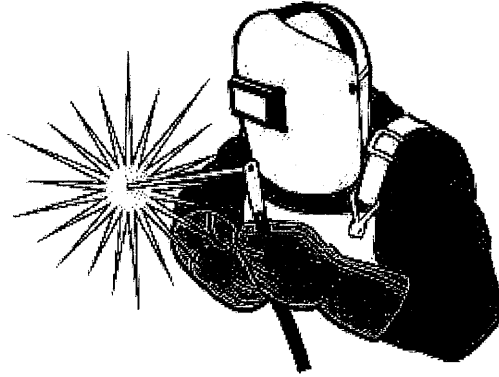


Welding 10

PART II



Student Learning Guide

Student Name: _____

Activities Time Line

Student Name: _____

Class	Activity Number	Activity Name
1	1	Gas Metal Arc Welding Questions
2	1	Gas Metal Arc Welding Questions
Check Point Teacher Signature: _____		
3	2 VIDEO	Teach Yourself MIG Welding (Part 1 of 4) [Basics & Machine Setup]
	3	Set up machine and lay some beads
Check Point Teacher Signature: _____		
4-6	4 VIDEO	Teach Yourself MIG Welding (Part 2 of 4) [Flat & Horizontal Welding]
	5	Flat and horizontal welds
Check Point Teacher Signature: _____		

7-8	6 VIDEO	Vertical MIG Welding Lesson: Uphill & Downhill Techniques (Teach Yourself MIG Part 3 of 4)	
	7	Vertical welding	
	Check Point Teacher Signature: _____		
9	8	Fillet Butt Joints	
	Check Point Teacher Signature: _____		
10	9	Fillet Lap Joints	
	Check Point Teacher Signature: _____		
11	10	Open Corner Groove Joints	
	Check Point Teacher Signature: _____		
12-15	11	Complete Teacher- directed welding test	
	Check Point Teacher Signature: _____		
16-20	12	Truck Project	
	Check Point Teacher Signature: _____		

***All videos can be found on youtube.com at the Chuckee2009 channel**

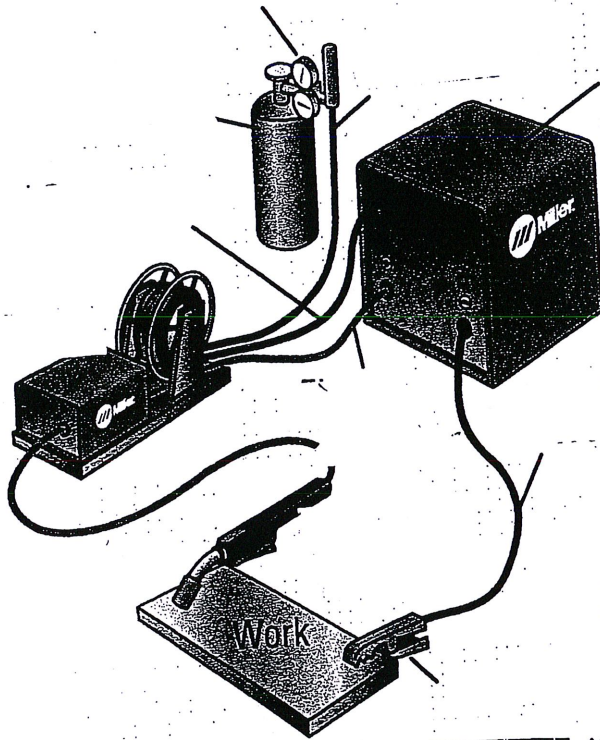
Gas Metal Arc Welding

Refer to: Topic 8. Miller Process Training Series "Gas Metal Arc Welding"

GMAW Circuit

1. List the typical equipment needed for the GMAW process:

2. Label the following diagram:



3. What is voltage?

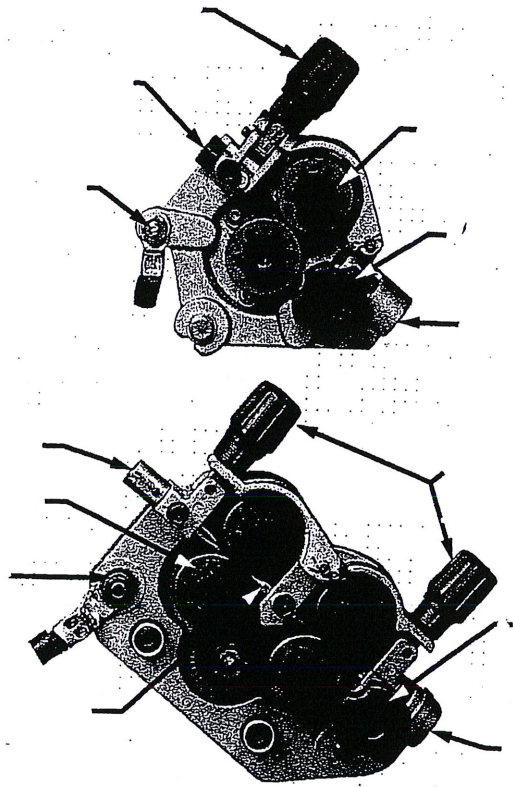
4. What is amperage?

5. What is resistance?

6. What is "duty cycle" and provide an example.

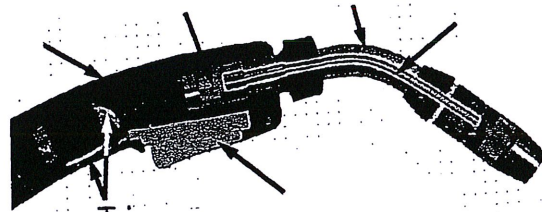
Wire Feeders

7. Label the following picture:



GMAW Gun

8. Label the following picture:



9. What are the effects of having a contact tip with erosion or spatter?

10. When should you replace the GMAW gun liner?

11. What is the primary purpose of the gun nozzle?

GMAW Welding Variables

12. Briefly describe the following welding variables:
a. stickout

b. electrode extention

c. arc length

d. standoff distance

e. contact tip to work distance

f. contact tip setback

13. What is Ohm's law?

14. What is a good "rule of thumb" to use to set the wire feed speed?

GMAW Wires

18. Label the following diagram:

GMAW Arc Transfer Modes

19. What is Short Circuit Transfer?
20. Why is short circuit transfer so commonly used?
21. What is spray transfer?
22. When is spray transfer most commonly used?

26. What is a good "rule of thumb" for determining arc length?

Gas Metal Arc Welding *TEST*

Refer to: Topic 8. Miller Process Training Series "Gas Metal Arc Welding"

1. Every electrical circuit is made up of what three things?
 - a. amperage, voltage, and resistance
 - b. electrons, protons, and molecules
 - c. voltage, amperage, and amperes
 - d. amperage, voltage, and gas

2. What is "duty cycle"?
 - a. a measure of amps
 - b. a tool used to determine how a machine can perform for a specific job
 - c. a unit of measure used to determine voltage
 - d. military terms adopted by the welding industry

3. Which of the following could be caused by an eroded contact tip?
 - a. gas flow problems
 - b. arc instability
 - c. melt through
 - d. all of the above

4. When should you replace a GMAW gun liner?
 - a. switch electrode size
 - b. when it's kinked
 - c. when it's blocked
 - d. all of the above

5. What is Ohm's law?
 - a. increasing the wire feed speed increases amperage
 - b. increasing the voltage increases the amperage
 - c. increasing the wire feed speed decreases the amperage
 - d. increasing the wire feed speed decreases the amperage

6. What is a good “rule of thumb” to use to set the wire feed speed?
 - a. 2 amperes for every 0.001 in.
 - b. 1 ampere for every 0.001 in.
 - c. 5 amperes for every 0.001 in.
 - d. 10 amperes for every 0.001 in.

7. What does voltage have the greatest effect on while you’re welding?
 - a. angle of weld bead
 - b. height of weld bead
 - c. width of weld bead
 - d. height and width of weld bead

8. When is short circuit transfer commonly used?
 - a. you can weld thin and thick metals in any position
 - b. it’s easy to set up
 - c. it produces a very clean weld
 - d. it’s cost effective

9. What are the two most common types of shielding gas?
 - a. argon and oxygen
 - b. oxygen and carbon dioxide
 - c. argon and carbon dioxide
 - d. argon and asbestos

10. What does porosity look like?
 - a. small weld droplets all over metal
 - b. small holes in the weld
 - c. gaps in the weld
 - d. uneven weld