



Overhead Crane & Monorail Safety



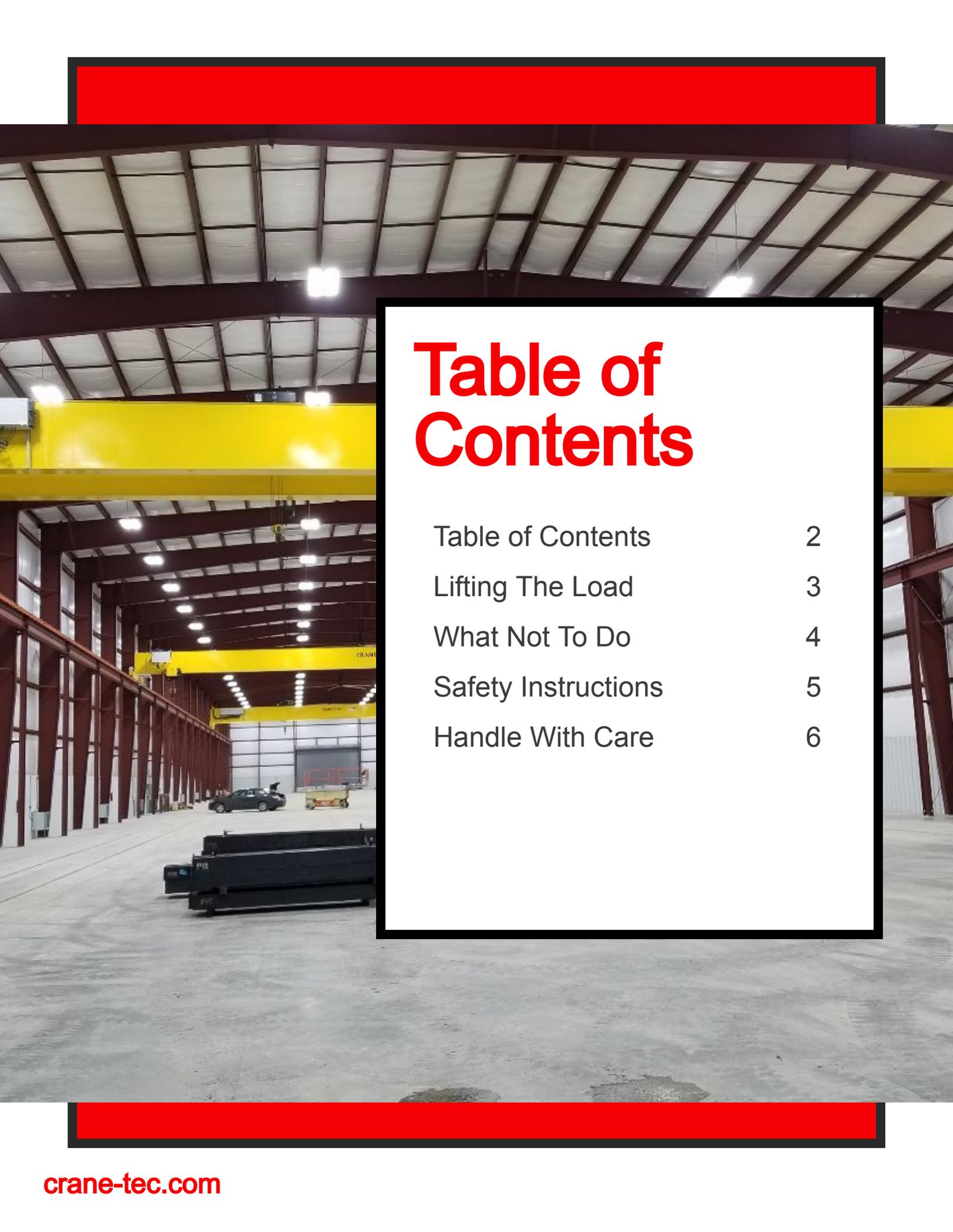


Table of Contents

Table of Contents	2
Lifting The Load	3
What Not To Do	4
Safety Instructions	5
Handle With Care	6

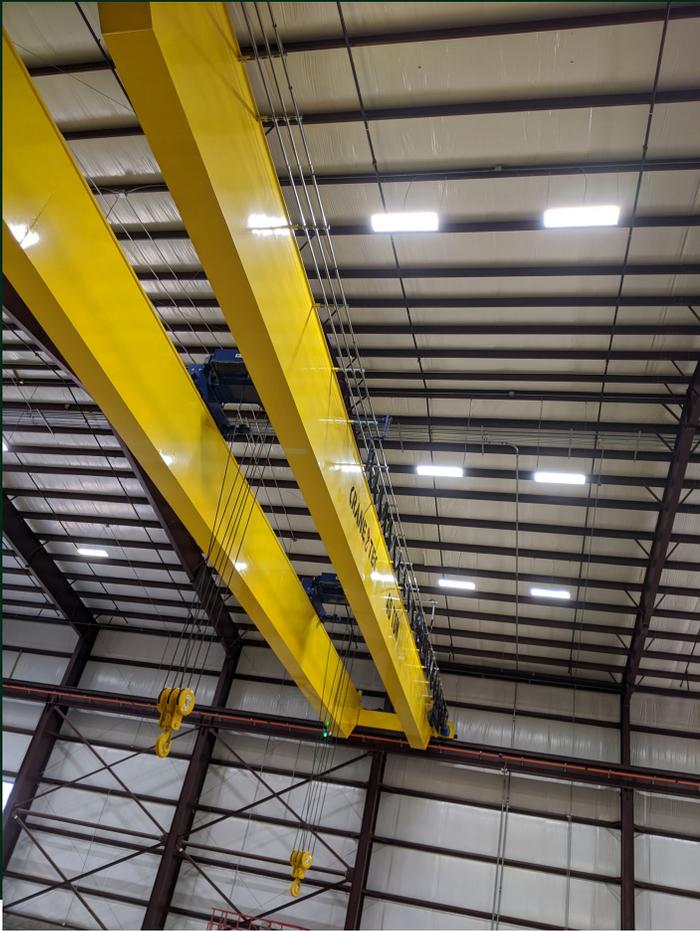
Before you lift the load

The conditions at the operating site for the hoist must correspond to the operating conditions for which the hoist is designed (including indoor/outdoor use, ambient temperature/radiance temperature, wind, dust, splashing, snow, water, handling hazardous materials, fire risk, etc). Check that there is adequate lighting at the operating site for operating the hoist safely and efficiently. If the control position is located on the hoist, check that you can exit from the hoist safely in respect of the hoist's position on the runway. Be sure there are adequate service platforms on the hoist and adequate equipment at the operating site for servicing and inspecting the hoist. Check that the hoist meets the applicable safety requirements. As always, be certain that the hoist meets the applicable operating requirements and ensure that the components, electrical connections and steel structures of the hoist have been inspected and certified as defect-free. Also determine if the test loading, test drive and commissioning inspection have been properly carried out and that the handover log has been properly completed.

Safety instructions for operating the hoist:

1. Read all instructions supplied with the hoist. The hoist operator must be familiar with the instructions and follow them. The hoist operator must be competent for the task, must know all the controls of the hoist and must be able to use them correctly and safely. The hoist operator must know how to operate the hoist and must be aware of any risk of accident posed by the operating site. Learn how to operate the hoist in safe conditions before actually starting to work with the hoist. Learn how to control the movements of the hook and load. Use the Hoist Owner's Manual to familiarize yourself with the hoist and hoist controls.
2. Familiarize yourself with the signs and warnings marked on the hoist. The direction symbols for hoist motions are the same as the symbols marked on the push button controller. Check the direction symbols in the Hoist Owner Manual. Learn the hand signals for indicating hoisting motion, trolley traversing and crane travel. The hoist operator should only accept hand signals from a person authorized to give them. Ensure that there is adequate lighting as well as proper tools and equipment for the working site and that appropriate working procedures are established.
3. If the hoist is provided with motion locking devices (EG, rail clamps), open the locking devices before using the hoist. Before switching on the main current, ensure that all controls are in the 0-position. Connect current to hoist by turning on the safety switches for main current and for control current.
4. Close the main contractor by pressing the "START" push button. If the push button incorporates a selection switch, ensure that the selection switch is in the correct position before using the control push buttons. Check that all safety switches operate. Check that the breaks operate. A hoist that operates outdoors or in cold premises which has been out of service for a longer than normal period of time should always be first started to move the hook upwards in order to avoid damage to the roping from freezing of the rope guide.





In order to get the maximum lifetime out of a hoist, you want to be sure that you are using it correctly. Using the hoist for projects out of the hoist group classification for which it was designed changes the lifetime of the product. Before hoisting a load, be sure to determine a safe and effective path for it to travel to ensure that the load will not collide against objects or people. Also, check that no servicemen or unauthorized persons are on the crane and that the rails and power cables are clear of obstructing objects. Before hoisting, check that the hoisting devices are securely positioned on the bearing surface of the hook and that the safety catch on the hook is closed.



Next, you want to ensure that the load's mass center is on the center line of the hook forging so that the load does not bend the hook neck. Make sure that the force is applied only to the hook's bearing surface (the lowest point of the hook) because if force is applied to other parts of the hook it will cause undesired stresses. Forces on ramshorn hooks have to be equal on both bearing surfaces. Before hoisting, check that the load is balanced and safely fastened at the lifting points and also be sure that the load cannot slide, slip or detach itself when suspended the lifting operation.

In addition, you need to confirm that the ropes are perpendicular and that the hoist is positioned perpendicularly above the load to be lifted. A load must not be hoisted or dragged along the ground in a way that causes side pull on the roping unless the hoist is designed and manufactured for this purpose. When using a lifting accessory (sling, belt, etc.), always follow the instructions provided by the lifting accessory manufacturer. Finally, if two cranes are needed to handle a load, a balancing beam must be used to equalize the loading. Combined hoisting with two cranes must be supervised by a foreman knowledgeable about cranes or by a crane specialist who is in charge of



1. Do not lift people on the hook or load. Lifting people with a hoist is prohibited unless the hoist is designed and manufactured for that purpose (this must always be agreed with the supplier of the hoist). Do not go under the hook or a load. Do not move the hook or load over a person. A load must never be lifted in a way that can injure a person if the load drops. Do not operate the hoist if you know that medication, an illness, or other such handicap impairs your alertness or working ability.
2. Do not lift a load that is fastened to its base or that is heavier than the maximum permissible load for the hoist or lifting accessories. A jerking or static load can cause an overload. A hoist may only be used for those loads and load combinations, and at those speeds, for which the hoist has been designed and manufactured. Raise the load high enough to prevent it from hitting objects during travel. However, do not raise it higher than is necessary for the situation. Do not raise the hook to the top safety limit.
3. During hoisting and travel motion, ensure that the hook, the load, and the crane and its moving parts do not collide with objects or people. If the hoist is provided with a horn, sound the horn when you move the load in the vicinity of people who are not paying attention to the moving load. Do not move the load until you have received a signal from the person attaching the load to the hook or lifting appliance. Do not use the overload protection for weighing the load.
4. Stop all hoisting and travel motions before the safety limit switches. Do not adjust or bypass the limit switches or warning devices in order to go past motion limits. Do not use the hoist if the limit switches are inoperative. If the manually-adjusted backup limit switch in the hoist has triggered, call a serviceman to the hoist and ask him to determine why the normal safety limit switch did not function. Do not use the hoisting rope as a lifting lug.
5. Do not use the hoist if there are visible defects in; or damage to, the hoist, the hoisting rope, or any other hoist structure or hoist function. Stop operating the hoist if it operates abnormally (for example, a high noise level, uneven starting, or malfunctions). Using faulty equipment is strictly prohibited. If defects have been noticed in the hoist, carry out the necessary inspections and servicing. Ensure that the hoist operates properly before you start to use it again. Do not use the limit switches to stop the motions of the hoist. Hoist motions must be stopped with the pushbutton controller or other control device intended for the purpose.
6. Use the proper pushbuttons intended for controlling the hoist. If you feel you are losing control of the hoist motions, press the emergency stop button. In a potentially dangerous situation all hoist motions can be stopped by pressing the emergency stop button, but do not use the emergency stop function unnecessarily. Ensure that it is safe to re-commence working after the emergency stop button has been pressed. Avoid short, jerky motions. Unnecessary short starts can cause the hoisting motor to overheat quickly. The last controller step is for normal drive. The intermediate steps are normally used for short durations only. Do not switch the controller back and forth unnecessarily because it causes wear. Avoid violent collisions into other hoists or against the buffers.
7. Do not leave a suspended load unattended.
8. Do not lower the hook so far that the ropes become slack.
9. Do not pull a load from the side. Lower the load with the ropes perpendicular.
10. Do not use hoist motions to remove the load from the hook.
11. Do not weld on a hook that is not isolated. Do not fasten a welding electrode to the hoisting rope.
12. Do not change the size of fuses. A qualified electrician should carry out all electrical work.

Safety Instructions- Finishing Work With the Hoist

1. Raise the empty hook or loading device high enough to avoid it causing a hazard to traffic, but not to the top safety limit.
2. Leave all the controls in the O- position
3. Press the emergency stop button to open the main contractor.
4. Turn off the safety switches for control current and main current.
5. Close any mechanical brakes such as rail clamps, etc.
6. Inform your foreman of any defects you have noticed.
7. Inform the next operator of all abnormalities in equipment operation you have noticed.



Safety Instructions- Servicing the Hoist



1. Carry out regular inspections and preventative maintenance in compliance with the instructions. Keep a record of inspections and servicing. Regular servicing and inspection procedures are necessary for the safe and efficient operation of the hoist. In uncertain or unusual cases, contact the supplier of the hoist.
2. Pay special attention to the operation of the brake and limit switches, and to the condition of the hook, rope and pushbutton controller. It is essential that safety devices (overload protectors, limit switches, etc.) work correctly and are in full operating order because they safeguard against human error.
3. Use trained servicing personnel authorized by the manufacturer of the hoist for servicing the hoist. The person servicing the hoist must be competent for the task and must be familiar with the servicing and inspection instructions.
4. Use only genuine spare parts approved by the manufacturer of the hoist.
5. Any modifications or additions made to the hoist's structures or performance values must first be discussed with the supplier of the hoist.
6. Any inspections and repair operations carried out on the hoist after an overload or collision must be discussed with the supplier of the hoist.

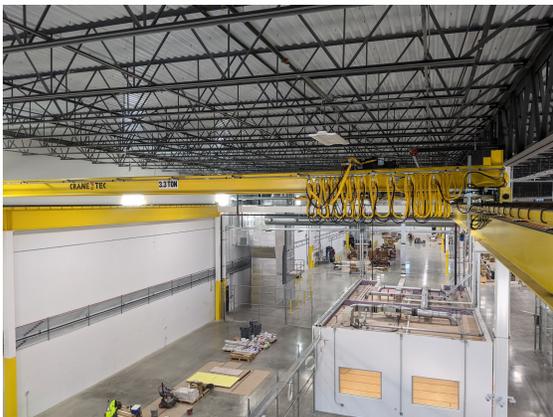
Handle With Care CASE STUDY

Crane-Tec was called upon to furnish, install, start up and test 3-ton top running double girder cranes and runway systems. The cranes were to be built to the customers stringent handling requirements.

Special Considerations:

- The product to be moved (jet fuselage assemblies) must be handled with extreme care.
- The travel of the crane to be limited to specific areas in the crane bays.
- Safety of the different crane operators

Our Team Approach



Crane Tec, working with the end user and General Contractor, evaluated the material handling requirements. Several options were incorporated into the crane system for prevention of damage to the jet fuselage assemblies:

- Anti-sway controller
- Micro speed variable speed hoist
- Anti-collision devices
- Crane zone review – with override
- Radio remote controller

Results

Crane Tec supplied the customer with state-of-the-art crane technology. Safe, precise means were provided for handling the jet fuselage assemblies.

