



2005 State Competition
FFA Agricultural Mechanics Contest
University of Missouri
50 points

Contestant _____
Contestant Name _____
Chapter _____

Arc Welding

Problem:

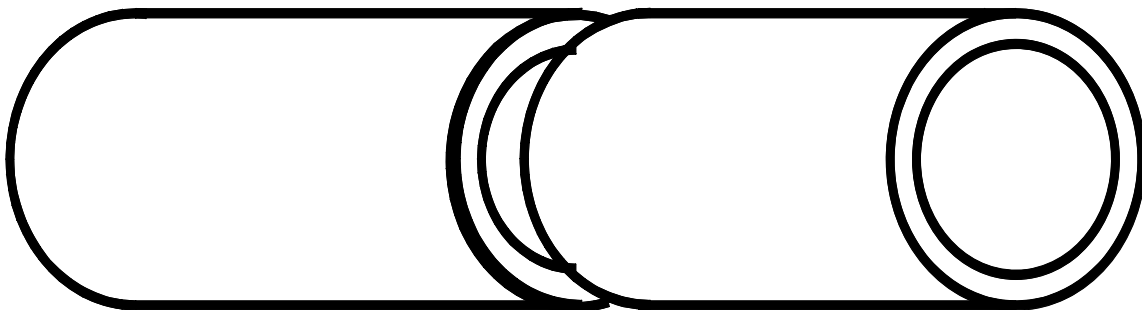
While applying chemical to a field, you hit a tree and break your sprayer boom. To fix the problem you need to weld the two pieces of pipe as positioned below.

Materials:

2- 1 1/4" x 3" pieces of schedule 40 pipe.

Directions:

- Prepare the metal, cleaning, etc.
- Secure the metal.
- Select desired welder amperage and **RECORD AMPERAGE at BOTTOM of the PAGE.**
- Position metal as shown below.
- Tack as needed. **Be Sure That the Pipe Does NOT Get Tacked to the Angle Iron!**
- Perform weld, welding in the joint as indicated below. **Make Sure to Leave Gas ON and Set Amperage Back to Original Setting!** _____ *(Judges Initial)*
- Using your pliers, cool the metal in the water bucket. Contest officials will NOT cool your metal for you.
- Put your **contest number and letter** on the metal.
- Turn in your cool, welded metal on top of this sheet to the contest officials.



*Welder Amperage Setting _____ Amps

Evaluation Score Sheet

Points

Evaluation Item	Possible	<u>Earned</u>
Metal positioned properly (1/16" to 1/8" Spacing, pipe square)	5	_____
Metal welded/tacked to angel iron	-5	_____
Correct welder amperage (No spatter or holes in pipe)	5	_____
Distortion	5	_____
Weld appearance (temperature, width, and face)	5	_____
Welder not returned to original settings (Gas on, Amperage at initial setting)	-5	_____
Metal Cooled properly (Cooled with pliers in water bucket before handed to contest officials)	5	_____
Weld passes the guided bend test at 1500 PSI		
-Weld holds together	5	_____
-Weld does not crack	5	_____
Points from ID and problem solving (1.5 pts per question)	15	_____
<u>Improper Safety clothing and supplies</u>	-40	_____
Total	50	_____

Problem Solving

1. What is the duty cycle of the welder labeled #1?

Answer: _____

2. What is the tensile strength of rod #2?

A) 27,000 psi

C) 60,000 psi

B) 50,000 psi

D) 70,000 psi

3. Which item on the tagged welder is an AC/DC switch?

Answer _____

4. Which item on the tagged welder is an Amperage Knob?

Answer _____

5. What position can rod #5 be used in?

A) Flat and Horizontal

C) Vertical

B) Overhead

D) Any

6. What type of flux coating is on rod #6?

A) High Cellulose Sodium

B) High Cellulose Potassium

C) High Titania Potassium

D) High Titania Sodium

7. Which rod would you use to weld the metal labeled #7?

A) 7a

C) 7c

B) 7b

D) 7d

8. Which rod would you use to weld the metal labeled #8?

A) 8a

C) 8c

B) 8b

D) 8d

9. While arc welding, you are having trouble striking an arc. What knob would you adjust to fix this problem?

Answer _____

10. Assuming you were going to weld the materials labeled #10 which compressed gas cylinder would you chose to use for your shielding gas.

a. A

b. B

c. C

d. D