



South Central College

## AGME 2947 Tractor/Equipment Diagnosis and Repair

### Common Course Outline

#### Course Information

**Description** This course provides the student with tractor service shop experience in hydraulics, diesel fuel systems, electrical systems, power trains, air conditioning, and engines. Students will perform repair services on customer tractors and school units and will compare their component repair time with flat rate.(Prerequisites:AGME2863, AGME2945)\* If you have a disability and need accommodations to participate in the course activities, please contact your instructor as soon as possible.

**Total Credits** 4

**Total Hours** 128

#### Types of Instruction

Instruction Type	Credits/Hours
Lab	4/128

#### Pre/Corequisites

AGME2863

AGME 2945

#### Course Outcomes

##### 1. Test understanding of workplace safety will be developed

###### Learning Objectives

Adhere to predetermined shop rules and consequences for disregarding rules

Use jackstand and lifting devices

Safe use of hydraulic test equipment

Proper unit shut down lockout procedures

Acknowledge chemicals used in shop and dangers associated with them

##### 2. Diagnosis and repair farm equipment

###### Learning Objectives

Listen to customer complaint

Determine the problem

Troubleshoot the cause

Correct the problem

### **3. Test and repair mechanical power training**

#### **Learning Objectives**

Determine cause of complaint  
Test for proper operation  
Perform power train repair

### **4. Test electrical devices on and off machines**

#### **Learning Objectives**

Test batteries and cables  
Test cranking circuit control components  
Use analog and digital meters  
Perform on tractor cranking tests  
Measure circuit voltage drops  
Test electro-mechanical gauge/lamp console circuits  
Test engine protection override protection systems  
Repair field/road lighting circuits, repair cab blower/wiper circuits

### **5. Adjust components**

#### **Learning Objectives**

Adjust carburetor for proper operation  
Adjust engine governed speeds  
Set fuel systems to standard horsepower with dynamometer  
Adjust powertrain components  
Adjust hydraulic system pressures

### **6. Test and repair hydraulic systems**

#### **Learning Objectives**

Practice proper hydraulic safety and environmental safety  
Test pressures and observe operation  
Disassemble and inspect components

### **7. Rebuild components**

#### **Learning Objectives**

Measure internal engine components  
Determine use of old parts  
Obtain new components and reassemble  
Weigh out new vs rebuilt costs  
Test rebuilt components before returning to customer

### **8. Service units**

#### **Learning Objectives**

Change fluids at recommended times  
Service filters and check for contamination  
Refer to operator manual for proper operation  
Clean units

### **9. Develop a competency in the use of proper tools and various fastener**

#### **Learning Objectives**

Use of specialty tools from manufacturer of unit  
Use of measuring tools for diagnosis and repair to specification  
Use proper tools for student and bystander safety  
Proper torquing of hardware

### **10. Perform welding and fabrication as needed**

#### **Learning Objectives**

Perform broken stud bolt and stud removal  
Repair and fabricate components

Practice safety while cutting and welding

**11. Perform parts department operations**

**Learning Objectives**

Access electronic parts catalog

Communicate part needs to dealers

Identify part or parts required for repairs

**12. Prepare work orders and billing of repair services**

**Learning Objectives**

Insert customer information

Write in customer complaint

Record parts on repair order

Calculate totals for customer billing

**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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