

# HOIST SAFETY

## *How to inspect, test and maintain*

**F**or the hoist user, long term, dependable performance is easy to achieve by following simple guidelines.

ASME standard B30.21 requires both frequent and periodic inspection of hoists. Chance defines frequent as inspection before every use. It takes less than a minute and your operation and maintenance manual is a perfect guide.

When inspecting a hoist, look for signs of missing, bent or broken components. Are parts rusty? Do the controls function properly? Does the hoist operate as it should before beginning any lifting job?

Periodic inspections require more detailed examination. Following are some guidelines for the various Chance hoists available:

### **Link and roller chain hoists**

For a link or roller chain-hoist, remove the handle, unloader plate and dogs. Use solvent to thoroughly remove old grease. Before continuing, let the hoist dry.

Look at the handle for bending, cracks, deformation, or signs of cheater use. Inspect the “stop” areas for impact damage.

Look closely at the handle dog for wear or damage to the end that engages the ratchet teeth. Check the fit between the “dog” and its pivot pin. Is it free to move but without excessive clearance? Check the “release key” for damage. Is the torsion spring worn or bent? Look closely at the outer handle rim where the “wear ring”



**Dogs damaged by impact**

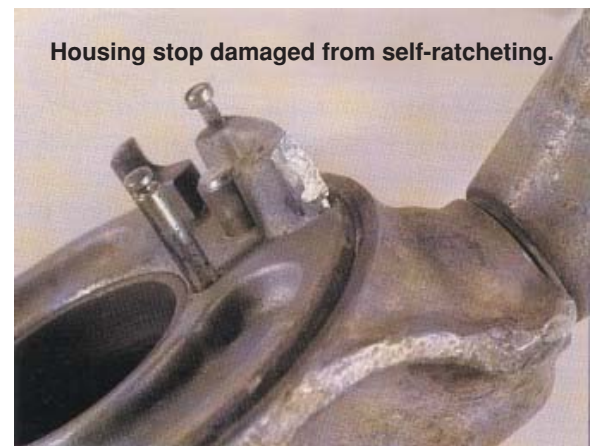
rides. Are there nicks? Bends? Both can gouge the ring.

Look at the housing assembly, especially the “holding dogs,” for damage just like the damage you looked for in the handle. Check the two extension springs for wear or opening of the hook ends.



**Shaft pocket damage.**

**Ratchet tooth impact damage.**



**Housing stop damaged from self-ratcheting.**



**Handle stop damaged from self-ratcheting.**



**Handle rim deformed by dropping.**



**Load hook assembly bent from side load.**

Inspect the unloader plate for such wear as rounded corners and notches in the “window.” If there is damage, replace the unloader plate. Inspect the “stop” areas of the housing casting for impact damage. Carefully check the teeth on the ratchet wheel. There should be no signs of wear or rounding of the top corners or undercuts in the teeth.

Remove the shaft and look for wear or chipping caused by debris carried into the housing by the chain. Is the chain damaged? Check hooks for signs of bending or opening. Check the fit of the hook shank mounting hole for wear caused by side loading. Inspect the hook nuts and pins that prevent the nut from loosening. Ensure that hook safety latches are in place and functioning properly.



**Damaged unloader plate.**

After all worn or damaged parts have been identified and replaced, the hoist is re-assembled in reverse order of disassembly.



**Housing with bent hook and stop damage.**

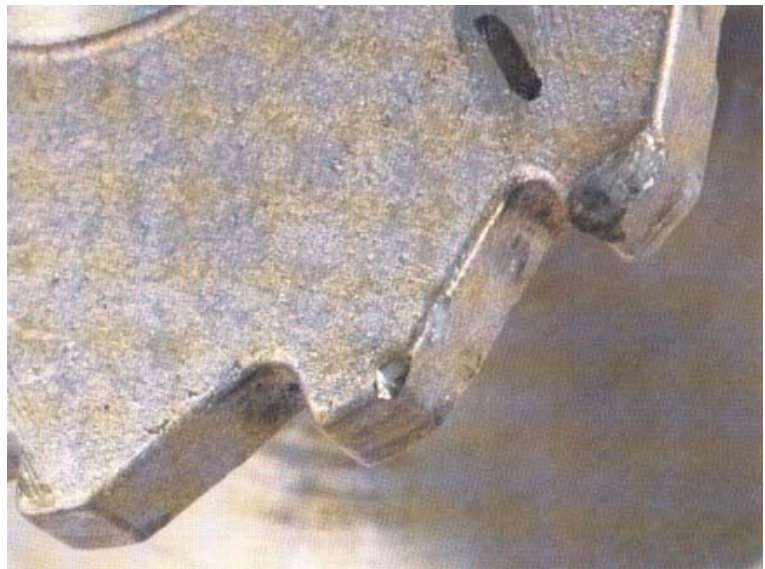
## Nylon-strap hoists

When inspecting fixed capacity 1 or 2 ton nylon-strap hoists, follow the same steps you followed with the chain hoist except for the web strap and spool. The ASME specification contains a good section on web strap inspection, replacement and maintenance.

If the strap has signs of torn threads, stitching, frayed edges, discoloration, cuts or general wear, replace it. Do not attempt to clean the strap. If it is dirty or contaminated, replace it.

Chance convertible-capacity nylon-strap hoists are easy to maintain. The open-frame construction makes for easy care and inspection. When cleaning, use solvent on the metal parts and dry. The Epoxiglas® handle can be cleaned and refinished as any Chance hot-line tool. Refer to your Chance catalog for cleaning and refinishing supplies.

Inspect metal parts for wear including rounded edges, elongated holes and battered areas caused by impacts. Inspect closely all castings for cracks or other signs of damage. Closely look at the ratchet spool teeth. Give attention to the “working surfaces” of the teeth and dogs. If the top of a tooth or dogs is rounded or sheared off from impact, they must be replaced.



**Ratchet spool teeth — dropping damage.**

Inspect the hooks for signs of bending or opening. Inspect the safety latches. They must be in place and working properly. Inspect all springs, including the reversing rod, for signs of wear or bending. The reversing rod should be straight on the long leg. Any bending of the long leg indicates need for replacement. Look at the bronze bearings in the housing for wear or elongation. Replace any questionable bushings or the entire housing assembly if required.

After all worn or damaged parts have been identified and replaced, the hoist is re-assembled in reverse order of disassembly.



**Ratchet spool teeth — damaged from self ratcheting.**



**Ratchet spool teeth — sheared from overload or impact.**



**Reversing rods — Top part is good. Bottom two parts bent.**

### Testing

After inspection and reassembly, the hoist must be checked for proper operations and load tested.

***Safety procedures must be in place to prevent injury if the hoist malfunctions and drops the test load.***

Hoists manufactured by Chance are load tested to 150% of rating. Hoists repaired at Chance undergo the same testing as new hoists. After maintenance or repair, we test the hoist by suspending it from a support that can hold the

test loads. With a load of 100 lb. on the hoist, we carefully raise and lower the load. We operate the handle to rotate the ratchet shaft in one click increments for at least one complete revolution to ensure all teeth are tested.

We repeat this test with rated load. Attention to the operation of all controls, and the action of the dogs during testing is essential to make sure the hoist is safe to return to duty. If the hoist controls and operation is satisfactory and it passes the above tests, the hoist is returned to the user.

### Maintenance

Preventive maintenance, inspection, and lubrication is accomplished quickly and easily with Chance hoists. All models with enclosed mechanisms (all chain hoists, and nylon strap hoists that are not convertible) must have the handle removed, and the internal parts cleaned and lubricated at least yearly. Lubricate all bushings or bearings with 30 wt. motor oil. Lubricate all other moving parts with a light film of Chance grease C308-0930. More than a light film of grease may restrict the movement of components critical to the function of the hoist.

In areas where very cold temperatures are encountered, the grease may become stiff and prevent proper movement of parts. In such cases, grease must be removed and a very light or dry film lubricant used. Use of light or dry film lubes will increase the wear on the hoist and requires more frequent inspection and maintenance. The link or roller chain must be kept clean, free of rust and lightly lubricated with oil. Wipe excess oil from the chain to prevent attraction of dirt and contaminants.

Chance convertible strap hoists can usually be inspected and lubricated without disassembly. Use the same lubrication guidelines as specified above.

The user should establish a procedure for the routine inspection, maintenance and testing of hoists, based on usage, to enhance safety.

If your company uses lever operated hoists, we recommend that you obtain a copy of ASME B30.21 “Manually Lever Operated Hoists” for your file. This may be obtained from:

The American Society of Mechanical Engineers  
345 East 47th Street  
New York, N.Y. 10017 ■