

Job Hazards Analysis

Project Name:		AHA No: 1		Date:	Scheduled:
Location:		Contractor:			Revised:
Required Personal Protective Equipment: Fall protection, Hard Hats, Safety Glasses, Vest, Gloves				Analysis by:	Date:
Description Crawler Assembly JHA		A/D Director: Controlling Entity: Site Supervisor: Lift Director: Crane User:		Reviewed by:	Date:
Work Operation: Tower Crane Assembly				Approved by:	Date:
Date	Execution Process	Potential Hazards	Preventive or Corrective Measures	Inspection Requirements	
	Remove Rotating Bed from Trailer o Remove Wind Deflectors o Deploy Rotating Bed Jacks o Deploy Operator's Cab o Jack Upper works Off Trailer o Connect Rotating Bed to Car body	Ground conditions for crane set up is proper compaction and there is room for setup, tractor-trailer access is appropriate for crane setup, struck by hazards, pinch points while setting counterweights and fitting luffing jib sections together, overexertion hazards while placing mats, slips and trips on trailer and crane decks, wind/weather restrictions, co-occupation of active worksite, work-zone intrusion, Maintenance of Public traffic and site traffic	Preplan crane set up area and visit site prior to setup day to verify, use taglines to avoid hand manipulation, use crane and jobsite equipment to limit manual exertion of mats and cribbing for crane, use ladders for trailer deck access, keep mud and dirt out of cleats of shoes and immediately clean up spills from refueling and preventative maintenance. Clear decks of equipment of snow, ice and mud, contractor to set-up barricades to keep non-essential personnel out of exclusion zone, Monitor the wind and adjust operations when wind prohibits operations.	<p>Operator shall;</p> Keep equipment clean and free of slip/trip hazards. Use equipment to move materials in lieu of manual handling. All personnel stay away from pinch points, rigging integrity, and suspended loads. Monitor wind and weather restrictions	
				<p>Site supervision shall ensure;</p> Access roads for loads are appropriately compacted and have adequate space to move equipment. Ground conditions for assist crane to mobilize and setup as well and build out for crane attachments when necessary. Monitor wind and weather restrictions. Coordinate co-occupation work tasks to ensure other crafts are not in harm's way or create hazardous conditions for the tower erection.	

Tower Crane Erection *Note this hazard analysis is only a guide of the sequence of steps and hazards and should not be used to replace the manufactures specifications and operator guidelines

<p>Remove Car body and Adapter Frame from Trailer Position trailer carrying adapter frame and car body directly under rotating bed Connect Rotating Bed to Car body Fully extend jacks to lift upper works, adapter frame, and car body off trailer Remove trailer.</p>	<p>Rigging failures, struck by load, pinch points, movement of equipment on site, under a suspended load, working from elevated work positions, assist crane hazards, ground conditions, and crane signal challenges, wind/weather restrictions</p>	<p>Inspection of rigging prior to use for defects and proper capacity, ensure proper rigging practices and appropriate rigging protection, use of tag lines at all times when a greater safety hazard is not created, barricade and/or utilize road closures in area where crane erection is underway, ensure tractor-trailer access roads are of appropriate compaction and space for vehicle movement, ensure fall is used and inspected for all appropriate uses, ensure adequate space and ground conditions are prepared for assist crane, designation on ONE crane signal person for visual crane signals and radio signals are used when visual signal are limited., Monitor the wind and adjust operations when wind prohibits operations.</p>	<p>Crane erection supervisor shall ensure; Rigging inspection and practices/ Fall protection is inspected and used during all fall potentials 6' and higher/ Erection plan is exactly followed and when deviations are required then job shall stop and new requirements effectively communicated with all personnel. Ensure working surfaces are kept free of slippery conditions and mud, ice, snow is removed.</p> <p>Site supervision shall ensure; Access roads for loads are appropriately compacted and have adequate space to move equipment. Ground conditions for assist crane to mobilize and setup as well and build out for crane attachments when necessary. Coordinate co-occupation work tasks to ensure other crafts are not in harm's way or create hazardous conditions for the tower erection.</p>
<p>Lower Crane onto Car Body Pedestals, Install Rotating Bed Catwalks and Steps, Connect Hydraulic Hoses and Electric Cables, Install Drum 3 (Whip Line Drum)</p>	<p>Work at heights, pinch points, manual rigging and movement of materials, climbing on lattice works of jib, slips and trips, weather and wind restrictions, pulling wire rope cable.</p>	<p>Same as previously mentioned in addition to the following; Ground work will require the use of ladders for elevated work position and tie-off when working higher than 6', careful consideration shall be given to tie off points that do not exceed rip and elongation distance requirements of 11.5 feet with personal fall protection, plywood or other suitable material will be placed under ladder feet when dirt conditions exist, work from platforms while assembly to turntable is taking place on tower top. Remove snow, mud and ice from working surfaces.</p>	<p>Crane erection supervisor shall ensure; Rigging inspection and practices/ Fall protection is inspected and used during all fall potentials 6' and higher/ Erection plan is exactly followed and when deviations are required then job shall stop and new requirements effectively communicated with all personnel. Ensure working surfaces are kept free of slippery conditions and mud, ice, snow is removed.</p> <p>Site supervision shall ensure; Access roads for loads are appropriately compacted and have adequate space to move equipment. Coordinate co-occupation work tasks to ensure other crafts are not in harm's way or create hazardous conditions for the tower erection.</p>

	<p>Raise Live Mast to Operating Position</p>	<p>Work at heights, pinch points, manual rigging and movement of materials, climbing on lattice works of jib, slips and trips, weather and wind restrictions, pulling wire rope cable.</p>	<p>Same as previously mentioned in addition to the following; Ground work will require the use of ladders for elevated work position and tie-off when working higher than 6', careful consideration shall be given to tie off points that do not exceed rip and elongation distance requirements of 11.5 feet with personal fall protection, plywood or other suitable material will be placed under ladder feet when dirt conditions exist, work from platforms while assembly to turntable is taking place on tower top. Remove snow, mud and ice from working surfaces</p>	<p>Crane erection supervisor shall ensure; Rigging inspection and practices/ Fall protection is inspected and used during all fall potentials 6' and higher/ Erection plan is exactly followed and when deviations are required then job shall stop and new requirements effectively communicated with all personnel. Ensure working surfaces are kept free of slippery conditions and mud, ice, snow is removed. Site supervision shall ensure; Access roads for loads are appropriately compacted and have adequate space to move equipment. Coordinate co-occupation work tasks to ensure other crafts are not in harm's way or create hazardous conditions for the tower erection.</p>
	<p>Install Crawlers Tracks</p>	<p>Rigging failures, suspended loads, fall exposures when setting onto turntable, dropping tools and materials, pinch points, manual manipulation of section to fit adjustment, wind/weather restrictions, ground conditions for access road after numerous trucks have entered site already chewing it up, preassembly of attachments on ground, work from ladders, other hazards are common to same hazards previously mentioned, wind restrictions, slip and trip hazard due to grease on turntable</p>	<p>Same as previously mentioned in addition to the following; Rigging should be visually inspected prior to each lift, personnel shall be warned to evacuate area under suspended load, all tools and materials shall be tethered to prevent dropping, tools, pry-bars and alike to shall be used to manipulated load to fit, wind and weather shall be monitored and work stopped when adverse conditions exist.</p>	<p>Crane erection supervisor shall ensure; Rigging inspection and practices/ Fall protection is inspected and used during all fall potentials 6' and higher/ Erection plan is exactly followed and when deviations are required then job shall stop and new requirements effectively communicated with all personnel. Ensure working surfaces are kept free of slippery conditions and mud, ice, snow is removed. Site supervision shall ensure; Access roads for loads are appropriately compacted and have adequate space to move equipment. Coordinate co-occupation work tasks to ensure other crafts are not in harm's way or create hazardous conditions for the tower erection.</p>

	<p>Install Counterweight Refer to the Counterweight Assembly Drawings at the end of this section for the total number car body and upperworks boxes required for each counterweight arrangement.</p> <p>For luffing jib prepared cranes, counterweight boxes with links must be installed on top of stack. These boxes are used for raising and lowering luffing jib struts.</p>	<p>Work at heights, pinch points, manual rigging and movement of materials, climbing on lattice works of jib, slips and trips, weather and wind restrictions, pulling wire rope cable.</p>	<p>Same as previously mentioned in addition to the following; All work requiring erection crew to access jib lattice works shall ensure they adhere to 100% fall prevention and protection techniques, remove snow or ice from shoes and/or equipment prior to working, monitor the wind/weather conditions as needed.</p>	<p>Crane erection supervisor shall ensure; Rigging inspection and practices/ Fall protection is inspected and used during all fall potentials 6’ and higher/ Erection plan is exactly followed and when deviations are required then job shall stop and new requirements effectively communicated with all personnel. Ensure working surfaces are kept free of slippery conditions and mud, ice, snow is removed. Site supervision shall ensure; Access roads for loads are appropriately compacted and have adequate space to move equipment. Coordinate co-occupation work tasks to ensure other crafts are not in harm’s way or create hazardous conditions for the tower erection.</p>
	<p>Assemble Fixed Mast Install Mast Butt and Top Assemble Mast Inserts Connect Mast Inserts to Mast Butt Raise Mast Stops Lower Wire Rope Guide Attach Mast Top to Inserts Connect Mast Straps Connect Live Mast Straps to Fixed Mast Straps</p>	<p>Work at heights, pinch points, manual rigging and movement of materials, slips and trips, weather and wind restrictions.</p>	<p>Same as previously mentioned in addition to the following; All work requiring erection crew to access jib lattice works shall ensure they adhere to 100% fall prevention and protection techniques, remove snow or ice from shoes and/or equipment prior to working, monitor the wind/weather conditions as needed.</p>	<p>Crane erection supervisor shall ensure; Rigging inspection and practices/ Fall protection is inspected and used during all fall potentials 6’ and higher/ Erection plan is exactly followed and when deviations are required then job shall stop and new requirements effectively communicated with all personnel. Ensure working surfaces are kept free of slippery conditions and mud, ice, snow is removed. Site supervision shall ensure; Access roads for loads are appropriately compacted and have adequate space to move equipment. Coordinate co-occupation work tasks to ensure other crafts are not in harm’s way or create hazardous conditions for the tower erection.</p>
	<p>Boom Installation o Inspect Boom Stops o Assemble Boom Butt and First Insert o Raise Drum 1 to Operating Position o Install Second Insert</p>			

<ul style="list-style-type: none"> o Raise Drum 6 Sheaves o Install Boom Butt and Assembled Inserts o Assemble Remaining Boom Sections o Raise Boom Top Wire Rope Guide o Connect Boom Straps o Install Intermediate Suspension o Install Standard Upper Boom Point o Install Extended Upper Boom Point o Install Rated Capacity Indicator/Limiter o Install Block-Up Limit Control o Install Load Line o Connect Electric Cables o Install Wind Speed Indicator 	<p>Work at heights, pinch points, manual rigging and movement of materials, slips and trips, weather and wind restrictions.</p>	<p>Same as previously mentioned in addition to the following; All work requiring erection crew to access jib lattice works shall ensure they adhere to 100% fall prevention and protection techniques, remove snow or ice from shoes and/or equipment prior to working, monitor the wind/weather conditions as needed.</p>	<p>Crane erection supervisor shall ensure; Rigging inspection and practices/ Fall protection is inspected and used during all fall potentials 6’ and higher/ Erection plan is exactly followed and when deviations are required then job shall stop and new requirements effectively communicated with all personnel. Ensure working surfaces are kept free of slippery conditions and mud, ice, snow is removed.</p> <p>Site supervision shall ensure; Access roads for loads are appropriately compacted and have adequate space to move equipment. Coordinate co-occupation work tasks to ensure other crafts are not in harm’s way or create hazardous conditions for the tower erection.</p>
<p>Fixed Jib Installation</p> <ul style="list-style-type: none"> o Prepare Crane, Boom, and Mast o Install Boom Backstay Straps o Assemble Jib o Install Jib Butt o Install Jib Strap Support Brackets o Install Jib Inserts and Top o Install Upper Jib Point o Connect Remaining Jib Straps o Connect Jib Straps to Equalizers o Attach Jib Stop to Boom Top o Install Jib Strut o Connect Adjustable Links o Raise Jib Strut o Install Jib Load Line o Connect Electric Cords o Install Wind Speed Indicator Assembly 	<p>Work at heights, pinch points, manual rigging and movement of materials, climbing on lattice works of jib, slips and trips, weather and wind restrictions, pulling wire rope cable.</p>	<p>Same as previously mentioned in addition to the following; All work requiring erection crew to access jib lattice works shall ensure they adhere to 100% fall prevention and protection techniques, remove snow or ice from shoes and/or equipment prior to working, monitor the wind/weather conditions as needed.</p>	<p>Crane erection supervisor shall ensure; Rigging inspection and practices/ Fall protection is inspected and used during all fall potentials 6’ and higher/ Erection plan is exactly followed and when deviations are required then job shall stop and new requirements effectively communicated with all personnel. Ensure working surfaces are kept free of slippery conditions and mud, ice, snow is removed.</p> <p>Site supervision shall ensure; Access roads for loads are appropriately compacted and have adequate space to move equipment. Coordinate co-occupation work tasks to ensure other crafts are not in harm’s way or create hazardous conditions for the tower erection.</p>
			<p>Crane erection supervisor shall ensure;</p>

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1. Demobilize and depart for home portal.	Ground conditions for crane demobilization is proper compaction and there is room for setup, tractor-trailer access is appropriate for crane setup, co-occupation of area by other crafts, struck by hazards, pinch points while setting counterweights, overexertion hazards while removing mats, slips and trips on trailer and crane decks, wind/weather restrictions.	Keep area housekeeping and materials out of area, keep fingers out of pinch point areas use taglines and pry bars to manipulate materials. Control work zone and demobilization area.	Rigging inspection and practices/ Ensure working surfaces are kept free of slippery conditions and mud, ice, snow is removed. Site supervision shall ensure; Access roads for loads are appropriately compacted and have adequate space to move equipment. Coordinate co-occupation work tasks so other crafts aren't in harm's way
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Additional Comments (include any additional observations or comments on this job task below)

All personnel shall review the job safety analysis prior to work activity and sign below. Perimeter of work area shall have yellow caution or red warning tape installed to prevent any unnecessary jobsite personnel being exposed to these hazards.

PRINT	SIGNATURE

Assembly/Disassembly Director:

Date: