

LESSON PLAN

Date _____

Trade:- Welder

Name _____

Week No:- Eleven

Subject :- Oxy-acetylene gas welding system (low pressure and high pressure)

Difference between gas welding blow pipe(LP and HP) and cutting blow pipe.

Gas welding technique (right ward and left ward..)

Motivations:- in previous week we learned Oxygen gas and its properties. Production of oxygen by air liquefaction. Charging process of oxygen and acetylene gases. Oxygen and DA cylinder , color coding for different cylinders. Gas regulator types and uses.

PREPARATION: - Teaching Aids:-Chalk, Charts,

INTRODUCTION: -Oxy-acetylene gas welding system have two types. Low pressure and high pressure. In both system we use different setup as like Blow pipe and regulator etc.

PRESENTATION:-

Topic	Information Point	Spot Hint
Oxy-acetylene gas welding system	In gas welding, oxy-acetylene combination is most popular due to heat output and cost. This system has two types.	
Types	<ol style="list-style-type: none"> 1. Low pressure system. 2. High pressure system 	
Low Pressure system	In this system oxygen used from a cylinder but acetylene generated on the spot by acetylene generators. There are two types of generators used in low pressures system. <ol style="list-style-type: none"> 1. Water to carbide. 2. Carbide to water 	
Water to carbide type acetylene generator	This is a portable generator. It used carbide and water to generate acetylene gas with the pressure of 0.1 kg/cm ² and medium type generator 0.1 to 1.5 kg/cm ² . We used all type carbide in this generator.	
Carbide to water type generator	This is a portable generator. It used carbide and water to generate acetylene gas with the pressure more than 1.5 kg/cm ² .	
Chemical reaction	$\text{CaC}_2 + 2\text{H}_2\text{O} \rightarrow \text{Ca(OH)}_2 + \text{C}_2\text{H}_2$	
Classification of generators	<ol style="list-style-type: none"> 1. According to water intake capacity. 2. According to carbide intake capacity. 3. According to gas production (cubic meter per hour) 4. According to operating type (manual, semi automatic) 	

Tools and set up for Low pressure system	We use different blow pipe (injector type) , hydraulic back pressure safety valve for Low pressure system.
High pressure system	In high pressure system we use both cylinder.
Gas Cutting blow pipe	Use injector type blow pipe in low pressure system while non injector type blow pipe in high pressure system.

High pressure welding

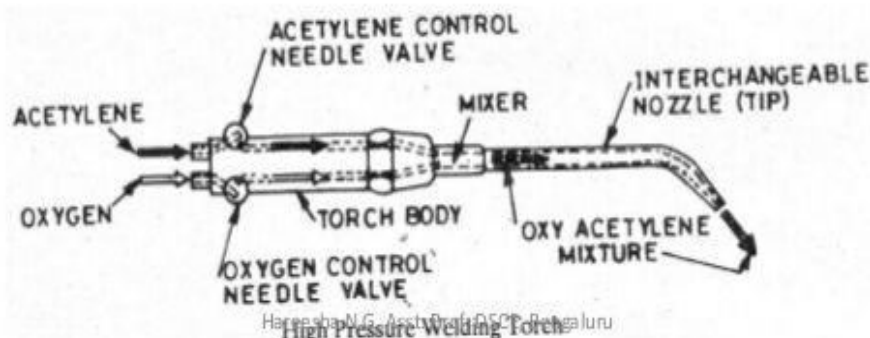
- Acetylene is available in cylinders.
- Pressure is very high in the acetylene cylinder. Minimum pressure 250 lb/inch²
- Pressure regulators are used on both cylinders.
- Oxygen and acetylene gases are mixed in mixing chamber.
- Used for heavy work.

Low pressure welding

- Acetylene is generated by the action of water and calcium carbide.
- Pressure is low. It ranges from 0.5 to 1.5 lb/inch²
- No need of pressure regulator on acetylene cylinder
- Injector is used to mix acetylene with oxygen.
- Used for light work.

Working of a high pressure blow-pipe

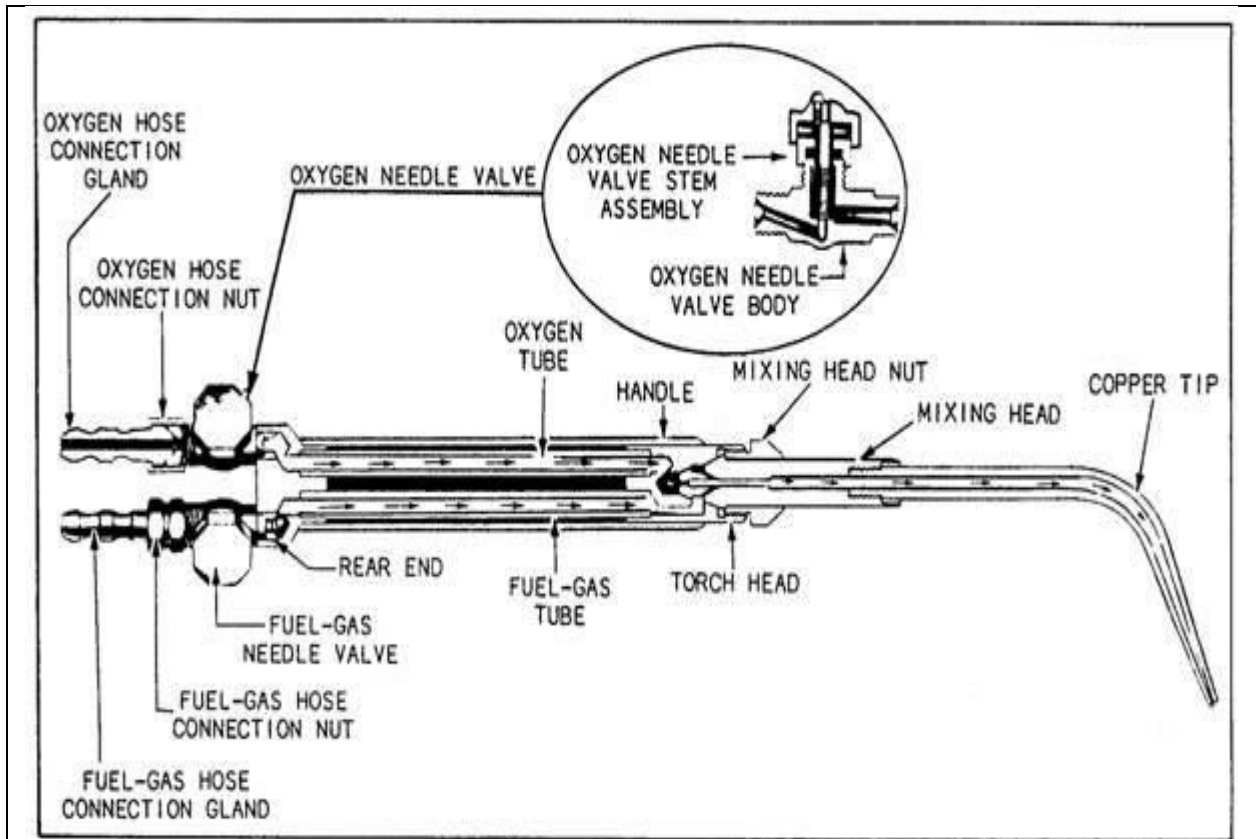
- In this type of blow-pipe, both the oxygen and acetylene are fed to the blow pipe at equal pressures and the gases are mixed in a mixing chamber prior to being fed to the nozzle tip.
- The equal pressure or high pressure type of blow-pipe is the one most generally used because
 - It is lighter and simpler.
 - *It does not need an injector.*
 - *In operation, it is less troublesome since it does not suffer from backfires to the same extent.*
- To change the power of the welding torch, it is only necessary to change the nozzle tip (size) and increase or decrease the gas pressures appropriately.



12/18/13

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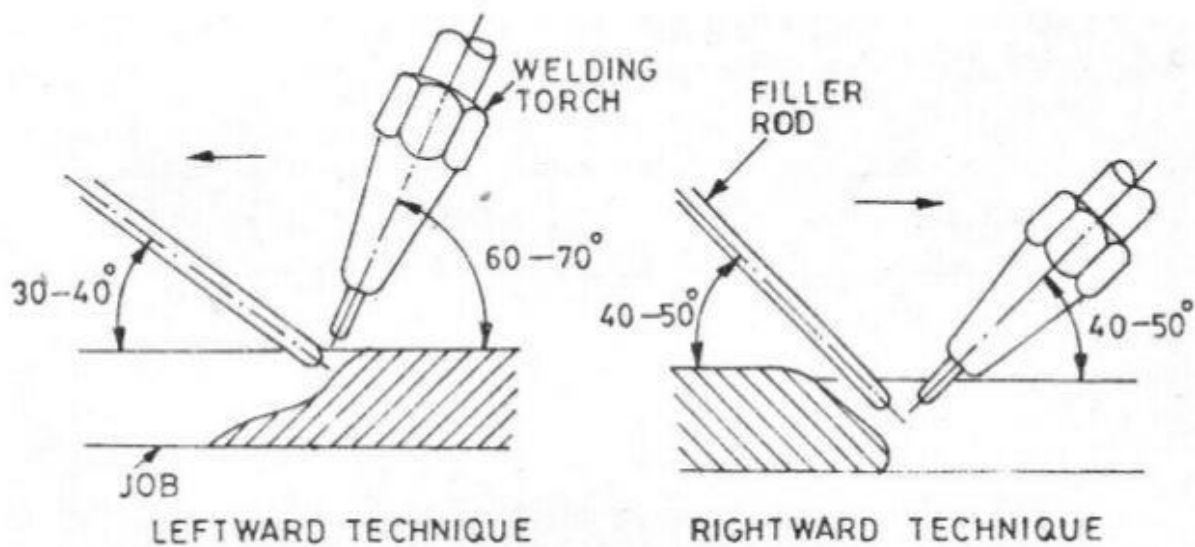
Gas welding technique

Gas welding technique have two types.

1. Rightward
2. Leftward.

Welding Techniques

- Depending upon the ways in which welding rod and the welding torch may be used, there are two usual techniques in gas welding, namely:
 - Leftward technique or Forehand welding method.
 - Rightward technique or Back hand welding method.



1. LEFT WARD TECHNIQUE

- It is the most widely used oxy-acetylene gas welding technique in which the welding commences at the right hand edge of the welding job and proceeds towards the left. It is also called forward or forehand technique.

2. RIGHT WARD TECHNIQUE

- ▶ It differ from left ward welding in the direction of movement of the torch. In this system the torch moves from left to right.
- ▶ The torch is held in the right hand at an angle of 40° to 50° and the filler rod in the left hand at an angle of 30° to 40°

Questions:-

1. How many types of gas welding plant?
2. What is low pressure system ?
3. What is the difference between rightward and leftward technique ?

Next week:-Arc blow –causes and methods to controlling. Distortion in arc and gas welding and methods employed to minimized distortion, Arc welding defects –causes, and remedies.

Assignments :-

Oxy-acetylene gas welding system (low pressure and high pressure)

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Checked By.....

Instructor.....