

Iowa FFA Agricultural Mechanics Career Development Event - 2006

State of Iowa
 DEPARTMENT OF EDUCATION
 Career Education Division
 Grimes State Office Building
 Des Moines, IA 50319

CONTESTENT NAME _____

CONTESTANT SCHOOL _____

INDUSTRY AND MARKETING SYSTEMS

Problem Solving/Skills

Small Gasoline Engines (15 minutes)

A. Problem (10 points)

A flushing-gutter manure handling system in a swine facility uses a dump tank. The pump that fills the dump tank with water from a lagoon is normally powered by an electric motor. The electric motor has failed and the facility manager has hooked the pump to a 5-hp gasoline engine temporarily while repairs are made. The engine will need to run for 10 hours until repairs are made and will be loaded to its rated horsepower. The engine consumes gasoline at a rate of 0.15 gallons per hp-hr.

- | | |
|---|-----------------------|
| 1. How much gasoline (in gallons) is used during the 10 hours of operation? | <u>7.5</u> gallons |
| 2. If the fuel tank on the engine holds 1.25 gallons, how many times must it be filled during the 10 hours of operation, including the first filling? | <u>6</u> No. of times |

B. Identification/Specifications of small gasoline engines. Use the supplied repair manual as needed. (15 points)

- | | | |
|--------------------------------|-----------------------------------|-----------------------------|
| 1. Engine model number: | | <u>133412</u> |
| 2. Specifications | Oil capacity: | <u>21</u> fl. Oz. |
| | Stroke: | <u>2.438</u> inches |
| | Cylinder bore: | <u>2.5615/2.5625</u> inches |
| | Spark plug gap: | <u>0.030</u> inches |
| 3. Reject sizes | Cam gear journal: | <u>0.498</u> inches |
| | Cam lobe: | <u>0.950</u> inches |
| | Crank pin journal: | <u>0.996</u> inches |
| 4. Measurement | Is the spark plug gap acceptable? | <u>NO</u> Yes/No |

Evaluation Score Sheet

<u>Items</u>		<u>Points</u>	
		<u>Possible</u>	<u>Earned</u>
1.	Problem	10	_____
2.	Model identification	1	_____
3.	Specifications	4	_____
3.	Reject sizes	3	_____
4.	Measurement	5	_____
5.	Safety and procedures	2	_____

Total	25	
-------------	----	--