South Central College

AGME 1861 Tractor Electrical

Common Course Outline

Course Information

Description This course covers the fundamentals of electricity and its application to farm equipment electrical systems. The content includes wiring diagrams, batteries, test equipment, charging systems, cranking systems, ignition systems and diagnostic service procedures.

Total Credits 3

Total Hours 48

Types of Instruction

Instruction Type	Credits/Hours
Classroom Presentation	
On-Campus Lab	

Pre/Corequisites

Enrolled in Ag Service Technician Program, or with instuctor approval

Course Outcomes

1. Define electrical terms

Learning Objectives
Define diagram wires/symbols
Explain Ohm's Law formulas
Apply Ohm's Law
Use analog/digital multimeters

2. Interpret tractor circuit diagrams

Learning Objectives
Identify wires/terminals
Identify circuit failure problems
Define semiconductors
Identify relay, circuit breakers, and switches in circuits

3. Identify battery terms

Learning Objectives
Identify battery circuit test procedures

Perform battery circuit tests
Select electrical test equipment hookups

4. Identify ignition principles

Learning Objectives

Identify ignition system parts
Describe secondary resistance cables
Select ignition component test procedures
List static/dynamic timing procedural steps
Define secondary circuit troubleshooting

5. Use diagnostic equipment

Learning Objectives

Test circuits with multimeter
Use service manual to check test results

6. Check wiring and machine repairs

Learning Objectives

Repair connectors and wiring on units
Failure analysis on components and wiring

7. Identify cranking circuit principles

Learning Objectives

Diagram gas/diesel battery/cranking circuits
Describe on-tractor cranking circuit testing
Define cranking system components
Test control circuit components

8. Identify charging operating principles

Learning Objectives

Select electrical test equipment hookups
Identify DC generator/regulator principles
Identify generator/regulator components
Perform generator/regulator testing/adjustment
Identify alternator charging operating principles
Diagram alternator/regulator charging circuits
Select on-tractor alternator charging test methods
Select off-unit/on-unit generator test procedures

9. Electrical system safety

Learning Objectives

Describe various cranking safety circuits
Apply safe practices for testing procedures
Apply safe battery handling procedures

SCC Accessibility Statement

Disability Services provides accommodations and other supports to students with permanent and temporary disabilities that affect their SCC experience. Disabilities may include mental health (anxiety, depression, PTSD), ADHD, learning disabilities, chronic health conditions (migraine, fibromyalgia), sensory disabilities, and temporary disabilities (broken arm, surgery). Common accommodations are extended test time, private room for testing, audiobooks, and sign language interpreter.

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