

**RESPONSIBILITIES**

**FOR**

**MUNICIPAL OWNED**

**DOCK MOUNTED CRANES**

*ARXCIS, INC.*

# TYPICAL TYPES OF CRANES FOUND ON DOCKS



**PEDESTAL HYDRAULIC**



**SWINGING BOOM**

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# OSHA REQUIREMENTS FOR CRANES



**Cranes involved in Longshoring,  
governed by 29 CFR 1917.45 & .50**

**Cranes involved in Ship Repair,  
governed by 29 CFR 1910 & 1915.111**

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# USES OF DOCK CRANES

## LONGSHORING



**Longshoring** operations mean the loading, unloading, moving, or handling of cargo, ship's stores, gear, etc., into, in, on, or out of any vessel;  
29 CFR 1910.16(c)(1)

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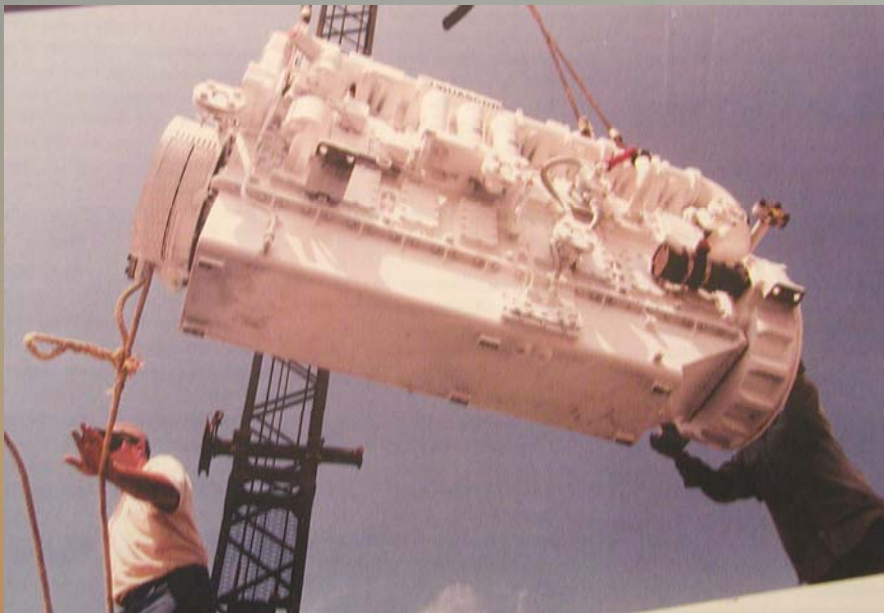
# DOCKS USED FOR LONGSHORING ARE CONSIDERED A MARINE TERMINAL



**Marine terminal** means wharves, docks, .... and adjacent structures associated with the primary movement of cargo or materials from vessel to shore or shore to vessel. (paraphrased)  
**29CFR 1917.2**

# USES OF DOCK CRANES

## *SHIP REPAIR*



**Ship Repair** means any repair of a vessel including but not restricted to alterations, conversions, installations, cleaning, painting and maintenance work.  
29CFR 1915.4

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# TWO PARTS OF A CRANE OPERATION

## *THE CRANE*

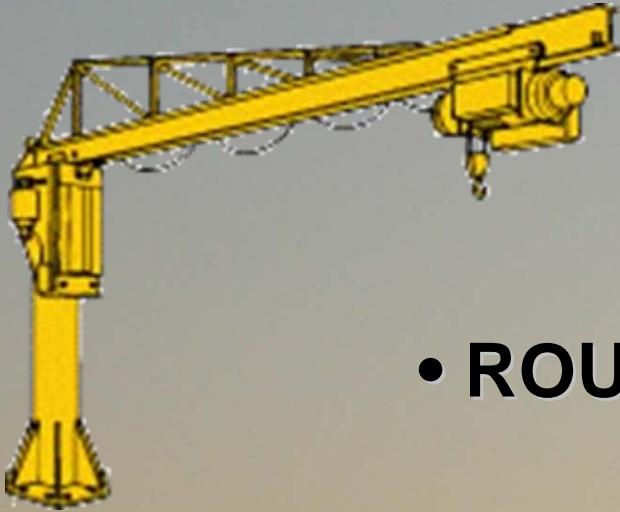


## *THE OPERATOR*



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# WHAT THE CRANE NEEDS



- **ROUTINE MAINTENANCE**
- **REGULAR INSPECTIONS**

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# WHEN TO INSPECT

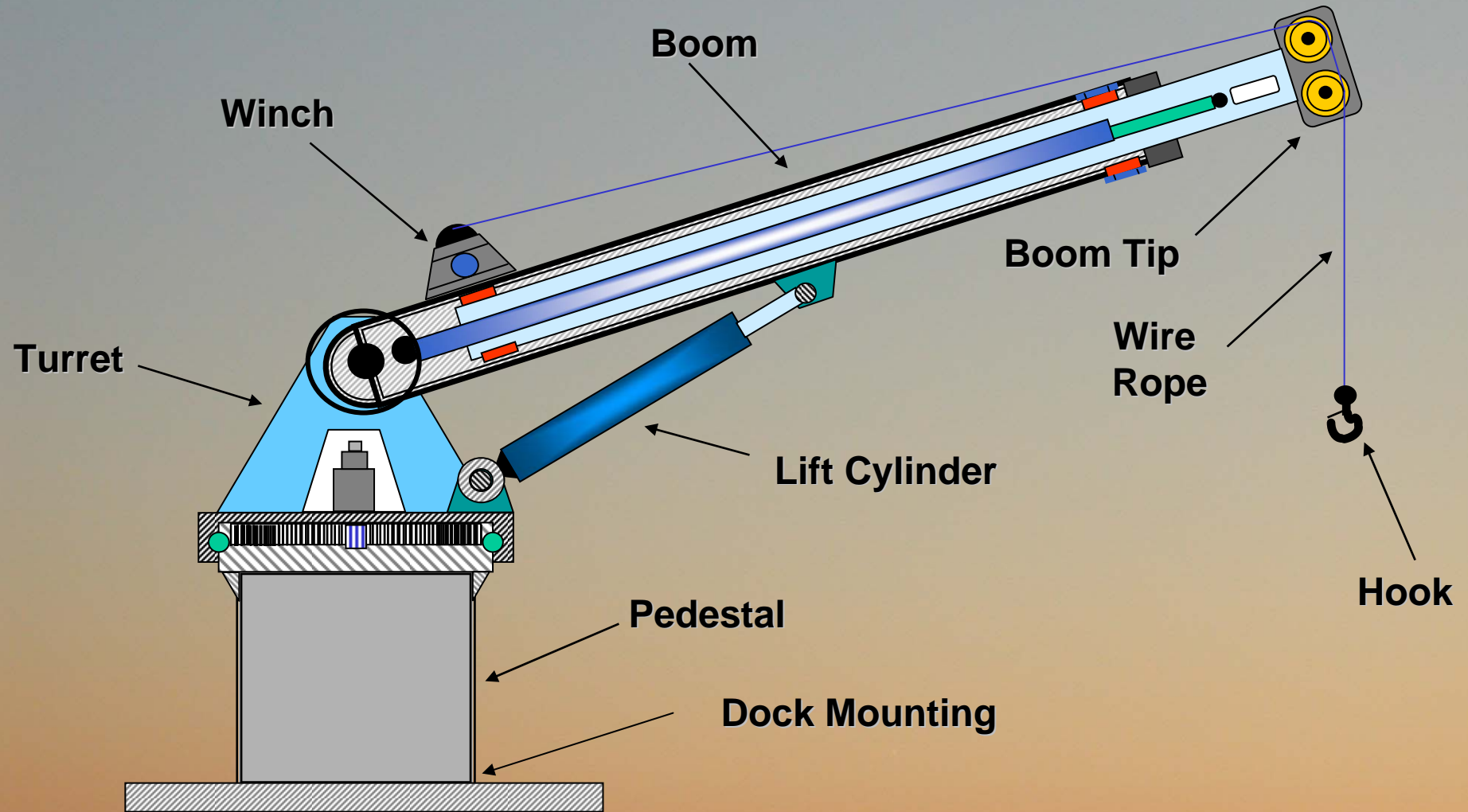
- Frequently:** On the day of each use, a designated person(s) shall visually inspect for defects in functional operating components and shall report any defects found.
- Periodic:** On a monthly basis, a designated person(s) shall thoroughly inspect all functional components and accessible structural features. Any defects found shall be reported. A record of monthly inspections shall be maintained for six months.
- Annual:** On an annual basis, each crane shall be examined by an OSHA accredited inspector and load tested every four years. Certification documents are issued.

# WHAT TO INSPECT FOR

INSPECTION AREA	INSPECTION RESULTS			
	Sat.	Unsat.	N/A	Comments
<b>Supporting Structure</b>				
Welds				
Bolts				
<b>Rotating System</b>				
Bull & Pinion Gear				
Swing Brakes				
Hydraulic Drive Motor				
<b>Boom</b>				
Welds				
Stress & Distortion				
Hinge Pin				
Boom Cylinder & Pins				
Wear Pads				
Telescopic Operation				
Tip Section & Sheaves				
Angle/Radius Indicator				
Anti-Two Blocking Sys.				
<b>Winch System</b>				
Wire Rope Condition				
Rope Reeving				
Mounting Bolts				
Brakes				
Functional Operation				
<b>Hydraulic System</b>				
Pump Performance				
Control Functions				
Control Markings				
Hydraulic Leaks				
Hose Condition				
Fluid Level				
<b>Load Block</b>				
Sheaves				
Pins				
Swivel				
Hook				

Check lists are useful for performing frequent and periodic inspections. They also provide a record of the inspections for compliance requirements.

# TYPICAL AREAS FOR PROBLEMS



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# EXAMPLES OF WHAT TO LOOK FOR

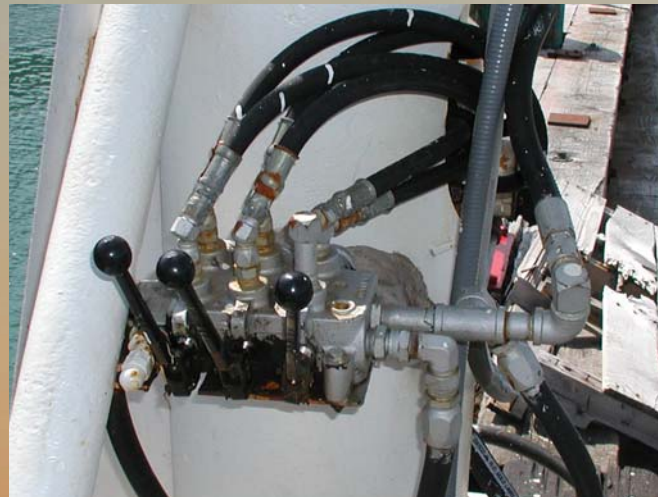


Hydraulic  
Leaks

Hook &  
Safety Latch



Controls &  
Proper Labels



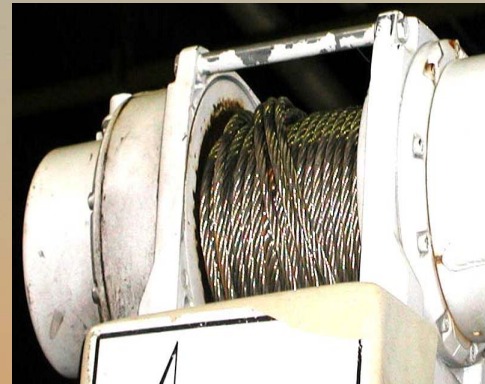
# EXAMPLES OF WHAT TO LOOK FOR



**Attachment  
to Dock**



**Damaged  
Crane  
Structure**

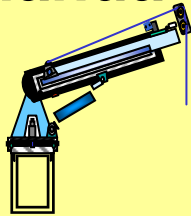


**Damaged  
Wire Rope**



# PROPER DOCUMENTATION

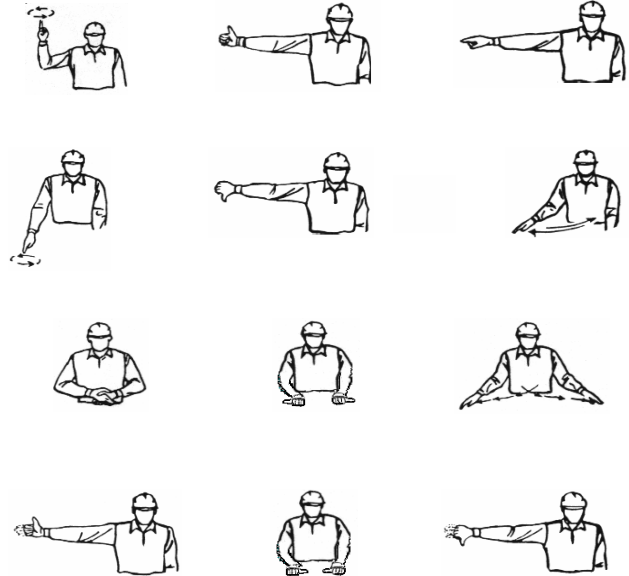
## Operator's Manual



SC-542c  
SC-552c

Acme Cranes

## HAND SIGNALS



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# OPERATING THE CRANE



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# **I DON'T NEED TRAINING!!**

- **I've carefully thought out all the angles.**
- **I've done it a thousand times.**
- **It comes naturally to me.**
- **I know what I'm doing, I have been doing it my whole life.**
- **Nothing could possibly go wrong.**



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# OPERATOR REQUIREMENTS

29 CFR 1917.27 specifies the qualifications for employees

- By experience
- By training

The employer is responsible for determining the competency of their employees to operate a crane.

# **HARBOR'S RESPONSIBILITIES WHEN RENTING CRANES**

**EXCEPT IN A FEW CASES, THERE ARE NO REGULATORY REQUIREMENTS FOR RENTING ORGANIZATIONS TO ASSURE THE COMPETENCY OF THE RENTER.**

**TORT REFORM HAS NOT DIRECTLY ADDRESSED THESE ISSUE; THEREFORE, THESE ORGANIZATIONS ARE MORE VULNERABLE TO LITIGATION.**

**LIABILITY IN TORT CASES HAS EXTENDED TO THE RENTING ORGANIZATION.**

# HARBOR'S RESPONSIBILITIES WHEN RENTING CRANES

- PROVIDE A CRANE WITH NO DEFECTS
- DETERMINE THE LEVEL OF INSTRUCTION THAT SATISFIES THE REQUIREMENT FOR REASONABLE TRAINING

# SHOULD THE HARORS REQUIRE OPERATOR TRAINING?



- SAFETY OF THOSE INVOLVED
- REDUCE ABUSE OF CRANES
- REDUCE LIABILITY

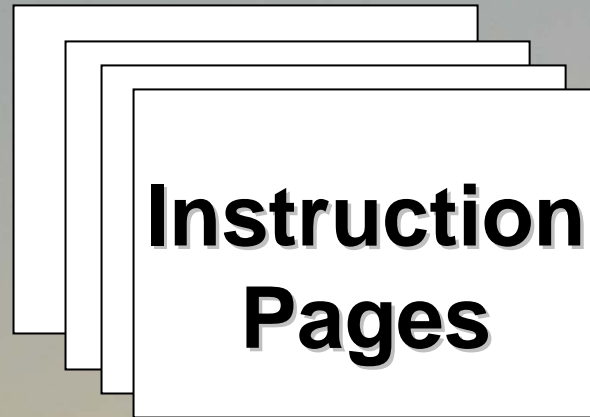


- DISGRUNTLED USERS
- TIME & MONEY TO IMPLEMENT
- MONITORING THE PROGRAM

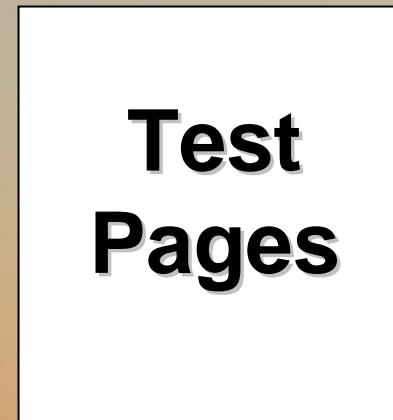
# SELF-TAUGHT BASIC OPERATOR TRAINING



**Training on CD**

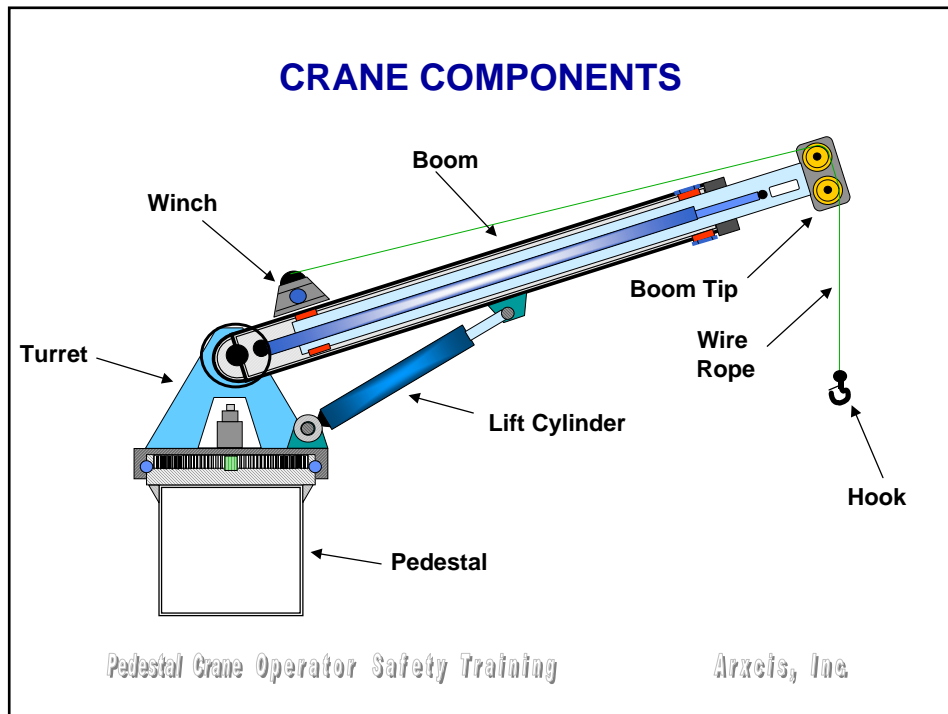


**Instruction  
Pages**



**Test  
Pages**

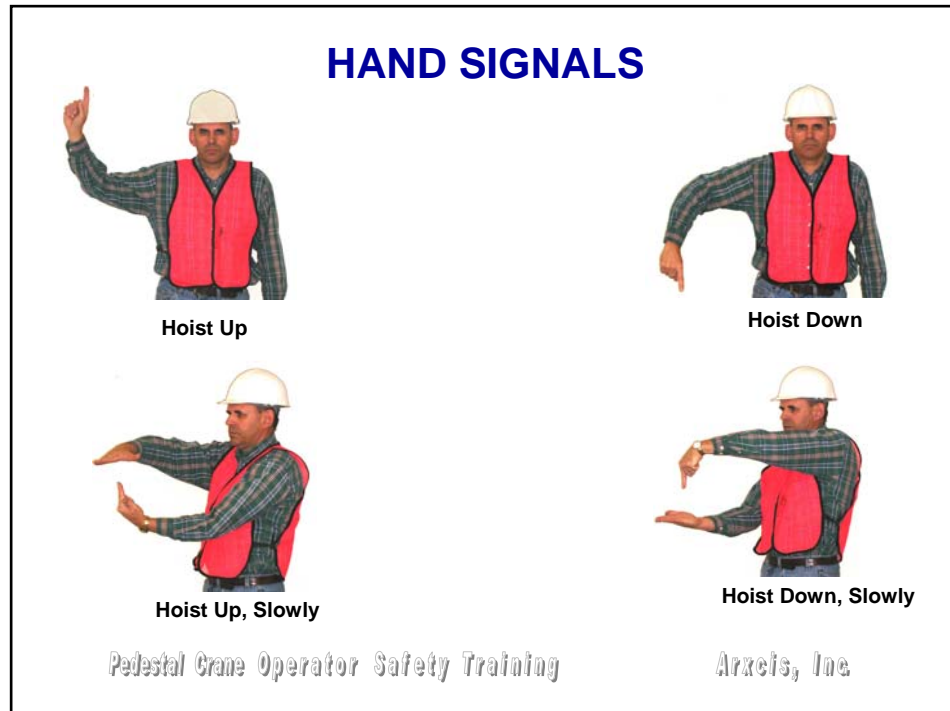
# SAMPLE INSTRUCTION PAGES



- Whether the crane is the straight boom or knuckle boom type, the components are very similar.
- The *pedestal*, which is mounted to the dock, is typically a cylindrical tube or a box. The height will vary depending on the crane's usage.
- The *turret* is mounted on a bearing which is mounted to the pedestal. The boom, lift cylinder(s) and swing motor(s) are mounted on the turret.

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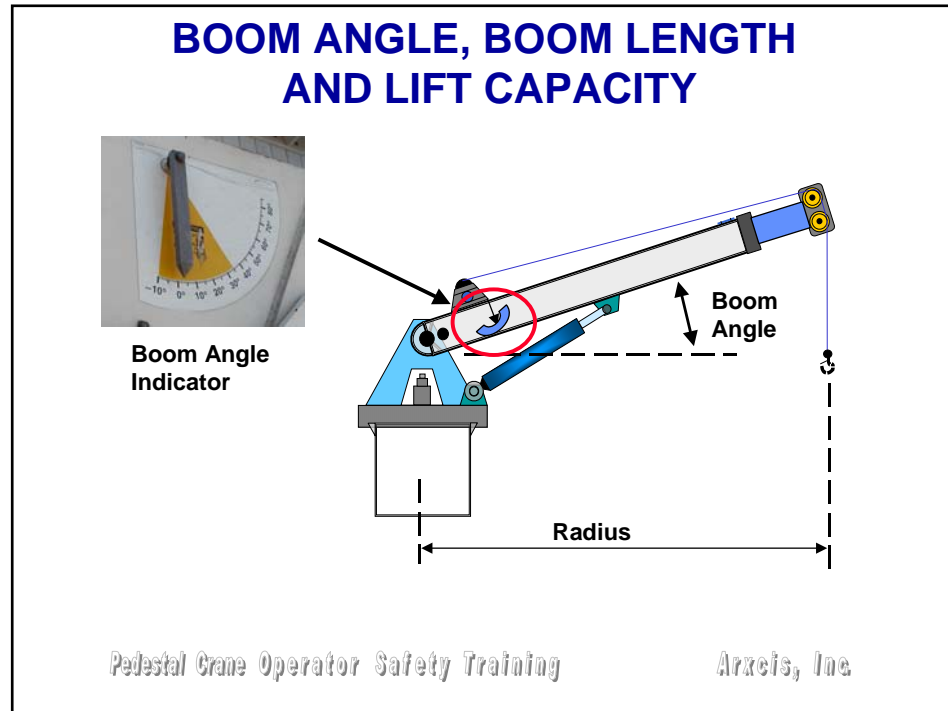
# SAMPLE INSTRUCTION PAGES



- Communications between the operator and those assisting with the load are critical for a safe lift. Many people have been injured and killed by mistaken communications.
- For each lift, an individual needs to be designated as the signal person. This person is responsible for giving clear and standard hand signals to the operator. Prior to the lift, the operator and the signal person should review the operation and establish the use of clear and standard hand signal.

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# SAMPLE INSTRUCTION PAGES



- Two of the factors which affect the lift capacity of the crane are: Boom Angle and Boom Length.
- On telescopic boom cranes, as the boom is extended out, the lift capacity of the crane decreases. Also, as the boom angle to the horizon decreases, the capacity of the crane also decreases. Extending the boom and/or lowering the boom will result in an increase in the radius. This increase in radius directly affects load capacity.

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# SAMPLE INSTRUCTION PAGES

## CARGO NETS



*Pedestal Crane Operator Safety Training*

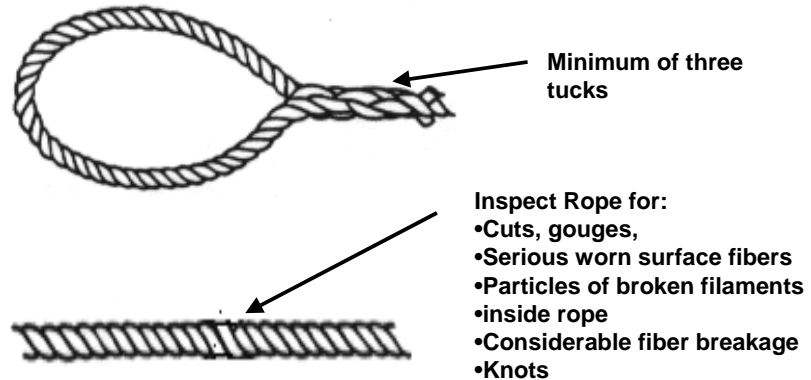
*Arxcis, Inc.*

- Cargo nets are used to handle loads of various sizes. Like other load handling equipment, these need to be load rated. The Safe Working Load needs to be on the cargo net indicating how much weight it can hold. Prior to use, the net needs to be inspected. If any defects are found, the net needs to be removed from service.

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# SAMPLE INSTRUCTION PAGES

## SYNTHETIC FIBER ROPE SLINGS



*Pedestal Crane Operator Safety Training*

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- Synthetic fiber rope slings are often made by the individuals that are using them. These, like all slings used for lifting are to load rated. Dependent on the type of material the sling is made of, the proper safety factor needs to be applied when establishing its safe working load. Slings that are not load rated, show signs of wear or damaged should not be used.

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# SAMPLE TEST PAGES

## Pedestal Crane Operator Safety Training

1. The crane operator is responsible for inspecting the crane prior to using it.
  - a. True
  - b. False
2. Crane controls are not required to be labeled.
  - a. True
  - b. False
3. Safety latches are not required on cranes hooks.
  - a. True
  - b. False
4. The primary cause for crushed wire rope on a crane is poor spooling on the winch.
  - a. True
  - b. False
5. The Gross Load for a crane is
  - a. The weight of the load only
  - b. The weight of any special lifting hardware
  - c. The weight of the hook and wire rope hoist line
  - d. All of the above added together

# ONE TRAINING PROGRAM FOR ALL HARBORS?



- **Common standard**
- **Universally accepted by all harbors**
- **Shared experience with implementation**
- **All receive upgrades at same time**

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