Training Guide
Cleco Air Operated Grinders.

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

- Prepare the grinders for use.
- Check the air line for condensation.
- Check the air hose for damage.
- Connect the air supply.
- Prepare the material.
- Grind the material.

Approximate Time: 4 Hours
Lab: 2 Hours.
Written Test: 1 Hour
Review Test: 1 Hour

Student Reference: Maint Procedure MNT-WELD-009, actual Cleco grinders, air hose, and grinding wheels. STS Grinding video, 5:20.

Training Guide Outline.

1. Preparation of grinders for use.
   Checking the grinding wheels for damage.
   Safety guards.
   Lubrication of the grinders.
2. Checking the air line for condensation.
   Draining the air line of condensation.
3. Checking the air hose for damage.
   Visual check of the air hose.
   Check air hose fittings.
4. Connection of the air supply.
   Air hose fittings.
   Turning on the air supply.

5. Preparation of material.
   Securing the material to the work bench.
   Checking material for hydrocarbons.
6. Grinding the material.
   Operation of the grinders.
   Rotation or removal of the safety guard
   Bleeding off the air pressure.

Cleco Air Operated Grinder LAB.

The most important thing to do before using a Cleco air operated grinder is the inspection of the grinding equipment before operation. Grinders can be dangerous if used with worn or damaged parts. Always make sure the grinder is in safe operating condition. Failure to do so could result in serious personal injury.

1. Prepare the grinder for use.

Before operating a Cleco air operated grinder you must inspect the grinding wheel for cracks and/or chips.

To check the grinding wheel for cracks and/or chips you simply rotate the wheel by hand and give it a visual inspection. If cracks and/or chips are detected **DO NOT** use the wheel. Replace the grinding wheel if necessary before operation.

Warning: Using a grinding wheel that has cracks and/or chips may cause the wheel to come apart, resulting in serious personal injury.

Warning: Always make sure that the grinding wheel to be used is the right R.P.M wheel for the grinder. Using the wrong R.P.M grinding wheel may cause the wheel to come apart, resulting is serious personal injury.

Make sure that the grinder that is to be used is equipped with a safety guard. Using a grinder without a safety guard is prohibited in the refinery.

Inspection of the safety guard requires a check of the safety guard locking nut. Make sure that the locking nut is tight before operation.

Warning: Operating a grinder without a safety guard is prohibited. Using a grinder without safety guard may result in serious personal injury due to flying debris.

Now you must lubricate the grinder before operation. Lubrication of the grinder is done by placing a few drops of light weight oil (Duro 46) into the air inlet connection.

Caution: Operating a Cleco air operated grinder without proper lubrication may cause the bearings to seize up, resulting in damage to the grinder.

2. Check the air line for condensation.

Before operating the Cleco air operated grinder you must drain the condensation out of the air line that will be used to supply power to the grinder.

To drain the condensation out of the air line you must crack open the air line valve to bleed the line down.

Leave the air line valve cracked open until all condensation has disappeared from the air, and then close the valve.

Caution: Operating a Cleco air operated grinder with condensation in the air supply may cause damage to the grinder.

3. Check the air hose for damage.

Visually check the air hose for damage. Check for, cuts, burn holes and wear. If damage is detected **DO NOT** use the hose, return it to the tool room for repair.

Check the air hose fittings for damage.

Check to make sure that the air hose fitting seals are in place. Replace the fitting seals if they are worn or missing. The grinder will not operate at full capacity if the air hose or fittings are leaking.

Check the air hose fittings to make sure that the locking rings operate properly. Air hose fitting locking rings may need lubrication, (lubricate if necessary). If the air hose fittings can not be made to operate properly **DO NOT** use the air hose, return it to the tool room for repair.

Warning: Using an air hose with damaged fittings may cause the hose to come apart at the connections while under pressure, resulting in serious personal injury.

4. Connecting the air supply.

To connect the air supply to the grinder you must have a tail hose connected to the grinder. Tail hoses may be obtained at the tool room in the Maint shops building. The tail hose will have a spring loaded snap on connection at one end to connect it to the grinder.

To connect the tail hose fitting to the grinder you must pull back on the spring loaded fitting and slip it on to the grinder connection. When the fitting is in place, release the tension. The spring loaded snap on fitting is designed to allow you to change grinders without turning of the air supply.

Connect the opposite end of the tail hose to the air hose.

To connect the tail hose to the air hose you must push the air hose fittings together and twist them to lock them into place. Once the air hose fittings have been locked into place the locking rings will snap into place and keep the fittings from coming apart.

To connect the air hose to the valve on the air line, use the same procedure you used to connect the tail hose to the air hose.

After all air hose fitting connections have been made, you may turn on the air supply to the grinder.

To turn on the air supply to the grinder you must open the air valve on the air line slowly until it is fully open. The grinder is now ready for operation.

5. Prepare the material.

Small pieces of material must be secured to the work bench before grinding starts.

To secure small pieces of material to the work bench you may use a "C" clamp or a pair of visegrips.

Warning: Failure to secure small pieces of material to the work bench before grinding starts may cause the material to be thrown off of the work bench, resulting in severe personal injury.

Larger heavier pieces of material need not be secured to the work bench before grinding, as their size and weight will keep them in place.

If the grinding procedure is to be performed on material that has been in service, the material may contain hydrocarbons. Always have

material that has been in service checked by a fire marshall before grinding starts.

Warning: Material that has been in service may contain hydrocarbons. Grinding on material that contains hydrocarbons may cause an explosion, resulting in severe personal injury and/or property damage.

6. Grind the Material.

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

When Grinding on material, always have a barricade up around you. This will help protect the craftsman working next to you, or anyone passing by the work area from the hot sparks.

You may also control the direction of the grinding sparks by changing the position of the safety guard.

To change the position of the safety guard simply loosen the locking nut, rotate the safety guard to the desired position, and tighten the locking nut.

The trigger on a Cleco air operated grinder has a spring loaded safety locking device attached to it. This safety device is designed to keep the grinder from starting if accidentally bumped or knocked off of the work bench.

To operate the grinder you must push the safety locking device forward before you can push down on the trigger to start the grinder. When the trigger is released the locking device will spring back into place.

In some cases you may have to grind on material that is in a tight spot, and it is impossible to get a grinder in with a safety guard attached. Under these circumstances the safety guard on your grinder may be removed only with the permission of your foreman or supervisor, and only for the duration of that particular job.

At the completion of the grinding procedure, before you disconnect the grinder you must first bleed off the air pressure to the grinder.

To bleed off the air pressure you must first close the valve on the air line. After closing the valve on the air line, push down on the grinder trigger and hold it down until all of the pressure has been released. You may then disconnect the grinding equipment.

Cleco Air Operated Grinder
Qualification Signoff Sheet

Name: _____
Date:_____
Instructor: _____

Needed Equipment: Maint Procedure MNT-WELD-009, Cleco air operated grinders, air hose, grinding wheels.

Lab Exercise:

Step 1: Prepare the grinders for use.
Step 2: Check the air line for condensation.
Step 3: Check the air hose for damage.
Step 4: Connect the air supply.
Step 5: Prepare the material.
Step 6: Grind the material.
Step 7: 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 BP Maint Procedure MNT-WELD-009.

LAB

Pass Fail Signature: _____
Signature: _____

Written Test (80% passing) Score: _____