



Training Solutions, Delivered!

**OVERHEAD CRANE
SAFETY:
*Safety Is In Your Hands***

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

Item Number: 4323
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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.

4323 OVERHEAD CRANE SAFETY:
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FACT SHEET

LENGTH: 15 MINUTES

PROGRAM SYNOPSIS:

Cranes are useful and powerful tools that need to be treated with respect. Any mistake with a crane, even a small mistake, can have serious consequences, including property damage, injury or loss of life. That's why knowing how to use the equipment properly and following established policies and procedure is so important. That's the purpose of this program, to illustrate the basics of crane safety, because with an overhead crane, safety is in your hands.

Topics include safe operating procedures, pre-operating inspection, proper rigging and lifting, moving and placing a load safely.

PROGRAM OBJECTIVES: After watching the program, the participant will be able to explain the following:

- How to perform a pre-operation inspection of an overhead crane;
- What to look for when selecting rigging for the load;
- How to properly attach a sling to the load;
- How to lift a load safely;
- How to safely move and place a load.

PROGRAM OUTLINE

PERSONAL PROTECTIVE EQUIPMENT

- Proper attire for crane operation includes hard hat, safety glasses and gloves.
- Slings, chains and other things can be sharp or pinch and gloves will help protect your hands, but gloves should be removed before operating the pendant.
- For smooth operation, you'll need to have a good feel of the controls. Gloves may hinder this feel.

TRAINING & TERMINOLOGY

- Remember, when you operate a crane, you are responsible for safe operation. You must be trained and authorized before operating any type of crane.
- Next, know the capabilities and limitations of the crane; know the weight and characteristics of what you'll be lifting; know the area in which the lift is to be performed.
- You'll also need to be familiar with some crane-related terminology for two reasons. You'll be able to discuss jobs with your co-workers and you'll be able to effectively communicate to maintenance issues that need to be addressed.
- The bridge is the main structure which spans the crane's work area. It also supports the trolley and hoists.
- The trolley is a carriage that contains the hoisting mechanism and moves from end to end on the bridge. The hoist is a mechanism used to raise or lower the load. The hoist and drum is a spool that winds or unwinds the hoist cable.
- The block is located at the end of the hoist cable with the load hook attached.

PRE-OPERATION INSPECTION

- The first step to ensure safe operation of all of these components is to perform a pre-operation inspection. This inspection should be performed at the beginning of each shift.
- First, move the crane to an area where the block will not hurt anyone or damage equipment should it happen to fail during the inspection.
- Conduct a visual walk around inspection of the crane. Check its general appearance.
- Inspect the alignment of the bridge, condition of the hoist cable, the hook and its safety latch, guards, lubrication and markings.
- Carefully check each function of the pendant control.
- Remember, the operator should be standing in the clear when all tests are performed.
- Move the bridge and trolley. Smooth? Any strange noises or indications of malfunctions or defects? Screeching or squealing wheels may indicate a bridge that is not True.
- Raise and lower the hoist. Is everything operating smoothly?
- Check the limit switch. Remember, the limit switch is an emergency stopping device only. The limit switch should be tested with no attachments, if possible.
- Raise the block to a point just below the limit stop tripping weight. Slowly inch the block up by moving the control intermittently until the limit switch cutter weight has tripped the limit switch.

- If the hoist still moves at a point where no movement should be occurring, stop the hoist before the load block is pulled into the hoist drum or hits the upper sheave unit.
- If at any time, you find a problem, defect or just something you think may be unsafe, don't use the crane. Notify your supervisor or maintenance so it can be repaired or corrected before an accident or injury occurs.
- If your company requires an inspection form, please be sure to fill it out completely and legibly.

RIGGING SELECTION

- The proper selection and use of rigging is also important. The type of rigging used is determined by two things: the object being lifted and its weight.
- Check the load tag on the rigging to be sure it exceeds the capacity of the lift. Just like the components of the crane, all rigging should be inspected before use.
- Look for signs of wear, tear and other defects that could affect its capacity. Examples could include kinks, bird caging, cuts, fatigue, rot, aging, deterioration, holes and more.
- Inspect all sockets, chokers, handles and other connections. All defective slings must be repaired or removed from service.

PROPER SLING ATTACHMENT

- The sling should be attached to properly balance and lift the load without causing damage to it.
- Three key factors which can have a negative impact on the sling and affect its capacity include the load balance, angle and load movement.
- An unbalanced load can create a greater force on the sling than the actual weight of the load itself. The angle of the sling also reduces its capacity.
- The greater the sling angle, the less capacity. For example, a sling at a 10-degree angle may have a 5,000 pound capacity.
- The same sling at a 70-degree angle may have a reduced capacity of 1,700 pounds. Quite a difference and a difference you need to be aware of before you lift anything.
- Never tie knots in slings. It can also reduce the capacity by up to 80 percent. Never attach one sling to another sling to lengthen its capacity.
- Slings should always be attached in a manner that provides control of the load. Never place your hands between the load and the sling while it is being lifted.
- Make sure you and your co-workers are properly positioned when lifting or moving a load to avoid being struck by the load.

SAFE LIFTING OF THE LOAD

- A safe lift takes proper planning and careful execution.
- Aisle ways between equipment and stock must be a minimum three feet wide and should be kept clear so you can move freely about.
- Before a load is lifted, make sure it is within the capacity of the crane and all sling devices being used.
- Position the bridge directly over the load. Next, position the trolley over the load. The hoist line should be vertical when lifting.
- Lower the hook to a level that the sling can easily be attached with the safety clasp engaged. Never use a hammer or other means of force to attach a sling to a hook.
- After the slings are in place, slowly raise the hook until all slack has been removed from the sling and then stopped.
- A final inspection of the sling should be conducted. Make sure the sling is sitting in the center of the hook.
- Notify all co-workers in the area exposed to the lift. Always position yourself for the best view of the load as possible without putting yourself in potential pinch points. Remember, an experienced operator is a smooth one.
- The pendant control moves the load in three directions: forward and backward, side to side and up and down.
- Avoid sudden starts and stops. This not only causes the load to swing, but places unnecessary stress on the slings and the crane. This can lead to potential injury, property damage and increased maintenance for the crane.
- Maintain both hands on the pendant control. When you release the control button, the electric brake will automatically set.
- In order to drift into position, it is necessary to hold the device in the first position.
- Always lift the load straight up. Do not proceed to travel with the load until you have raised it to the appropriate height to clear all potential obstacles.

MOVING & PLACING THE LOAD SAFELY

- Once again, notify all co-workers in the area before moving the load.
- Good housekeeping procedures are important in areas where pendant-controlled cranes are used.
- The operator's attention is focused on the load. Check your intended path before moving the load.
- Keep a firm grip on the pendant control. Even though the dead-man switches stop the flow of energy to the bridge and trolley should the pendant slip out of your hands, the load can still drift a short distance and endanger a co-worker or equipment.
- When traveling with a load, maintain a smooth, steady pace. Anticipate your stops and slow down gradually.
- Always face the load when traveling. Be aware of the pendant control wire getting caught on other objects too.
- The more experienced an operator you are, the smoother you operate the crane. The smoother the crane is, the safer it is.

- Whenever a load is picked up, stopped or moved or swung, there is an increased force placed on the sling and crane components.
- The more rapidly or suddenly these types of actions occur, the greater the force will be, as much as three times the normal load force. Be smooth; don't swing the load and go slowly.
- Never carry the load over co-workers. Allow them time to move out of the way.
- Place the bridge and trolley directly over the position you will set the load. Do not swing it into place.
- Slowly set the load down. Lower the hook to a height that the slings can be safely and easily removed from the hook.

STORING SLINGS & THE CRANE

- Remember to properly store all slings not being used. Do not swing or toss the pendant control out of your way when you are finished with it. Walk it back directly under the bridge.
- When the crane is not being used, it should be moved to a designated area or safely out of the way. Raise all hooks to an intermediate position. Place all controls in the off position.

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ANSWERS TO THE REVIEW QUIZ

1. a
2. b
3. a
4. b
5. a
6. c
7. b
8. a
9. a
10. 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. Your work gloves should be removed before operating the pendant control of a crane.
 - a. True
 - b. False

2. What is the first step in ensuring proper operation of a crane?
 - a. Selecting the proper rigging
 - b. Performing a pre-operation inspection
 - c. Making sure the area is clear of co-workers

3. During inspection, the limit switch should be checked with no attachments, if possible.
 - a. True
 - b. False

4. If you find a problem during inspection, you should continue with your work and notify your supervisor or maintenance at the end of your shift.
 - a. True
 - b. False

5. The greater the sling angle, the _____ the sling's capacity.
 - a. Lesser
 - b. Greater

6. Knots in slings can reduce their capacity by up to _____ percent.
 - a. 50
 - b. 60
 - c. 80

7. Aisleways between equipment and stock must be a minimum of _____ feet wide before lifting.
 - a. 2
 - b. 3
 - c. 6

8. A load should always be lifted straight up.
 - a. True
 - b. False

9. You should always face the load while it is traveling.
 - a. True
 - b. False

10. You should only carry loads over co-workers when they are aware the load is in their vicinity and they are wearing a company-approved hardhat.
 - a. True
 - b. False