

Student's Name _____

Directions:	Evaluate the trainee using the rating scale below and check the appropriate number to indicate the degree of competency achieved. The numerical ratings of 3, 2, 1, and 0 are not intended to represent the traditional school grading system of A, B, C, D, and F. The descriptions associated with each of the numbers focus on level of student performance for each of the tasks listed below.
Rating Scale:	0 - No Exposure - no information nor practice provided during training program, complete training required. 1 - Exposure Only - general information provided with no practice time, close supervision needed and additional training required. 2 - Moderately Skilled - has performed independently during training program, limited additional training may be required. 3 - Skilled - can perform independently with no additional training.

1. Number of Competencies Evaluated	_____
2. Number of Competencies Rated 2 or 3	_____
3. Percent of Competencies Attained (2/1)	_____
_____	_____
Grade	
_____	_____
Instructor Signature	Date

01.0 Safety

The student will be able to:

- 0 1 2 3
 01.01 Identify safety equipment necessary for agricultural power technology
 01.02 Apply basic laboratory safety instruction
 01.03 Describe safety practices when using elect equipment
 01.04 Apply safety practices when using tools and equipment

02.0 Tool and Parts Identification

The student will be able to:

- 0 1 2 3
 02.01 Determine what information is needed for parts and mechanics manual usage
 02.02 Identify the basic engine parts and the functions of each in the operation of an engine
 02.03 Use the manufacturer's respective master parts manual in ordering replacement part for an engine
 02.04 Use a manufacturer's manuals to solve the procedural problems specific to a particular engine
 02.05 Identify the parts of a magneto ignition system
 02.06 Identify the major components of a carburetor
 02.07 Identify the types of carburetors and describe the features of each of these types of carburetors
 02.08 Identify the basic types of governors
 02.09 Identify the parts of a valve and its accessories
 02.10 Identify the parts of the piston, rings and rod

0 1 2 3

- 02.11 Identify the types of lubricating systems and describe how they operate
 02.12 Identify the parts of the camshaft and tappet mechanism
 02.13 Identify the types of crankshafts and parts thereof
 02.14 Identify the major types and applications of tools

03.0 Operating Principles

The student will be able to:

0 1 2 3

- 03.01 Designate an engine as a two or four cycle
 03.02 Identify engine by brand name and/or manufacturer
 03.03 Determine what information is given on the nameplate
 03.04 Identify operating conditions of small gasoline engines
 03.05 Use horsepower terms such as indicated, friction, brake and 'rated' in describing the size of an engine
 03.06 Define and relate the following terms:
a. stroke
b. bore
c. cycle
d. crankshaft revolution
e. camshaft revolution
f. principle events
g. intake
h. compression
i. power
j. exhaust
k. camshaft timing

- l. ignition timing
- m. BTDC
- n. TDC

0 1 2 3

- 03.06 (Continued)-Define and relate the following terms:
 - o. BDC
 - p. power strokes per revolution of camshaft
 - q. displacement
 - r. compression ration
 - s. clearance volume
- 03.07 List the sequential order and explain the significance of the principle events in the operation of a four-stroke cycle engine
- 03.08 Explain the relationship of the main parts of the four-stroke cycle engine to the principle events
- 03.09 Identify a four-stroke cycle engine by visual observation
- 03.10 Explain the difference in operation and construction of the two and four-stroke cycle engine
- 03.11 Recognize a two-stroke cycle engine by visual observation
- 03.12 Describe the combustion as the focal point of engine operation
- 03.13 Describe the basic operating principles of a magneto ignition system
- 03.14 Describe the operational principles of a carburetor
- 03.15 Diagram the basic principle of carburetor to governor to throttle control linkage
- 03.16 Describe the operation of each type of governor
- 03.17 Describe the purpose and operation of valves

04.0 Overhaul Procedures

The student will be able to:

0 1 2 3

- 04.01 Disassemble a small engine according to the procedures outlined by the manufacturer
- 04.02 Identify the wear points on a disassembled engine
- 04.03 Assemble a small engine according to the procedures outlined by the manufacturer
- 04.04 Describe the tolerance, specifications, clearance and reject size given by the manufacturer and how these terms affect engine operation
- 04.05 Identify those parts of an engine that need to be measured with a measuring device

0 1 2 3

- 04.06 Use micrometer measurements to determine if parts of a small engine are within the specifications set by the manufacturer
- 04.07 Manipulate the different micrometers and measuring devices so as to record proper measurements
- 04.08 Identify engines and machines according to model, serial, specification and type numbers when each applies
- 04.09 Use the manufacturer's specifications and torque data
- 04.10 Reface valves
- 04.11 Reface valve seats
- 04.12 Adjust valve tappet clearance
- 04.13 Install the piston rings
- 04.14 Install the piston rod assembly
- 04.15 Install the camshaft and tappets

05.0 Troubleshooting and Tune up Procedures

The student will be able to:

0 1 2 3

- 05.01 Clean and inspect the exhaust system of a two-cycle engine
- 05.02 Identify and service the different types of air cleaners
- 05.03 Identify and service the different types of breathers
- 05.04 Prepare a fuel and oil mixture for a two-stroke cycle engine
- 05.05 Identify and service the different types of spark plugs
- 05.06 Start an engine and adjust it for speed and load
- 05.07 Check and service the magneto and its parts for proper operation
- 05.08 Time the point opening to the piston position
- 05.09 Check each of the different types of carburetors for proper operation
- 05.10 Check and adjust the governors for proper operation
- 05.11 Find and use manufacturer's recommendations for troubleshooting problems in a small engine