



South Central College

AGME 1823 Engine Support

Common Course Outline

Course Information

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| Description | This course covers cooling, lubrication and intake/exhaust systems. The student will identify, troubleshoot and repair each of these systems. The student will also become familiar with special tools necessary to service these systems. The laboratory portion of the class involves overhauling an engine and should be taken in conjunction with AGME1822, Gas/Diesel Engine Repair I. Students will increase their understanding, knowledge, and application of materials and procedures learned in the Gas/Diesel Engine Repair I class. |
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| Total Credits | 3 |
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| Total Hours | 64 |
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Types of Instruction

Instruction Type

Credits/Hours

Classroom Presentation

On-Campus Lab

Pre/Corequisites

AGME1821

Taken in conjunction with AGME1822

Course Outcomes

1. Overhaul Engine Cylinder Head

Learning Objectives

- Disassemble cylinder head
- Test valve train components
- Install valve guild
- Reface valves
- Check head for cracks
- Clean head components
- Reface valve seats
- Check surfaces for warpage

2. Overhaul Crankcase Components

Learning Objectives

Service camshaft components
Repair or replace oil pump
Repair or replace water pump
Identify cooling system and overheating problems
Identify and service lubrication system
Identify and service block and bore components
Identify and check intake system
Identify and service exhaust systems and turbo

3. Overhaul Crankshaft Components

Learning Objectives

Measure and Identify crankshaft components
Install front and rear seals
Check line bore and journals
Remove and inspect crankshaft dampener
Service engine main and rod bearings
Determine oil pressure and crankshaft problems
Check and measure main and connecting rod bores

4. Understand turbo charger and blower operation

Learning Objectives

Check boost pressure
Assess wear and quality of turbo for reuse

5. Explain and adjust engine timing

Learning Objectives

Change diesel injection timing per manual specifications
Use electronic timing light and tachometer to set gas engine per manufacturer's specification

6. Identify and adjust engine fluids

Learning Objectives

Adjust fluid levels to manufacturer's specifications
Choose proper weight engine oil per manufacturer's specifications

7. Conduct cooling system checks

Learning Objectives

Test radiator caps
Test antifreeze quality and freeze point
Identify cooling system problems and consequences

8. Determine disassembly process

Learning Objectives

Use manufacturer's manual for dis-assembly points.
Align dis-assembly procedures with repair needs
Adjust dis-assembly process for time needed for repairs

9. Interpret dynamometer results

Learning Objectives

Check power unit operation against manufacturers specifications for horsepower
Operate dynamometer and adjust items to obtain needed results
Assess readings for repair needs and communicate with instructor or customer

10. Verify engine wear with external testing

Learning Objectives

Read and record manometer results
Select correct gauges or instruments for tests
Compare results of testing with manufacturer specifications

11. Operate tractor for correct function

Learning Objectives

Use operator's manuals for correct procedures

Demonstrate safe and nondestructive procedures to simulate field operation

12. Proper tool choice and usage

Learning Objectives

Check service manuals for special tool to complete repairs

Choose and operate tools to make efficient use of time in disassemble and reassembly

Calibrate special tools for proper specifications

13. Demonstrate shop safety

Learning Objectives

Demonstrate proper tool safety

Wear proper safety equipment when required

Use proper lifting techniques

Be aware of other student when operating machines

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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