## SAFETY PROCEDURES AND HAND SIGNALS

<table>
<thead>
<tr>
<th>POI FILE NUMBER:</th>
<th>452-302-01</th>
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<tbody>
<tr>
<td>LESSON UNIT TITLE(S)/TASK NUMBER(S)</td>
<td>METHOD</td>
</tr>
<tr>
<td>Signal Crane Operator Using Standard Hand Signals 551-726-2601</td>
<td>CO</td>
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<tr>
<td>SUMMARY</td>
<td>0.08 Hr.</td>
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<tr>
<td>TOTAL</td>
<td>1.00 Hr.</td>
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I. INTRODUCTION

Attention  Introduce self and lesson

Motivator  As a cargo specialist, you must know how to follow safety procedures. Enforcing these procedures is essential to maintaining a safe working environment. You will also be tasked to learn and give standard hand signals. The safety and smoothness of an operation is dependent upon two things. One is the skill/judgment of the signalman. The other is the skill/ability of the crane operator to respond to those signals. A team effort is essential. (Stress the importance of the lesson through personal experience or a related story.)

Note:  Show objective viewgraph (VGobjective)

Terminal Learning Objective  At the completion of this lesson, you (the student) will be able to enforce safety procedures and signal a crane operator, using the standard hand signals needed to safely operate the Rough-Terrain Container Crane.

II. BODY

Transition  Now we will review safety procedures and standard hand signals.
A. SIGNAL CRANE OPERATOR USING STANDARD HAND SIGNALS
TN: 551-726-2601

1. Introduction

Motivator  As a crane operator you will be assigned to load or discharge cargo at an operation site and/or give standard hand signals. Hand signals are important not only to provide direction, but to ensure safety during specific operations. It is impossible to compile a list of safety procedures that cover all situations. There are basic precautions that must always be followed. Safety is your prime responsibility since any piece of equipment is only as safe as the person at the controls.

Note: Inform the students of the following learning objective requirements.

Objective(s)  At the completion of this lesson, you (the student) will:

<table>
<thead>
<tr>
<th>ACTION:</th>
<th>Give and receive standard hand signals from crane operator at an operation site and enforce safety procedures.</th>
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<tr>
<td>CONDITION:</td>
<td>Given Grove RT875CC Operator’s Safety Handbook; STP 55-88H24-SM-TG, a 40-ton crane with operator, an unobstructed view of the signalman, a safety briefing, and wearing safety clothing, perform this task under the supervision of the senior crane operator or section chief.</td>
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<tr>
<td>STANDARD:</td>
<td>Signals must be performed without error. There must be no injury to personnel or damage to cargo or equipment as a result of the signals.</td>
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Safety Instructions  This is a dangerous task. Failure to enforce all safety precautions can result in death or serious injury. If unsafe practices are observed, halt them immediately. If you do not know the proper procedure or solution to a problem, consult your supervisor. Extreme care must be taken in the proper training of personnel. Never leave a hazardous situation unattended. Send for help if necessary. You must wear safety clothing at all times. Your commander will give you a safety briefing before all task assignments.

Facility  Clear working area, mobile or stationary crane, crane operator, and cargo. The
### Requirements

crane operator, the senior crane operator, or section chief will observe the soldier performing the task at all times.

### Tools, Equipment, and Materials

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<td>Student:</td>
<td>Student Guide and notepad</td>
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</table>

### References

Grove RT875CC, Operator’s Safety Handbook
STP 55-88H24-SM-TG
2. Learning Step/Activity 1: Conference

Method of instruction: CO. Instructor to student ratio is 1: class. 
Time of instruction: 0.75 hour(s). 
Media: None.

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Instructional Lead-in

During this lesson you will learn to enforce safety procedures and use standard hand signals. As a cargo specialist, it is very important that you learn and train others in the accurate formation of signals. You will be given the opportunity to discuss safety procedures and hand signals during this lesson.

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Resource Requirements

None

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Note:

Demonstrate each signal as you describe it. Instruct the student that he must perform all signals without error, and there must be no injury to personnel or damage to equipment or cargo.

a. Procedures for Performing Hand Signals

1) Hoist - This signal is made with the right arm extended up, bent at the elbow, with the forefinger extended, pointed up and circling.

2) Lower hoist - This signal is created with the right arm extended down, with the forefinger pointed down and circling.

3) Use Main Hoist - This signal is made with the right arm extended up, bent at the elbow, with the right hand in a fist tapping the top of the helmet.

4) Use Whip Line - This signal is created with the right arm extended, bent at the elbow, and the right thumb pointing up. The left arm is across the body, with the palm facing up.

5) Raise the Boom - This signal is formed with the right hand extended and the right thumb pointing up.

6) Lower the Boom - This signal is made with the right arm extended to the side, with the thumb pointed down.

7) Move Slowly - This signal is created with the left arm across the body,
palm down. The right arm is extended out, with the right forefinger circling beneath the palm.

8) **Raise the Boom and Lower the Load** - This signal is made with the right arm extended to the side, with the thumb up and the right hand opening and closing.

9) **Lower the Boom and Raise the Load** - This signal is performed with the right arm extended to the side, thumb down and right hand opening and closing.

10) **Travel** - This signal is formed by standing sideways and moving the arms away from the body, as if pushing something away.

11) **Dog Everything** - This signal is created by clasping the hands together in front of the body at waist level.

12) **Emergency Stop** - This signal is performed by extending the left arm to the side of the body with the palm down. Move the left hand back and forth.

13) **Travel (One Track)** - This signal is created by extending the right arm, bending the elbow in an upward direction, then forming a fist with right hand. The left arm is extended across body, the left hand forms a fist, which then makes a rotating motion.

14) **Travel (Two Track)** - Both arms are bent at the elbow, then extended towards the chest. Each hand then forms a fist, then the fists make a rotating motion.

15) **Swing** - This is signaled by extending the right arm to the side with the palm down.

16) **Stop** - This is signaled by extending the left arm to the side with the palm down.

17) **Extend the Boom** - When holding the tagline, the right arm is bent at the elbow and held across the body. The right hand forms a fist with the thumb pointed up.

18) **Retract the Boom** - When holding the tagline, the right arm is bent at the elbow and held across the body. The right hand is extended with the thumb pointed down.

19) **Extend the Boom** - This is signaled by holding both hands at waist level
with thumbs pointed out.

20) **Retract the Boom** - This signal is created by holding both hands at waist level with both thumbs pointed in.

**Note:** Instruct the student that he must perform all signals without error, and there must be no injury to personnel or damage to equipment.

b. **Procedures to Signal Crane Operator Using Standard Hand Signals**

1) Check that the swing of the crane will not bring the boom tip within 10 feet of power lines.

2) Ensure that the boom and the counterweight are clear of all obstructions and people before signaling the operator to swing the boom.

3) Verify that all people are clear of the under-carriage and the path of the crane.

4) Before signaling the operator to raise the boom, check to see that it is clear of overhead obstructions.

5) Before directing the operator to raise the hook, confirm that the cargo handlers know where the cargo is being moved and that the cargo is slung correctly.

6) Before directing the operator to lower the hook, verify that no one is underneath the hook or load.

7) When going from light to heavy loads, inform the operator of the weight of the heavy load.

8) Work with the crane operator to find the safe working capacity of the crane at the radius being used.

9) Position yourself so that you are visible to the operator while giving all signals.

10) Tell the operator to secure the crane when there will be lengthy delays such as lunch breaks or cargo securing operations.

11) If any safety hazard is observed, signal the operator to stop immediately.

12) If any safety hazard is observed, inform the hatch foreman immediately.
Note: It is impossible to compile a list of safety precautions covering all situations. However, there are basic safety precautions that must be followed during your daily routine. Safety is your prime responsibility. Any piece of equipment is only as safe as the person at the controls. You are responsible for the safety of yourself and those around you.

c. General Safety Procedures for Crane Operation

1) Wear the proper clothing for the job. Wear personal protective equipment as required by local or job regulations.

2) Know the area in which you are working. Familiarize yourself with the work site and other potential hazards in the area.

3) Signalman should not be:
   - easily excitable.
   - subject to epileptic seizures.
   - using any drug that could impair physical, visual, or mental reactions/capabilities.

4) Keep your eyes on the load at all times.

5) Gloves should be used when handling cables.

6) Hands and feet must be kept clear of drums, sheaves, and any rotating machinery.

7) Follow the directions on all placards. Know what they mean and follow their instructions.

8) Do not attempt repairs you do not understand!

9) Have an approved fire extinguisher available and know how to use it.

10) Do not store flammable materials on the crane at any time.

11) Never get off (or on) a moving crane.

12) When getting on or off a stationary crane, use both hands and use the handrails and steps provided.

13) Allow no one other than the operator to be on the crane while the crane is functioning or moving.
14) Do not attempt to ride or permit others to ride on the hook.

15) High winds impact the working conditions of the crane. Use special care when operating under these conditions.

Note: Inform students that the safe operation of the crane is dependent upon avoiding certain practices.

c. Unsafe Practices

1) Shock Loading - A sudden stress is placed on the boom (the two section lifting arm of the crane) by abruptly loading or unloading the crane. Improper driving on rough terrain can bounce the load causing a shock load.

2) Side Loading - A load is applied to the vertical plane of the boom. Using the boom for pulling sideways will create a side load.

c. Modifications

- Unless authorized and approved by the Grove Manufacturing Company, do not make any modifications, alterations, or changes to a crane which could in any way affect its original design. Such actions invalidate all warranties and capacity charts and makes the owner/user liable for any resultant accidents.
Distribute copies of the check on learning #1 (master is located in the Training Support Package) to the students and have them complete the questions. Allow the students 10 minutes to complete the check on learning. As you review the items individually, ask students if they have any questions.

a. Putting sudden bouncing or jerking stress on the boom is known as what?

   (Shock Loading)

b. What signal is made by clasping the hands together in front of the body?

   (Dog Everything)

c. Fill in the blanks. Modifications or changes to the crane design must be authorized and approved by the ________ ________ _________.

   (Grove Manufacturing Company)

d. What signal is created by extending the right hand with the right thumb pointing up?

   (Raise the Boom)

e. How would you signal the “Stop” command?

   (Extend the left arm to the side with the palm down.)
Summary

Method of instruction: CO. Instructor to student ratio is 1: class.
Time of instruction: 0.17 hour(s).

Review/Summarize Lesson Unit

In summary, we will now review the key points covered during this lesson.

a. Procedures for Performing Hand Signals
   • Accurately create a sequence of movements to create a signal.

b. Procedures to Signal Crane Operator Using Standard Hand Signals
   • These are standards that must be enforced when using hand signals.

 c. General Safety Procedures For Crane Operation
   • These are safety regulations that must be enforced to avoid accidents of any kind.

d. Unsafe Practices
   • These are techniques that must be avoided, because they may bring injury to personnel or damage to cargo.

e. Modifications
   • Avoid any changes to the crane without approval of the manufacturer.

Check on Learning

Determine if students have learned the material presented by:

a. Soliciting student questions and explanations.

b. Asking questions and getting answers from the students.

c. Correcting any student misunderstandings.

Transition

This completes the instruction on performing the duties of a signal crane operator using standard hand signals. Now let’s summarize what you have learned.
III. SUMMARY

Method of instruction: CO. Instructor to student ratio is 1: class.
Time of instruction: 0.08 hour(s).
Media: Viewgraph. (VGS ummary)

Note: Show summary viewgraph (VGS ummary)

Review/Summarize Lesson Unit

In this lesson we learned how to operate as a signal crane operator using standard hand signals. The following key points were discussed:

a. Procedures for Performing Hand Signals
b. Procedures to Signal Crane Operator Using Standard Hand Signals
c. General Safety Procedures for Crane Operation
d. Unsafe Practices
e. Modifications

Check on Learning

Determine if students have learned the material presented by:

a. Soliciting student questions and explanations.
b. Asking questions and getting answers from the students.
c. Correcting any student misunderstandings.
IV. STUDENT EVALUATION

Testing Requirements

The student will be evaluated on this lesson by completing a written test. The test consists of multiple choice questions. The test will measure the students’ knowledge of safety procedures and hand signals.

Written Test

1) The student must achieve a score of 70% on the written test to receive a “GO” for this lesson.

2) The written test will be administered following a block of instruction and is located in the Instructor Test Package. Refer to the Course Management Plan/Program of Instruction (CMP/POI) for guidance on administering the test.

Note: Refer students to the Student Evaluation Plan.

Feedback Requirement

a. Schedule and provide feedback on the evaluation and any information to help answer students’ questions about the test.

b. Provide remedial training as needed.

c. Correct any student misunderstandings.

Note: Rapid, immediate feedback is essential to effective learning.