

CONTENT STANDARD 1.0: OCCUPATIONAL SAFETY AND HEALTH IN AG MECHANICS

Performance Standard 1.1: Safety Practices

- 1.1.1 Explain the importance of safety of agricultural mechanics.
- 1.1.2 Identify and differentiate between safe and unsafe work practices.
- 1.1.3 Describe the methods utilized to implement safe work practices.
- 1.1.4 Identify and explain the purpose of signals and symbols in agricultural safety.
- 1.1.5 Explain the importance and function of safety training.
- 1.1.6 Evaluate the importance of occupational safety and health in agriculture mechanics.
- 1.1.7 Identify and explain the role that various agencies play in regulating safety.
- 1.1.8 Identify and demonstrate the proper use of personal protection equipment (PPE).
- 1.1.9 Locate and demonstrate the proper uses of the first aid and emergency equipment.
- 1.1.10 Maintain a general safe working environment.
- 1.1.11 Demonstrate the proper disposal of hazardous waste.
- 1.1.12 Read and understand safety data sheets (SDS).

CONTENT STANDARD 2.0: TOOLS AND HARDWARE

Performance Standard 2.1: Safe and Proper Use of Tools

- 2.1.1 Determine which hand tool, power tool and measuring and marking devices are most appropriate for a job.
- 2.1.2 Identify and safely use hand and power tools utilized in agricultural mechanics.
- 2.1.3 Identify and properly use measuring and marking tools.
- 2.1.4 Measure and apply metric to standard measurement conversions.
- 2.1.5 Inspect and maintain tools.

Performance Standard 2.2: Hardware and Fasteners

- 2.2.1 Identify and select proper common hardware and fasteners.

CONTENT STANDARD 3.0: METAL TECHNOLOGY

Performance Standard 3.1: Welding

- 3.1.1 Demonstrate proper safety practices working with metal technology.
- 3.1.2 Determine uses of metal.
- 3.1.3 Identify types of metal and the proper welding technique.
- 3.1.4 Recognize properties of metal.
- 3.1.5 Properly select and use oxy-fuel equipment.
- 3.1.6 Properly select and use shielded metal arc welding equipment.
- 3.1.7 Properly select and use gas metal arc welding equipment.
- 3.1.8 Properly select and use gas tungsten arc welding equipment.
- 3.1.9 Properly select and use plasma cutting equipment.
- 3.1.10 Properly select welding consumables (i.e., wire, electrode, gas and filler rod).

Performance Standard 3.2: Cold Metal Work

- 3.2.1 Read metal working plans.

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- 3.2.2 Properly cut threads with a tap and die.
- 3.2.3 Join metal by riveting.
- 3.2.4 Properly thread steel pipe.
- 3.2.5 Lay out holes and drill holes using a twist drill.
- 3.2.6 Bend sheet and strap metal to angles and/or shapes.

CONTENT STANDARD 4.0: POWER SYSTEMS

Performance Standard 4.1: Engines Technology

- 4.1.1 Identify the operating principles of internal combustion engines.
- 4.1.2 Explain the function and operating principles of the fuel, lubrication, governor, and ignition systems.
- 4.1.3 Locate technical information in electronic and print form.
- 4.1.4 Troubleshoot and maintain engines.

Performance Standard 4.2: Electric Motors

- 4.2.1 Select motors based on type of application.

Performance Standard 4.3: Agricultural Machinery

- 4.3.1 Identify and perform basic equipment maintenance on agricultural machinery.
- 4.3.2 Use mathematics to solve equipment calibration problems.
- 4.3.3 Demonstrate converting common units of measure found in agriculture.

Performance Standard 4.4: Hydraulics

- 4.4.1 Identify the parts and functions of the hydraulic systems.
- 4.4.2 Identify the applications of hydraulics in agriculture.

CONTENT STANDARD 5.0: ELECTRICITY

Performance Standard 5.1: Basic Electrical Principles

- 5.1.1 Demonstrate proper safety practices when working with electricity.
- 5.1.2 Define basic electrical terminology; identify and explain the basic principles of electricity.
- 5.1.3 Recognize electrical code requirements for wiring.
- 5.1.4 Plan and install an electrical circuit.
- 5.1.5 Measure electrical circuits for voltage, current flow, resistance, and wattage.
- 5.1.6 Trouble-shoot electrical circuits.
- 5.1.7 Describe the relationship of volts, amps, and ohms in terms of Ohm's Law.

CONTENT STANDARD 6.0: MATHEMATICAL APPLICATIONS

Performance Standard 6.1: Mathematical Applications in Agriculture Mechanics & Power Systems

- 6.1.1 Perform mathematical operations for whole numbers, fractions, decimals, ratios, percentages, and rounding (significant figures).
- 6.1.2 Demonstrate converting common units of measure found in agriculture.
- 6.1.3 Explain the meaning of accuracy verses precision.
- 6.1.4 Use mathematics to solve equipment calibration problems.

CONTENT STANDARD 7.0: INSULATION

Performance Standard 7.1: Insulation

- 7.1.1 Explain the importance of insulation.
- 7.1.2 Explain the theory behind insulation.
- 7.1.3 Identify and select insulation materials.

CONTENT STANDARD 8.0: EMERGING TECHNOLOGIES

Performance Standard 8.1: Emerging Technologies in Ag Systems

- 8.1.1 Identify uses of precision and emerging technology in agriculture.
- 8.1.2 Understand the potential applications of new technology in agriculture.

CONTENT STANDARD 9.0: CAREERS

Performance Standard 9.1: Careers in Ag Mechanics

- 9.1.1 Research potential careers in ag mechanics.
- 9.1.2 Demonstrate employability skills for a career in ag mechanics industry.
- 9.1.3 Research additional industry certifications available.

CONTENT STANDARD 10.0: LEADERSHIP TRAINING THROUGH AGRICULTURAL EDUCATION

Performance Standard 10.1: Effective Leadership and Leadership Training

- 10.1.1 Expand leadership experience by participating in a chapter activity.
- 10.1.2 Participate in a career development event at the local level or above.
- 10.1.3 Exhibit leadership skills by demonstrating proper parliamentary procedure.
- 10.1.4 Participate in a speech or presentation activity.

Performance Standard 10.2: School and Community Awareness

- 10.2.1 Participate in a school improvement or community development project.

CONTENT STANDARD 11.0: SUPERVISED AGRICULTURAL EXPERIENCE

Performance Standard 11.1: Maintain a Supervised Agricultural Experience

- 11.1.1 Accurately maintain SAE record books.
- 11.1.2 Investigate the proficiency award areas related to SAE program area.
- 11.1.3 Actively pursue necessary steps to receive higher degrees in FFA.