

Job Safety Analysis

Use These Forms Before You Begin Any Job to Alert You of Any Hazards That May Exist

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HTC/ATC Crane Assembly

Customer Name:	Job Location:	Unit #:	Job#:
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REQUIRED PERSONAL PROTECTION EQUIPMENT:	MSDS(s) ASSOCIATED WITH THE JOB:
Hard hat, ear plugs, safety glasses with side shields, gloves, steel-toed boots, fall protection & all other required site-specific personal protective equipment.	Chemicals are generally used on the crane or stored on Service trucks.

To improve the readability and comprehension of this field document, we have detailed all common hazards and the recommendations for safe work at the beginning of this JSA. It is understood and assumed that any or all of these hazards may become relevant at any time during the assembly of this crane. This JSA is to be used in conjunction with the operator's manual. If there is a discrepancy between the two, the operator's manual takes precedence.

Common Hazards	Safe Job Practices
<ul style="list-style-type: none"> • Slips, Trips, and Falls 	<ul style="list-style-type: none"> • A personal fall protection system is mandated when employees are exposed to falls greater than 6 feet. • To reduce the risk of slipping, non-skid material (sand in paint) has been applied to painted walkways and platforms. However, walkways and platforms can be slippery when wet and oil or grease spilled on them. Keep walkways and platforms clean and dry to prevent slipping on them. When non-skid material wears out, reapply it • Wear shoes with a highly slip-resistant sole material. Clean any mud or debris from shoes before entering the crane cab or climbing onto the crane. • Do not use the top of the mast, boom, or jib as walkways (unless they have optional catwalks). • Use both hands and handrails, steps, and ladders provided to climb onto and off the crane. • Lift tools and other equipment that cannot be carried in pockets or tool belts onto and off cranes with hand lines or hoists. • Boom and gantry are not intended as ladders. DO NOT attempt to climb the latticework of the boom or gantry to get to maintenance points.
<ul style="list-style-type: none"> • Crushing Injury Hazard 	<ul style="list-style-type: none"> • Barricade all accessible areas to the crane so personnel cannot be struck or crushed when upperworks is swung. • Do not climb on or off the crane while the upper works are swung or the crane is being traveled. • Signal operator that you need to climb on or off the crane. • Operator: do not swing or travel while personnel climbs on or off the crane. Stop swing and travel motions. Apply the swing brake and turn on the Travel Brake. • Use of dedicated spotters and signal persons when flying objects with cranes. • Use of tag lines when a rotating load may become a hazard.
<ul style="list-style-type: none"> • Struck by/ Caught Between/Pinch Point Hazards 	<ul style="list-style-type: none"> • Hard Hats and Safety Glasses shall be worn at all times during the assembly/disassembly of this crane. • Never handle wire rope with bare hands. Always wear heavy-duty gloves to prevent being cut by broken wires. • Use extreme care when handling coiled pendants. The stored energy can cause coiled pendants to uncoil quickly with considerable force. • Do not attempt to maintain or repair any part of the crane while the engine is running unless necessary. • If the engine must be run, keep your clothing and all parts of your body away from moving parts. Maintain constant verbal communication between the person in control and the person performing maintenance or repair procedures. • Do not use your hands to check for air and hydraulic oil leaks • Relieve pressure before disconnecting air, coolant, and hydraulic lines and fittings. • Do not attempt to lift heavy components by hand. Use a hoist, jacks, or blocking to lift components.

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	<ul style="list-style-type: none"> • Store tools, oil cans, spare parts, and other necessary equipment in toolboxes. Do not allow these items to lie loose in the operator's cab or on walkways and stairs. • Use of dedicated spotters to direct and signal all vehicle traffic. • Before a crew member goes to a location that is out of view of the operator and is either in, on, or under the equipment or near the equipment (or load) where the crew member could be injured by the movement of the equipment (or load), the crew member must inform the operator that they are going to that location. Where the operator knows that a crew member went to an area covered by the above sentence, the operator must not move any part of the equipment (or load) until the operator is informed by a prearranged communication system that the crew member is in a safe position.
<ul style="list-style-type: none"> • Designate Assembly Area 	<ul style="list-style-type: none"> • Select an excellent location to assemble the crane • Ensure ground conditions are firm, level, and uniformly supportive in compliance with the engineer's soil data. • Select an area large enough and free of any underground or overhead obstructions or hazards to accommodate the crane, assist the crane, select boom and jib length, and the movement of trailers. • The erection area should not interfere with or pose a hazard to other onsite personnel. Erection area to be marked and barricaded. • There should be at least 2 feet of clearance between the counterweights and the nearest obstacle. • Ensure there is enough timber blocking to support the boom when it is being assembled. • Ground support, as specified in the erection drawings, is complete and in compliance with the stated requirements.
<ul style="list-style-type: none"> • Assist Crane Requirements 	<ul style="list-style-type: none"> • Site restrictions and manufacturer specifications shall size the assist crane. • Site conditions and matting must be suitable for maximum loading of the assist crane. • The assist crane will be assembled according to the manufacturer's instructions.
<ul style="list-style-type: none"> • Rigging Failure 	<ul style="list-style-type: none"> • Rigging shall be inspected per applicable OSHA/ASME standards, at least daily and before use. Examples of unserviceable rigging include bird caging, kinks, and broken wires.
<ul style="list-style-type: none"> • Electrical Shock Hazard 	<ul style="list-style-type: none"> • Ensure adequate clearance from power lines is continuously maintained per ASME B30.5.
<ul style="list-style-type: none"> • Operational Test Loads (if required) 	<ul style="list-style-type: none"> • Test loads shall not exceed 100% of the manufacturer's load rating. A Regional Vice President must approve any request to load test a crane above the manufacturer's load rating. • Test loads shall never exceed 110% of the manufacturer's load rating. • Test loads must be freely suspended. Testing using static loads is prohibited. • All rigging must be inspected and approved before load testing. • The weight and radius of the load test shall be determined by: <ul style="list-style-type: none"> - Manufacturers load chart. - Site Conditions. - Winch line pull (i.e., the test load must be lifted while staying within the line pull capacity of the drum being utilized).

Note: A trainee, apprentice, or oiler will not operate any crane during the assembly, reconfiguration, and/or disassembly process or while the crane is in bypass.

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Crane Assembly

BASIC JOB STEPS	POTENTIAL HAZARDS	SAFE JOB PRACTICES
<ul style="list-style-type: none"> • Drive HTC/ATC on site and begin set up for assembly. <ul style="list-style-type: none"> ○ Switch off Slewing gear freewheel ○ Switch off boom floating position ○ Switch off boom pre-tensioning ○ Connect handheld control ○ Extend all outrigger beams to the necessary span and secure Place pads and set outriggers ○ Level the truck crane 	<p>See Common Hazards Above</p> <p>Truck crane structure must not be more than 4-1/2” out of level while jacking.</p> <p>Risk of overturning when slewing the superstructure! With some outrigger spans, slewing is only permissible with certain counterweight versions and boom positions</p>	<p><i>See Safe Job Practices Above</i> Refer to operator’s manual for detailed procedures.</p> <p>Monitor levels. Ensure cribbing and base are is level.</p> <p>Use of designated spotter to direct truck drivers.</p>
<ul style="list-style-type: none"> • Start off loading counterweights and stage for stacking on deck of crane <ul style="list-style-type: none"> ○ Position trailer carrying Counterweights directly under hook ○ Connect counterweights per manufacturers designated lifting points ○ Lift counterweights and stage for assembly 	<p>See Common Hazards Above</p> <p>Danger of accidents if used improperly! Overloading the crane Falling hazards Risk of accidents due to falling counterweight parts Danger of struck by hazard from trailer.</p>	<p>Refer to operator’s manual for detailed procedures. <i>Use of designated spotter to direct truck drivers</i></p> <p>Attach the various counterweight parts only to the intended slinging points and use lifting gear of sufficient lifting capacity.</p> <p>Only lift the counterweight sections and blocks one by one, since the slinging points are not designed for lifting stacked counterweight sections. Ensure area is cleared before moving any equipment</p>
<ul style="list-style-type: none"> • Begin setting counterweights. <ul style="list-style-type: none"> ○ Check whether the truck crane is supported with the required outrigger span as specified in the Lifting capacity table ○ Enter the current rigging mode on the SL ○ Assemble required counterweight version – lift counterweight parts one after the other ○ Slew the superstructure into the rigging range and set down the counterweight onto the counterweight platform ○ Position the 11 t base plate in such a way that the recesses grip into the retaining sheets ○ For larger counterweight versions, now set additional counterweight sections onto the 11 t base plate. 	<p>See Common Hazards Above</p> <p>Danger of overturning when slewing with a rigged counterweight Danger of crushing when setting down the counterweight parts! Danger of crushing when slewing the superstructure Risk of accidents due to falling counterweight parts</p>	<p><i>See Safe Job Practices Above</i> Refer to operator’s manual for detailed procedures.</p> <p>When a counterweight version is rigged, check whether slewing is permitted with the current rigging mode (outrigger span, working radius). Correct the rigging mode if necessary</p> <p>Make sure any helpers keep a sufficient distance away from the counterweight parts with any parts of their body when setting down the counterweight parts.</p> <p>Remove all objects from the counterweight platform that could become jammed or crushed!</p> <p>Make sure nobody uses the access ladders (helpers for example) while you lift a counterweight section onto the counterweight platform.</p>

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<ul style="list-style-type: none"> • Lift counterweights into place from the deck <ul style="list-style-type: none"> ○ <i>To lift and lower the counterweight, the lifting cylinders are screwed into the 11 t base plate.</i> ○ <i>Lift counterweights into place</i> 	<p>Danger of crushing when lifting and lowering the counterweight</p> <p>Note: Always lift and lower the counterweight in automatic mode; otherwise slewing with extended lifting, cylinders will be blocked</p>	<p>Before lifting or lowering the counterweight, remove all objects from the</p> <p>The top counterweight section could be clamped or crushed.</p> <p>Ensure nobody is on the counterweight platform while the counterweight is being lifted or lowered.</p>
<ul style="list-style-type: none"> • Inspect crane <ul style="list-style-type: none"> ○ <i>Daily inspection to be completed before the crane can be turned over for operation.</i> 	<p>Slips trips and falls Tripping hazards</p>	<p><i>See Safe Job Practices Above</i></p> <p><i>Refer to the operator's manual for detailed procedures.</i></p>

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Additional Comments (include any further observations or comments on this job task below)

All personnel shall review the job safety analysis before work activity and sign below. Yellow caution or red warning tape shall be installed in the perimeter of the work area to prevent unnecessary jobsite personnel from being exposed to these hazards.

PRINT

SIGNATURE

Assembly/Disassembly Director: _____ Date: _____