

Name: \_\_\_\_\_

## A EN 2013 – Agricultural Power Units Cooling Systems Laboratory

### Skill 1 – Measurement of Freeze Protection Level of Coolants

1. Test each coolant and record the amount of freeze protection it offers.
2. Give a recommendation relating to the coolant's ability to protect an engine.

Coolant:	Protection Level	Recommendation for Use?
Coolant 1:		
Coolant 2:		
Coolant 3:		
Coolant 4:		

### Skill 2 – Thermostat Identification & Test

1. Force a flat feeler gauge blade into the mouth of each of the provided thermostats.
2. Suspend the thermostats in water as it is heated on a hot plate.
3. Record the temperature at which each thermostat falls from its feeler gauge.

Thermostat:	Rated Temp.	Opening Temperature	Difference Between Opening & Rated Temps & Recommendation
Thermostat 1:			
Thermostat 2:			

### Skill 3 – Engine Temperature Measurements

1. Using the digital infrared temperature gun take measurements at the following locations.
2. After taking the readings, rank the locations from hottest to coolest.
3. Answer the questions below the table.

Measurement Location:	Temperature	Location Rank
Radiator Top		
Radiator Middle		
Radiator Bottom		
Top Hose		
Bottom Hose		
Water Neck		
Water Pump		
Side of Block (Water Jacket)		
Coolant Temp Reading (Gauge)		

Question: Does the ranking match what you have learned about the cooling system's operation? Explain.

### Skill 4 – Engine Cooling System Inspection

1. Make the following service checks and complete the table below.

Service Check	Measurement	Recommendation
Radiator	XXXXXXXXX	
Pressure Cap		
Reservoir	XXXXXXXXX	
Coolant		
Belts	XXXXXXXXX	
Hoses	XXXXXXXXX	
Fan	XXXXXXXXX	
Gaskets	XXXXXXXXX	