Idaho CTE

Agriculture Small Engine Repair (2025)

PROFESSIONAL ORGANIZATIONS AND LEADERSHIP 1.0

1 Student Leadership in Career Technical Student Organizations (CTSO) and Professional Associations 1.1

1. Explore the role of professional organizations and/or associations in the ag small engine repair industry. 1.1.1
2. Define the value, role, and opportunities provided through career technical student organizations. 1.1.2
3. Engage in career exploration and leadership development. 1.1.3

2 Supervised Agricultural Experiences 1.2

1. Maintain SAE record books. 1.2.1
2. Describe the proficiency award areas related to the SAE program area. 1.2.2
3. Describe necessary steps to receive higher degrees in FFA. 1.2.3

SAFETY 2.0

1 Workplace Safety 2.1

1. Describe general shop safety rules and procedures. 2.1.1
2. Describe safe procedures for handling tools and equipment. 2.1.2
3. Describe ventilation requirements and related hazards when working within the lab/shop area. 2.1.3
4. Describe marked safety areas and related safety requirements. 2.1.4
5. Identify the location and the types of fire extinguishers and other fire safety equipment. 2.1.5
6. Describe procedures for using fire extinguishers and other safety equipment. 2.1.6
7. Describe the location and use of eye wash stations. 2.1.7
8. Describe the location and need for posted evacuation routes. 2.1.8
9. Describe requirements for personal protective equipment (e.g., safety glasses, ear protection, gloves, footwear) when working in the lab/shop. 2.1.9
10. Describe clothing requirements when working safely in the lab/shop. 2.1.10
11. Describe the location and contents of safety data sheets (SDS). 2.1.11
12. Describe requirements for handling, storage, and disposal of hazardous and flammable waste and materials. 2.1.12

Skip to main content

TOOLS AND FASTENERS 3.0

1 Basic Tools 3.1

1. Identify the correct tool for a specific application or repair. 3.1.1
2. Identify whether a tool or repair uses standard or metric designation. 3.1.2
3. Demonstrate safe handling and use of tools. 3.1.3
4. Describe the need for cleaning, storing, maintaining, and removing (i.e., lockout/tagout) tools and equipment. 3.1.4

2 Fasteners 3.2

1. Define fastener terms. 3.2.1
2. Identify threaded and non-threaded fasteners and their intended applications. 3.2.2
3. Select correct fasteners for a repair. 3.2.3
4. Rethread tapped holes and damaged fasteners. 3.2.4
5. Describe seized nut and bolt removal methods. 3.2.5
6. Describe seized nut and bolt removal methods. 3.2.6
7. Demonstrate torque methods.v 3.2.7

3 Precision Measuring Instruments 3.3

1. Define measurement terms. 3.3.1
2. Identify measuring instruments. 3.3.2
3. Demonstrate precision measuring techniques, including using precision measuring equipment. 3.3.3

BASIC ELECTRICAL 4.0

1 Basic Electrical Theory and System 4.1

1. Interpret common electrical schematic symbols 4.1.1
2. Identify components of a basic electrical system. 4.1.2
3. Describe basic electrical theory. 4.1.3
4. Describe basic electrical circuits and their applications. 4.1.4
5. Demonstrate procedures for using a multimeter. 4.1.5

ENGINES 5.0

1 Basic Engine Principles and Design 5.1

1. Identify engine type and application. 5.1.1
2. Interpret various engine model codes. 5.1.2
3. Define horsepower, torque, and displacement. 5.1.3

2 Operation of a 2-Stroke Engine 5.2

Skip to main content

1. Define 2-stroke engine theory of operation. 5.2.1
2. Identify 2-stroke engine components and their functions. 5.2.2

3 Describe 2-stroke engine operation. 5.2.3

4 Diagnose and repair a 2-stroke engine. 5.2.4

5 Diagnose 2-stroke engine problems. 5.2.5

6 Describe 2-stroke engine rebuild procedures. 5.2.6

7 Perform a 2-stroke engine failure analysis. 5.2.7

8 Disassemble a 2-stroke engine, inspecting condition of components. 5.2.8

3 Operation of a 4-Stroke Engine 5.3

1 Define 4-stroke engine theory of operation. 5.3.1

2 Identify 4-stroke engine components and their functions. 5.3.2

3 Describe 4-stroke engine operation. 5.3.3

4 Diagnose and repair a 4-stroke engine. 5.3.4

5 Diagnose 4-stroke engine problems. 5.3.5

6 Describe 4-stroke engine rebuild procedures. 5.3.6

7 Perform a 4-stroke engine failure analysis. 5.3.7

8 Disassemble a 4-stroke engine, inspecting condition of components. 5.3.8

4 Cooling and Lubrication Systems 5.4

1 Identify types of cooling and lubrication systems. 5.4.1

2 Identify the components and function of a cooling system. 5.4.2

3 Identify the components and function of a lubrication system. 5.4.3

4 Identify types of oils and their applications. 5.4.4

5 Fuel Systems 5.5

1 Define types of fuel systems. 5.5.1

2 Describe fuel system theory. 5.5.2

3 Identify fuel system components and their functions. 5.5.3

4 Service fuel systems components. 5.5.4

5 Diagnose and repair fuel system malfunctions. 5.5.5

6 Governor Systems 5.6

1 Identify types of governor systems and their components. 5.6.1

2 Describe governor system theory, operation, and adjustments. 5.6.2

3 Diagnose and repair governor system malfunctions. 5.6.3

7 Ignition Systems 5.7

Identify common types of ignition systems and theory of operation. 5.7.1

Identify components and functions of an ignition system. 5.7.2

Skip to main content

3 Diagnose and repair ignition system malfunctions. 5.7.3

8 Charging Systems 5.8

1 Identify common types of charging systems and theory of operation. 5.8.1

2 Identify components and functions of a charging system. 5.8.2

3 Diagnose and repair charging system malfunctions. 5.8.3

9 Starting Systems 5.9

1 Identify common types of starting systems and theory of operation. 5.9.1

2 Identify components and functions of a starting system. 5.9.2

3 Diagnose and repair starting system malfunctions. 5.9.3

MAINTENANCE 6.0

1 Maintenance Programs 6.1

1 Describe a periodic engine maintenance program. 6.1.1

2 Describe a periodic equipment maintenance program (e.g., blade sharpening, belts, chains, cables). 6.1.2

3 Research owner's manuals, service schedules, and manufacturer's data to perform periodic maintenance. 6.1.3

PARTS AND SERVICE MANAGEMENT 7.0

1 Parts and Service Operation 7.1

1 Access and locate parts information. 7.1.1

2 Complete a work order/invoice. 7.1.2

3 Describe methods for providing customer service. 7.1.3