NEXT SHALE 2017

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Evaluating Safety-Critical Equipment After Stacking

Ingersoll Rand®

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Focus on Lifting Equipment:
hoists, winches, man-riders, BOP handling systems

- Evaluating equipment coming out of storage
- Scrapped or refurbished after being stacked?
- Required certification intervals for lifting equipment
- Removing equipment from a stacked rig to an active rig
- Testing equipment during re-commissioning
- Installing equipment

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Evaluating Safety-Critical Equipment After Stacking on Lifting Equipment

Regular Use

Warm Stacked

Cold Stacked

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Inspection

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Overhaul

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Start-Up

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When assessing equipment, first thing's first…

General Inspection and Testing:

- Follow code for regular use and warm stacked equipment
- Codes provide starting point:
  - ASME B30.16 for Hoists
  - ASME B30.7 for Winches

Cold stacked equipment? → Additional requirements…

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Inspection for Cold Stacked Equipment:

- Amount of time out of commission
- Temperature, weather conditions, humidity
- Not been regularly serviced
- Adhere to standards to start

Often need to go above and beyond current regulation standards to ensure safety of cold-stacked equipment in today's environment

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ASME guidelines are a starting point. But longer times out of commission create new challenges…

Overhauling Equipment:

- Work with your OEM
- Use a "qualified person" to service equipment (i.e. certified technician)
- Keep excellent records and reports of all work done

DID YOU KNOW?

A "qualified person," by ASME standards, means a person who, by possession of a recognized degree in an applicable field or certificate of professional standing, or who, by extensive knowledge, training, and experience, has successfully demonstrated the ability to solve or resolve problems relating to the subject matter and work.

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10 critical tips for hoists and winches cold stacked for 6 months to one year:

- Inspection to be conducted by an OEM certified service personnel or qualified person.
- Inspection of external components.
- Drain and replace the oil in the reducer, disc brake and motor. Then replace again after 1 month of operation to ensure that left-over moisture residue / contaminants has been removed. After, follow the manufacturer lubrication schedule recommendations.
- Re-torque all bolts.
- Remove and replace rubber hoses.

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10 things to do for hoists and winches cold stacked for 6 months to one year:

- If winch has manual band brake, remove band brake and check lining.
- Check drum brake surface. If corroded, at winch operation, clean with sandpaper
- Pour 10 wt oil (or any lightweight oil) in air supply line and slowly operate hoist or winch with no load in both directions. Gradually ramp up to full speed.
- Load test hoist and winch before returning to operation.
- Clean and check hoist load chain links. If corroded, consider NDT of chain links or replace the chain.

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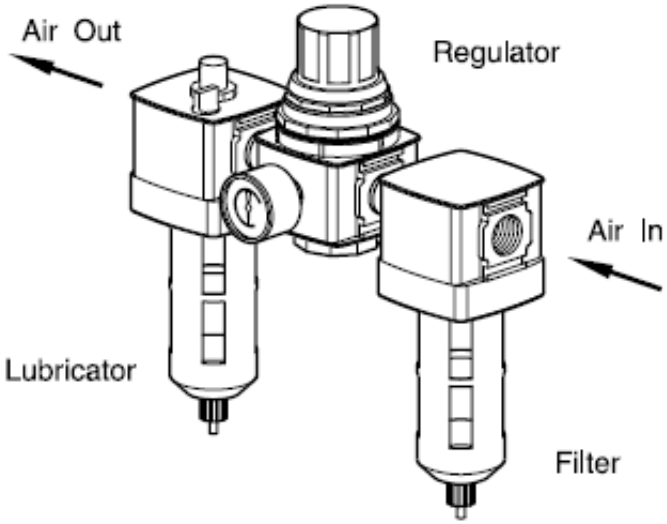
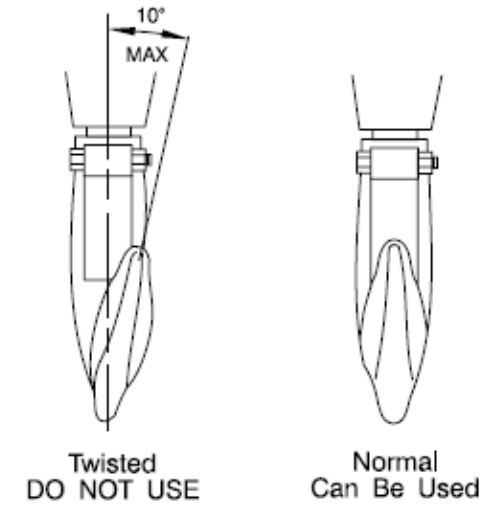
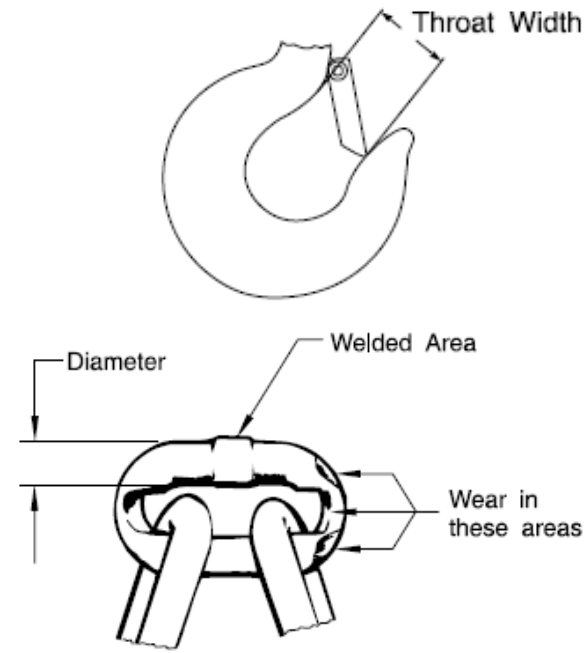
EXAMPLE

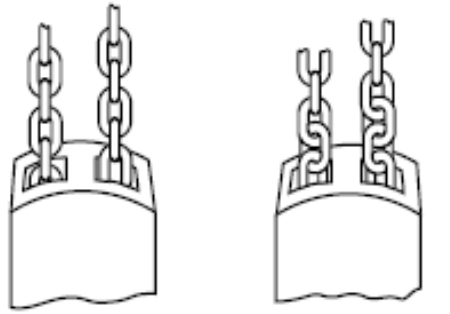




Hook Throat Width



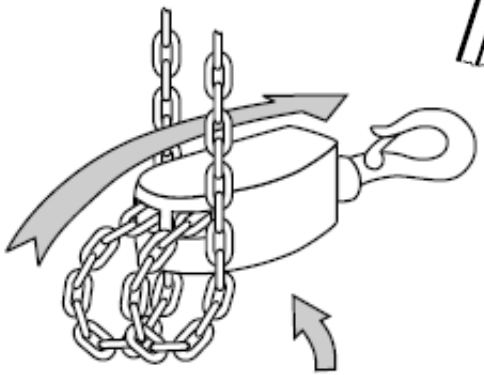
Twisted Chain



Appearance of chain that is Not Twisted

Appearance of chain that Is Twisted

Capsized Chain



Make certain the bottom block has NOT been flipped through the chain falls

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3 additional critical steps for hoists and winches cold stacked for MORE THAN ONE YEAR:

- Inspection should be conducted by an OEM certified service personnel or qualified / certified technician.
- Contact OEM for their recommendation because hoist or winch may need to be disassembled to check internal integrity of O-rings, seals and bearings.
- Perform function and load test.

Current regulations do not give a lot of guidance for this situation. It is up to you to take additional measures to ensure safety of your people.

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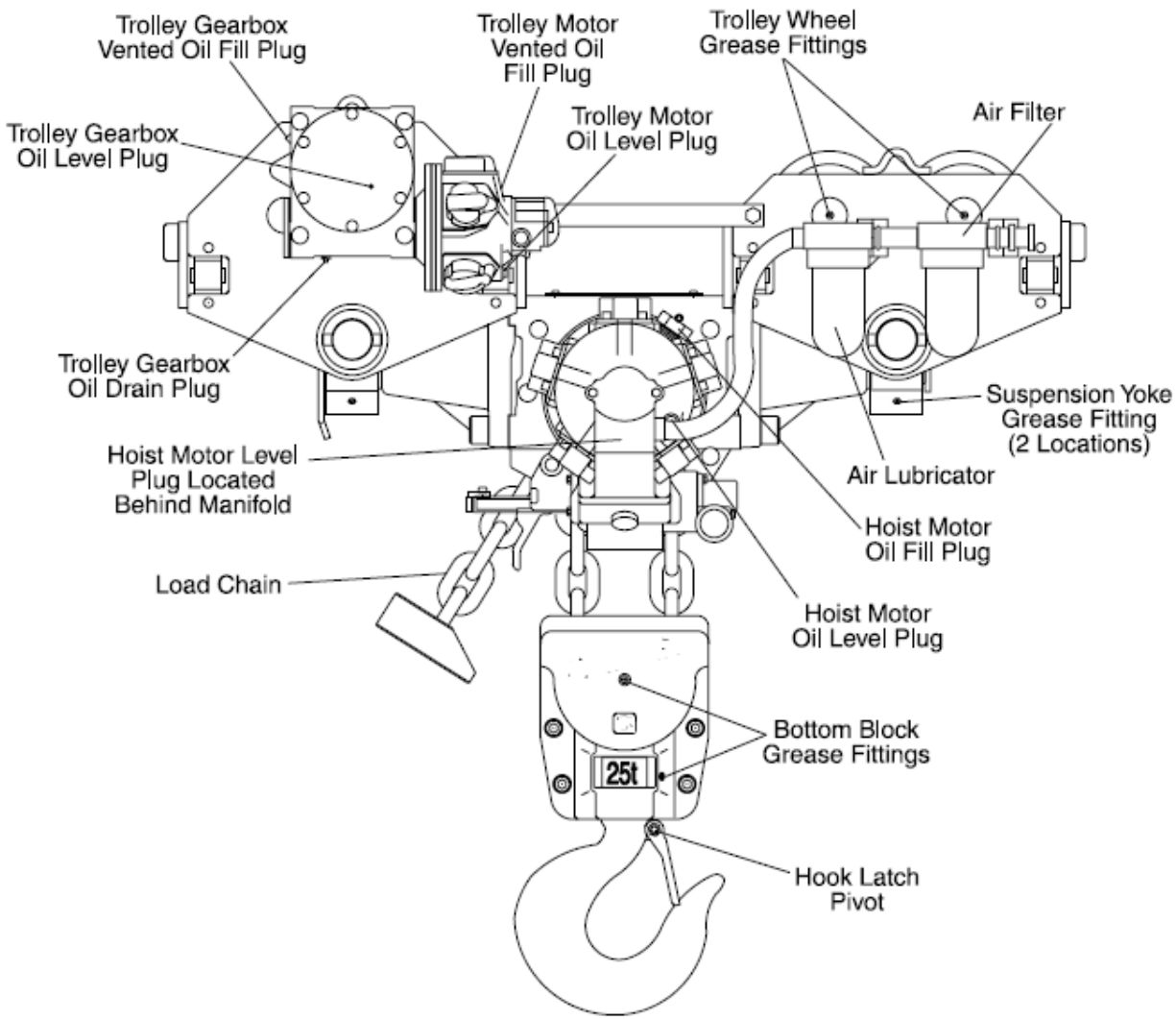
EXAMPLE

Hoist Lubrication Points



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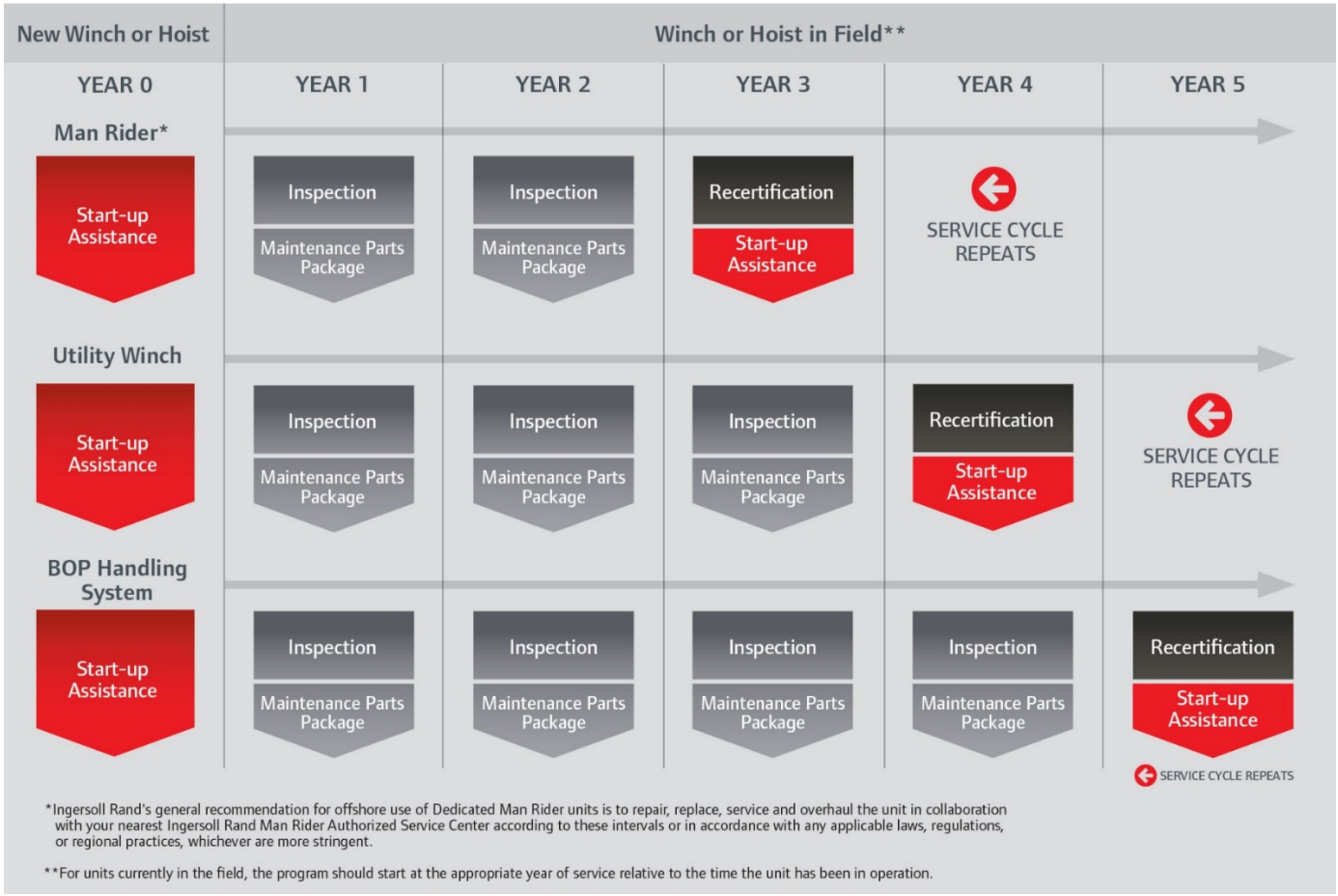
Consider long term plan to keep equipment operating safely. Work with an OEM that offers service plans with qualified technicians.

EXAMPLE



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Conclusions

- Proper lifting equipment and inspection, overhaul, and start-up procedures lowers risks – especially with personnel lifting equipment
- Work with OEM and certified expert technicians
- Code guidelines are good place to start… but go the extra mile when needed
- Safe lifting equipment supports productivity, safety and compliance goals

It's up to YOU to ensure safety-critical equipment is safe and ready to use!

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