



AMERICAN & OHIO LOCOMOTIVE CRANE CO. INC.

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OEM Product Support Bulletin

No. 49

DATE: September 18, 2013

SUBJECT: OPERATING SAFELY IN THE WIND / LIGHTNING

RATING:

DIRECTIVE

(Action is required)

ALERT

INFORMATION

PRODUCT IMPROVEMENT

(Enhance Product)

**Machine
Model (s):**

All American & Ohio Locomotive Cranes

**Serial
Numbers:**

N/A

Summary:

Keeping worker's safe from injury

**Operational
Impact:**

- > Working safely during windy conditions
- > Stopping work during lightning strikes in the area

OPERATING IN THE WIND

It is recommended that each customer/location establish a wind policy.



WARNING



It is not safe to operate the crane when wind speeds exceed the guidelines for safe operation in the chart below. The chart below does not take into account wind force on the load, which must be considered by the crane user. When the load has a large surface area, the effect of the wind on it can be substantial. Always use taglines to control any load when operating under windy conditions. Not following this warning could result in damage to the crane, surrounding area and/or to persons nearby from possible side-loading of the boom or loss of the load.

GUIDELINE CHART FOR OPERATING IN THE WIND

		<u>PRECAUTIONS</u>		
Locomotive Cranes with Lattice Type Booms	NORMAL OPERATION	LIMITED OPERATION **	NO OPERATION Lower Boom to 50° to 60°. Position Rear of Crane into the Wind	NO OPERATION Lower or Secure Boom *
BOOM & BOOMS WITH JIB 40 - 80 ft. in Length	0 - 20 MPH	21 - 30 MPH	31 - 50 MPH	Over 50 MPH

* Securing the boom means lashing the boom to a permanent structure (for example, steel work of a building under construction) with manila or nylon rope or strapping. Padding material must also be placed between the boom and permanent structures to prevent boom damage.

** A great deal of judgment is required when assessing wind and weather conditions. A qualified person on-site must determine whether a lift should continue or be postponed due to the wind or other inclement weather conditions. Conditions that should be of concern are, wind speed at site of the lift, fog, heavy rain, heavy snow fall and, visibility of load. A reduction of 10% of the Load Capacity Chart should also be considered during wind speeds of 21 MPH to 30 MPH. If the operator is uncomfortable and feels it is unsafe to make the lift, the operation should be postponed for another day or until the weather improves. It is important for all who are assisting in the lift, including ground personnel nearby, to be aware that a lift is being made. A lift plan should be in place.

NOTE: The wind speeds in the chart above refer to maximum winds speed, whether the wind is steady or only reaches its maximum speed in brief gusts. All measurements must be taken at the highest elevation of the boom or boom and jib. Weather bureau reports of wind speed at ground level may not accurately reflect the maximum speed of gusts at elevations of fifty to eighty feet. All wind speed measurements should be made from a location close to the crane. One good method of determining wind speeds is by using an anemometer.

A 20 MPH wind exerts a force of 1.125 lb./ft² on a flat-surfaced load (the force on 4' x 8' sheet of plywood = 36 lbs.). At 30 MPH the wind exerts a force of 2.53 lb./ft² on flat surface areas (the same 4' x 8' sheet of plywood = 81 lbs.) The larger the sail area of the load, the greater the wind's effect on the load.

Some of the issues to consider when faced with windy weather conditions are:

- ***The geometry and shape of the load.***
Is there a large area exposed to the wind loads? How difficult will the load be to control if a gust of wind catches it?
- ***How high is the load to be lifted?***
Wind speed generally increases with height.
- ***Backward stability.***
Backward stability can be a problem when the wind is blowing towards the front of the crane with a high boom.
- ***Wind from behind the crane.***
Wind coming from behind the rear of the crane can cause the load to be blown away from the front of the crane, increasing the radius and exceeding the crane capacity.
- ***Wind from the side of the crane.***
Wind coming from the either side of the crane can put a load on the side of the boom and blow the load off vertical; this in turn, places an additional side load on the boom and can make handling the load difficult.
- ***Operating a crane between structures.***
Operating a crane between buildings or other structures under windy conditions can be hazardous due to the "wind tunnel" effect. As air blows around obstructions, there can be local areas of increased velocity that may exceed a safe lifting limit even though the general wind speed is not a problem. A wind speed indicator (anemometer) fixed at the boom point is a good idea to determine the actual wind speed.



Operation of Crane Must Cease During Lightning

A Crane boom can act as a lightning rod and great care should be taken to be aware of changing weather conditions if a thunderstorm should suddenly develop.

At the first sign of a thunderstorm (or at least lightning), lifting activities should be brought to an orderly close. The boom should be lowered as much as possible and secured if necessary. All personnel should leave the area.

Remember, the crane is on a steel rail and anyone nearby the rail is in danger of being electrocuted if the crane is struck by lightning or if the boom hits an overhead power line.

If the crane is struck by lightning or thought to be struck by lightning, the machine should be thoroughly inspected for physical damage to the boom, wire rope, sheaves and any other items used to make lifts, before being placed back in service. The path of the electricity is difficult to predict and there may be hidden damage where arcs have occurred, often in bearings.