

## 5.6 Inspection Records

- 5.6.1 Dated inspection reports and records should be maintained at time intervals corresponding to those that apply for the hoist's PERIODIC interval per Section 5.2.4. These records should be stored where they are available to personnel involved with the inspection, maintenance, or operation of the hoist/trolley.
- 5.6.2 A long-range rope inspection program should be established and should include records of examination of ropes removed from service so a relationship can be established between visual observation and actual condition of the rope.

## 5.7 Inspection Methods and Criteria

- 5.7.1 This section covers the inspection of specific items. The list of items in this section is based on those listed in ANSI/ASME B30.16 for the Frequent and Periodic Inspection. In accordance with ANSI/ASME B30.16, these inspections are not intended to involve disassembly of the hoist. Rather, disassembly for further inspection would be required if frequent or periodic inspection results so indicate. Such disassembly and further inspection should only be performed by a qualified person trained in the disassembly and re-assembly of the hoist or trolley.

**Table 5-5 Hoist (and Trolley) Inspection Methods and Criteria**

Item	Method	Criteria	Action
Functional operating mechanisms.	Visual, Auditory	Mechanisms should be properly adjusted and should not produce unusual sounds when operated.	Repair or replace as required.
Limit Switch	Function	Proper operation. Actuation of limit switch should stop hoist.	Repair or replace as required.
Hoist Braking System Operation	Function	The brake disc (brake rotor) should not exceed the maximum permissible air gap (S) values listed in <b>Table 5-8</b> .	Replace as required (see <b>Section 6.3</b> ).
Hook – Surface Condition	Visual	Should be free of significant rust; weld splatter, deep nicks, or gouges.	Replace.
Hook – Fretting wear	Measure	The “u” and “t” dimensions should not be less than discard value listed in <b>Table 5-6</b>	Replace.
Hook – Stretch	Measure	The “k” dimension should not be greater than 1.1 times that measured and recorded at the time of purchase (See <b>Section 3.9</b> and <b>Table 5-6</b> ).	Replace.
Hook – Bent Shank or Neck	Visual	Shank and neck portions of hook should be free of deformations.	Replace.
Hook Block Assembly	Visual	Should be free of significant rust; weld splatter, nicks, gouges. Holes should not be elongated, fasteners should not be loose, and there should be no gap between mating parts.	Tighten or replace as required.
Hook Block – Swivel Bearing	Visual, Function	Bearing parts and surfaces should not show significant wear, and should be free of dirt, grime and deformations. Hook should rotate freely with no roughness.	Clean/lubricate, or replace as required.

**Table 5-5 Hoist (and Trolley) Inspection Methods and Criteria (continued)**

Item	Method	Criteria	Action
Hook Block – Sheave(s) and Shaft	Visual, Function	Sheave(s) should be free of significant wear. Sheave surfaces should be free of nicks, gouges, dirt and grime. Bearing parts and surfaces of Sheave and Shaft should not show significant wear. Sheave should rotate freely with no roughness or significant free play.	Clean/lubricate, or replace as required.
Hook – Hook Latches	Visual, Function	Latch should not be deformed. Attachment of latch to hook should not be loose. Latch spring should not be missing and should not be weak. Latch movement should not be stiff – when depressed and released latch should snap smartly to its closed position.	Replace.
Hoist – Housing and Mechanical Components	Visual, Auditory, Vibration, Function	Hoist components including load blocks, suspension housing, wire rope attachments, clevises, yokes, suspension bolts, shafts, gears, bearings, pins and rollers should be free of cracks, distortion, significant wear and corrosion. Evidence of same can be detected visually or via detection of unusual sounds or vibration during operation.	Replace
Trolley – Housing and Mechanical Components	Visual, Auditory, Vibration, Function	Trolley components including load bars, trolley wheels, trolley wheel axles, eye bolts, hex shafts, gears, bearings, pins, rollers, and bumpers should be free of cracks, distortion, significant wear, and corrosion. Evidence of same can be detected visually or via detection of unusual sounds or vibration during operation.	Replace.
Bolts, Nuts and Rivets	Visual	Bolts, nuts and rivets should not be loose.	Tighten or replace as required.
Wire Rope Wedge	Visual	The fixing (anchorage with wedge) must be replaced if it shows deformation, wear, cuts, or necking.	Replace
Wire Rope Drum	Visual, Function	Entire surface of the drum should be coated with lubricant and should be free of dirt and grime. Rope should fit in drum grooves.	Clean/lubricate (see <b>Section 6.2</b> ).
Wire Rope Guide	Visual, Function	Rope Guide should be free of significant wear, cracks, nicks, gouges, dirt and grime. Rope Guide should take up rope play and move with the rope on the drum during rope unwinding and winding.	Replace
Wire Rope – Reeving	Visual	The wire rope should be reeved properly through Hook Block Sheave (and Crossbar Sheave for 4/1hoist) – refer to <b>Section 6.6</b> . Wire rope should be installed properly – refer to <b>Section 6.5</b> .	Reeve/Install properly.

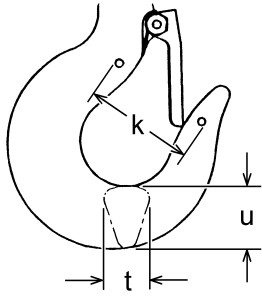
**Table 5-5 Hoist (and Trolley) Inspection Methods and Criteria (continued)**

Item	Method	Criteria	Action
<p><b>⚠ WARNING</b> The full length of the Wire Rope must be inspected for rope diameter, broken strands or wires, and condition. The rope must be free of load for testing to detect any broken wires when bending the rope by hand (especially by radius of rope sheave). Special care should be taken when inspecting sections of rapid deterioration, such as the following:</p> <ul style="list-style-type: none"> <li>▪ sections in contact with saddles, equalizer sheaves, or other sheaves where the rope travel is limited;</li> <li>▪ sections of the rope at or near terminal ends where corroded or broken wires may protrude;</li> <li>▪ sections subject to reverse bends;</li> <li>▪ sections of rope that are normally hidden during visual inspection, such as parts passing over sheaves.</li> </ul> <p><b>⚠ WARNING</b> In certain applications (constant deadweight, recurrent stopping position, automatic operation, etc.) wire fractures may occur inside the rope without being visible from outside.</p> <p>Any condition that could degrade the strength and performance of the wire rope must be reported to a qualified person for evaluation and disposition.</p>			
Wire Rope Diameter	Measure, Visual	Any reduction in the diameter of the wire rope must not be reduced due to corrosion, wear or core collapse more than the discard value in <b>Table 5-7</b> . The outer wires should not be worn more than 10% of their original diameter.	Replace. Inspect drum and all sheaves.
Wire Rope – Broken Wires or Strands	Visual	<p>The wire rope should be inspected for broken wires or strands, paying close attention to end connection and sections that frequently pass over sheaves. The rope must NOT have:</p> <ul style="list-style-type: none"> <li>▪ More than the Maximum number of broken wires listed in <b>Table 5-7</b>.</li> <li>▪ More than 4 broken wires in 1 strand in one lay (one full revolution of a strand around the rope).</li> <li>▪ Any broken strands.</li> </ul>	Replace
Wire Rope – Condition	Visual	<ul style="list-style-type: none"> <li>▪ Any wire rope deformation with permanent bends, flattening, unraveling, birdcaging, etc.</li> <li>▪ General corrosion.</li> <li>▪ Rope core exposure.</li> <li>▪ One or more loose or protruding strands or wires from rope.</li> <li>▪ Severely corroded or broken wires at end connections.</li> <li>▪ Severely corroded, cracked, bent, worn or improperly applied end connections</li> <li>▪ Any evidence of heat damage of any kind. (Wire rope exhibits any heat discoloration or localized loss of lubrication).</li> </ul>	Replace

**Table 5-5 Hoist (and Trolley) Inspection Methods and Criteria (continued)**

Item	Method	Criteria	Action
Wire Rope - Twisting	Visual	<ul style="list-style-type: none"> <li>▪ Run the hoist into the highest and lowest hook positions without load.</li> <li>▪ If any twisting is detected , untwist the rope immediately. See Section 6.6 “Reeving and Adjustments” and Section 6.5 “Wire Rope Removal”</li> <li>▪ Inspect the condition of the rope (especially near pulleys and rope anchorage. See Table 5-5 “Wire Rope- Condition”, “Wire Rope – Diameter”, “Wire Rope-Broken Wires or Strands”)</li> </ul>	Replace as required.
Wire Rope - Lubrication	Visual	The wire rope must be maintained in a clean and well lubricated condition.	Clean/lubricate (see Section 6.2).
Trolley Side Plates	Visual	Must be free of significant deformation	Replace
Trolley Wheel – Condition	Visual	Trolley Wheel should be free of significant wear, cracks, nicks and gouges.	Replace.
Trolley Wheel – Tread	Visual, Measure	The diameter and width of the tread surface should not be less than the values listed in Table 5-10. The diameter should not be less than 5% of its original diameter as new.	Replace.
Trolley Wheel – Gear	Visual	Teeth should not be cracked, damaged, or excessively worn.	Replace.
Load Bar	Visual, Measure	Load Bar should be free of significant wear, cracks, nicks and gouges. Load Bar should not be bent.	Replace.
Trolley Motor Brake	Visual	Braking action should not be overly abrupt and should not allow excessive drift. The brake disc (brake rotor) should not exceed the maximum permissible air gap (S) values listed in Table 5-11.	Replace.
Contactors Contacts	Visual	Contacts should be free of significant pitting or deterioration.	Replace.
Sheaves	Visual	Sheave should be free of significant wear. The wall thickness, t, should not be less than the “t min” values in Table 5-9. The groove depth, h, should not be greater than the “h max” values listed in Table 5-9. They should also be checked for easy running, indicating that the ball bearings are in good condition.	Replace.
Pendant – Switches	Function	Depressing and releasing push buttons should make and break contacts in switch contact block and result in corresponding electrical continuity or open circuit. Push buttons should be interlocked either mechanically or electrically to prevent simultaneous energizing of circuits for opposing motions (e.g. up and down, forward and reverse).	Repair or replace as necessary.

<b>Item</b>	<b>Method</b>	<b>Criteria</b>	<b>Action</b>
Pendant - Housing	Visual	Pendant housing should be free of cracks and mating surfaces of parts should seal without gaps.	Replace
Pendant - Wiring	Visual	Wire connections to switches in pendant should not be loose or damaged.	Tighten or repair
Pendant and Power Cords	Visual, Electrical Continuity	Surface of cord should be free from nicks, gouges, and abrasions. Each conductor in cord should have 100% electrical continuity even when cord is flexed back-and-forth. Pendant Cord Strain Relief Cable should absorb the entire load associated with forces applied to the pendant.	Replace
Pendant - Labels	Visual	Labels denoting functions should be legible.	Replace
Warning Labels	Visual	Warning Labels should be affixed to the hoist (see <b>Section 1.2</b> ) and they should be legible.	Replace
Hoist Capacity Label	Visual	The label that indicates the capacity of the hoist should be legible and securely attached to the hoist.	Replace

<p><b>k Measured When New*:</b></p> 				
Hook Capacity Code	(u) Dimension inch (mm)		(t) Dimension inch (mm)	
	Standard	Discard	Standard	Discard
RHN02(D/U)	1.89 (48)	1.80 (45.6)	1.50 (38)	1.42 (36.1)
RHN03(D/U)	1.89 (48)	1.80 (45.6)	1.50 (38)	1.42 (36.1)
RHN05(D/U)	2.28 (58)	2.17 (55.1)	1.77 (45)	1.68 (42.75)
RHN08(D/U)	2.64 (67)	2.51 (63.65)	2.09 (53)	1.98 (50.35)
RHN10(D/U)	2.64 (67)	2.51 (63.65)	2.09 (53)	1.98 (50.35)
RHN15U	3.35 (85)	3.18 (80.75)	2.64 (67)	2.51 (63.65)
RHN15D	4.17 (106)	3.96 (100.7)	3.35 (85)	3.18 (80.75)
RHN20D	4.17 (106)	3.96 (100.7)	3.35 (85)	3.18 (80.75)

\* The “k” dimension should be measured when the hook is new – this becomes a reference measurement. Subsequent measurements are compared to this reference to make determinations about hook deformation/stretch. See Section 5.7, “Hooks – Stretch”.