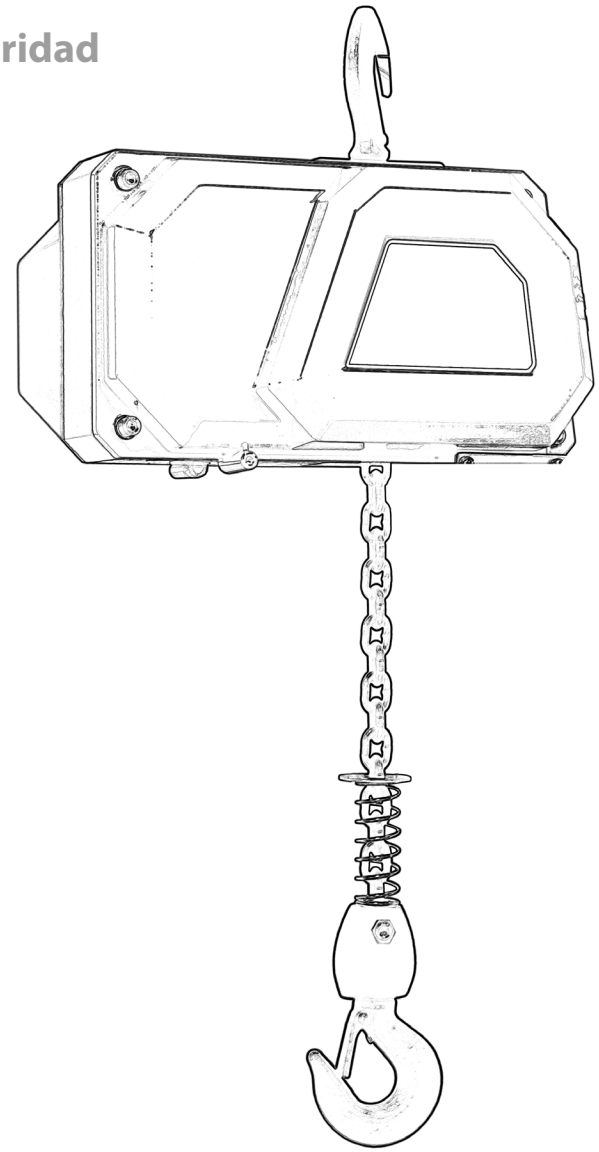
ProWINCH®

Reg. U.S. TM. Off.

PWBDH Series

User's Manual / Manual de usuario
Safety Warnings / Advertencias de seguridad



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Disclaimer

PROWINCH® DISCLAIMER

Prowinch® LLC declares that it has made available to the Customer each and every one of the security warnings related to the purchased product and that, as a result, it does not assume any responsibility for any damages or losses that may be suffered by the client or third parties. cause or as a direct or indirect consequence of the breach or omission of any of the instructions or safety warnings contained in the User Manual and Security Warnings corresponding to the unit purchased.
In this sense, Prowinch® LLC will not be liable for accidents and / or damages to persons and / or property resulting from the negligent use of the product.
In no case does Prowinch® LLC assume any liability arising from the use of these voluntary recommendations, and does not offer any guarantee in relation to them. These recommendations do not take precedence over the current safety regulations of the plant.
For purposes of enforcing the Warranty of the product purchased, Prowinch® LLC, will only be liable for any damage when it is possible to prove that the user has followed each and every one of the warnings contained in the User Manual and Safety Warnings.

1. It is the sole responsibility of the Client / User to verify that the acquired equipment, products and accessories comply with the characteristics, capacities, requirements, components, accessories and other conditions for the use that the Client / user intends to give it.
2. It is also the sole responsibility of the Client / User to ensure that the equipment and products purchased are operated and maintained with adequate safety standards and by personnel duly trained in the use thereof. The Client / User is also responsible for implementing all the security measures necessary to prevent accidents or damages to people or property and for following the indications and warnings of the corresponding manual.
3. Any assistance provided by Prowinch® LLC in the selection of the equipment, the capacities and characteristics required by the clients is delivered free of charge and based on the information about the application, use and requirements indicated by the Client itself. It does not correspond to Prowinch® LLC to verify the accuracy of the given information. It is the sole and exclusive responsibility of the Client -or who will use the equipment and products acquired- to ensure that the specifications comply with the capabilities, characteristics, up-to-date maintenance and everything necessary for a correct and safe operation in relation to the intended use.
4. Prowinch® LLC recommends the use of winches with 4 brakes for personnel lifting. The use of winches of 3 brakes or less or safety features lower than the best available for personnel lifting, is the sole responsibility of the customer.
5. In order to guarantee the safety of the personnel and users of the equipment it is necessary to carry out the inspections and maintenance of the equipment according to the recommended frequency in relation to its work cycle. It is mandatory to keep record and evidence the written and photographic reports of: Maintenance, Start-up, Load Tests, Training, Certifications, Inspections and Reports of failures and accidents.
6. The aforementioned reports must be sent by email to registros@prowinch.com within the first 7 calendar days after the occurrence of an event.
7. Compliance with the timely implementation of the mandatory activities described in points 6 and 7 in addition to all the activities mentioned in the corresponding rules applied are the sole responsibility of the user. Failure to comply with the foregoing conditions releases Prowinch® LLC from any type of Liability and Warranty to the team, customer, staff or user, or any other liability that could be attributed to Prowinch® LLC.

The information contained in this manual may contain technical errors or inaccuracies. Prowinch® LLC is not responsible for typing errors, omission or incorrect information.
This manual is subject to change without prior notice. Download the latest version available at www.prowinch.com.
Always check www.prowinch.com for the latest information regarding this product.

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Thank you for purchasing our Prowinch® Electric Chain Hoist. This User Manual provides important information for personnel involved with the installation, operation, and maintenance of this product. Read this User Manual before installing, operating, or maintaining the product.

1. SAFETY PRECAUTIONS

The Prowinch® Electric Chain Hoist is designed for a safe and reliable service if operated according to the User Manual. Respect and follow all warnings for personnel and third party safety indications. Inadequate operation may cause serious risks of injuries to personnel or damage to the equipment. Read and understand this User Manual carefully before installing and commissioning the equipment. Always keep this User Manual in an accessible place for future reference. The compact and lightweight structure of the PWBDH models together with their ease of use makes them a preferred hoist for daily use in factories, mines, sea ports and warehouses.

Improperly installed, maintained, or operated hoists can be the cause of serious accidents or death. This User Manual highlights symbols and notes for caution, warning and danger. Following these indications greatly improves the safety of the operator and personnel in the area.

Mandatory use of:

Hard Hat

Safety Glasses

Safety Gloves

Safety Shoes

1.1. Hoist Safety Precautions

WARNING:
This symbol indicates unsafe practices or situations which may cause damage to the property and even injuries to the personnel.

DANGER:
This symbol indicates a potentially dangerous situation which if not avoided may cause severe injuries or death

DANGER

All operators and other users who are near the steel chain or its load must wear required safety equipment: gloves, safety helmet / hard hat, safety shoes and eye protection.

WARNING

Before installing, removing, inspecting, or performing any maintenance on the hoist, the unit must be unplugged, locked out, and tagged out.
Do not use this equipment in hazardous locations.

Read and understand the contents of this user manual thoroughly before handling the electric chain hoist. Practicing safe and proper operating procedures and carrying out the recommended preventative maintenance will ensure long, reliable, and safe operation of the hoist.

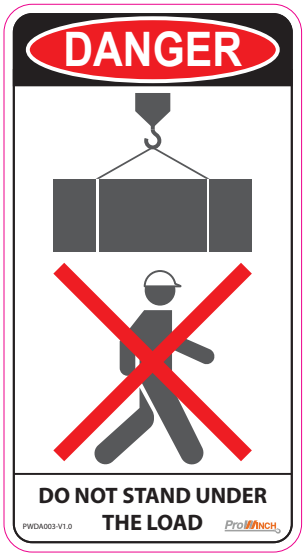
After carefully reading and understanding the User Manual, store it for future reference.

1.2. Before using the Equipment:

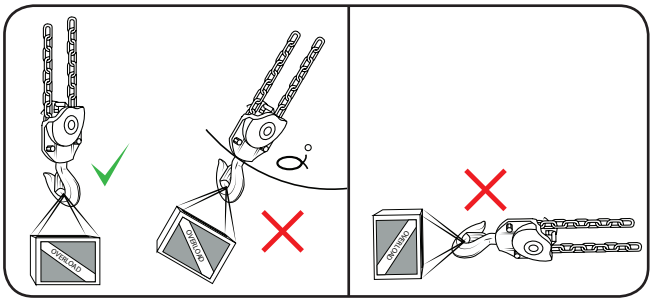
• Read and understand the instructions in this User Manual and all the labels associated with the hoist before operating the equipment.
• Wear appropriate clothing: Do not wear jewelry or loose clothes as they can get caught by the chain or hook.
• Wear leather gloves.
• Wear non-slip safety shoes, hard hat, and eye protection.
• Perform a full check of the hoist. Check for damaged parts or unusual conditions
• Keep a safe distance: suggested distance is at least 1.5 times the length the of hoist's chain. A broken or loose chain may cause injuries or death.
• Check that the hoist and chain are properly lubricated.
• Secure the electric chain hoist to a suitable support.
• Visually inspect all electric chain hoists before each use in addition to the regular inspections and maintenance.

1.3. During Operation:

ALWAYS:
• Refer to the maximum load capacity displayed on the ID plate attached to the hoist, not the capacity of the hook.
• Stop operation immediately if unauthorized personnel enter the working area.
• Check the working condition of hoist: If the motor gets too hot stop the hoist and let it cool down for a while.
• Stop, check, and secure the load if hoist stops or loses movement during operation.
• Focus on the operation. Pay attention at all times and keep proper balance.
• Unplug the hoist after operation.



NEVER:
• **Never** exceed the maximum load capacity of the hoist.
• **Never** operate a damaged or malfunctioning hoist.
• **Never** operate the hoist if it shows abnormal behavior.
• **Never** lift, support, or transport people or loads over people.
• **Never** walk or step on the chain.
• **Never** operate the electric chain hoist with twisted, kinked, damaged or worn load chain.
• **Never** use the load chain as a sling around load.
• **Never** operate a hoist if the ID plate or safety labels are missing or illegible.
• **Never** operate an electric hoist if exposed to rain or water.
• **Never** use if operator is sick or not completely attentive.
• **Never** leave the hoist unattended while energized or loaded.
• **Never** operate the hoist with non-centered load.
• **Never** operate beyond the limits of the load chain or extend chain.
• **Never** use the load chain or hook as an electrical or welding ground.
• **Never** remove the labels placed on the electric chain hoist.
• **Never** use the hoist to lift load at an angle, nor pull or drag load



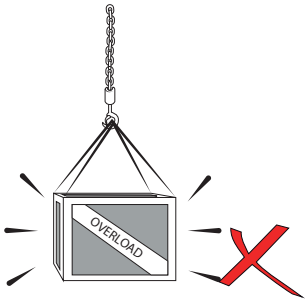
1.4. Inspection, Maintenance and Repairs:

• Only trained and authorized personnel may perform repairs to the equipment.
• Use only original ProWinch® parts. The use of any other part immediately voids the warranty.
• Failure to use only original ProWinch® parts may create a dangerous condition for the operator.

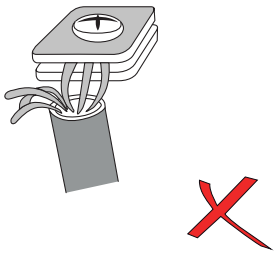
ALWAYS:
• Check the condition of electrical connections.
• Check the chain and keep it lubricated.
• Prevent others from stepping under lifted load.
• Inspect and maintain the hoist regularly.
• Verify the correct installation of hoist before using.
• Avoid contact with explosive gases or materials.

NEVER:
• **Never** overload the hoist.
• **Never** transport people or animals with the hoist.
• **Never** stand under suspended load.
• **Never** use the hoist if exposed to rain, snow, or lighting
• **Never** leave loads suspended for an extended period of time. This may cause component deformation and accidents.
• **Never** exceed the allowable operating temperatures stated in this User Manual (differs depending on the model).
• **Never** expose the hoist to water, sand, corrosive materials or other substances which may damage the equipment.

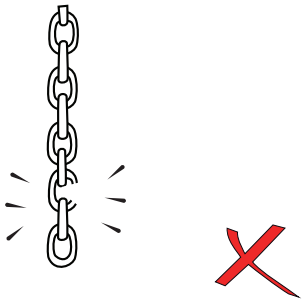
Safety Precautions



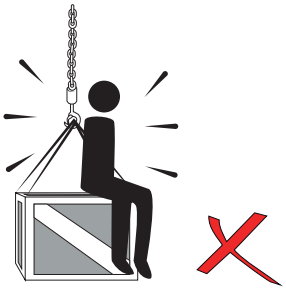
1. Do not overload.



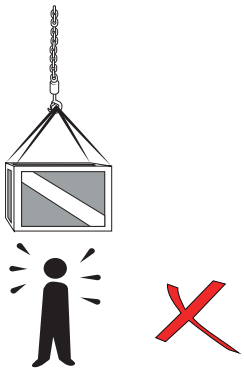
2. Check the proper crimp of the electrical connections.



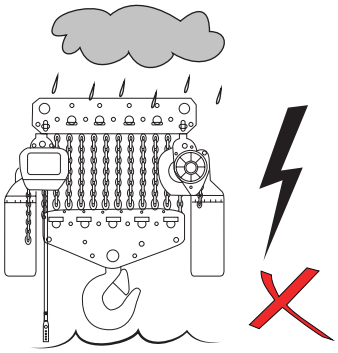
3. Periodically check the chain and keep it lubricated.



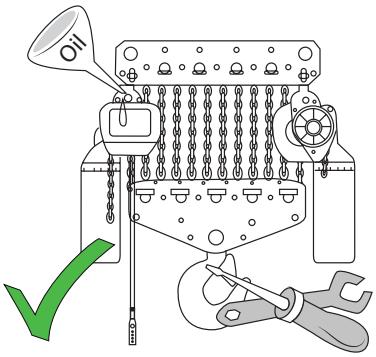
4. Do not transport people or animals with a hoist.



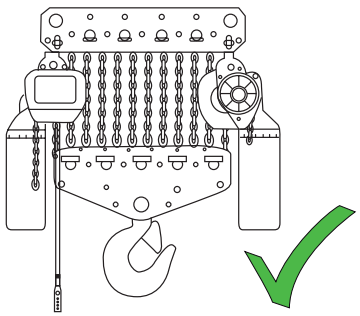
5. Do not step or walk under lifted load and prevent others from doing so.



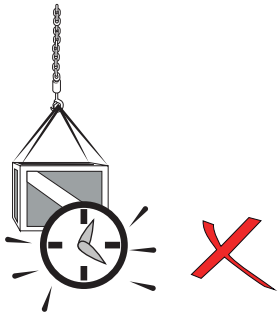
6. Do not use the hoist if exposed to rain, snow or lightning.



7. Inspect and maintain your hoist regularly.

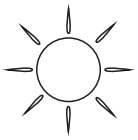


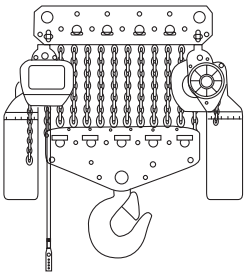
8. Always verify the correct hoist installation before use.



9. Do not leave the load lifted for long periods of time. It may cause deformation of the equipment and increase the risk of an accident.

Do not exceed the operating temperatures for which the hoist is designed. This range is indicated in this manual and may vary depending on the model.

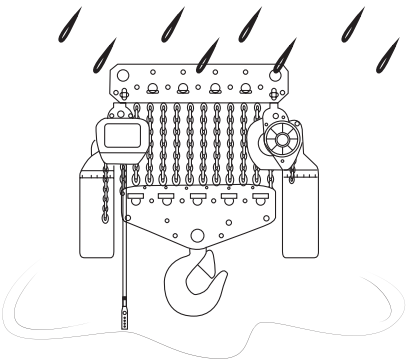


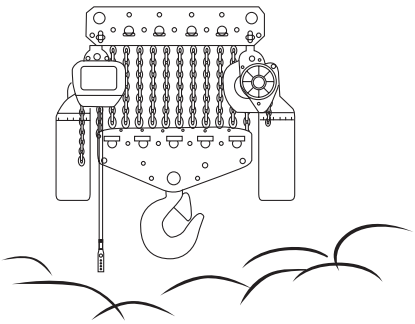


Avoid contact with gases or explosive materials.

Warning:

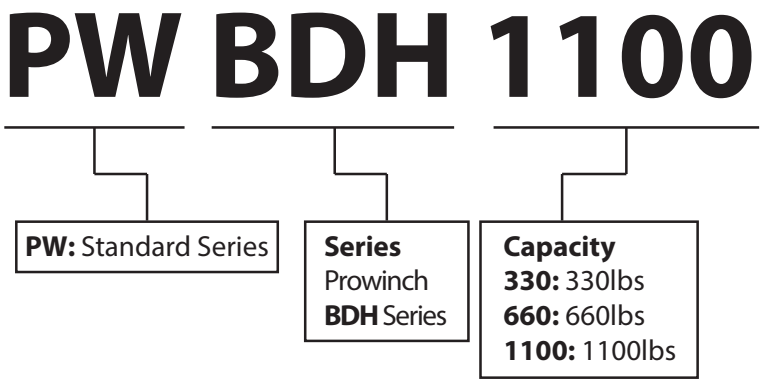
Exposure to water, sand, a corrosive environment, or other potentially harmful elements may damage the equipment.





2. SPECIFICATIONS

2.1. Product Code.



2.2. Specification Chart (For all models of Prowinch® Electric chain hoists).

Item		Specs	
Operating temperature range (°C)		-20° to ± 40°	
Operating Humidity Range (%)		< 85%	
Protection Class	Hoist	IP55	
	Button Switch	IP55	
Power		3 Phases, 200V - 600 V, 50/60Hz	
Noise Level (db)	Single Speed Hoist	81db	
	Double Speed Hoist	81db	
Chain Specs	Working Load Limit	Diameter (in)	Chain Pitch (in)
	0.3t - 0.5t	0.25	0.4
	1t, 2t, 3t	0.28	0.82
	1.5t, 2t	0.4	1.2
	2.5t, 3t, 5t, 7.5t, 10t, 15t, 25t	0.44	1.33

Observations

Do not use Prowinch® Electric Chain Hoists when the temperature or humidity exceeds the range stated in the Specification Chart.

Our hoists are designed to lift loads vertically under normal atmospheric and working conditions.

2.3. Load Level and Service Life

Hoist Duty Class	Typical Areas of Application	Operational Time Ratings at K = 0.65			
		Uniformly Distributed Work Periods		Infrequent Work Periods	
		Max. On Time, min/hr	Max. No. Starts/hs	Max. No. Time From Cold Start	Max. No. of Starts
H1	Powerhouse and utilities, infrequent handling. Hoists used primarily to install and service heavy equipment, where loads frequently approach rated load, and where the hoist is idle for 1- to 6-month periods between periods of operation.	7.5 (12.5%)	75	15	100
H2	Light machine shop, fabricating service, and maintenance. Loads and utilization randomly distributed. Rated loads infrequently handled. Total running time not more than 12.5% of the work period.	7.5 (12.5%)	75	15	100
H3	General machine shop, fabricating, assembly, storage, and warehousing. Loads and utilization randomly distributed. Total running time not more than 25% of the work period.	15 (25%)	150	30	200
H4	High-volume handling of heavy loads, frequently near rated load in steel warehousing, machine and fabricating shops, mills, and foundries, with total running time not more than 50% of the work period. Manual or automatic cycling operations of lighter loads with rated loads infrequently handled such as in heat treating and plating operations, with total running time frequently 50% of the work period.	30 (50%)	300	30	300
H5	Bulk handling of material in combination with buckets, magnets, or other heavy attachments. Equipment often cab operated. Duty cycles approaching continuous operation are frequently necessary. User must specify exact details of operation, including weight of attachments.	60 (100%)	600	N/A	N/A

Working Conditions		Load	Time	Maintenance Interval (Months)	Expected Life [Working Hours]				
					800	1600	3200	6300	12500
Light	Light Mechanisms subjected normally to light loads and very rarely to the maximum load.			6 - 12	H1	H2	H3	**H4**	**H5**
Normal	Mechanisms subjected normally to moderate loads and frequently to the maximum load.	< 65%	< 25%	6 - 12	H2	H3	**H4**	**H5**	
Heavy	Mechanisms subjected normally to loads of heavy magnitude and frequently to the maximum load.	> 65%	> 25%	3 - 6	H3	**H4**	**H5**		
Severe	Mechanisms subjected regularly to the maximum load	Abnormal conditions Environmental, Geographical, etc <100% < Duty Cycle Limit		1 - 3	**H4**	**H5**			

2.4. Hoist Specifications

Specifications	Model		
	PWBDH330	**PWBDH660**	**PWBDH1100**
Capacity (lb)	330	660	1100
Lifting Speed (ft/min)	10		13
Motor Power (kW)	240	500	650
Insulation Grade	B		
Power Supply	120VAC		
No. Chain falls	1		
Spec. of Load Chain	Ø 5/32 in	Ø 13/64 in	Ø 1/4 in
Net Weight (lb)	17.4	31.5	40.8

2.5. Oil & Lubricant Recommendations

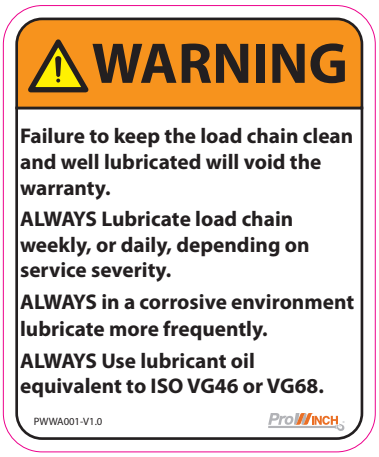
WARNING

Do not allow chain to run dry.

Lubricant greatly increases the life of the load chain. Weekly lubrication and cleaning is usually satisfactory, but under hot, dirty, and extreme conditions it may be necessary to clean the chain at least once a day and lubricate it several times between cleaning.
Apply sufficient lubricant to obtain natural runoff and full coverage, especially in interlink area.

Suspension pins should be lubricated at least twice per year for normal usage; more frequently for heavier usage or severe conditions.

Item	Lubricant	Interval	
		Normal Working Conditions	Heavy / Severe Working Conditions
Chain	Lubriplate® Bar and Chain Oil 10-R	Weekly	Daily
	Gear Oil ISO46 – ISO68	Twice Weekly	Daily
Gearbox	Meropa 320 (TEXACO)	Twice per year	Every other month
Hooks, Suspension pins & components	General lithium grease	Weekly	Daily



3. INSTALLATION

WARNING

Before installing, removing, inspecting, or performing any maintenance on the hoist, the main switch must be unplugged, locked out, and tagged out. Do not use this equipment in hazardous locations.

Installation Process:

- Electric chain hoists must be grounded properly.
- Lock-out, tag-out, and unplug the hoist before performing any service.
- Customer must provide power supply cable, fuses, and main disconnect switch.
- Check supply voltage is same as nameplate voltage on hoist.
- Ensure that the voltage is the same as the listed voltage on hoist's nameplate.
- Do not use conductors smaller than those listed in this User Manual to supply power to hoist.
- Never bypass limit switches, remove limit switch stops, or alter limit switch devices.

3.1 Unpacking

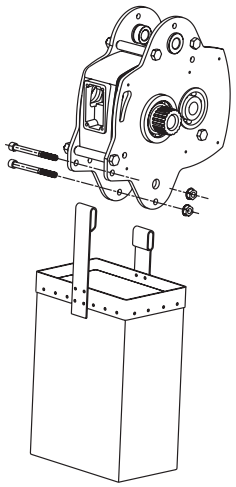
Hoist should be carefully inspected upon delivery for any damage that may have occurred during shipment or handling. Check the hoist frame for: dents or cracks, external cords for damaged or cut insulation, control station for cut or damaged enclosure, and load chain for nicks and gouges.

1 Chain bag (box)	1pcs
2 Control wire rope	1 m
3 Button switch	1 pcs

Check and document hoist characteristics:
a. Model number
b. Rated capacity (tonnage)
c. Lifting length of load chain (meter)
d. Power supply
e. Push button pendant assembly (2 button, 4 button or 6 button)
f. Specially ordered optional items
g. Beam width for trolley installation

3.2 Chain Bag Assembly

4.3.1 Before installing the hoist , please confirm the whole upper hook assembly has been firmly assembled to the hoist body and that the chain connection pin is installed properly.
Remarks: If the hoist is equipped with electric trolley , the upper hook does not need to be removed. Install the hoist between two side plates of trolley, and lock the upper hook.
4.3.2 Assemble chain bag (Fig.4.1)
4.3.3 Link the power supply and operate the push button, the procedure should be performed by professional trained person .(Fig.4.2)



3.3. Supply Voltage

WARNING

Check supply voltage everyday before use. If voltage varies more than 10% of rated value, electrical devices may not function normally and cause damage to equipment.

WARNING

Do not connect equipment to power supply before completing the installation process.

3.4. Electrical Connections

Operator and/or owner must provide main power supply hardware (cable, conductor bar, fuses, disconnect switch, etc.)

WARNING

Fuses and other current overload devices must be in place to protect power supply.
Do not use power supply cables with solid conductors.
An improper or insufficient ground connection creates an electrical shock hazard when touching any part of hoist or trolley

3.5. Install Trolley (models with trolley)

1.- Insert suspension pins into lateral plate G and lock it with suspension pin bolts and nuts.
2.- Install suspension pin with adjusting disk.
3.- Install suspension pin into hanger T. The nameplates of hoist and trolley should be in the same direction.
4.- Install additional gaskets into suspension pin before inserting it into lateral plate S.
5.- Install outside adjusting disk and spacer pin into suspension pin. Insert cotter pin into spacer pin.
6.- Cotter pin should be seen at the left side from front of trolley switch box.

4. OPERATION

4.1. Qualified Operator

Hoist operators are required to read and fully understand the operation section of this manual, all warnings contained in the manual, and labels attached to the equipment.

Operator training must be provided to ensure proper operation of equipment in compliance with instructions provided by the equipment manufacturer and the provisions of ASME B30, and proper rigging procedures for the attachment of loads to the hoist.

Safe and efficient operation of the hoist requires an operator who exercises caution, common sense, and good judgment in anticipating the effects of operating the hoist. The operator must be fully alert, focused, and aware of the surroundings at all times.

The job must be strictly carried out under the good practices defined by the applicable international and national safety standards, such as ANSI, OSHA and ASME.

This hoist must not be operated by individuals who:

- Cannot read, understand and speak the language in which the security labels, ID Plate and User Manual of equipment is written.
- Does not meet the legal age requirements.
- Is under the influence of alcohol, drugs, or medication.
- Has visual or hearing impediments, or below normal reaction times.
- Has a history of or experiences seizures, mental, heart, or other illnesses that could interfere with safe operation of the equipment.
- Has not been trained for the proper use of the hoist.
- Has not received and read the User Manual for the exact equipment.
- Has not demonstrated qualifications through practical operation of hoist.

4.2 Handling Precautions

ALWAYS:

- Keep hoist in good condition and make sure chain is lubricated and free to operate.
- Make sure electrical connection is grounded.
- Make smooth movements; avoid sudden changes of direction.
- Check the function of the hoist and trolley without a load before operation.
- Unplug equipment after using it to avoid unintentional operation.
- Keep everyone a distance of at least 1.5 times the length of chain. If load falls it can cause serious injuries and death.
- Make sure no one is beneath the load.

NEVER:

- Use pulleys or other accessories that are not specifically approved for the relevant hoist model.
- Hoist load with the tip of the hook.
- Hoist a load which is not vertical to the hook.
- Use the hoist to pull or drag the load.
- Exceed the maximum capacity of hoist.

4.3 Recommended Operation

WARNING

Always carry out a complete inspection before starting the operation of the hoist.
See ASME B30.
Always let all personnel know that crane maneuvers are about to begin!
Do not allow unauthorized Personnel to be in the lifting area.

Start with Operational Test

1. Turn on the remote control and press and hold the start key until you see a green light flashing on the receiver.
2. Press (down) button to lower the unloaded hook until the limit spring touches the limit switch. Be sure the hoist stops automatically before totally compressing the spring.
3. Press (up) button to raise the unloaded hook up until the limit spring touches the limit switch. Be sure the hoist stops automatically before totally compressing the spring.
4. Test correct function of emergency stop button. When pressing (up), and (down) buttons press the emergency stop button. Ensure the hoist stops immediately after pressing the emergency stop switch. The hoist should not start again if any other button is pressed.
5. Rotate the emergency stop switch clockwise to its original position. When it bounces back, the hoist can be started again. If any of the above tests fail, the unit must remain out of service, lockout/tag-out power and request authorized personnel to check the circuit layout for the automatic locking emergency stop switch.
6. Check lubricant condition of the load chain. Apply lubricant into the chain bag to protect the load chain.

Normal Operation

1. Check the direction of chain eyes. All welding points should face the same direction. The hoist cannot be operated properly unless all welding chain eyes are in the same line.
2. Position the hoist vertical to the load. Before moving the trolley, make sure the hook's path is free from any obstacles.
3. Lower the hook near master link to hoist load and make final adjustments to secure a 90° vertical lift operation without any lateral deviation. Improper lift angle may cause the load to swing.
4. Attach the hook to the load link and make sure there are no people in the working area. Check that no loose items can fall from the load.
5. Begin by hoisting the load two inches, then stop. Ensure the brakes are fully operational and the load doesn't lower while stopped. Also ensure the load is balanced and secured. The load may have shifted when suspended.
6. To reach a desired position, movements must be smooth and continuous. Repeatedly pressing buttons may heat up the motor and damage equipment.
7. Avoid sudden directional changes. These movements may damage the equipment, prematurely wear down brakes and cause accidents.

WARNING

If the hoist model has dual/speed capabilities, always start with slower speed to avoid sudden accelerations. Decelerate before completing a stop.

8. Avoid any obstacles while hoisting or traveling the load.
9. Start movement of the trolley and ensure that the load is not swinging and there are no obstacles in its path. Stop movement and make necessary adjustments if one of these conditions is present.

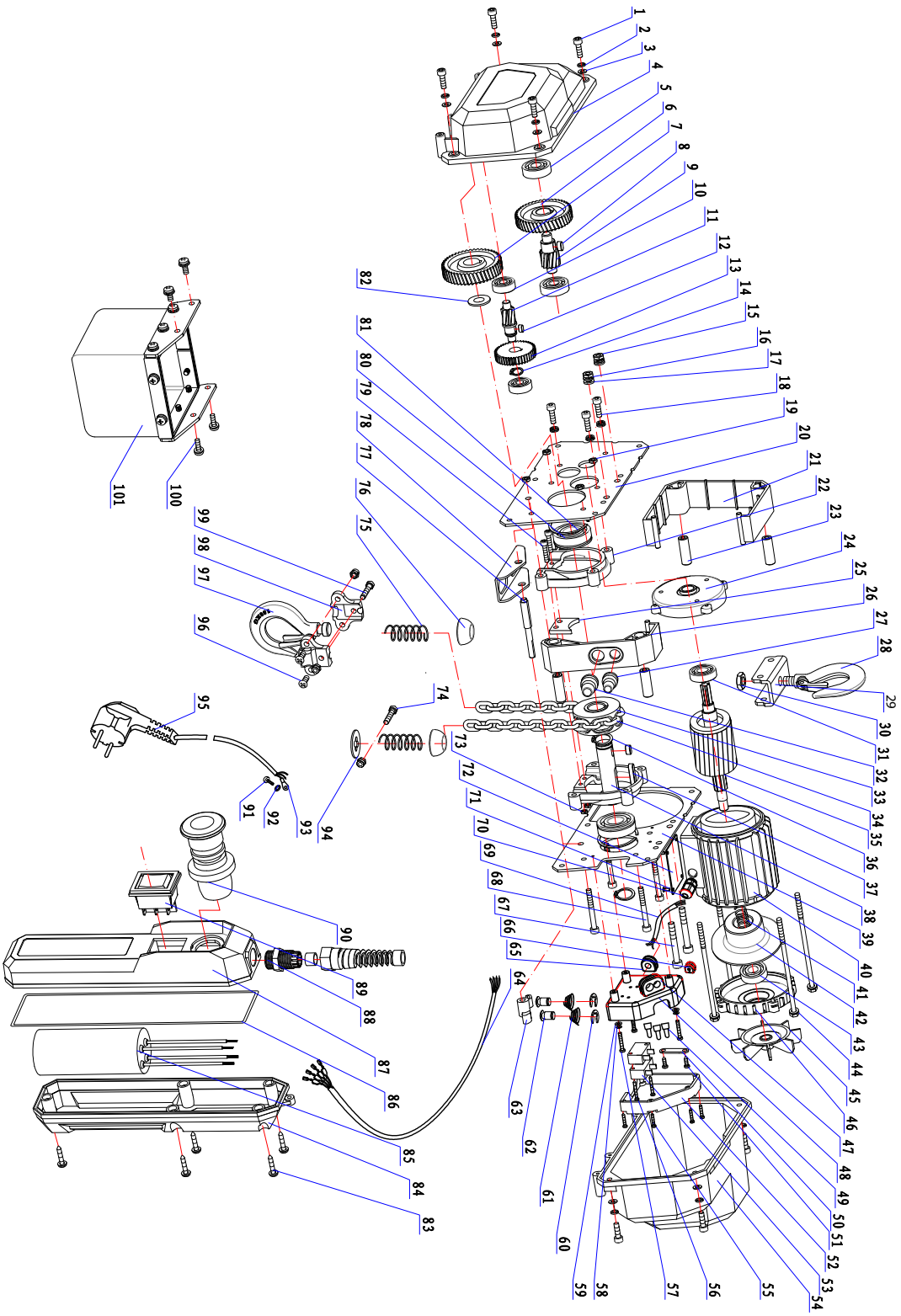
10. Once the desired position is reached, slowly stop the trolley. Position the load completely vertical to the desired spot where load will be lowered.
11. Gradually lower load until it is secured on resting surface. Avoid hitting surface at high speed. If necessary, stop movement before reaching surface and gradually lower to land load.

DANGER

NEVER leave load suspended without attention of the hoist operator!

5. EXPLODED VIEW AND PARTS LIST

5.1 Motor and body assembly drawing 330 lb unit

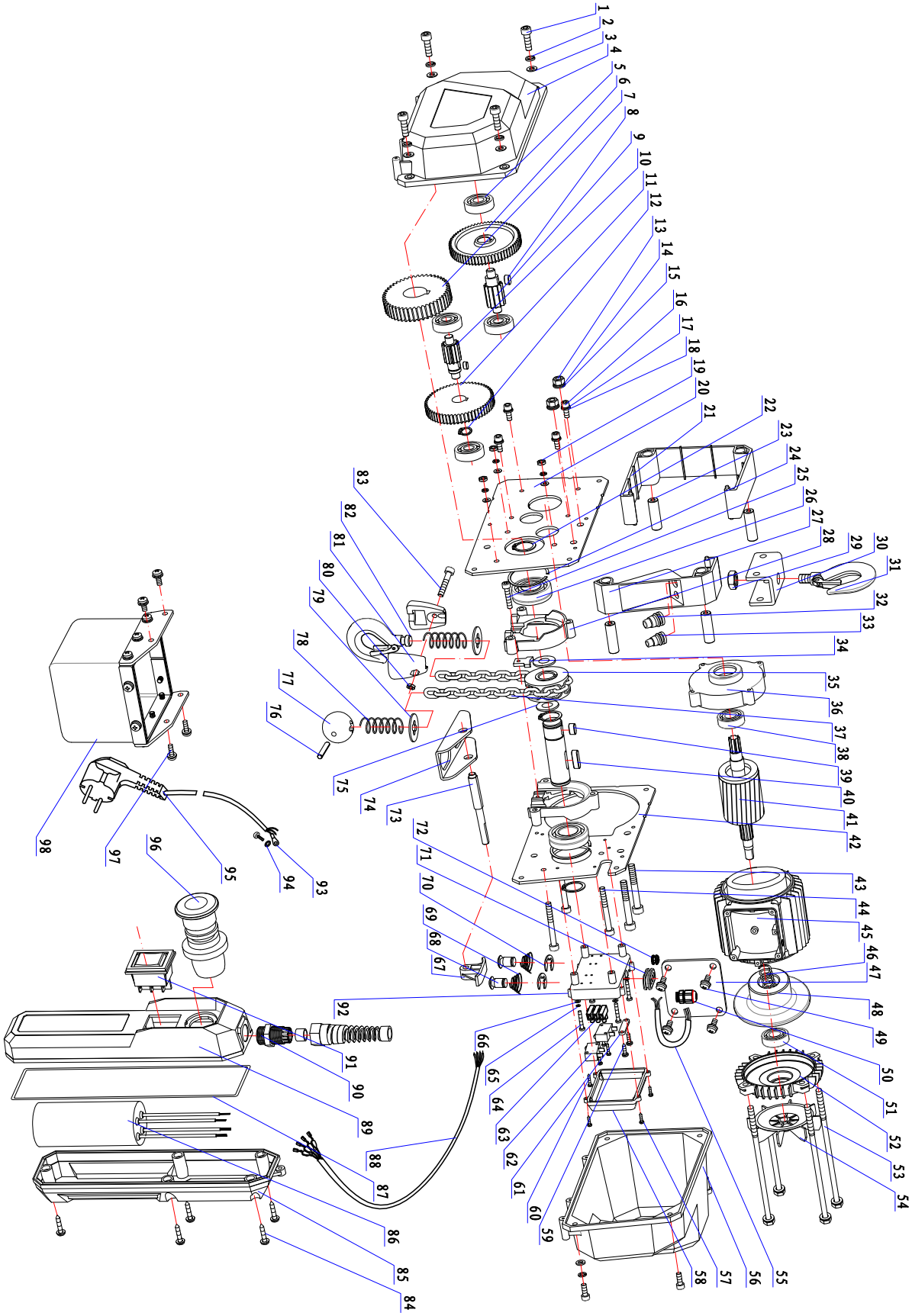


5.2 Motor and body assembly parts list 330 lb unit

	Part Name	Qty.		Part Name	Qty.
1	Hexagon socket head cap screw	8	38	Chain wheel shaft	1
2	Spring washers	11	39	Motor Plate	1
3	Plain washers	11	40	Stator	1
4	Gear Box	1	41	Brake Spring	1
5	Bearing	2	42	Brake assembly	1
6	Second stage gear	1	43	Bearing	1
7	Third stage gear	1	44	Hex head bolts assembly	4
8	Flat pin	1	45	Fan blade	1
9	Second middle shaft	1	46	Gear cover	1
10	Bearing	2	47	Wire flinger (big)	1
11	First middle shaft	1	48	Base of connection box	1
12	Flat pin	1	49	Wire flinger (small)	3
13	First stage gear	1	50	Clamp Plate	1
14	Circlip for shaft	1	51	Cross recessed pan head tapping	2
15	Thin Hexagon nut	2	52	Connection box	1
16	Spring washers	2	53	Limit switch	2
17	Plain washers	2	54	Motor cover	1
18	Hexagon socket head cap screw	3	55	Cross recessed pan head tapping screws	5
19	Hexagon nuts	8	56	Cross recessed pan head tapping screws	2
20	Plate	1	57	Cross recessed pan head screws	3
21	First Cover	1	58	Spring washers	3
22	Chain shelf	2	59	Plain washers	3
23	Shoring	4	60	“E” rings	2
24	Front cover	1	61	Limit switch spring	2
25	Chain baffle	1	62	Limit Shaft	2
26	Second cover	1	63	Limit Head	1
27	Small sheath	1	64	Control Cord	1
28	Hook	1	65	Motor wire sheath	1
29	Hook Base	1	66	Ground wire sheath	1
30	Thin Hexagon nut	1	67	Cross recessed pan head screws	2
31	Bearing	1	68	Cross recessed pan head screws	4
32	Big sheath	1	69	3 Core cord	1
33	Chain wheel	1	70	Cord clip	1
34	Chain	1	71	Cross recessed countersunk screw	4
35	Rotor	1	72	Motor cover	1
36	Circlips for shaft	2	73	Hexagon nuts	2
37	Flat pin	1	74	Corss recessed pan head screws	1

	Part Name	Qty.		Part Name	Qty.
75	Spring buffer	2	89	Positive and negativee switch	1
76	Block buffer	2	90	Emergency stop switch	1
77	Limit lever shaft	1	91	Cross recessed pan head screws	1
78	Limit lever	1	92	Lock washer	1
79	Cross recessed pan head screws	2	93	Ground connector	1
80	bearing	2	94	Gasket buffer	2
81	Circlips for shaft	2	95	Plug	1
82	Thick washers	1	96	Cross recessed pan head screws	2
83	Cross recessed pan head tapping screws	5	97	Chain hook	1
84	Controlling handle (base)	1	98	Hook block	1
85	Capacitor	1	99	Hexagon socket head cap screws	1
86	Handle sealed loop	1	100	Cross recessed pan head screws	1
87	Controlling handle (cover)	1	101	Chain bag assemby	1
88	Cord clip	1			

5.3 Motor and body assembly drawing 660 lb unit



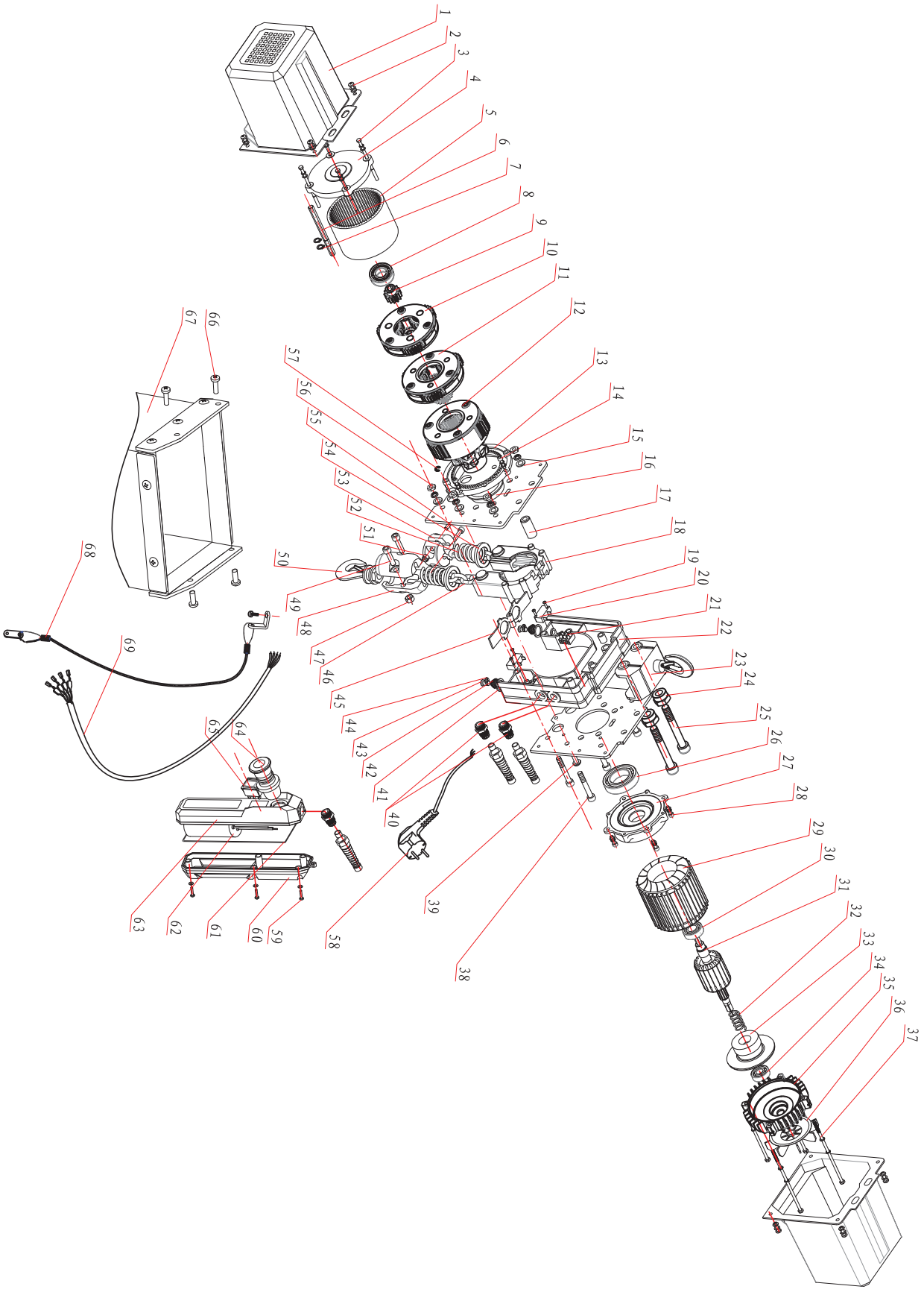
5.4 Motor and body assembly parts list 660 lbs unit

	Part Name	Qty.		Part Name	Qty.
1	Hexagon socket head cap screws	8	38	Bearing	1
2	Spring washers	11	39	Flat pin	1
3	Plain washers	11	40	Flat pin	1
4	Gear box	1	41	Rotor	1
5	Bearing	2	42	Motor plate	1
6	Second stage gear	1	43	Hexagon socket head cap screws	1
7	Third stage gear	1	44	Hexagon socket head cap screws	4
8	Flat pin	1	45	Stator	1
9	Second middle shaft	1	46	Brake spring	1
10	First middle shaft	2	47	Motor wire cover	1
11	First stage gear	1	48	Brake assembly	1
12	Circlips for shaft	1	49	Cross recessed pan head screws	3
13	Hexagon thin nuts	1	50	Cord Clip	1
14	Spring washers	1	51	Bearing	2
15	Plain washers	2	52	Motor Cover	1
16	Hexagon socket head cap screws	2	53	Assembly of Hex head bolts	5
17	Spring washers	2	54	Fan blade	2
18	Plain washers	3	55	3 core cord	3
19	Hexagon thin nuts	8	56	Motor housing	3
20	Plate	1	57	Cross recessed pan head tapping screws	3
21	Right cover	1	58	Connection box	2
22	Circlips for shaft	2	59	Cross recessed pan head tapping screws	2
23	Shoring	4	60	Cross recessed pan head tapping screws	2
24	Circlips for shaft	1	61	Clamp plate	1
25	Hexagon socket head cap screws	1	62	Limit switch	1
26	Bearing	1	63	Terminal block	1
27	Left cover	1	64	Cross recessed pan head screws	1
28	Chain shelf	1	65	Spring washers	2
29	Thin hexagon nuts	1	66	Plain washers	4
30	Hook base	1	67	Limit head	1
31	Hook	1	68	Limit shaft	1
32	Big sheath	1	69	Limit switch spring	4
33	Small sheath	1	70	“E” ring	1
34	Chain baffle	1	71	Limit shaft seal	2
35	Chain wheel	1	72	Grond wire sheath	1
36	Front cover	2	73	Limit lever shaft	2
37	Chain	1	74	Limit lever	2

Parts

	Part Name	Qty.		Part Name	Qty.
75	Plain washers	1	81	Hook block	5
76	Spring-type staright pins	1	82	Hook	1
77	Chain fixed block	2	83	Hexagon socket head cap screws	1
78	Spring buffer	2	84	Cross recessed pan head tapping screws	1
79	Gasket buffer	2	85	Controlling handle (base)	1
80	Prevailing torque type hexagon nut	1	86	Capacitor	1

5.5 Motor and body assembly drawing 1100 lb unit



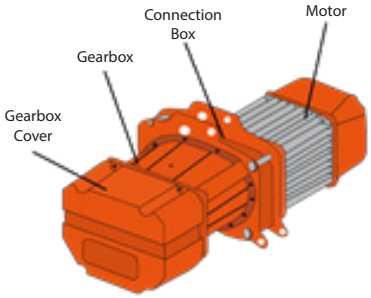
5.4 Motor and body assembly parts list 1100 lbs unit

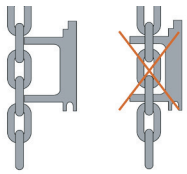
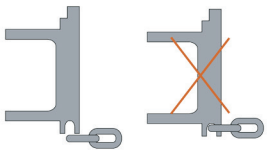
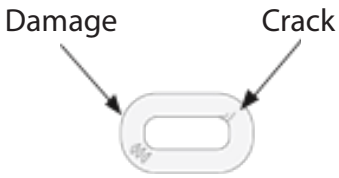
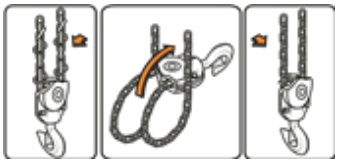
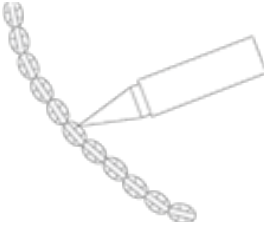
No.	Part name	Qty.	No.	Part name	Qty.
1	Fan cover	2	29	Stator	1
2	Cross recessed pan head screws M6 x 12	8	30	Deep groove ball bearing 6202-2RS	1
	Flat Washer D6		31	Rotor	1
	Spring Washer D6		32	Brake spring	1
3	Hexagon head bolt M6 x 85	4	33	Brake assembly	1
	Flat Washer D6		34	Deep groove ball bearing 6202-2RS	1
	Spring Washer D6		35	Motor back cover	1
4	Reduction gear box rear cover	1	36	Fan Blade	1
5	Annular gear	1	37	Assembly of Hex head bolts M5 x 135	4
6	Hexagon transmission shaft	1	38	Hexagon socket head cap screws M8 x 55	6
7	Circlip for Shaft D8	2	39	Flat round head pin D6 x 52	1
8	Deep groove ball bearing 6002-2RS	1	40	Cord Clip (thick)	1
9	Primary driving wheel	1		Cord Clip (thin)	2
10	First stage planetary wheel assembly (details)	1	41	Limit shaft protector	2
13	Second stage planetary wheel assembly (details)	1	42	Limit switch spring	2
12	Third stage planetary wheel assembly (details)	1	43	Limit shaft	2
13	Annular gear flange	1	44	“E” rings D6	2
14	Hexagon socket head cap screws M6 x 14	4	45	Limit lever	2
	Flat Washer D6		46	D6.3 chain / 3 meters	1
	Spring Washer D6		47	Prevailing torque type hexagon nut M8	2
15	Plate	2	48	Hook block	2
16	Bearing nylon sleeve	1	49	Hexagon socket head cap screws M8 x 30	2
17	Hexagon socket coupling sleeve	1	50	Hook (down)	1
18	Cahin Shelf	2	51	Prevailing torque type hexagon nut M8	2
19	Cross recessed pan head screws ST2.9 x 14.7	6	52	Sring buffer	2
20	Limit Switch	2	53	Chain fixed block	2
21	Connector	1		Buffer washer	2
22	Support Frame	1		Hexagon socket head cap screws M6 x 30+	2
23	Hook (up)	1	54	Hexagon nut M8	6
24	Prevailing torque type hexagon nut M10	2	55	Spring washer D8	
25	Hexagon socket head cap screws M10 x 75	2	56	Fat washer D8	
26	Deep groove ball bearing 6007-2RS	1		“E” rings D5	1
27	Front cover	1	57	Plug	1
28	Hexagon socket head cap screws M6 x 12	4	58	Cross groove pan head self tapping screw st4.2x18	5
	Flat Washer D6		59	Small washer D4	
	Spring Washer D6		60	Controlling handle (base)	1

No.	Part name	Qty.	No.	Part name	Qty.
61	Handle sealed loop	1	66	Assembly of cross recessed pan head screws M5x16	4
62	Capacitor	1	67	Chain bag assemby	1
63	Controller handle (base)	1	68	Power cord	1
64	Emergency stop button	1	69	Control cord	1
65	Positive and negative switch	1			

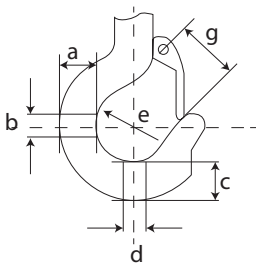
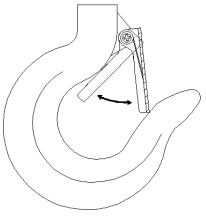
6. OPERATION

6.1. Periodic Inspection

Items	Inspection Method	Standards	Correction
Marks such as name-plates, labels etc.	Visual check	Clear marks and no peeling	Proceed with cleaning, repairing and replacing. Record serial number for replacing
Deformation or damage of body parts	Visual check 	No remarkable deformation, damage, defect or chap	Replace parts which are deformed, damaged, and defective
Bolts, nuts, and cutters loose or falling off	Visual and tool check	- Correct installation -A loose bolt will cause equipment failure - Ensure proper installation to avoid death or serious injury	Precise installation

Items	Inspection Method	Standards	Correction
Extent of pitch	Check with chain measurement tool		
Attrition of chain diameter	Check with chain measurement tool		
Deformation or damage	Visual check  Confirm chain is not stuck to welding spatters by visually inspecting it.	- No gouges - No deformation -No crack	Replace the load chain
Rust and corrosion	Visual check	No remarkable rust and corrosion	Replace load chains
Distortion	Visual check	No distortion due to bottom block rollover of double chain models 	Correct distortion
Oil supply	Visual check	Adequate supply of oil 	Oiling

<table>
<tr><th>Items</th><th>Inspection Method</th><th colspan="3">Standards</th><th>Correction</th></tr>
<tr><td>Limit switch</td><td>Check by pushing button</td><td colspan="3">Operate until upper and lower limit cause automatic motor shutdown</td><td>Replace limit switch, disassemble and clean limit lever</td></tr>
<tr><td>Movement confirmation</td><td>Check by pushing button</td><td colspan="3">-Load chain can roll up easily
-Motor shutdown immediately when operation stops
-All movements shutdown when E-stop button pushed
-Other buttons cannot cause movement when pushing the E-stop button -All movements return to normal operation when E-STOP button relieved</td><td></td></tr>
<tr><td>Brake</td><td>Check by pushing button</td><td colspan="3">Brake quickly activates and operation of bottom hook immediately stops (amount of movement of the load chain is within 2 to 3 rings)</td><td></td></tr>
<tr><td rowspan="5">Chain Spring</td><td rowspan="5">Visual inspection and measure dimensions</td><td rowspan="2">Chain</td><td colspan="2">Length of spring</td><td rowspan="5">Replace chain spring
  </td></tr>
<tr><td>Standard</td><td>Limits</td></tr>
<tr><td>Ø6.3</td><td>145</td><td>140</td></tr>
<tr><td>Ø7.1</td><td>145</td><td>140</td></tr>
<tr><td>Ø10.0</td><td>135</td><td>129</td></tr>
<tr><td>Ø11.2</td><td>160</td><td>152</td></tr>
</table>

<table>
<tr><th>Items</th><th>Inspection Method</th><th>Standards</th><th>Correction</th></tr>
<tr><td>Attrition and opening of the hook</td><td>Visually check and with vernier caliper tool
 
</td><td>No remarkable opening or attrition
<table>
<tr><th>Load</th><th>a</th><th>b</th><th>c</th><th>d</th><th>e</th><th>g</th></tr>
<tr><td>0.3 -0.5</td><td>27</td><td>18</td><td>25</td><td>17</td><td>35</td><td>28</td></tr>
<tr><td>1</td><td>34</td><td>24</td><td>30</td><td>24</td><td>42</td><td>32</td></tr>
<tr><td>2</td><td>46</td><td>29</td><td>39</td><td>30</td><td>49</td><td>40</td></tr>
<tr><td>3</td><td>56</td><td>35</td><td>49</td><td>34</td><td>59</td><td>48</td></tr>
<tr><td>5</td><td>67</td><td>43</td><td>67</td><td>44</td><td>60</td><td>48</td></tr>
<tr><td>7.5 - 10</td><td>82</td><td>55</td><td>80</td><td>48</td><td>85</td><td>80</td></tr>
<tr><td>15</td><td>110</td><td>78</td><td>120</td><td>80</td><td>120</td><td>90</td></tr>
<tr><td>20 - 25</td><td>142</td><td>95</td><td>155</td><td>98</td><td>150</td><td>115</td></tr>
</table></td><td></td></tr>
<tr><td>Deformation, damage and corrosion</td><td>Visual check</td><td>No remarkable deformation, harmful damage and corrosion</td><td>Replace hook</td></tr>
<tr><td>Hook safety latch</td><td>Visual inspection, fold and unfold actions</td><td>-Can exactly fold inside the hook
-No deformation
-Do not use the hook if safety latch is loose
-Improper use may lead to death or serious injury</td><td>Replace hook safety block
  </td></tr>
<tr><td>Hook movements (rotation)</td><td>Visual inspection and manual rotation</td><td>-No remarkable space between bottom supporting and top
-equal at right and left
-easy to rotate 360°</td><td>Replace hook</td></tr>
</table>

7.1. During Operation:

Symptoms			Main Cause	Correction
Hoist does not operate	Brake is inaudible	Contactor is inaudible	Excessive voltage	Power
			Operating circuit break-off, electric parts over-heating	Power supply
				Internal wiring
				Contactor
				Transformer
				Up/Down limit switch
				Button switch
		Contactor is audible	Power circuit break-off, overheating motor, brake	Motor
				Brake
				Internal wiring
				Contactor (junction fusing)
	Brake is audible		Drive overheating, broken bearing	Gear
				Bearing
Operates without load only	Unable to lift (motor roar)		Default phase (single phase operation)	Power
				Feed power
				Motor
				Contactor (junction fusing)
	Slow lifting		Low voltage	Feed power
Unintended reaction from button	Inverse reaction from button		Wrong phase sequence wiring	Feed power
			Incorrect signal wiring	Internal wiring
				Button switch
	No reaction after pressing button		Circuit wire break	Internal wiring
				Button switch
			Electric installation parts	Contactor
				Up/Down limit switch
				Contactor
				Brake
				Feed power
				Internal wiring
				Button switch
				Load chain
				Load pulley, bare pulley
				Gear
				Bearing
	Noise of brake	Running (grating)	Drag	Brake
		Stop	Wear of friction plate	Brake
	Abnormal noise of rail curve (grating)		Obstruction of orbit/wheel	Operation of trolley

Fault		Major Cause	Check Items
Does not move horizontally		Rail declining	Trolley movement
	Electric trolley /manual trolley	Inclined pull (wheel is lifting)	Trolley movement
	Electric trolley /manual trolley	Gear occlusion problem	Trolley movement
	Electric trolley /manual trolley	Brake fastening	Trolley movement
	Electric trolley	Electric faults	Trolley movement
Irregular movement and noise	Electric trolley /manual trolley	Rail & wheel interference	Trolley movement
		Side wheel lacks oil	
		Uneven wheel wear	
		Wheel deformation	
		Rail deformation, wear	
		Bearing wear	
		Brake wear	
Hook		Deformation	Hook
Load chain		Wear, extension, deformation	Load chain
Electric shock upon touching machinery body or control switch		Equipment not properly grounded	Proper electric connection
Does not operate in non-load state	Brake inaudible	Supply power	Supply power voltage
		Operating circuit break-off, electric parts overheating	Cables
			Internal wiring
			Transformer
			Electrical relay
			Limit switch
			Push button switch
		Braking interval too large or small.	Motor
			Calibrate brake
		Tripping as motor overheats	Thermal protector
	Brake audible	Bearing burning out, driving component wear	Replace brake bearing
			Bearing
	Slow load operation	Voltage drop	Feed cable
	Low and high speed status not operating or working slow	Low voltage	Supply power
		Voltage drop	Feed cable
Movement does not correspond with switch button	Movement did not correspond with switch button	Motor wires connected	Motor
		Connection error	Internal wiring
			Push button switch
	Switch button did not work	Operating circuit break-off	Internal wiring
			Push button switch
		Electrical installation error	Limit switch

Condition	Reason	Action	Cause	Correction
No operation	Abnormal supply voltage	Power supply	Improper power supply	Check power supply regularly

Power Cable

Condition	Reason	Action	Cause	Correction
No operation	Wire break	Repair or change cable if broken	Strong force exerted	Firmly fix on cable support or other equipment
			(2 or more)	Use anti-vibration cable in movable part.
			Twisted, knotted	Straighten twists and knots
			Interference with other equipment	Use fixed cable and avoid outside interference
	Overheating	Check cables, exchange if overheating	Temperature rise due to off-capacity	Adopt the proper cable
			Binding cable used	Do not use binding cable
Starting slow or no operation	Off-capacity	Check cable diameter, replace cable if diameter is too small	Voltage drop	Adopt proper cable
Operation only in free load (single phase)	1 wire break or overheating	Refer to above break or overheating item		
Movement did not correspond with switch button (opposite)	Power line connection error	Replace wires	Wiring assembly error	Connect wire as per wiring diagram

Motor

Condition	Reason	Action	Cause	Correction
No operation	Coil burning (above 2 phase)	Measure phase resistance value; change motor if value is infinite.	Excessive current caused by high or low voltage	Operate under rated voltage
			Excessive current caused by overload	Operate under rated voltage
			Beyond short-term rating and intermittent cycle rating	Short-term rating, intermittent cycle rating, operate under rated voltage
				Avoid over-operation
			Excessive current caused by brake	Refer to brake
	Lead wire break (above 2 phase)	Measure phase resistance value; change motor if value is infinite.	Lead wire broken in assembly	Change motor coil
			Vibration, drop	Avoid excessive bumping in usage
Operation only in free load (single phase state)	Coil burning (1 phase only)	Measure phase resistance value; change motor if value is infinite	Poor electric isolation	Ensure foreign matter does not enter motor
	Leading wire break (1 phase only)	Measure phase resistance value; change motor if value is infinite	Leading wire break in assembly	Change motor coil
			Vibration, drop	Avoid excessive bumping

Brake

Condition	Reason	Action	Cause	Correction
No operation	Braking coil burning	Measure brake phase resistance value; change brake if value is infinite.	Excessive current caused by high or low voltage	Operate under rated voltage
				Avoid over-operation
			Excessive current caused by overload	Operate under rated voltage
				Confirm short-term rating, intermittent cycle rating, operate under rated voltage
			Excessive current caused by operation in singe phase state	Stop immediately if unable to lift load in single phase
	Friction plate beyond brake magnetism scope	Measure brake clearance, replace if space is over usage limit		Avoid over-operation
	Broken brake wire	Ensure wire is connected, replace if disconnected	Lead wire damaged during assembly	Replace coil brake
	Improper connection of brake wire terminal	Replace insert terminal when loose	Assembly error	Proper connection in assembly
	Rust	Replace brake if rust present	Exposure to water in storage	Ensure dry storage
			Condensation	Monitor usage environments
	Friction plate wear	Measure brake clearance, replace if space is over use limit		Avoid over-operation

Inside Wiring

Condition	Reason	Action	Cause	Correction
No operation	Break	Check cable, repair if wire break	Vibration, drop	Avoid excessive bumping in usage
			Leading wire damaged in assembly	Change motor coil
		Check connector, repair if wire break	Connector not properly set	Press by appropriate tool
	Wiring error	Refer to wiring diagram, ensure properly connected	Wiring error	Refer to wiring diagram, ensure properly connected
	Connector screws loose	Fastening	Improper fastening	Ensure effective fastening
	(overheating)		Vibration, drop	Avoid excessive bumping in usage
	Connector, insert terminal improper combination	Proper combination	Bad combination during assembly	Ensure combination is effective

Transformer

Condition	Reason	Action	Cause	Correction
No operation (contractor)	Coil burning, break	Measure coil resistance value; Change transformer if value infinite	Excessive voltage	Operate under rated voltage
				Avoid over-operation
			Excessive current caused by contactor	Refer to contactor items
			Vibration, drop	Avoid excessive bumping in usage
	Wire break	Check leading wire, repair or change transformer if wire	Vibration, drop	Avoid excessive bumping in usage

Contactor & Electric Reply

Condition	Reason	Action	Cause	Correction
Non-stop activation	Junction welding burn out	Change contactor if continuous welding or burn out. For electric reply, visual inspection of junction		Do not over-operate
			Excessive voltage (Excessive current)	Operate under rated voltage
			Excessive current due to overload	Operation under rated voltage
No operation	Coil burning	Measure coil resistance value. Change coil if value infinite.		Avoid over-operation
			Excessive voltage	Operate under rated voltage
			Vibration due to low voltage (Starting current added continuous)	Operate under rated voltage
		Replace contactor if action is not smooth. For electric reply, visual inspection for part breakage	Vibration, drop	Avoid excessive bumping in usage

Limit switch

Condition	Reason	Action	Cause	Correction
No operation (Contactor)	Contact fused	Operate limit switch. Check continuity of contactor, replace if result is negative	Limit switch overuse	Avoid overuse of switch
	Wire break	Inspect cable, change if wire breakage or replace limit switch	Vibration, drop	Avoid excessive bumping in usage
	Movable parts rusting	Check movable parts such as limit lever. Remove if rusty or replace if adhesive	Set in Up/Down limit for long time	Do not set in Up/Down limit
Motor did not stop upon reaching upper and lower limit	Contact welded	Operate limit switch. Check continuity of contactor, replace if does not open	Limit switch used frequently	Avoid overuse of limit switch
	Rusting of movable parts	Check movable parts such as limit lever. Remove if rusty or replace if adhesive	Infrequent usage; use in moist environments.	Regular inspection
	Wiring error	Reference wiring diagram. If limit switch cable is properly connected, it is inversely connected. Swap 2 wire power cords	Wiring error	Properly connect wire power cords as per wiring diagram

Push button switch

Condition	Reason	Action	Cause	Correction
No operation (Contactor)	Emergency button is pressed	Turn button right to recover	Emergency button not reset	Read User Manual before usage
	Switch gear fault	Conduction contacts, replace switch if off	Vibration, drop	Avoid excessive bumping in usage
	Wiring break	Check if button cable is correctly connected to switch device. Repair if broken	Vibration, drop	Avoid excessive bumping in usage
	Terminal screw loose	Tighten screw	Vibration, drop	Avoid excessive bumping in usage
	Button cable wire break	Replace cable or button cable when wire break	Cable coating damaged	Avoid contact with other equipment during operation
			Faulty installation	Install protection line firmly
Action does not correspond with display	Wiring error	Reference wiring diagram. If limit switch cable is properly connected, it is inversely connected. Swap 2 wire power cords	Wiring error	Properly connect wire power cords as per wiring diagram
Operation continues upon button release	Faulty switch gear part	Replace switch if not smooth.	Vibration, drop	Avoid excessive bumping in usage

Electric shock

Condition	Reason	Action	Cause	Correction
Electric shock upon touching machinery or control switch	Equipment not properly grounded	Measure earth resistance. If below 100Ω assemble ground wire	Improper ground wire connection	Firmly connect ground wire
			Ground wire bad connection	Assemble carefully to prevent loose screw
			Cable break	Do not apply excessive force on cable
	Dampness/ water	Clean, use once dry	Wet hands	Do not operate with wet hands

Hook

Condition	Reason	Action	Cause	Correction
Hook mouth open	Hook deformation	Replace hook if deformation is beyond permitted range.	Overload	Operate under rated voltage
			Lifting (hook connected with grounded object)	Do not lift grounded objects.
			Load hanging on hook head; hook pull horizontal	Lifting load properly with hook
			Hanger suspension errors	Lifting angle must be controlled within 120 °
			Load size exceeds rated hook	Using proper hook
Hook twist			Chain wrapped around load	Do not wrap chain
Head hook improper rotating	Bearing rust, corrosion	Hand rotation; maintain or replace if experiencing difficulty rotating	Inadequate grease lubricant; corrosion	Apply grease lubricant regularly; prevent hook contamination of chemical agents
	Bearing damage		Dust	Prevent foreign matter from entering head

Load chain

Condition	Reason	Action	Cause	Correction
Chain is twisted	Bottom hook up-turned	Reset hook	Bottom hook rotation during usage	Check hook state before operation
	Chain twist in machinery body	Reassemble chain guide and load chain	Improper assembly	Ensure proper assembly
Limit switch suddenly activated while lowering	Chain is twisted or knot in chain bag	Confirm chain bag capacity (chain bag nameplate) replace with larger one if capacity insufficient	Chain bag inadequate capacity	Confirm lifting height and chain bag capacity
Crackling sound	Chain is damaged	Measure wear of chain link diameter. Replace if reaching wear limit	Long-term operation with insufficient lubrication	Apply grease lubricant regularly
Irregular sound from springs (cracking sound)	Wear of link part	Measure diameter on wear of chain, and replace when at wear limit	Excessive operation	Avoid excessive operation
			Overload	Use under rated load
			Incline pull	Ensure proper pull direction
			Wear of load pulley and empty pulley	Refer to load pulley and empty pulley
	Extension of pitch	Measure pitch and replace when exceeding limit	Overload	Use under rated load
Irregular sound	Damage or deformation on chain surface	Replace when obvious damage and deformation occur	Use under transition situation	Use under models with multiple chain
			Chain used improperly	Ensure proper assembly
	Mark on chain surface		Damaged by other equipment	Monitor surrounding environment throughout usage to avoid collisions
Discoloration	Rust, corrosion	Apply lubricants and replace when obvious rust and corrosion occurs	Lubricant exhausted	Apply lubricating oil regularly
			Exposure to water	Use in dry places
			Influenced by seawater or chemical agent	Inform us if used in special circumstances to safeguard range
Load chain fractured	Reaching service life	Check chain, replace if differing from benchmark specifications	Mechanical life	Operate correctly and manage properly including inspection before usage and regular check-ups

Chain Wheel

Condition	Reason	Action	Cause	Correction
Improper noise	Wear of chain wheel	Check wear degree on chain, wheel slot, and load chain. Replace if badly worn	Long-term operation with insufficient lubrication	Apply lubricating oil regularly
			Excessive operation	Avoid excessive operation
			Overload	Use under rated load
			Incline pull	Avoid incline pull

Load pulley and empty pulley

Condition	Reason	Action	Cause	Correction
Irregular sound from springs (cracking sound)	Wear of pulley	Measure slot edge thickness and load chain, replace if badly worn	Long-term operation with insufficient lubrication	Apply lubricating oil regularly
			Excessive operation	Avoid excessive operation
			Overload	Use under rated load
			Incline pull	Avoid incline pull

Chain Guide

Condition	Reason	Action	Cause	Correction
Increased shaking	Wear of chain guide and guide pulley	Measure benchmark size and load chain, replace if badly worn and limit size exceeded	Incline pull	Avoid incline pull

Chain Wheel, Junction Part

Condition	Reason	Action	Cause	Correction
Unable to lift loads	Wear, breakage	Replace when obvious wear or breakage occur	Long-term operation with insufficient lubrication	Apply lubricating oil and inspect annually
			Long-term operation with insufficient lubrication (joint part of motor shaft)	Apply lubricating oil and inspect annually
Irregular operation	Wear, breakage		Limit switch used too frequently	Avoid excessive use of limit switch

Bearing

Condition	Reason	Action	Cause	Correction
Unable to lift loads	Breakage	Replace bearing	High temperature or high frequency	Avoid use at high temperatures or high frequency

Trolley

Condition	Reason	Action	Cause	Correction
No drive due to wheel skid	Rail tilt	Confirm rail slope is within 1 °	Improper rail settings	Set up orbit correctly
No drive due to wheel skid	Apply oil above orbit wheel tread.	Ensure wheel is clean and unobstructed	Use in environment which outside material does not interfere with parts	Clean orbit regularly
Audible friction when travelling on curve track	Friction resistance between wheel and rail	Apply lubricating oil on track tread		
No drive on curve track	Interference of curve track and trolley	Confirm that orbit curve's radius is minimal bending radius	Curve track exceeding limit value	Avoid use on curve track exceeding limit value
Wheel raised and unable to be driven	Inclined pull (wheel raised)		Operation method	Correct use
Wheels stopped revolving	Faulty gear connec-tion	Ensure clean space between wheel and gear	Interference from outside material	Check regularly
Abnormal sound	Improper adjustment circle	Confirm adjustment circle number and insert position	Insufficient confirmation	Install correctly
	Wear of wheel	Confirm wear degrees	Traveling surface has bump	Confirm regularly
	Deformation of wheel	Check wheel bending and surface damage	Excessive collision, traveling surface deformed	Replace and use correctly
	Aging of wheel bearings	Confirm irregular sound exists when wheel rotates	Reaching service life	Replace
	Deformation and wear of track	Confirm rail wear and deformation	Overload or reaching service life	Replace and use correctly

Electric Trolley

Condition	Reason	Action	Cause	Correction
Wheels stopped revolving	Brake gelling	Open motor cover remove rust and dirt	Usage environment	Inspect regularly
	Electric fault	Refer to items of electric chain hoist		
Abnormal sound	Wear of edge guide wheel	Confirm wear degrees	Reaching service life	Confirm regularly
	Wear of friction slices	Confirm wear degrees of friction slices	Reaching service life	Confirm regularly

Manual Trolley

Condition	Reason	Action	Cause	Correction
Unable to move hand chain	Bad connection between hand wheel and hand chain	Properly adjust hand chain on hand wheel	Excessive or improper usage	Replace worn or deformed components

Pairing transmitter and receiver

Follow these instructions to pair the transmitter:

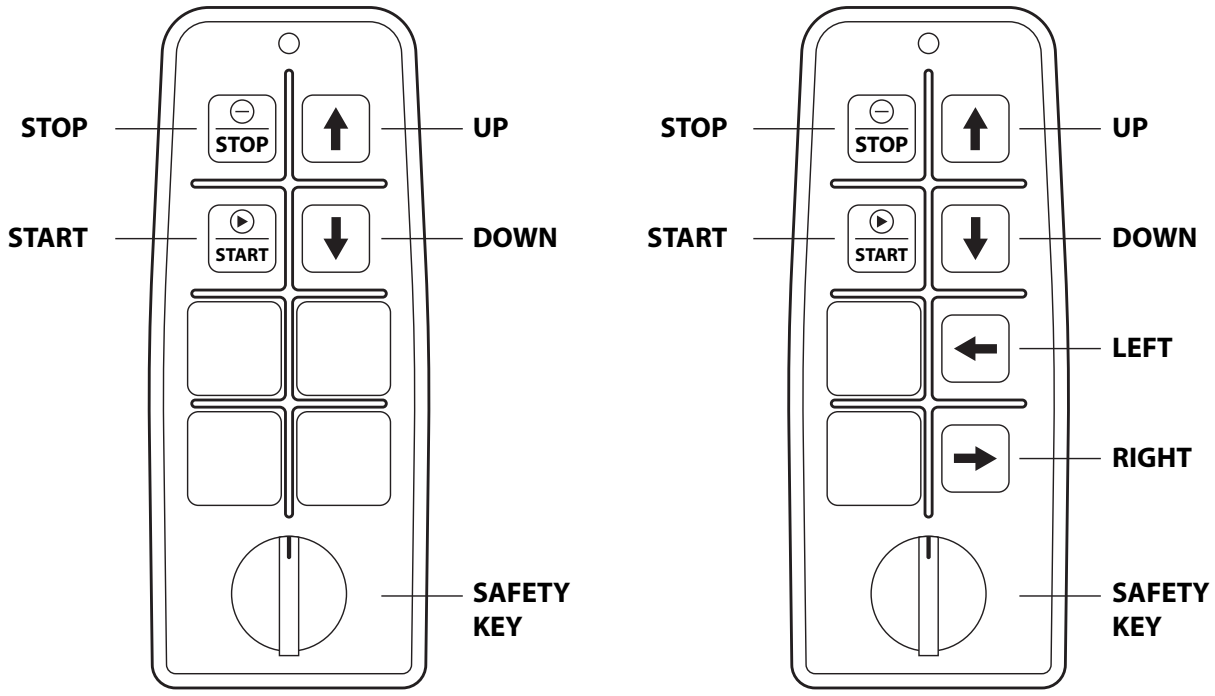
1. Disconnect the power supply from the receiver.
2. Remove the battery from the transmitter.
3. Return the battery to the transmitter, then hold down the "up" and "start" buttons until the Red LED on the transmitter flashes rapidly.
4. Re-connect the receiver to the power supply. The red LED on the transmitter will begin to flash slower. At this point, the transmitter and receiver are paired.

If you need to change the code and channel on the transmitter, complete one of the following:

TO COPY TRANSMITTER CODE AND CHANNEL TO THE RECEIVER
Press "UP" key to complete this operation.

TO COPY RECEIVER CODE AND CHANNEL TO THE TRANSMITTER
Press "DOWN" key to complete this operation.

If the process has been successful, the green LED on the transmitter will flash once.



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