

2022 - 2023 Ag Mechanics CDE – Description Sheet

Revises 9/23/2022

Team Activity:

Area Information – Team Activity will focus on John Deere HPX 4x2 & 4x4 Gator. Students will need to be familiar with the John Deere HPX 4x2 & 4x4 Gator and the associated Component Technical Manual. Reference Sections will include the following: Sections 30 Engine – Gas (Liquid Cooled) Group 10-Specifications and Tools and Group 50 –Repair.

State Information – Team Activity will focus on either a John Deere HPX 4x2 & 4x4 Gators or the associated Component Technical Manual and Owner’s Manuals for that particular piece of equipment. Sections and Groups to be identified at a later date.

Skill Activities:

A. Electrical Systems

Necessary tools will be provided. You may bring colored pencils for use on drawing diagrams.

Area and State Information – 2, 3, or 4 boxes will be mounted to 2” x 4” boards. The contestant will make hooks and secure the wires to the correct locations but will not cut the wire.

Connections to boxes and connection of devices inside the box must be made according to NEC recommendations and accepted wiring practices (AAVIM)

B. Compact Equipment

Necessary tools will be provided. Students will be required to

- measure selected parts using dial calipers, micrometers, telescoping gauges and/or feeler gauges
- answer related problem-solving questions
- Assemble, install, and/or adjust specific engine components/parts

Area and State Information

Briggs and Stratton Single Cylinder OHV Air-Cooled Engine, Briggs and Stratton Single Cylinder OHV Air-Cooled Engine Illustrated Parts list and Repair Manual (276781 – 8/09). Be familiar with the following sections:

- Section 1 – Safety, Maintenance, and Adjustments
- Section 2 – Troubleshooting
- Section 6 – Cylinder Heads and Valves
- Section 12 – Engine Specifications

C. Environmental/Natural Resource (ENR)

This year’s activity will focus on using the automatic level to determine distance and/or slope. Students will need to be able to:

- Determine the difference in elevation (percentage/height) between two points.
- Determine the distance between two points using the stadia hairs on an automatic level and an engineer’s rod.
- Use determined measurements to calculate area in square footage, acres, etc...
- Calculate volume of water per acre. (Acre-feet or Acre-inch volume measurements)

Area Information

Students will need to determine the above information using pictures and diagrams or rod readings.

State Information

Students will need to be able to determine the above information using actual equipment.

D. Structures:

Area Information

Welding Skill will be GMAW (Mig) Single-Pass Lap joint (2F Position) on 3/16" thick plate.

State Information

Welding Skill will be a GMAW (Mig) Single-Pass Lap (2F Position) and Edge (1G Position) Joint on 3/16" Plate.

Welding Positions

Welding Equipment List for Contestants:

1. Teams will need to provide the following items:
 - Welding Helmet – Shade 10 minimum
 - Body cover- leathers, Shop Jackets, non-flammable Coveralls
 - Welding Gloves
 - Pliers/Tongs
 - Safety glasses –approved with shields
 - Wire brush
 - Soapstone
 - Chipping Hammer
 - Tape Measure
2. Please do not share tools and equipment between team members (bring one of each for each student).
3. All other materials and tools will be provided.

Approved Safety Glasses are required for Team Activity and Skill Activities. (Meets or exceeds ANSI Z87.1-2003 safety standards)