



2023 State Contest
FFA Agricultural Mechanics CDE
University of Missouri

*****Place Label Here*****

Contestant # _____
Contestant Name _____
Chapter _____

Final Score (out of 50) _____

Small Cylinder Engines

Instructions: Points are based on your performance of proper procedures as well as skill activities. Please practice safe methods while completing these activities as some points may be allocated to safety. If you need any clarifications please ask for assistance. Read instructions carefully and thoroughly before completing each question or section.

Point Evaluation	Points Possible	Points Earned
Part Identification	15	_____
Skill Activity	15	_____
Tool Identification	10	_____
Trouble Shooting	10	_____
TOTAL POINTS	50	_____

Touching items listed as

“DO NOT TOUCH”

-5

Part Identification

Identify the part and write the correct letter in the box. (1 point each)

NOTE: Not all letters will be used.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____

- A. Connecting Rod
- B. Idle/mixture screw
- C. Connecting Lock/Screw Lock
- D. Crank Shaft
- E. Cylinder Head Screw (Head Bolt)
- F. Cam Shaft
- G. Flywheel Key
- H. Crankcase Cover (Oil Sump)
- I. Piston Pin
- J. Oil Slinger
- K. Compression Ring
- L. Intake Valve
- M. Oil Ring
- N. Cylinder Head
- O. Flywheel
- P. Exhaust Valve
- Q. Coil/Module
- R. Head Gasket
- S. Butterfly valve
- T. Crankcase Gasket
- U. Lifter
- V. Valve Retainer clip

Tool Identification

Look at tools a-j and list them on the lines below. (1 point each)

a. _____

b. _____

c. _____

d. _____

e. _____

f. _____

g. _____

h. _____

i. _____

j. _____

Possible Answers

Angle Grinder
Bladed Feeler Gauge
Cylinder Hone
Flywheel Wrench
Piston Ring Compressor
Resistance Meter
Round Feeler Gauge
Snap Ring Pliers
Spark Test Light
Tongue-and-Groove Pliers
Torque Wrench
Torx head Screwdriver
Valve Spring Compressor
Wire Stripper

Trouble Shooting

(10 points)

1. Examine the valve train for the engine tagged **1A** and determine if it is in proper working condition? _____ (2 points)

If not, what is the problem with the engine labeled **1A**?

2. Is the engine tagged **2B** timed properly? (4 points)

Answer: _____

3. What tool is used to measure the problem listed on the **provided sheet 3C**? (2 points)

Answer: _____

4. Look at the sparkplugs laid on the table labeled **4s, 4t, 4u, and 4v**. Say whether the engine they were in was rich, normal, or lean. (2 points)

4s. _____

4t. _____

4u. _____

4v. _____

Skill Activity (5 points each)

5. Check the valve lash on Engine **5A** and write it below.

Answer: _____

6. Measure the cylinder bore parallel to the crankshaft of engine labeled **6B**.

Answer: _____

7. Measure the gap of Engine **7C**'s spark plug in front of you using the proper tool and write it below.

Answer: _____