

**2014 Wyoming State FFA CDE
Agricultural Technology and Mechanical Systems
Energy Systems – Small Gas Engine Skill**

You have just graduated high school and have received an opportunity to complete a summer internship with DBC Irrigation in Cheyenne, Wyoming. Responsibilities of the internship include checking irrigation ditches and drainage areas, and ensuring that irrigation pipes are clear of debris and maintained. Additionally, because of your experiences through agricultural education in high school, you are assigned to perform maintenance checks on irrigation motors and repair as needed. While doing your routine check, you find an irrigation motor that is not running properly. **Visually inspect and analyze the engine for any potential problems.**

List up to five problems you have identified with Engine #1 that would prevent it from operating.

1.	No Spark Plugs
2.	Armature Air Gap Excessive
3.	Carburetor linkage lose
4.	
5.	

Part of your maintenance procedures includes checking the **valve tappet clearance** on the small gas engines that DBC Irrigation uses. The engines that are currently used are a Briggs and Stratton Single Cylinder “L” Head, model # 90000. **With the feeler gauge provided, measure both the intake and exhaust valve clearance, identify the minimum and maximum acceptable clearance in the owner’s manual, and accept or reject the valve for future use. Engine number must be listed here _____**

Intake Valve Clearance		Exhaust Valve Clearance	
Actual _____		Actual _____	
Min _____.005__	Max _____.007__	Min __.007_____	Max __.009_____
Accept	Reject	Accept	Reject

While providing maintenance for the engines you have determined that you are out of the replacement parts you normally have in stock needing to be replaced. **Identify the replacement parts needed and what engine system they belong to in the space provided.**

Part Identification	Engine System	Part Selection	System	
1. F	C	a. Breather	f. Needle Valve	a. Ignition
2. H	A	b. Idle Screw	g. Governor Lever	b. Lubrication
3. A	B	c. Stator Assembly	h. Condenser	c. Carburetion
4. E	B	d. Tappet Valve	i. Woodruff Key	
5. B	C	e. Oil Slinger	j. Choke Valve	

Criterion	Points Possible	Points Earned
Application	12	
Questions	15 (1 point each)	
Safety	3	