



EQUIPMENT USED TO GRADE

LEARNING OBJECTIVES (LO)

1. Understand General Information About Graders
2. Identify Different Components of A Grader
3. Understand The Functions of The Moldboard
4. Understand The Functions of The Scarifier
5. Understand The Grader Operations

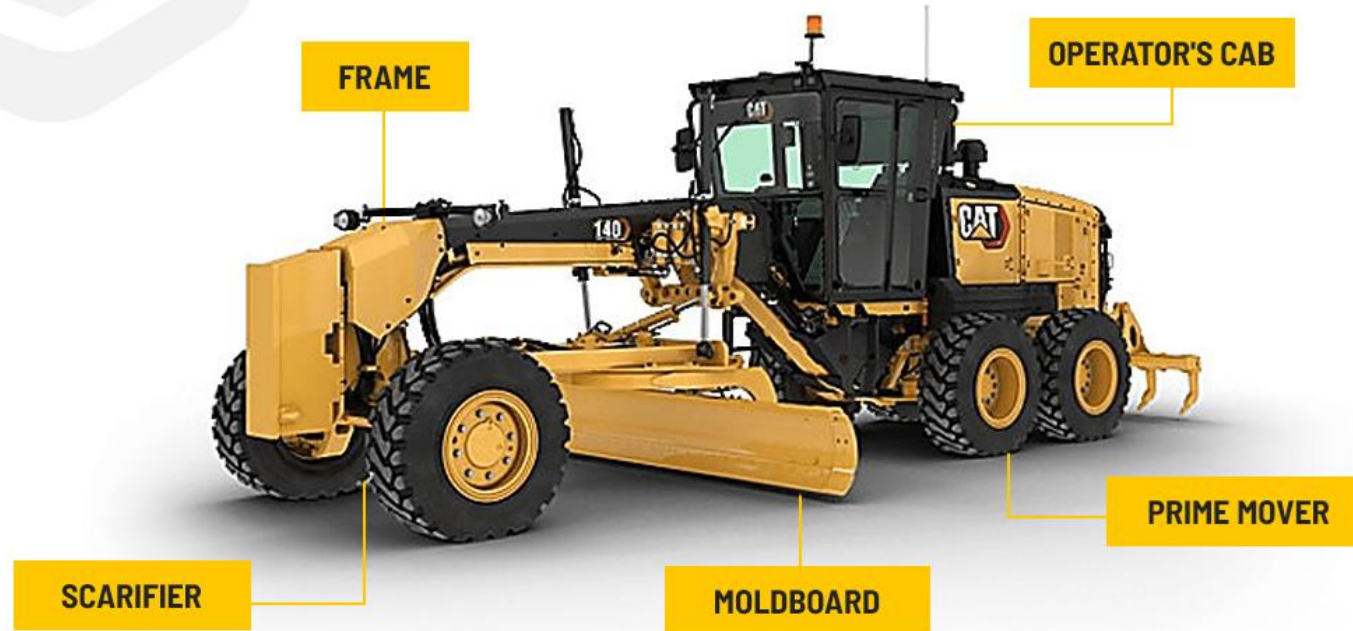


LO 1 Understand General Information About Graders

1. The process of shaping materials to the required line is often described as finishing, finish grading, and fine grading.
2. Finishing is the next task after excavation (rough grading) or compaction.
3. Graders are multipurpose machines used for finishing, shaping, bank sloping, and ditching; they can also be used for mixing, spreading, side casting, leveling & crowning, light stripping operations, general construction, and dirt road maintenance.
4. The primary purpose of graders is cutting and moving material with a blade (moldboard).
5. Make shallow cuts in medium-hard materials and should not be used for heavy excavation.
6. Can move small amounts of material but cannot perform like a dozer.

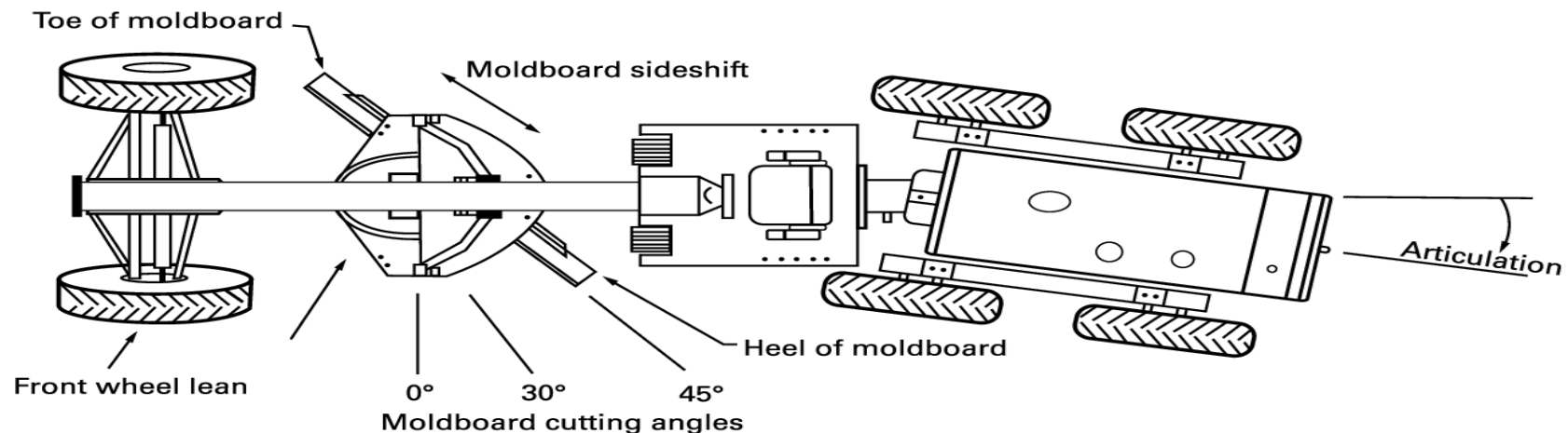


PARTS OF A MOTOR GRADER



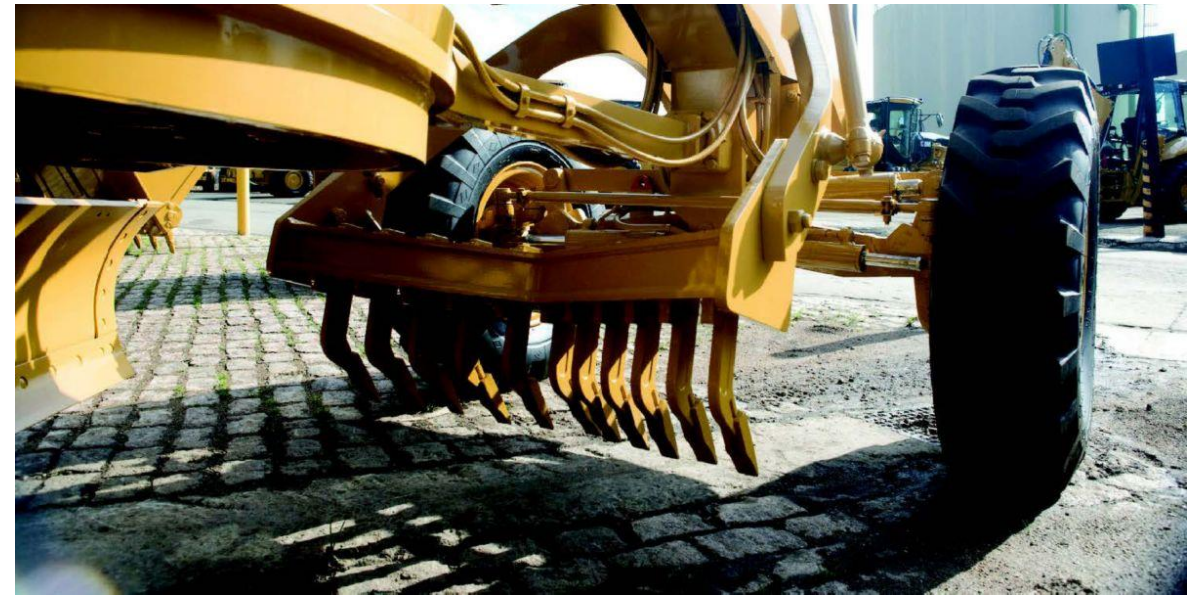
LO 3 Understand The Functions of The Moldboard

- It performs various tasks related to soil preparation, shaping, and leveling
- Used to side-cast the material it encounters.
- The ends of the moldboard can be raised or lowered independently of one another.
- Toe is the foremost end of the moldboard while the heel is the discharge end.



LO 4 Understand The Functions of The Scarifier

- The main purpose of a scarifier is to enhance soil aeration, water penetration, and seedbed preparation.
- Scarifier cuts tough and dense materials that the moldboard could not brake.
- It is composed of a scarifier log with removable teeth. The teeth can be adjusted to cut to a depth of 12 in.



LO 5 Understand The Grader Operations

- Grader is used to plane, smooth off-cut, or fill surfaces.
- To perform the task, the moldboard is set at an angle to scrape off high material and fill in low spots.
- When filling, the operator must make sure that there is enough material in front of the moldboard for filling. The loosened material moves forward and sideways to distribute it evenly.
- On the next pass, the windrow (the row of loose material that spills off the trailing edge of the blade) is caught and moved across the blade to the heel.
- On the final pass, a lighter cut is made and the trailing edge (heel) of the moldboard is lifted to allow the surplus material to pass under the end.

LO 5 Understand The Grader Operations (Cont.)

- Windrows should not be piled in front of the rear wheels because it may affect the accuracy of the cut.
- Road and embankment finish work and shallow ditch cuts are performed as follows:
 - Ditch cuts
 - Moving windrows
 - Haul-road maintenance
 - Spreading
 - Proper working speeds
 - Turns
 - Number of passes

