

EMPLOYEE TRAINING RECORD

TRAINING TITLE An Introduction to Motor Graders

KEY TEACHING POINTS

DESCRIPTION

- Broadly speaking, the grader consists of a prime mover, a grader mechanism, a scarifier attachment, and a tandem-drive rear axle.
- The motor grader is a rubber-tired, hydraulically operated, single-engine unit. This unit is known as the prime mover. It is power driven by a six-cylinder diesel engine and started by an electric-starting motor.
- The engine not only transmits power to the drive wheels, but is also the energy source for the power control system. The power control system is operated manually from the operator's seat to position the blade, control auxiliary equipment, and lean the front wheels. The frame supports the prime mover and grader mechanism and extends the full length of the rig.
- The grader mechanism is known as the moldboard. This moldboard assembly consists of three major parts:
 - **MOLDBOARD** The part of the assembly that moves dirt, gravel, etc.
 - **CUTTING EDGES** Two cutting edges mounted on the bottom edge of the moldboard (usually 12 feet, in two 6 foot sections).
 - **RIGHT- AND LEFT-END BITS** A protective plate mounted on the ends of the moldboard.
- **NOTE** A completely assembled moldboard commonly is called a blade.
- The end bits are reversible and can be used on both sides of the moldboard. The cutting edges are replaceable when worn. It is the operator's responsibility to change the cutting edges and end bits.
- The blade can be lifted, lowered, rotated, tipped forward and backward, tilted, shifted to one side or the other, and angled to the horizontal position. By adjusting the hang rods, the moldboard may be extended extremely to either side of the grader for working bank slopes. When set at an angle, the leading end of the moldboard is referred to as the toe, and the trailing end as the heel. The depth of cut is determined by the up and down movement of the toe.

TIRES

- The rear tandem drive wheels are driven by a gear-and-chain arrangement that drives each wheel with equal force. In other words, if one wheel spins, they both spin. The tandem drives are mounted on a single differential to allow pivoting while operating on rough terrain.

PERSONAL PROTECTION

- Always wear hearing protection, and a hard hat. Gloves may be worn.
- Always keep a fire extinguisher available to the operator.

TEST

QUESTION	ANSWERS	
	TRUE	FALSE
1 Always wear hearing protection, and a hard hat. Gloves may be worn.		
2 The blade can be lifted, lowered, rotated, tipped forward and backward, tilted, shifted to one side or the other, and angled to the horizontal position.		
3 The grader consists of a prime mover, a grader mechanism, a scarifier attachment, and a tandem-drive rear axle.		
4 The grader mechanism is known as the moldboard.		
5 The rear tandem drive wheels are driven by a gear-and-chain arrangement that drives each wheel with equal force.		
EMPLOYEE'S NAME	EMPLOYEE'S SIGNATURE	DATE
INSTRUCTOR'S NAME	INSTRUCTOR'S SIGNATURE	DATE