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| **Customer Name:**  | **Job Location:**  | **Serial #:**  | **JDS #:** |

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| **REQUIRED PERSONAL PROTECTION EQUIPMENT:** | **SDS(s) ASSOCIATED WITH THE JOB:** |
| Hard hat, Safety glasses, Gloves, Safety Vests, Work Boots, & all other required site specific personal protective equipment.***To improve 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 time during assembly of this crane, any or all these hazards may become relevant. The requirements of 29CFR 1926 Subpart CC have been included in this JSA for OSHA compliance.*** | Chemicals normally used on the crane or stored on Full Tilt trucks. |

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| **Common Hazards** | **Common Safe Job Practices** |
| * **Slips, Trips, & Falls**
 | * Use of personal fall protection system is mandated when working where employees are exposed to falls greater than 15 feet. OSHA 1926.1423(e)(1)(iii) on horizontal lattice booms where the fall distance is 15 feet or more.
* 1926.1423(e)(2) while at work station on any part of the equipment (including the boom, of any type), except when the employee is at or near draw-works (when the equipment is running), in the cab or on the deck.
* 1926.1423(f) for assembly/disassembly work, the employer must provide and ensure the use of fall protection equipment for employees who are on a walking/working surface with an unprotected side or edge more than 15 feet above a lower level, except when the employee is at or near draw-works (when the equipment is running), in the cab, or on the deck.
* 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 when oil or grease is spilled on them. **Keep walkways and platforms clean and dry to prevent slipping on them.** When non-skid material wears out, reapply it.
* Ensure boots are free from any mud or debris before entering the crane cab or climbing onto crane.
* Do not use top of mast, boom, or jib as walkways (unless they have optional catwalks).
* Maintain three points of contact while climbing on and off of crane and use handrails, steps, and ladders provided.
* Lift tools and other equipment which cannot be carried in pockets or tool belts onto and off crane with hand lines or hoists.
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| * **Crushing Injury Hazard**
 | * Barricade all accessible areas to crane so personnel cannot be struck or crushed when upper works is swung.
* Signal operator that you need to climb on or off crane.
* Use of dedicated spotters and signal persons when flying objects with cranes. Use of tag lines when a rotating load may become a hazard.
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| * **Struck By/Caught Between Hazards**
 | * Hard hats and Safety Glasses shall always be worn 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.
* Do not attempt to maintain or repair any part of crane while engine is running, unless absolutely necessary.
* If engine must be run, keep your clothing and all parts of your body away from moving parts. **Maintain constant verbal communication between person at controls and person performing maintenance or repair procedure.**
* 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, jack, or blocking to lift components.
* Store tools, oil cans, and other necessary equipment in tool boxes. Do not allow these items to lie around loose in 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 movement of the equipment (or load), the crew member must inform the operator that he/she is going to that location. Where the operator knows that a crew member went to a location covered by the above sentence, the operator must not move any part of the equipment (or load) until the operator is informed in accordance with a prearranged system of communication that the crew member is in a safe position.
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| * **Designate Disassembly Area**
 | * Select a good location to disassemble the crane.
* Ensure ground conditions are firm, level and uniformly supportive in compliance with engineer’s soil data.
* Select an area large enough and free of any underground or overhead obstructions or hazards to accommodate the crane, assist crane, selected boom and jib length, and the movement of trailers.
* There should be at least 2 feet of clearance between the counterweights and nearest obstacle.
* Ensure there is enough timber blocking to support the boom when it is being disassembled.
* Ground support as specified in the erection drawings is complete and in compliance with the stated requirements.
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| * **Rigging Failure**
 | * Rigging shall be inspected per applicable OSHA/ASME standards, at a minimum, daily and prior to use. Examples of unserviceable rigging would be bird caging, kinks, and broken wires.
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| * **Electrical Shock Hazard**
 | * Ensure adequate clearance from power lines is continuously maintained per OSHA 1926.1407-1926.1411.
 |
| * **Inadvertent Kill Switch Activation**
 | * Operator’s need to note the proximity the emergency kill switch is to their legs while sitting in the cab as to not inadvertently activate this switch during crane operations.
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| * **Assist Crane Requirements**
 | * The assist crane shall be sized in accordance with site restrictions and manufacturers specifications.
* Site conditions and matting must be suitable for maximum loading of the assist crane.
* Assist crane will be disassembled in accordance with manufacturer’s instructions.
* Assist crane is required to have annual/daily inspections.
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| **BASIC JOB STEPS**  | **POTENTIAL HAZARDS** | **SAFE JOB PRACTICES** |
| * **Removal of rigging and hook block**
	+ Boom down
	+ Roll rigging up in basket and lay on trailer
	+ Remove spreader beam
	+ Place block on trailer
	+ Remove becket and two-block
	+ Hand pull cable through block
	+ Roll cable back on to drum
	+ Pull trailer out
	+ Strategically place boom on ground
 | See common hazards above Crushing/Pinch Point hazardsEquipment damage***Tipping Hazards***Struck by hazardTake extreme care not to hit jacks with trailer. | See common safe job practices aboveLevel crane to prevent tippingUse designated spotter when flipping mast Two-person job voice communicationLevel crane to prevent tipping Use designated spotter when removing trailer |
| * **Laying down pendent bars/rigging to butt**
	+ Boom down
	+ Laying pendent bars back into saddle
	+ Place assist cylinder in correct position
	+ Disconnect pendent bars at 20ft section
	+ Boom up
	+ Raising assist cylinder out of position
	+ Continue raising boom to correct position for connection point
	+ Connect to boom assembly/disassembly connection point
	+ Get rigging tight
 | See common hazards aboveCrushing/Pinch Point hazardsStruck by hazard | See common safe job practices above Use of designated spotter to direct operatorMake sure crane is level, adjust jacks as required.Use of designated spotter to direct truck drivers, avoid hitting crane while backing trailerUse voice communication/hand signals Make sure side frames are pinned off |
| * **Disconnecting electrical/hydraulic**
	+ Shut off crane
	+ Disconnect data cable in head section and at reel
	+ Remove zip tie
	+ Roll up data cable
	+ Place wind meter in cab
	+ Disconnect back stop hydraulics
	+ Disconnect remaining data cables
 | See common hazards above  | See common safe job practices above  |
| * **Disconnecting boom to butt**
	+ Knock out bottom pins
	+ Lower boom onto dunnage
	+ Knock out top pins
	+ Slowly back crane away from boom
 | See common hazards above Pinch points/crushing hazardsOperators manual in cab  Struck by | See common safe job practices aboveTag lineHand signal/voice communicationDesignated spotterOperators manual in cab  |
| * **Detach boom butt**
	+ Boom down to change rigging
	+ Place ears on dunnage
	+ Disconnect rigging
	+ Reconnect rigging in desired place for removal of butt section
	+ Boom up to 0 degrees
	+ Swing crane until level side to side
	+ Remove heel pins
	+ Shut off crane
	+ Disconnect hoses
	+ Start crane
	+ Boom down to remove heel section
	+ Place on dunnage
 | See common hazards abovePinch points/Crushing hazardsEquipment damage | See common safe job practices aboveDesignated spotterHand signals/Voice communicationsSee common safe job practices above  |
| * **Disconnecting Pendent bars**
	+ Remove stowed pins and insert into stow position
	+ Remove pin from pendent bar
	+ Move to next section and repeat process
 | See common hazards above Pinch point/Crushing hazards  |  See common safe job practices above Hand signals/Voice communication |
| * **Counterweight removal**
	+ Using auxiliary remote
	+ Raise cylinder to pick up counterweights
	+ Remove pins
	+ Lower counterweights to ground
	+ When counterweights relax on ground remove 4 pins
	+ Raise cylinders to where hanging bars are level with cylinder case
	+ Slowly walk crane away from counterweights
 | See common hazards above Pinch points/Crushing hazardsEquipment damage  | See common safe job practices aboveHand signals/Voice communicationGo slow and don’t rush  |
| * **Boom and Counterweight Disassembly**
	+ Starting with the top counterweights load first two counterweights from each side onto first trailer, strategically placing them on trailer
	+ Next trailer
	+ Pick and place two counterweights onto trailer
	+ See boom and rigging guide in the operator manual for the assembly and disassembly of boom
	+ Get rigging tight on 20ft section
	+ Remove four pins
	+ Swing boom section away and load on trailer
	+ Continue sequence of counterweights and boom until head has been loaded
	+ Trailer #8
	+ Load base counterweight and heel section
	+ Change rigging
 | See common hazards abovePinch points/Crushing hazardsEquipment damage Operators manual in cabPinch points/Crushing hazardsStruck by | See common safe job practices above Hand signals/Voice communicationGo slow and don’t rush Operators manual in cabTag lineDesignated spotter |
| * **Dismantling of Carbody Weights**
	+ Dismantle carbody weights front and rear
	+ Remove outrigger pads from back side of carbody
	+ Load on Trailer
 | See common hazards above Pinch points/Crushing hazards Struck by  | See safe job practices aboveHand signal/Voice communication Designated spotter |
| * **Dismantling of side frame extenders and side frames**
	+ Shut crane off
	+ Unhook hydraulic hoses from side frames
	+ Start crane
	+ Jack crane off ground
	+ Double check level to ensure crane is ready for side frames removal
	+ Boom up to 67.8 degrees on mast angle to tighten rigging
	+ Remove side frame pins
	+ Shut off crane
	+ Unhook hydraulic hoses for pins
	+ Start crane
	+ Raise side frame from super structure
	+ Load on trailer
	+ Boom down and unhook
	+ Boom down to 50 degrees, swing around watching spotter
	+ Repeat steps 1-8
	+ Remove four side frame extenders
 | See common hazards above***Tipping hazard***Pinch points/Crushing hazardsStruck byEquipment damage***Tipping hazards*** | See common safe job practices aboveCheck crane levelHand signals/Voice communicationMake sure crane is level, adjust jacks as required.Use of designated spotter to direct truck drivers, avoid hitting crane while backing trailerDesignated spotterGo slow don’t rushCheck crane level |
| * **Place Base Crane (House) onto trailer**
* Jack base crane up
* Back trailer underneath base crane
* Strategically placing trailer
* Lower base crane onto trailer
* Chain base crane to trailer
* Flip mast to stowed position
* Place operators cab in stowed position
* Place jacks in stowed position
 | See common hazards above Struck by***Tipping hazards***Pinch points/Crushing hazards | See common safe job practices above Check crane levelDesignated spotterLevel crane to prevent tippingUse designated spotter when flipping mast Hand signals/Voice communication  |

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| **Additional Comments (Include any additional observations or comments on this job task below)** |
| **All Personnel shall review and understand the job safety analysis prior to work activity starting and sign below.**  |

 **Print Signature**

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**Assembly/Disassembly Director Signature :\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
*This Job Safety Analysis is intended to comply with “Assemble/disassembly – employer procedures – general requirements”, Cranes and Derricks in Construction, 73 Fed. Reg. 59924 (to be coded at 29C.F.R. pt. 1926 (proposed October 9, 2008), to be used by Full Tilt Crane Services,
and its respective employees only and shall not be distributed to third parties without the express written consent by Full Tilt Crane Services.***