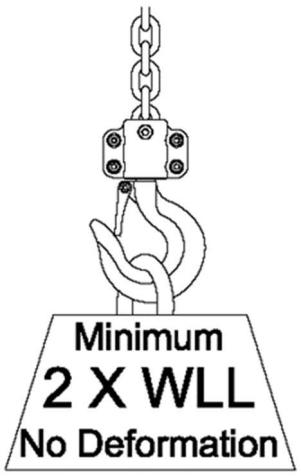
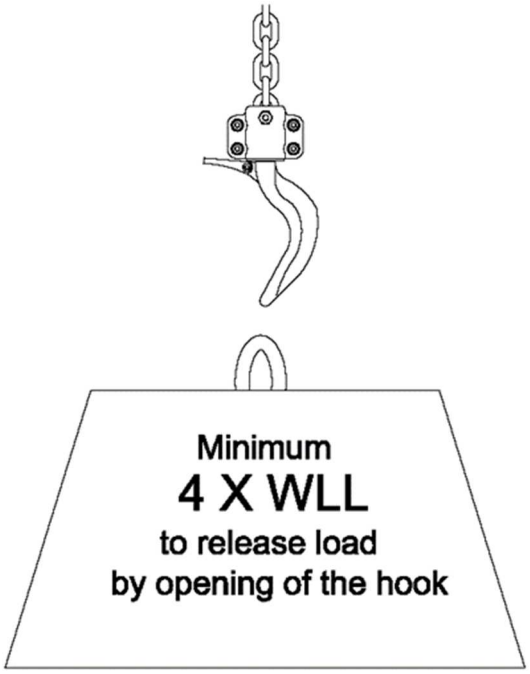
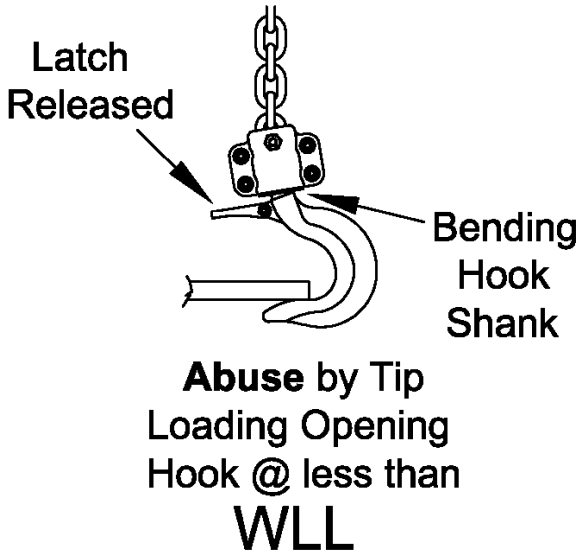
Why are hoist found with stretched open hooks and is there a safety concern?



Hook Design: In North America, all standard hoist hooks are designed per ASME B30 Safety Standards. For manually operated hoist this standard requires hooks to fail by opening until the load is released at a minimum of 4 X WLL (Working Load Limit or Rated Capacity). Also required is that hooks shall not have a permanent deformation at a minimum load of 2 X WLL. European EU/CE standards are similar. These design requirements are verified by test loads being placed in the saddle of the hook with the hook and hoist free to form a straight line between the hooks.



Hook Failures from Abuse: What causes hooks to be found in the workplace; sprung open, bent at the shaft or tip with the latch flipped outward?



The simple answer is abuse that happens for many good reasons none of which are justified if proper rigging and lifting accessories are available. Unlike permanent applications, temporary construction and maintenance applications may not be well planned. Hoists or pullers are made available to handle a load, many times without proper lifting fixtures or attachment lugs being in place. Workers will utilize the hoist by attaching them to anything by anyway that may support the load. This normally results in an experienced and conscious decision to sacrifice the hook and sometimes the hoist to accomplish the task. The cost and time lost may be far greater than sacrificing a hook.

What are the risk? Inspections may reveal hook issues that should always be a concern. However, when the workers are confronted it is unlikely abuse will be given as the reason. Admitting abuse may reveal a violation of safety which could result in a fine for the company and or reprimand of the workers involved. This puts pressure on all associated to place blame elsewhere like with the hooks as being inferior. If successful in shifting blame to the hook then no one in the workplace is held responsible.

Hook Abuse and Safety Concerns

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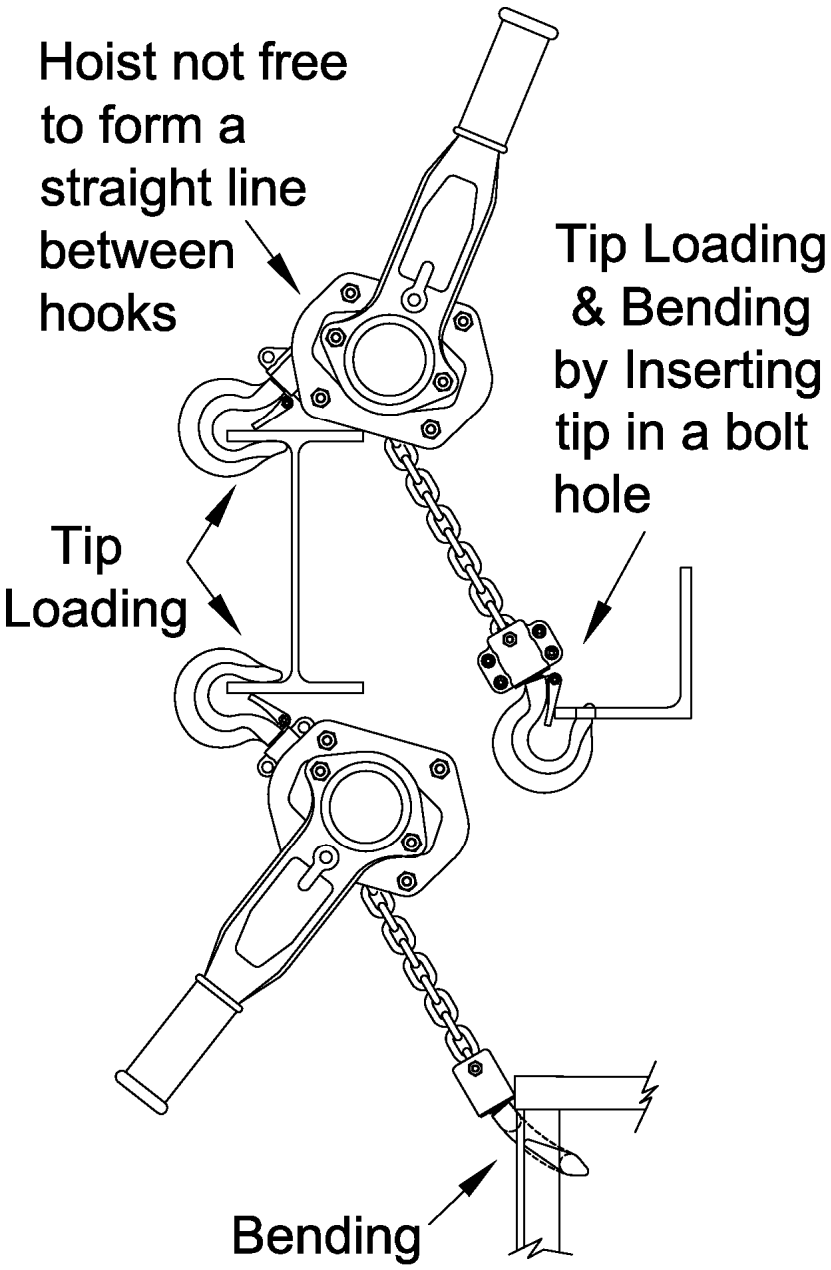
Are stretched open hooks due to overloading? Opening of hooks is a sign of severe overloading but the most likely cause is improper attachment of the hook. If a proper attachment is not available then the hook may be improperly attached causing tip loading and or bending. Tip loading may result in the hook being pried open at a load of less than rated capacity. This is possible because the force exerted by the load is multiplied as the hook is loaded outward of the saddle area. Some examples of hook abuse are shown here. Lever chain hoist are illustrated but hand chain hoist can be abused in a similar manor.



Lower hooks can be abused same as the top but are also subject to side loading. Side loading happens when the hook is attached in a way that causes the hook and shaft to cause bending. Workers may notice the hook bent and try to straighten it by installing it in reverse to bend it back into shape. This can bend the hook shank back and forth weakening it causing failure later when the hook is attached in a normal way. This is a very serious safety concern as the hook shank can be damaged in the area concealed by the hook block. Failure without warning from a broken shaft, that was damaged in a previous application, is difficult to diagnose leaving some to question the integrity of the hook. Periodic Inspection of the hook shanks for cracks and imperfection may not be possible as many hoist brands have riveted hook block assemblies that cannot be disassembled. AMH hoist are designed with bolted hook blocks that permit 100% inspection of the hooks per ASME B30 safety code and for ease of repair by replacing the hook and not the entire hook and block assembly. **The safest and best hoist for the workplace may be one that is easy to inspect and repair.**

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