

Georgia FFA Association
2025 – 2026 Ag Mechanics CDE – Description Sheet
Revised 7/31/2025

Team Activity: (Electrical)

Area and State Information – Team Activity will involve the planning and installation of electrical circuits. Circuits could include but are not limited to: single and double pole breakers, single pole, double pole, three-way and four-way switches, Duplex and GFCI Receptacles, and keyless fixtures. 120V/240V Circuits, Service Entrance Panels, Motor and Motor controls. Conduit and or 14-2, 14-3, 12-2, 12-3, solid or stranded 14 or 12 THHN Conductor, and or #4 AL SE.

Reference:

- 2023 National Electrical Code
- 18th Edition of the Agriculture Wiring Handbook.
- Teams will be expected to provide tools for each team member consistent with the approved tools list for the Agricultural Electrification (EMC Wiring) CDE. **(State Event Only)**

Written Exam: (State Only)

Each student will complete a 25-problem-solving/multiple-choice examination. Questions will come from four agricultural technology and mechanical systems skill areas (electricity, compact equipment, structures, and environmental/natural resources.) Students will have 25 minutes to complete the exam.

References for Exam:

- Agricultural Mechanics and Technology Systems by J. P. Hancock, Don W. Edgar, Michael L. Pate, Lori A. Dyer, Brian Hoover (Goodheart-Wilcox) - Current Edition
- Agricultural Technical Systems and Mechanics by Leonard Koel, Glen A. Mazur, B. J. Moniz, R. Bruce Radcliff (American Technical Publishers) - Current Edition
- Georgia Ag Ed Website www.gaaged.org

Skill Activities:

A. Electrical Systems

Necessary tools will be provided. You may bring colored pencils/pens 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 connections 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, feeler gauges and/or other small engine measurement tools.
- Answer related problem-solving questions.
- Assemble, install, and/or adjust specific engine components/parts using small engine specialty tools.

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- **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 4 – Fuel Systems and Carburetion
- Section 10 – Crankshafts, Camshafts, Balancing Systems, and Gear Reduction
- Section 12 – Engine Specifications

C. Environmental/Natural Resources (ENR)

Area and State Information: Students will need to be able to:

- Take rod readings
- Measure distance with tape and/or instruments
- Determine the percent of slope or grade
- Determine materials needed to construct a fence system
- Use Measurements to determine linear feet, angles, area, and/or acreage.
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D. Structures:

Area Information

Structures Skill will be a single-welded weldment. SMAW Single-Pass T Joint (2F Position) on 1/8" thick plate using a supplied welding electrode. Weld will be visual and/or strength tested.

State Information

Structures Skill will be an Oxy-Acetylene cutting skill, including a 90°, 45° and piercing cut on 4" x 1/2" flat bar. **Students will not be allowed to perform a post-cut cleanup.**

[Welding Positions](#)

Welding Equipment List for Contestants:

1. Teams will need to provide the following items:
 - Welding Helmet – Shade 10 minimum (Area)
 - Welding goggles, glasses or face shield - Shade 5 minimum (State)
 - Body cover- leathers, Shop Jackets, non-flammable Coveralls
 - Welding Gloves
 - Pliers/Tongs
 - Safety glasses –approved with shields
 - Wire brush
 - Soapstone
 - Chipping Hammer
 - Tape Measure
 - Square (quick/combination, etc.)
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)