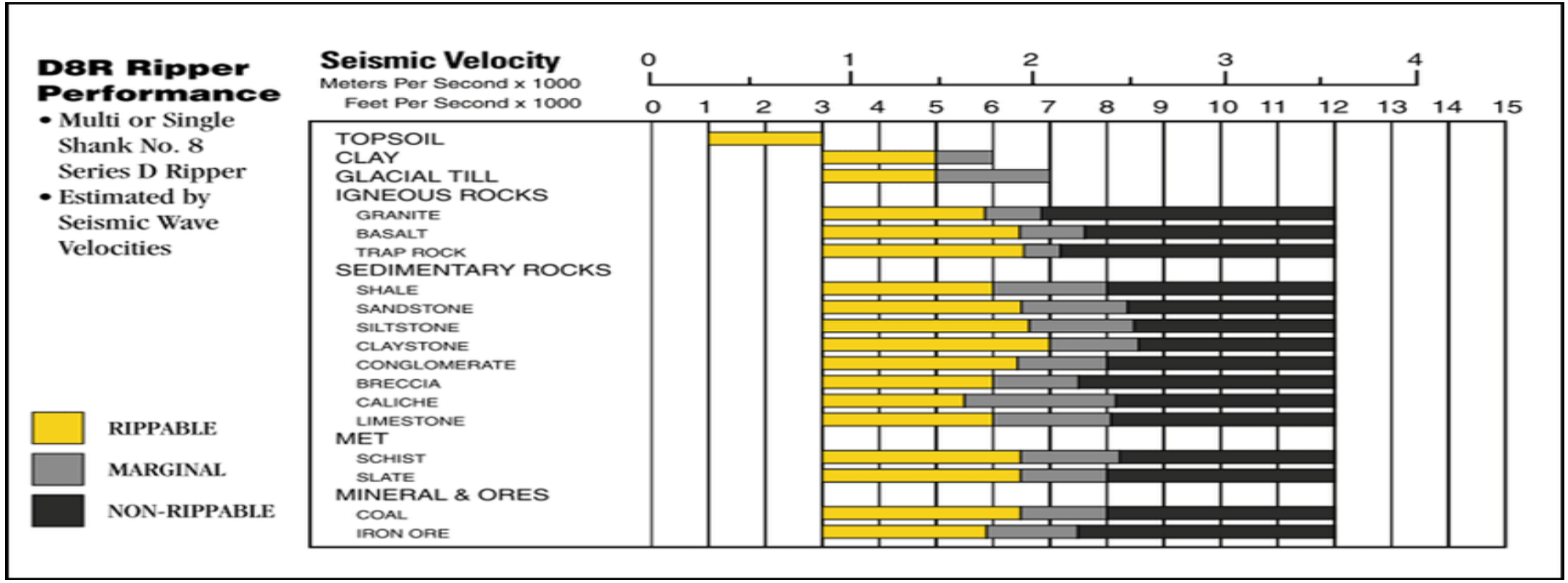
Parallelogram with variable pitch

- An approximate production rate can be determined by the number of field-timing passes of a ripper over a distance

The *formula* is:

$$\text{Ripping production (bcy/hr)} = \frac{\text{measured volume (bcy)}}{1.2 \times \text{average time (hr)}}$$

- This method uses the performance chart that documents the seismic wave velocities of different rock types and rippability. Then, the estimator uses the chart to determine if the equipment is suitable for the job.



- Ripping should be done at the maximum possible penetration depth, but the depth accomplished should all have the same depth.
- For most economical production, ripping is running in low gear at low speed.
- When ripping load scrapers, it is best to rip in the direction of the scraper loading pattern.
- When moving the ripped material, always leave yourself space from four (4) to six (6) inches deep of loose material.
- Always rip downhill
- Cross ripping will increase the tire and require twice as many passes. However, cross ripping is effective at breaking up material that comes loose in large slabs of material.