

Training Guide

H&M Beveller - Oxy/acetylene flame cutting by hand.

Training Guide Objectives: After completing the training the student will be able to;

- Prepare oxygen /acetylene cylinders for use.
- Prepare oxygen/acetylene regulators for use.
- Install regulators on the cylinders.
- Connect the oxygen/acetylenes hoses to the regulators.
- Prepare the work area
- Prepare the pipe
- Connect the H&M pipe cutting and beveling machine.
- Pressure up the system
- Adjust regulator pressures
- Prepare to cut pipe
- Cut the pipe

Approximate Time: 10 Hours

Lab: 9 Hours

Written Test: 30 min.

Review Test: 30 Min.

Student Reference: Maint Procedure (W-005?), oxygen/acetylene equipment, H&M pipe cutting and beveling machine.

Training Guide Outline.

1. Preparation of the oxy/acetylene cylinders for use.
 - Pre set up inspection.
 - Cylinders valves.
 - Location of cylinders.
2. Preparation of oxy/acetylene Regulators.
 - Pre set up inspection

Check regulator threads.
Cylinder to regulator.
Regulator to hose.
Adjustment screw.

3. Installation of regulators to cylinders.
 - Cleaning dirt out of cylinder valves.
 - Installing the oxygen regulator.
 - Installing the acetylene regulator.
4. Connection of the oxygen/acetylene hoses to the regulators.
 - Checking the hoses for damage.
 - Check fitting threads.
 - Check for wear and/or burn holes.
 - Proper connection of the hose fittings.
5. Prepare the work area.
 - Clearing the work area of all flammable materials.
6. Preparing the pipe.
 - Placement of the pipe.
 - Marking the pipe.
7. Connect the H&M pipe cutting and beveling machine.
 - Placement of the machine.
 - Check the position of the torch valves.
 - Check torch fitting threads.
8. Pressuring up the system.
 - Position when opening cylinder valves.
 - Opening the acetylene cylinder valve.
 - Opening the oxygen cylinder valve.
9. Adjusting regulator pressures.
 - Adjustment of oxygen pressure.
 - Adjustment of acetylene pressure.
 - Maximum psi pressure for acetylene.
10. Prepare to cut pipe.
 - Placement of the machine.
 - Oxygen/acetylene hose.
11. Cutting the pipe.
 - Ignite and adjust the torch.
 - Preheat the pipe.

Cut the pipe.

H&M Beveller - Oxy/acetylene flame cutting by hand LAB.

The H&M pipe cutting and beveling machine is a hand operated machine that is designed to cut pipe. The machines come in variety of sizes. In the Weld shop, we use machines that will cut pipe from 2" inches to 14" inches in diameter.

One of the most important things to be done when using the H&M pipe cutting and beveling machine is the inspection of the equipment before operation. Inspection of the equipment is important because the failure to do so could result in serious personal injury and/or property damage.

1. Preparation of oxygen/acetylene cylinders for use.

Preparation of the oxygen/acetylene cylinders requires a check of the cylinder valve threads. Damaged threads may cause the cylinder to leak causing a very dangerous situation. You must also check the cylinder threads for grease and/or oil. If grease or oil are detected **DO NOT** use the cylinders. Report damaged cylinders to your supervisor or foreman.

WARNING: Never use oil or grease on oxygen/acetylene fittings. Oil or grease mixed with oxygen/acetylene may cause an explosion resulting in severe personal injury and/or property damage.

WARNING: Cylinders are highly pressurized. Never allow a cylinder to be dropped or knocked over. Never subject a cylinder to excessive heat. When moving cylinders always make sure that the safety cap is in place.

Cylinders must be located at least 10 feet from the burning area, and must be secured so that they do not fall or get knocked over. Cylinders are

highly pressurized and if dropped or knocked over could become a missile if the valve is broken off.

When transporting cylinders the safety caps must be in place and not removed until you are ready to use the cylinder. When transporting an acetylene cylinder that is laying down the cylinder must stand in the upright position for at least (1) hour before use.

2. Prepare oxygen/acetylene regulators for use.

Before installing the oxygen/acetylene regulators to the cylinders you must first loosen the regulator pressure adjustment screws.

WARNING: Failure to loosen the regulator pressure adjustment screws before pressuring up the system may cause the adjustment screws to blow out resulting in severe personal injury and/or property damage.

To loosen the regulator adjustment screws you must turn the screw handles counter clockwise until the pressure is off of the spring.

Check all threaded fittings on the regulators for damage. If you find damaged fittings **DO NOT** use the regulators. Check the regulator fittings for grease and/or oil, if grease or oil is detected **DO NOT** use the regulators.

WARNING: Never use oil or grease on oxygen/acetylene fittings. Oil or grease mixed with oxygen/acetylene may cause an explosion resulting in severe personal injury and/or property damage.

3. Install regulators to the cylinders.

Before connecting the regulators to the cylinders you must first crack open the cylinder valve to blow out any dirt that may be in the cylinder valves. This is done by cracking open the cylinder valve for a few seconds and the closing it.

To connect the acetylene regulator to the acetylene cylinder you must turn the regulator fitting counter clockwise, all acetylene fittings are left handed threads. Tighten the fitting snugly using a cylinder wrench.

To connect the oxygen regulator to the oxygen cylinder you must turn the regulator fitting clockwise, all acetylene fittings are right handed threads. Tighten the fitting snugly using a cylinder wrench.

CAUTION: Do not over tighten oxygen/acetylene fittings. Over tightening may cause damage to the brass fittings resulting in equipment damage.

4. Connect the oxygen/acetylene hose to the regulators.

Before connecting the oxygen/acetylene hoses to the regulators you must first inspect the hoses for damage. Check the hoses for wear, burn holes and fitting damage.

WARNING: A leaking acetylene hose may cause an explosion resulting in severe personal injury and/or property damage.

Connect the acetylene hose to the acetylene regulator by turning the hose fitting counter clockwise. The acetylene hose is **RED**. Tighten snugly using a cylinder wrench.

Connect the oxygen hose to the oxygen regulator by turning the hose fitting clockwise. The oxygen hose is **GREEN**. Tighten snugly using a cylinder wrench.

CAUTION: Do not over tighten oxygen/acetylene fittings. Over tightening may cause damage to the brass fittings resulting in equipment damage.

5. Prepare the work area.

Before cutting begins you must prepare the work area.

Prepare the work area by clearing it of all flammable materials such as rags, paper, wood, or any hydrocarbons that may have been spilled on the floor.

WARNING: Failure to clear the work area of all flammable materials may cause a fire, resulting in severe personal injury and/or property damage.

6. Prepare the pipe.

Pipe that is to be cut must be placed on horses or pipe jacks. Never cut or burn on material that is lying on concrete or cement.

WARNING: Never use oxygen/acetylene equipment to cut or burn on material that is lying on concrete or cement. An oxygen/acetylene cutting flame coming into contact with concrete or cement will cause the concrete or cement to spatter, resulting in serious personal injury.

After placing the pipe onto horses or pipe jacks. Mark the lay out of the desired cut using a wrap around and a soap stone.

7. Connect the H&M pipe cutting and beveling machine.

Place the H&M pipe cutting and beveling machine on top of the pipe.

Before connecting the cutting machine torch to the hoses you must first check the fittings for damage. If damage is detected **DO NOT** use the cutting machine.

When connecting the cutting machine torch to the oxygen/acetylene hose make sure that all the torch valves are in the closed position.

WARNING: Failure to close the torch valves before pressuring up the system may result in the flow of acetylene causing a possible explosion, resulting in severe personal injury and/or property damage.

8. Pressuring up the system.

WARNING: When pressuring up the system, never stand directly in front of or behind a regulator when opening a cylinder valve. Always stand so that the cylinder valve is between you and the regulator. Never hold your hand over the top of the valve handle. Always grab the valve handle from the side, because it could blow out when pressurized.

Open the acetylene cylinder valve slowly (1/4) one quarter of a turn.

CAUTION: Never open the acetylene cylinder valve more than ¼ of a turn. This will allow the valve to be closed quickly in case of an emergency.

Open the oxygen cylinder valve slowly until it is fully open.

9. Adjust the regulator pressure.

Adjust the acetylene regulator pressure adjustment screw by turning it clockwise until the desired pressure is achieved. Never adjust the acetylene regulator pressure above 15 psi.

WARNING: Adjusting the acetylene regulator pressure above 15 psi may cause the adjustment screw to blow out, resulting in severe personal injury.

Adjust the oxygen regulator pressure screw by turning it clockwise until the desired pressure is achieved.

The H&M pipe cutting and beveling machine is now ready for operation.

10. Prepare to cut pipe.

Move the H&M pipe cutting and beveling machine into position to make the desired cut.

After placing the machine into position you must secure it into place by using the chain lock down device that is attached to the machine.

Wrap the chain around the bottom of the pipe, and hook it into the bracket that is located on the opposite side of the machine. If the chain is too long or too short it may be adjusted.

To adjust the chain must remove the cotter pin that holds the chain in place. Adjust the chain as necessary, and replace the cotter pin.

Flip the locking device that is connected to the chain. This will secure the machine into position.

WARNING: Failure to use the chain lock down device may result in the machine coming off of the pipe, resulting in severe personal injury.

11. Cut the pipe.

WARNING: Eye protection, ear protection, and gloves are required to wear when operating this equipment. Failure to wear the required safety equipment may result in serious personal injury.

NOTE: The H&M pipe cutting and beveling machine can be set-up to cut different degree beveled cuts.

To set the machine to make a different degree beveled cuts, you must loosen the wing nut on the degree indicator and rotate the torch to the desired degree setting. Retighten the wing nut.

To cut the pipe you must first ignite the torch, and adjust it to the desired flame.

Allow the flame to preheat the area where the cut will start.

After the area has been preheated, open the oxygen stream valve on the bottom of the torch. The oxygen stream valve is located just adjacent to the adjustment valves.

Start the cut by slowly turning the crank handle on the machine in the desired direction of travel. Continue to slowly turn the crank handle until the cut has been completed.

At the completion of the cut, turn off the torch.

Shut off oxygen/acetylene cylinder valves, and bleed the system down before disconnecting the equipment.

Disconnect and store all oxygen/acetylene equipment.

Return the H&M pipe cutting and beveling machine to the weld dept lock up, to prevent unauthorized use.

H&M Beveller, oxy/acetylene Flame cutting by hand.

Qualification Signoff Sheet

Name: _____
Date: _____
Instructor: _____

Needed Equipment: ARCO Maint Procedure WP-005, Oxygen/acetylene equipment, H&M pipe cutting and beveling machine.

Lab Exercise:

- Step 1: Prepare oxygen/acetylene cylinders for use.
- Step 2: Prepare oxygen/acetylene regulators for use.
- Step 3: Install regulators to cylinders.
- Step 4: Connect oxygen/acetylene hoses to regulators.
- Step 5: Prepare the work area.
- Step 6: Prepare the pipe.
- Step 7: Connect the H&M pipe cutting and beveling machine.
- Step 8: Pressure up the system.
- Step 9: Adjust regulator pressure.
- Step 10. Prepare to cut pipe.
- Step 11. Cut the pipe.
- Step 12. Contact instructor for verification of lab completion.

Criteria:

This lab exercise will be graded on how well instructions are carried out, the safe workmanship of the student, and the knowledge obtained from the Training Guide. This equipment must be set-up and operated as per ARCO Maint Procedure WP-005.

LAB

Pass

Fail

Signature: _____

Signature: _____

Written Test (80% passing)

Score: _____