



Training Solutions, Delivered!

MACHINE GUARDING & OPERATOR SAFETY

(Concise)

**Leader's Guide, Fact Sheet
& Quiz**

Item Number: 4647
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This easy-to-use Leader's Guide is provided to assist in conducting a successful presentation.

PREPARING FOR THE MEETING

Here are a few suggestions for using this program:

- a) Review the contents of the Fact Sheet that immediately follows this page to familiarize yourself with the program topic and the training points discussed in the program. The Fact Sheet also includes a list of Program Objectives that details the information that participants should learn from watching the program.
- b) If required by your organization, make an attendance record to be signed by each participant to document the training to be conducted.
- c) Prepare the area and equipment to be used for the training. Make sure the watching environment is comfortable and free from outside distractions. Also, ensure that participants can see and hear the TV screen or computer monitor without obstructions.
- d) Make copies of the Review Quiz included at the end of this Leader's Guide to be completed by participants at the conclusion of the presentation. Be aware that the page containing the answers to the quiz comes before the quiz itself, which is on the final page.

CONDUCTING THE PRESENTATION

- a) Begin the meeting by welcoming the participants. Introduce yourself and give each person an opportunity to become acquainted if there are new people joining the training session.
- b) Introduce the program by its title and explain to participants what they are expected to learn as stated in the Program Objectives of the Fact Sheet.
- c) Play the program without interruption. Upon completion, lead discussions about your organization's specific policies regarding the subject matter. Make sure to note any unique hazards associated with the program's topic that participants may encounter while performing their job duties at your facility.
- d) Hand out copies of the review quiz to all of the participants and make sure each one completes it before concluding the training session.

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FACT SHEET

LENGTH: 10 MINUTES

PROGRAM SYNOPSIS:

When used properly, various types of machine guarding and safety devices allow machine operators to perform the jobs safely and efficiently; unfortunately, many operators choose to cheat, defeat or override these types of safety devices, often resulting in severe injury and death. This is why operators have a responsibility to respect the power of their equipment and the hazards it can present. This responsibility includes understanding the hazards presented by the specific equipment in their work area and following the necessary precautions and safe work practices required to prevent injury. This program explains these hazards and discussed how injuries can be avoided through the proper use of machine guarding, safety devices and safe work practices.

Topics include common machine and equipment hazards, basic safe work practices, fixed and adjustable guarding, electrical interlocks, presence-sensing devices, two-hand controls and two-hand trips.

PROGRAM OBJECTIVES:

After watching the program, the participant should know:

- What the common hazards of machinery and equipment are;
- What safe work practices all operators should follow to prevent injuries;
- How fixed and adjustable guarding are used to protect operators;
- How light curtains and pressure-sensitive mats are used to prevent body parts from entering the danger zone;
- How two-hand controls and two-hand trips prevent hands from entering a machine's point of operation.

PROGRAM OUTLINE

MACHINE AND EQUIPMENT HAZARDS

- As an operator, you must understand the various hazards presented by the machine or equipment you intend to use. Remember that all machine hazards must be controlled to prevent injury.
- Let's first discuss the point of operation. This is where a machine performs its work such as cutting, drilling, bending, punching or other actions.
- Coming into contact with a machine's action near its point of operation can cause horrific injuries.
- In addition to the machine's action at the point of operation, there are often other moving parts that present hazards. For example, feed mechanisms and conveyors that move stock or materials; as well as belts, chains, gears, and similar components can all present serious hazards to machine and equipment operators.
- Finally, operators should understand that the immediate area around any operating machinery may be subject to flying debris, falling objects, sparks, harmful light or other hazards caused by the machine's operation.
- When any of these types of hazards cannot be eliminated through the engineering design of the machine or equipment itself, then machine guards, safety devices, protective equipment and safe work practices must be used to control the operator's exposure to the hazards.

SAFE WORK PRACTICES

- You must be trained and authorized to operate each machine you intend to use. Attempting to operate tools, equipment or machines with which you are not familiar can quickly lead to an injury.
- Safe machine operation requires your undivided attention. You simply cannot allow distractions to cause you to lose focus on your work. It only takes a brief moment of inattention for an injury to occur.
- Operators must always practice good housekeeping. For example, eliminating excess materials and debris from near the point of operation can help prevent flying debris hazards and keeping walkways and work areas clear of tripping hazards can prevent a trip or fall, which can be very dangerous near running machinery.
- Be aware that long hair, loose clothing and jewelry should be not be worn around any type of moving machinery or equipment.

- These types of items can easily get past a guard and into the moving parts of running equipment, where they can easily become entangled and pull you into the machine's action or quickly amputate a finger or detach a scalp.
- Be aware that gloves can also become an entanglement hazard and should not be worn when operating machinery unless the material being handled is sharp and presents a greater hazard. Check with your supervisor before wearing gloves near any moving equipment.
- Always maintain an awareness of where you are placing your hands and avoid placing them near the point of operation or any type of in-running nip point or material feed.
- Whenever possible, use push sticks or other approved tools to feed material or retrieve parts from the machine.
- Always guard against complacency. Don't allow the routine nature of certain tasks to lull you into a false sense of security around machine hazards.

FIXED GUARDS

- Fixed guards are stationary protectors that are difficult to remove and are primarily used to shield workers from hazardous areas that seldom require access, such as a machine's drive train.
- These types of fixed guards are constructed in such a manner that an employee's body parts either cannot pass through any openings or if body parts can pass through, the guard's design will prevent the worker from coming close enough to contact the hazard.
- If you feel a fixed guard doesn't provide enough protection and may allow you or a co-worker to contact the hazard, report your concerns to your supervisor.
- Also, if you discover a fixed guard that has been removed, damaged or tampered with, do not operate the machine. Report the hazardous condition to the proper authority so it may be repaired or replaced.
- Qualified workers who are following proper lockout tagout procedures are the only ones authorized to remove fixed guarding. This is typically limited to repair or maintenance operations.

ADJUSTABLE GUARDING

- In some instances, fixed guarding may interfere with a machine's action or operation. When this is the case, some type of adjustable guarding is commonly used.
- Some types of adjustable guarding will adjust automatically while work is being performed. This allows maximum protection for the operator while not limiting the movement of the machine or tool.
- Operators should never remove or impede the movements of these types of adjustable guards. This is just asking for trouble.
- Other types of adjustable guards must be positioned manually by the operator prior to operating the machine.
- The proper adjustment of manual guarding will allow the material to enter into the point of operation while preventing the operator's hand or other body parts from contacting the hazard.
- To be effective, adjustable guarding must be set carefully and correctly before operation begins.
- If you have any questions about the proper adjustment of the guarding on your tools, machine or equipment, stop working and check with your supervisor.
- Remember that machine guarding is in place to prevent injury. Never remove, cheat or defeat any type of machine guarding.

ELECTRICAL INTERLOCKS

- Electrical interlocks are often used in combination with machine guarding to better protect employees. Electrical interlocks are designed to prevent a machine from operating anytime a machine guard is not in its proper position.
- Never disable or defeat these safety interlocks. Operators who override interlocks to manipulate guarding often suffer injury.
- Also, do not use this type of interlock switch as a substitute for performing a proper lockout/tagout. Only a complete lockout of the machine's power sources will provide adequate protection to perform repairs or maintenance.

LIGHT CURTAINS

- In addition to machine guarding, there are other types of safety devices used to protect workers from the hazards of machinery
- Light curtains use various types of light beams directed into photoelectric sensors to detect the presence of an object.

- If an object, such as an operator's hand, interferes with one of these light beams, a switch is tripped, shutting down the machine.
- This is why light curtains and other photoelectric devices must be inspected and tested often.
- It's a good idea to test each beam of a light curtain at the beginning of your shift. Always use a device approved by your organization to test a light curtain.
- Never attempt to place a body part into the point of action as a means to test a light curtain.

PRESSURE-SENSITIVE MATS

- Another type of presence sensing device are those that are activated by the presence or absence of a pre-determined amount of pressure.
- Pressure sensitive mats can also be used to require the operator to stand in a specific safe location. The mat can be configured to shut down the machine unless the presence of the operator is detected.
- Of course, like all other types of guarding and safety devices, operators who are determined to be unsafe may be able to cheat the system and find a way to "outsmart" these types of safety devices.
- Always remember that these devices are installed for your protection and trying to out-smart them is really not very smart at all.

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ANSWERS TO THE REVIEW QUIZ

1. b

2. b

3. a

4. b

5. b

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REVIEW QUIZ

The following questions are provided to determine how well you understand the information presented in this program.

Name _____ Date _____

1. Long hair, loose clothing and jewelry may be worn around moving machinery as long as you keep these items away from the point of operation.
 - a. True
 - b. False

2. Fixed guards are stationary protectors that are easy to remove.
 - a. True
 - b. False

3. You should re-check the position of adjustable guarding when the size or shape of the working material changes.
 - a. True
 - b. False

4. Electrical interlocks are often used in place of machine guarding to protect employees.
 - a. True
 - b. False

5. Pressure-sensitive mats are only used to shut down a machine when a worker steps onto the mat.
 - a. True
 - b. False