

一级保养 first-level maintenance

1.设备运行一个月进行一级保养，以操作工人为主，维修工人配合进行保养。

The equipment runs for one month to carry on the first-class maintenance, mainly to operate the worker, the repair worker cooperates to carry on the maintenance

2.首先切断电源，然后进行保养工作（见下表）。

First cut off the power supply and then perform maintenance work (see table below)

序号 No.	保养项目 Maintenance item	周期 Periodic time	保养内容及要求 Maintenance contents and requirements	检查人（签字） Inspector(signature)
1	限位器 limit switch	每月 Each month	1. 检查限位器：动作要灵活可靠 Check the limit switch: the action is flexible and reliable	
			2.检查、调整：当吊钩上升至上极限位置时，吊钩外壳到卷筒外壳的距离应>50m Check, adjust: when the hook rises to the highest limit position, the distance between the hook shell and the drum shell should be more than 50 m	
			3.检查、调整：当吊钩降至下极限位置时，应保证圈筒上的钢丝绳有 3 圈以上的安全圈数	

			<p>Check, adjust: when the hook falls to the lower limit position, ensure that the wire rope on the coil has more than three safety loops.</p> <p>4.检查工字钢两端的缓冲器或挡板是否可靠、牢固。 Check that the buffer or I beam at both ends of the I-beam whether it is reliable and firm</p> <p>5. 大车运行机构行程限位器可靠、有效。 The travel limiter of the Long travel mechanism of the truck is reliable and effective.</p>	
2	电机及制动 Motor with brake	每月 Each month	<p>1. 主起升电机吊重时无异常响声 There is no abnormal noise when the main lifting motor is hoisting</p> <p>2. 检查风叶制动轮轴向窜动：正常窜动应在 2mm 左右 Check axial movement of wind vane brake wheel: normal movement should be around 2mm</p> <p>3. 检查、试验、调整：以额定负荷试验，在制动后负荷下滑距离：$\geq 80\text{mm}$ Check, test, adjust: to rated load test, load drop distance after braking: $\geq 80\text{mm}$</p> <p>4. 大车电机运行时有无异常响声或气味 Whether there is any abnormal noise or smell when the long travel motor is travelling</p> <p>5. 电机安装螺栓是否有松动 Whether the motor mounting bolt is loose or not</p>	
3	钢丝绳 Wire rope	每月 Each month	<p>1. 检查：钢丝绳在卷筒上应正确缠绕，不得有松脱、乱绕等情况 Inspection: the wire rope should be wound correctly on the drum, without loosening, unwinding, etc.</p> <p>2. 检查钢丝绳有无断线（有，则记录断丝根数）注：当一股钢丝绳内折断的钢丝绳数达到</p>	

		<p>或超过 11 根时，该钢丝绳应予以更换</p> <p>Check the wire rope for broken wire (there is record the number of broken wires) Note: When the number of broken wire ropes in a wire rope reaches or exceeds 11, the wire rope should be replaced.</p>	
		<p>3. 检查钢丝绳表面的磨损、腐蚀量：注：钢丝绳表面磨损、腐蚀量超过 30%时，应更换钢丝。</p> <p>Check the wear and corrosion of the wire rope surface: note: when the wear and corrosion of the wire rope surface exceeds 30%, the wire rope shall be replaced</p>	
		<p>4. 检查：钢丝绳有弯曲、变形时应更换</p> <p>Check: wire rope should be replaced when it is bent or deformed</p>	
		<p>5. 检查：嵌块安装是否牢固</p> <p>Check: whether the installation of block is firm</p>	
4	吊钩 Hook	<p>每月 Each month</p> <p>1. 有无裂缝</p> <p>Whether there is crack</p> <p>2. 危险断面磨损量（磨损量\geq原尺寸的 10%）</p> <p>Hazardous section wear (wear amount \geq 10% of original size)</p> <p>3. 开口度（开口度尺寸增大量\geq原尺寸的 15%）</p> <p>Opening degree (opening size increase amount \geq 15% of original size)</p> <p>4. 扭转变形量\geq10</p>	

			Torsional deformation ≥ 10	
			5. 危险断面或吊钩颈部不应产生塑性变形 No plastic deformation shall occur on the dangerous section or hook neck	
			注：出现上述情况之一时，应更换吊钩 Note: hooks should be replaced when one of the above occurs	
5	电气 Electric	每月 Each month	1. 检查电源线、控制电缆应无磨损，各接头螺丝无松动。 Check power cord, control cable should be wear-free, no loosening of connector screws	
			2. 接地良好 Good grounding	
			3. 电气触点的联接点无松动、脱落等 The connection point of the electrical contact does not become loose or fall off	
			4. 检查操作按钮，各功能按钮工作正常 Check the operation button, each function button works normally	
6	其他 Others	每月 Each month	1. 外观检查：无缺壳、罩或其他零部件 Appearance check: no shell, cover, or other component	
			2. 运转时无异常声响或气味 No abnormal sound or smell during operation	
			3. 进行清洁、清扫 Clean and sweep	
			检查、紧固：各连接处的螺钉、螺母	

			Inspection and fastening: screws and nuts at each joint	
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二级保养 second-level maintenance

1. 设备运行 2 个月、5 个月、10 个月进行二级保养，以维修工人为主，操作工人参加，除执行一级保养内容及要求外，应做好下列工作，并测绘易损件，提出备品备件。

The equipment shall be operated for 2 months, 5 months and 10 months for second-level maintenance. The maintenance workers shall be the mainstay and the operators shall participate. In addition to the implementation of the first-level maintenance contents and requirements, the following work shall be done and the wearing parts shall be surveyed and painted. Proposing spare parts

2. 首先切断电源，然后进行保养工作（见下表）。

First cut off the power supply and then perform maintenance work (see table below)

序号 No.	保养项目 Maintenance item	周期 Periodic time	保养内容及要求 Maintenance contents and requirements	检查人（签字） Inspector(signature)
1	葫芦小车 Hoist Trolley	2 个月 Two Months	1. 检查、调整：工字钢下翼缘侧面与走轮轮缘之间的间隙距离：2-4mm，超过需调整 Inspection and adjustment: the clearance distance between the side of the lower flange of i-beam and the running wheel rim: 2-4mm, more than to be adjusted	
			2. 检查小车车轮的磨损： $\geq 2\text{mm}$	

			Check the wear of the trolley wheel: $\geq 2\text{mm}$	
2	起重量限制器 Overload limit switch	2 个月 Two Months	当载荷达到额定载荷 90%时，是否报警，当载荷超过额定载荷时，是否切断电源 Whether the alarm is issued when the load reaches 90% of the rated load, and whether the power is cut off when the load exceeds the rated load.	
3	润滑 Lubrication	2 个月 Two Months	1. 减压器: HJ-50 机械油 (GB443) 方式: 自上部孔注入 Reducer: hj-50 mechanical oil (GB443) : injection from the upper hole	
		2 个月 Two Months	2. 钢丝绳及卷筒: 钢丝绳油脂 方式: 涂抹表面 Wire rope and reel: wire rope grease Way: smear the surface	
		5 个月 Five Months	3. 电动小车减压器: ZG-3 钙基润滑脂 (GB491) 方式: 拆去点击后——适量 Electric Hoist trolley Reducer: ZG-3 calcium-based Lubricating Grease (GB491) Way: remove Click-moderate amount	
		5 个月 Five Months	4. 吊钩、连接架等处轴承、大车行走主动走轮轮齿、慢速驱动装置齿轮: ZG-3 (或 ZG-1.ZG-2) 钙基润滑脂 (GB491), 方式: 涂抹表面或挤入 Hooks, connecting frames, etc. Bearing, driving wheel teeth, slow drive gear: ZG-3 (or ZG-1.ZG-2) calcium-based grease (GB491) Way: smear surface or squeeze	
		5 个月 Five Months	5. 走轮、卷筒、电机: ZG-3 钙基润滑脂 (GB491) 方式: 拆卸加油——容积 1/3 Wheel, drum, motor: ZG-3 calcium-based grease (GB491) Way: remove refueling-Volume 1 / 3	

	滑线 Slide wire	5 个月 Five Months	<p>6. 检查滑线是否有 破损，集电器滑刀磨损情况，如有应更换或调整。 Check whether the slide line is damaged and the collector's slide knife is worn. If so, please replace or adjust it</p> <p>7. 各滑线接头联接牢固、安全。接地良好，螺丝无松动，如螺丝松动立即紧固 The sliding joints are firmly and safely connected. Good grounding, no loose screws, fast tightening if the screws are loose</p> <p>8. 检查集电器与滑线联接紧密、可靠。不应出现跳电情况 Check the connection between collector and slide wire is tight and reliable. There should be no jumps</p>	
4	减速机 Reducer	10 个月 Ten Months	<p>检查减速机齿轮、轴承磨损情况 Check gear and bearing wear of reducer</p> <p>工作时应无异常响声、振动、发热和漏油 No abnormal noise, vibration, heat and oil leakage during work</p>	
5	桥架 Bridge	10 个月 Ten Months	<p>1. 检查：主梁、端梁和主梁连接焊缝是否有裂缝，如有，立即停止使用进行修复 Check: whether the main beam, end beam and main beam joint weld have cracks, if any, stop using and repair immediately</p> <p>2. 检测：主梁上拱度不小于 0.7s/1000 Inspection: the crown on the main beam is not less than 0.7s/1000</p> <p>3. 检查、紧固：金属结构的联接螺栓，不应有任何松动 Inspection and fastening: connection bolts of metal structure, there should be no looseness</p>	

6	轨道 Rail	12 个月 Twelve Months	<p>1, 检查: 固定轨道的螺栓和压板不应缺少</p> <p>Check: bolts and pressure plates for fixed rails should not be missing</p>	
			<p>3. 检查: 压板是否固定牢固, 垫片是否可窜动</p> <p>Check: whether the pressing plate is firmly fixed and the gasket can be moved</p>	
			<p>4. 检查: 轨道不应该有裂纹, 不应有严重磨损等影响安全运行的缺陷</p> <p>Check: There should be no cracks in the track, and there should be no serious wear and other defects that affect safe operation.</p>	
			<p>5. 检查: 小车行走时是否卡轨, 如卡轨, 应矫正轨道或调整车轮</p> <p>Check: whether the trolley is stuck when walking, if so, correct the track or adjust the wheels</p>	
			<p>5. 测量检查: 同一截面的两根轨道的高度差$\geq 10\text{mm}$, 沿长度方向在垂直平面内的弯曲, 每 2m 测量长度$\leq 2\text{mm}$</p> <p>Measurement check: height difference of the two tracks of the same section $\geq 10 \text{ mm}$, bending in the vertical plane along the length direction, measurement length $\leq 2\text{mm per } 2\text{m}$</p>	
			<p>6. 测量检查: 轨道跨度极限偏差$\geq 15\text{mm}$</p> <p>Survey check: track span limit deviation $\geq 15\text{mm}$</p>	
			<p>注: 1.再使用过程中轨道偏差超过标准规定的 20%, 轨道必须重新校正</p> <p>When the track deviation exceeds 20% of the standard, the track must be recalibrated</p>	
			<p>9. 各滑线接头联接牢固、安全。接地良好</p>	

			The connection of each sliding wire joint is firm and safe.Good grounding	
			10.检查集电器与滑线联接紧密、可靠。不应出现跳电情况	
			Check the connection between collector and slide wire is tight and reliable. No power jump should occur	

注：如使用比较频繁，须勤保养，间隔周期须缩短。起重机维护胜过维修。维护到位，故障率低，运行安全可靠。

Note: if it is used frequently, it should be maintained frequently and the interval period should be shortened.Crane maintenance is better than repair.Maintenance in place, low failure rate, safe and reliable operation

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