ELECTRIC CHAIN HOIST

330 lb • 660 lb • 1100 lb

user's manual

electric mini chain hoist

TABLE OF CONTENT

DANGER

DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

Warning

WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

Caution

CAUTION used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.

Note

If you have questions regarding your hoist, we can help. Please contact us, we are here to help.

Caution

CAUTION used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.

IMPORTANT INFORMATION AND WARNINGS

Terms and Summary

***This manual provides important information** for personnel involved with the installation, operation and maintenance of this product. Although you may be familiar with this or similar equipment, it is strongly recommended that you read this manual before installing, operating or maintaining the product.*

Danger, Warning, Caution and Notice

Throughout this manual there are steps and procedures that can present hazardous situations. The following signal words are used to identify the degree or level of hazard seriousness.

Caution

These general instructions deal with the normal installation, operation, and maintenance situations encountered with the equipment described herein. The instructions should not be interpreted to anticipate every possible contingency or to anticipate the final system, crane, or configuration that uses this equipment. For systems using the equipment applicable industry standards, and with all applicable federal, state and local regulations/codes.

Caution

This manual includes instructions and parts information for a variety of hoist types. Therefore, all instructions and parts information may not apply to any one type or size of specific hoist. Disregard those portions of the instructions that do not apply.

Record your hoist's Code and Serial Number for future reference to avoid referring to the wrong manual for information or instructions on installation, operation, inspection, maintenance, or parts.

Use only authorized replacement parts in the service and maintenance of this hoist.

Warning

Equipment described herein is not designed for and MUST NOT be used for lifting, supporting, or transporting people, or for lifting or supporting loads over people.

Equipment described herein should not be used in conjunction with other equipment unless necessary and/or required safety devices applicable to the system, crane, or application are installed by the system designer, system manufacturer, crane manufacturer, installer, or user.

Modifications to upgrade, rerate, or otherwise alter this equipment shall be authorized only by the original equipment manufacturer.

If a below-the-hook lifting device or sling is used with a hoist, refer to the ANSI/ASME B30.9, "Safety Standard for Slings" or ANSI/ASME B30.20, "Safety Standard for below-the-hook Lifting Devices".

Warning

Equipment described herein may be used in the design and manufacture of cranes or monorails. Additional equipment or devices may be required for the crane and monorail to comply with applicable crane design and safety standards. The crane designer, crane manufacturer, or user is responsible to furnish these additional items for compliance. Refer to ANSI/ASME B30.17, "Safety Standard for Top-Running Double-Girder Cranes"; and ANSI/ASME B30.11 "Safety Standard for Underhung Cranes and Monorails".

Hoists and cranes, used to handle hot molten material may require additional equipment or devices. Refer to ANSI Z241.2 "Safety Requirements for Melting and Pouring Metal in the metalcasting Industry".

Electrical equipment described herein is designed and built in compliance with Harrington's interpretation of ANSI/NFPA 70, "National Electrical Code". The system designer, system manufacturer, crane designer, crane manufacturer, installer, or user is responsible to assure that the installation and associated wiring of these electrical components is in compliance with ANSI/NFPA 70, and all applicable Federal, State and Local Codes.

Failure to read and comply with any one of the limitations noted herein can result in serious bodily injury or death, and/or property damage.

DANGER

HAZARDOUS VOLTAGES ARE PRESENT IN THE CONTROL BOX, OTHER ELECTRICAL COMPONENTS, AND CONNECTIONS BETWEEN THESE COMPONENTS.

Before performing ANY mechanical or electrical maintenance on the equipment, de-energize (disconnect) the main switch supplying power to the equipment; and lock and tag the main switch in the de-energized position. Refer to ANSI Z244.1, "Personnel Protection - Lockout/Tagout of Energy Sources".

Only trained and competent personnel should inspect and repair this equipment.

Note

It is the responsibility of the owner/user to install, inspect, test, maintain, and operate a hoist in accordance with ANSI/ASME B30.16, "Safety Standards for Overhead Hoists", OSHA Regulations and ANSI/NFPA 70, National Electric Code. If the hoist is installed as part of a total lifting system, such as an overhead crane or monorail, it is also the responsibility of the owner/user to comply with the applicable ANSI/ASME B30 volume that addresses that type of equipment.

It is the responsibility of the owner/user to have all personnel that will install, inspect, test, maintain, and operate a hoist read the content of this manual and aplicable portions of ANSI/NFPA 70, "National Electric Code". If the hoist is installed as part of a total lifting system, such as an overhead crane, the applicable ANSI/ASME B30 volume that addresses that type of equipment must also be read by all personnel.

Warning Tags and Labels

The warning tag illustrated below is supplied with each hoist shipped from the factory. Read and obey all warnings attached to this hoist.

Warning

IMPROPER use of powered electric chain hoist could result in serious injury or death. To avoid these hazards:

- **ALWAYS read owner's manual and safety instructions**
- **NEVER lift more than rated load**
- **NEVER lift or transport load near or over people.**
- **NEVER run the load chain over a sharp edge.**
- **NEVER operate a hoist if damaged or malfunctioning.**
- **NEVER use a hoist for lifting, supporting, or trans porting people.**
- **NEVER operate unless load is centered under the hoist.**
- **NEVER use the hoist chain as a sling.**
- **NEVER wind so far that the hook touches the hoist.**
- **NEVER unwind so far that no unloaded chain is left.**
- **NEVER support a load on the tip of the hook.**
- **NEVER use a twisted, kinked, damaged, or stretched load chain.**
- **NEVER use a hoist if the hook latch is damaged or missing.**
- **NEVER remove or obscure any WARNING tags.**

Technical Information

Features and General Specifications

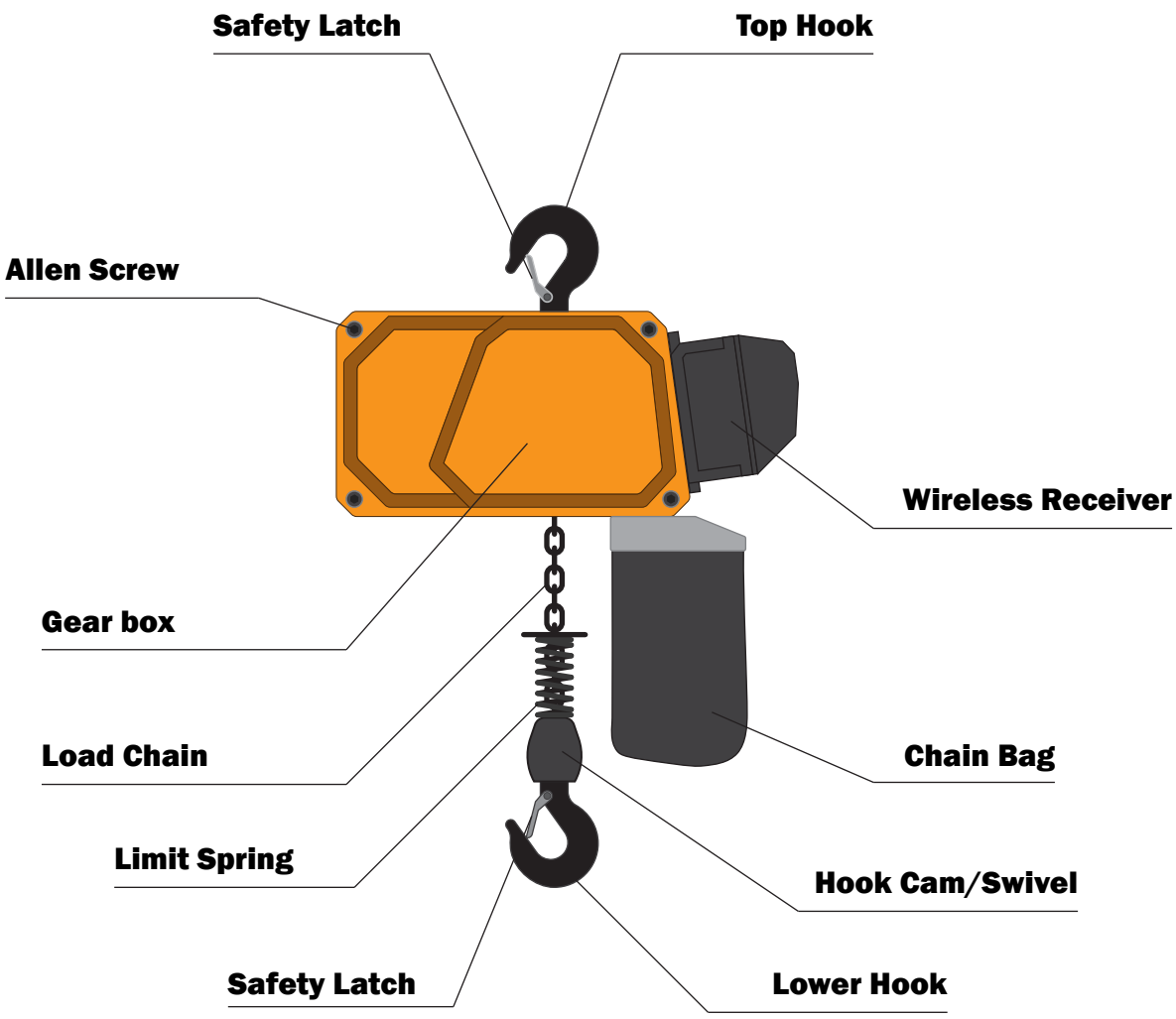
Push button pendant control	-	*Only on applicable units.*
One-Hand pendant control	-	*Only on applicable units.*
Wireless Remote Control System	-	*Only on applicable units.*
Weigh/Size	-	*Light weight, easy to install, move, or store.*
Single Braking System	-	*Automatic Electromagnetic braking system.*
Low Headroom	-	*Compact aluminum body provides low headroom.*
Upper Limit Switch	-	*Installed on all models.*
Ergonomic Design	-	*All models designed to be operated with one hand*
Smooth Operation	-	*Gears are suported by deep groove and needle bearing inmersed in oil to support components rotation.*
Quick Disconect Hook	-	*Convenient for other bealow-the-hook components*
Corrosion Resistant Load Chain	-	*Heat treated steel alloy chain for long life.*
Chain Container	-	*Standard chain bag.*

Operating Conditions and Environment

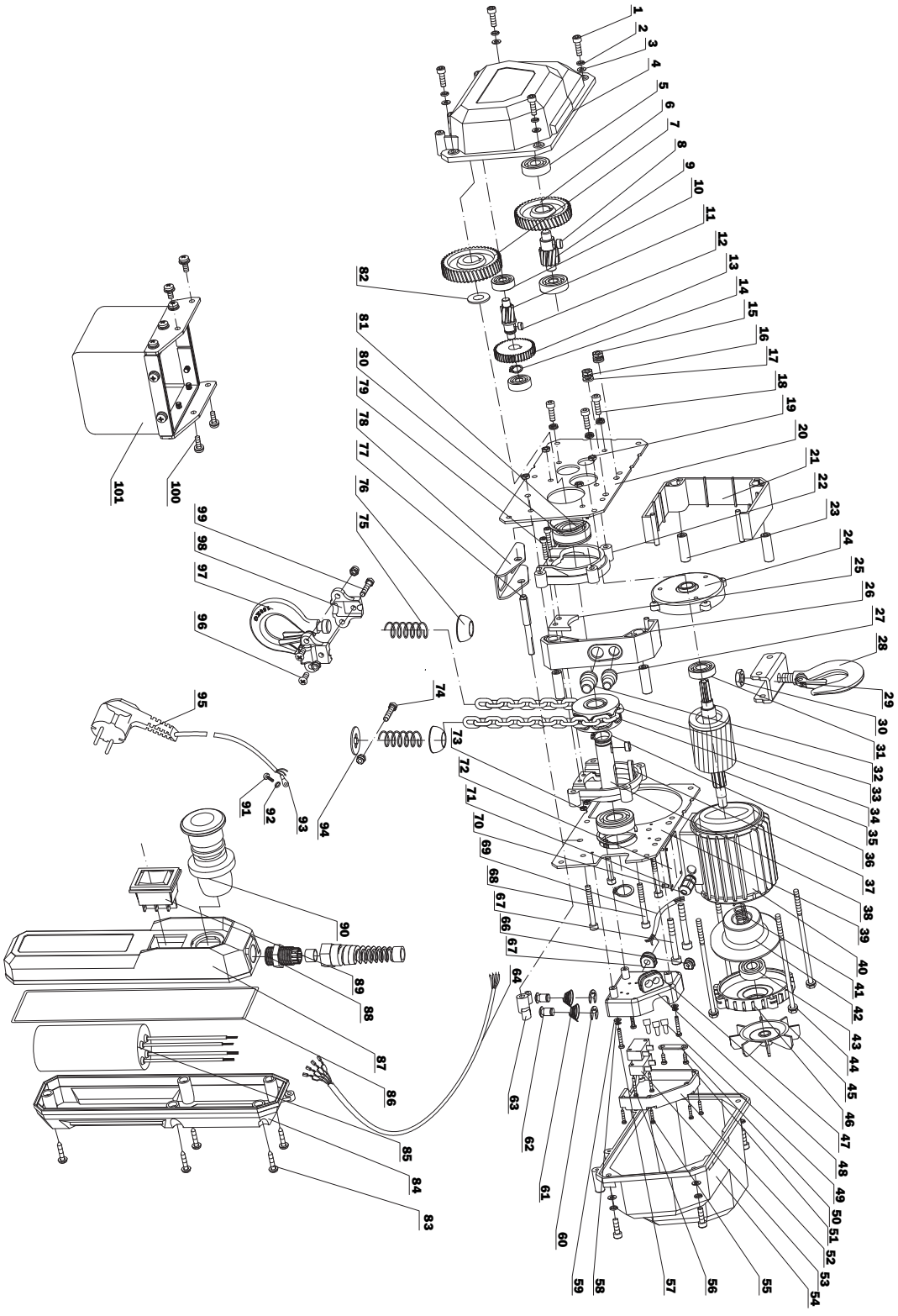
Temperature range:	*-4° to +104°F (-20° to +40°C)*
Humidity:	*85% or less*
Enclosure Rating:	*Hoist Body IP54*
Push Button Pendant	*IP65*
Cylinder with bellow	*IP44*
Cylinder without bellow	*IP22*
Supply Voltage:	*Standard 120V-1-60*
ASME Duty Classification:	*H2*

	MODEL		
Item Code	**AECH150**	**AECH300**	**AECH500**
Capacity (lb)	**330**	**660**	**1100**
Lifting Speed (ft/min)	**10**		
Motor Type	**120V AC, Single Phase, 60Hz**		
Power (W)	**270**	**500**	**720**
Duty Cycle	***S3 25%**		
Chain	**5.0 mm**	**5.0 mm**	**6.3 mm**
Gross Weight (lb)	**20**	**26**	**48**
Net Weight (lb)	**15**	**22**	**41**

PARTS IDENTIFICATION



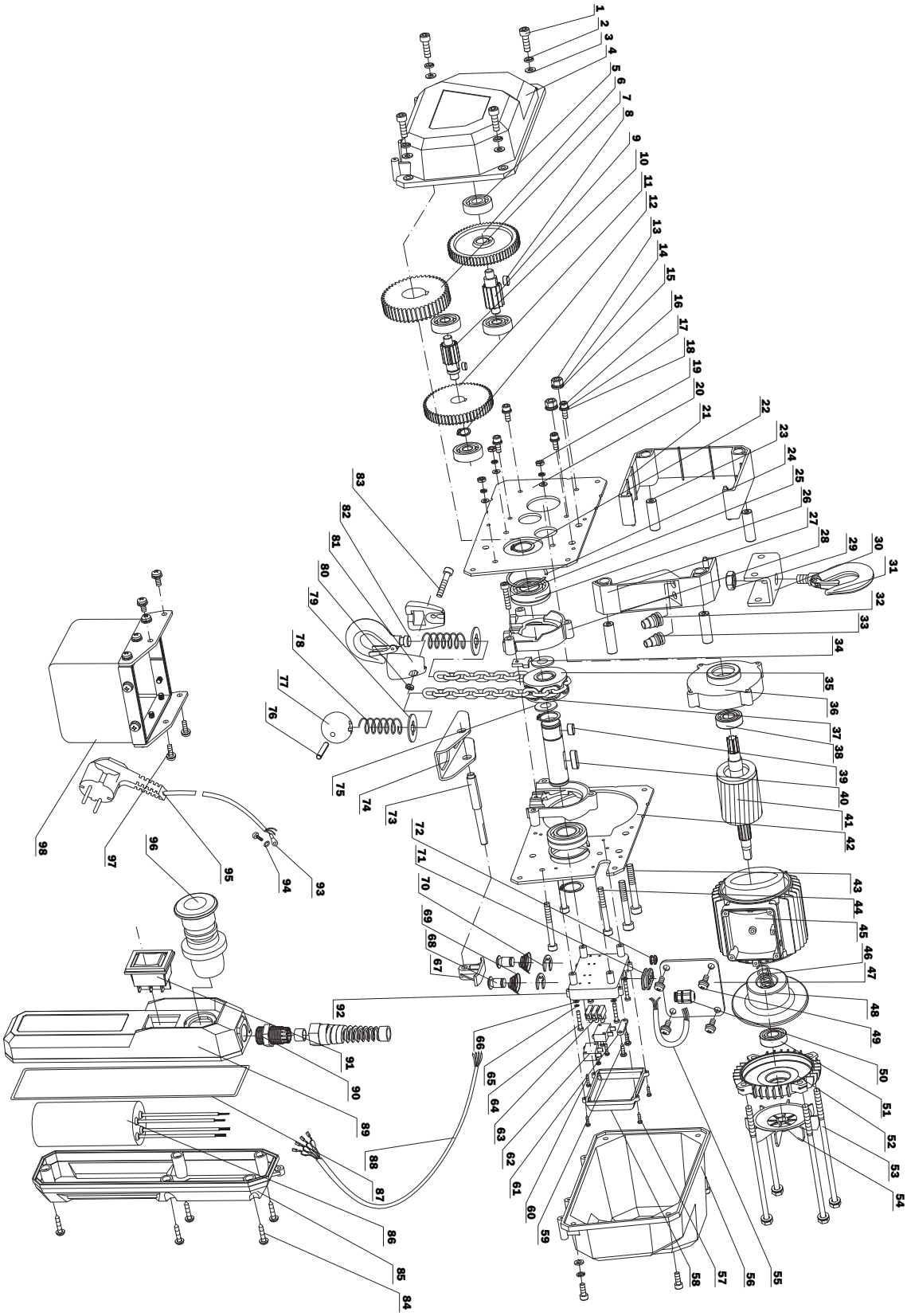
330 lbs Electric Chain Hoist exploded view and part numbers



#	PART NAME	Qty.	#	PART NAME	Qty.
1	Hexagon socket head cap screw	8	44	Hex head bolts assembly	4
2	Spring washers	11	45	Fan blade	1
3	Plain washers	11	46	Gear cover	1
4	Gear Box	1	47	Wire flinger (big)	1
5	Bearing	2	48	Base of connection box	1
6	Second stage gear	1	49	Wire flinger (small	3
7	Third stage gear	1	50	Clamp Plate	1
8	Flat pin	1	51	Cross recessed pan head tapping	2
9	Second middle shaft	1	52	Connection box	1
10	Bearing	2	53	Limit switch	5
11	First middle shaft	1	54	Motor cover	2
12	Flat pin	1	55	Cross recessed pan head tapping screws	3
13	First stage gear	1	56	Cross recessed pan head tapping screws	3
14	Circlip for shaft	1	57	Cross recessed pan head screws	3
15	Thin Hexagon nut	2	58	Spring washers	2
16	Spring washers	2	59	Plain washers	2
17	Plain washers	2	60	“E” rings	2
18	Hexagon socket head cap screw	3	61	Limit switch spring	1
19	Hexagon nuts	8	62	Limit Shaft	1
20	Plate	1	63	Limit Head	1
21	First Cover	1	64	Control Cord	1
22	Chain shelf	2	65	Motor wire sheath	2
23	Shoring	4	66	Ground wire sheath	4
24	Front cover	1	67	Cross recessed pan head screws	1
25	Chain baffle	1	68	Cross recessed pan head screws	1
26	Second cover	1	69	3 Core cord	4
27	Small sheath	1	70	Cord clip	1
28	Hook	1	71	Cross recessed countersunk screw	2
29	Hook Base	1	72	Motor cover	1
30	Thin Hexagon nut	1	73	Hexagon nuts	2
31	Bearing	1	74	Corss recessed pan head screws	2
32	Big sheath	1	75	Spring buffer	1
33	Chain wheel	1	76	Block buffer	1
34	Chain	1	77	Limit lever shaft	2
35	Rotor	1	78	Limit lever	2
36	Circlips for shaft	2	79	Cross recessed pan head screws	2
37	Flat pin	1	80	Bearing	1
38	Chain wheel shaft	1	81	Circlips for shaft	5
39	Motor Plate	1	82	Thick washers	1
40	Stator	1	83	Cross recessed pan head tapping screws	1
41	Brake Spring	1	84	Controlling handle (base	1
42	Brake assembly	1	85	Capacitor	1
43	Bearing	1	86	Handle sealed loop	1

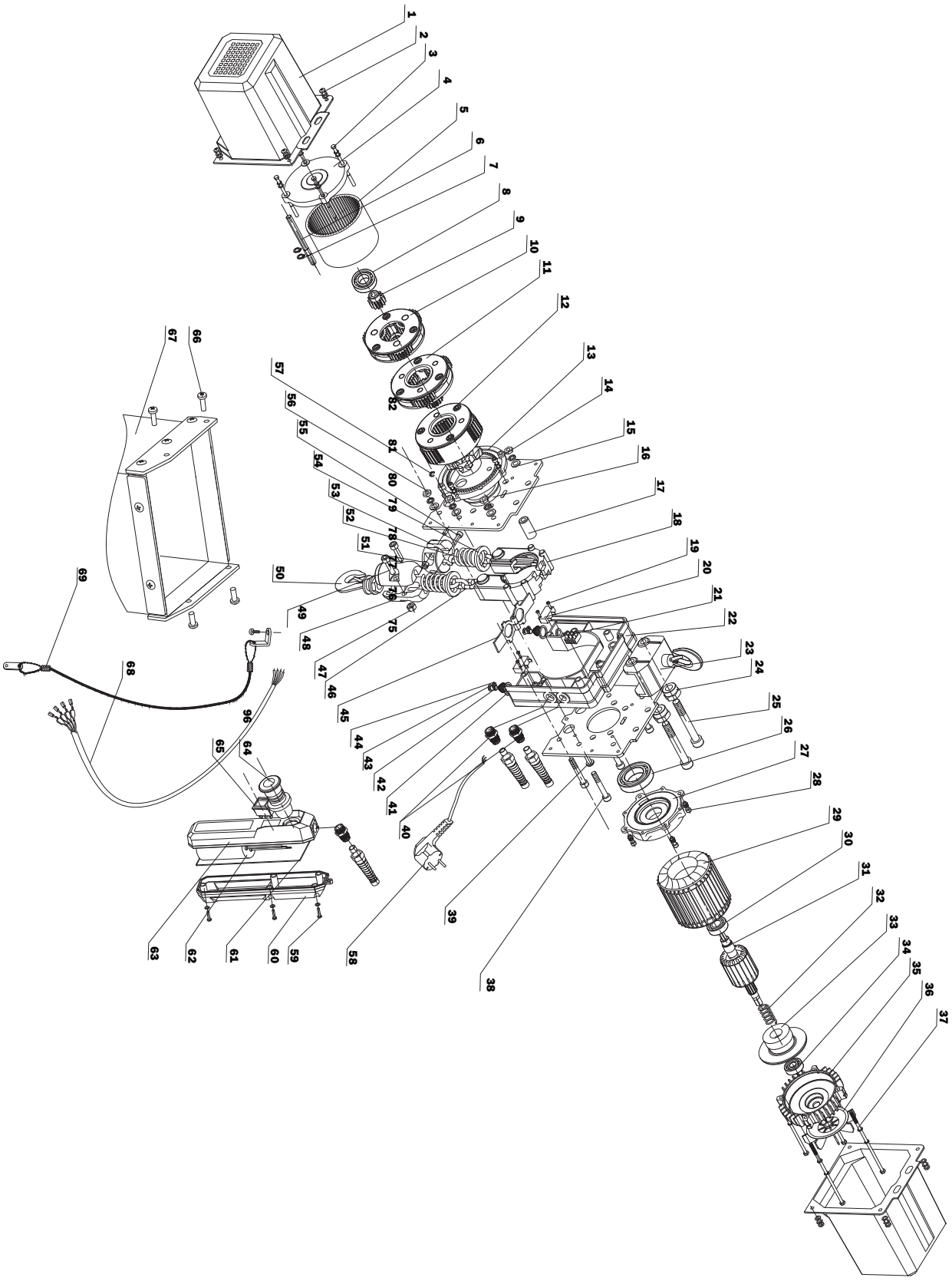
#	PART NAME	Qty.	#	PART NAME	Qty.
87	Controlling handle (cover)	8	95	Plug	4
88	Cord clip	11	96	Cross recessed pan head screws	1
89	Positive and negativee switch	11	97	Chain hook	1
90	Emergency stop switch	1	98	Hook block	1
91	Cross recessed pan head screws	2	99	Hexagon socket head cap screws	1
92	Lock washer	1	100	Cross recessed pan head screws	3
93	Ground connector	1	101	Chain bag assemby	1
94	Gasket buffer	1			2

660 lbs Electric Chain Hoist exploded view and part numbers



#	PART NAME	Qty.	#	PART NAME	Qty.
1	Hexagon socket head cap screws	8	44	Hexagon socket head cap screws	4
2	Spring washe	11	45	Stator	1
3	Plain washers	11	46	Brake spring	1
4	Gear box	1	47	Motor wire cover	1
5	Bearing	2	48	Brake assembly	1
6	Second stage gear	1	49	Cross recessed pan head screws	3
7	Third stage gear	1	50	Cord Clip	1
8	Flat pin	1	51	Bearing	2
9	Second middle shaft	1	52	Motor Cover	1
10	First middle shaft	2	53	Assembly of Hex head bolts	5
11	First stage gear	1	54	Fan blade	2
12	Circlips for shaft	1	55	3 core cord	3
13	Hexagon thin nuts	1	56	Motor housing	3
14	Spring washers	1	57	Cross recessed pan head tapping screws	3
15	Plain washers	2	58	Connection box	2
16	Hexagon socket head cap screws	2	59	Cross recessed pan head tapping screws	2
17	Spring washers	2	60	Cross recessed pan head tapping screws	2
18	Plain washers	3	61	Clamp plate	1
19	Hexagon thin nuts	8	62	Limit switch	1
20	Plate	1	63	Terminal block	1
21	Right cover	1	64	Cross recessed pan head screws	1
22	Circlips for shaft	2	65	Spring washers	2
23	Shoring	4	66	Plain washers	4
24	Circlips for shaft	1	67	Limit head	1
25	Hexagon socket head cap screws	1	68	Limit shaft	1
26	Bearing	1	69	Limit switch spring	4
27	Left cover	1	70	“E” ring	1
28	Chain shelf	1	71	Limit shaft seal	2
29	Thin hexagon nuts	1	72	Ground wire sheath	1
30	Hook base	1	73	Limit lever shaft	2
31	Hook	1	74	Limit lever	2
32	Big sheath	1	75	Plain washers	1
33	Small sheath	1	76	Spring-type staright pins	1
34	Chain baffle	1	77	Chain fixed block	2
35	Chain wheel	1	78	Spring buffer	2
36	Front cover	2	79	Gasket buffer	2
37	Chain	1	80	Prevailing torque	1
38	Bearing	1	81	Hook block	5
39	Flat pin	1	82	Hook	1
40	Flat pin	1	83	Hexagon socket head cap screws	1
41	Rotor	1	84	Cross recessed pan head tapping screws	1
42	Motor plate	1	85	Controlling handle (base)	1
43	Hexagon socket head cap screws	1	86	Capacitor	1

1100 lbs Electric Chain Hoist exploded view and part numbers



#	PART NAME	Qty.	#	PART NAME	Qty.
1	Fan cover	8	34	Deep groove ball bearing 6202-2RS	4
2	Cross recessed pan head screws M6 x 12	11	35	Motor back cover	1
	Flat Washer D6	11	36	Fan Blade	1
	Spring Washer D6	1	37	Assembly of Hex head bolts M5 x 135	1
3	Hexagon head bolt M6 x 85	2	38	Hexagon socket head cap screws M8 x 55	1
	Flat Washer D6	1	39	Flat round head pin D6 x 52	3
	Spring Washer D6	1	40	Cord Clip (thick)	1
4	Reduction gear box rear cover	1		Cord Clip (thin)	2
5	Annular gear	1	41	Limit shaft protector	1
6	Hexagon transmission shaft	2	42	Limit switch spring	5
7	Circlip for Shaft D8	1	43	Limit shaft	2
8	Deep groove ball bearing 6002-2RS	1	44	“E” rings D6	3
9	Primary driving wheel	1	45	Limit lever	3
10	First stage planetary wheel assembly (details)	1	46	D6.3 chain / 3 meters	3
11	Second stage planetary wheel assembly (details)	2	47	Prevailing torque type hexagon nut M8	2
12	Third stage planetary wheel assembly (details)	2	48	Hook block	2
13	Annular gear flange	2	49	Hexagon socket head cap screws M8 x 30	2
14	Hexagon socket head cap screws M6 x 14	3	50	Hook (down)	1
	Flat Washer D6	8	51	Prevailing torque type hexagon nut M8	1
	Spring Washer D6	1	52	Sring buffer	1
15	Plate	1	53	Chain fixed block	1
16	Bearing nylon sleeve	2		Buffer washer	2
17	Hexagon socket coupling sleeve	4		Hexagon socket head cap screws M6 x 30+	4
18	Cahin Shelf	1	54	Hexagon nut M8	1
19	Cross recessed pan head screws ST2.9 x 14.7	1	55	Spring washer D8	1
20	Limit Switch	1	56	Fat washer D8	4
21	Connector	1		“E” rings D5	1
22	Support Frame	1	57	Plug	2
23	Hook (up)	1	58	Cross groove pan head self tapping screw st4.2x18	1
24	Prevailing torque type hexagon nut M10	1	59	Small washer D4	2
25	Hexagon socket head cap screws M10 x 75	1	60	Controlling handle (base)	2
26	Deep groove ball bearing 6007-2RS	1			
27	Front cover	1			
28	Hexagon socket head cap screws M6 x 12	1			
	Flat Washer D6	1			
	Spring Washer D6	2			
29	Stator	1			
30	Deep groove ball bearing 6202-2RS	1			
31	Rotor	1			
32	Brake spring	1			
33	Brake assembly	1			

WIRELESS REMOTE CONTROL SYSTEM

Operation Instructions

Start Procedure:

1. Put the green safety key into its slot in the front of the transmitter.

2. Press and hold the START button for 5 seconds, the green RF light will start to flash at the receiver indicating a successful initialization.

3. Use the UP and DOWN pushbuttons to control the equipment. The first time that either button is pressed, the mainline relay will engage.

4. Press the STOP button to stop movement immediately and drop out the mainline relay, if one is used.

5. Remove the green safety key whenever the transmitter is not in use to prevent unintentional operation.

Battery Indicator:

The LED on the front of the transmitter indicates the condition of the batteries. It will flash green during operation if the battery power is sufficient, and will flash red if the battery power is low. If the LED is flashing red, or if the operation becomes erratic, or will only work from a short distance, replace both batteries with new AA alkaline batteries using the procedure given in section 1.0.

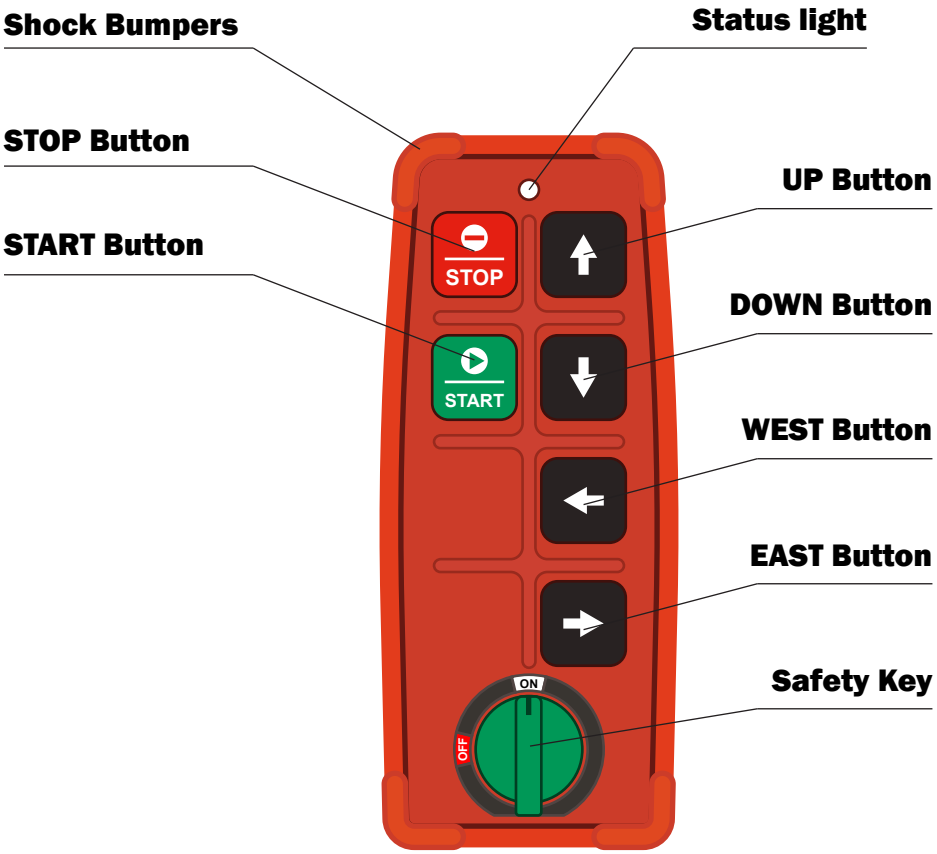
Fuses

There is one fuse in the F21 series receiver. On all models there is one fuse in the AC power line that operates the receiver (0.5A, 110V). This fuse is for relay contact protection in the event of a short circuit in the equipment being controlled by the radio. To replace a fuse, pull the green fuse holder.
Remove the fuse from the cover and insert a new one of the same rating. Insert the fuse and cover into the fuse holder and press down. For protection from fire hazard, damage, or injury, always replace a blown fuse with one of the same rating.

Pairing instructions

Follow these steps to pair a set of transmitter and receiver:

1. ***Unplug receiver from power.***
2. ***Remove batteries from the transmitter.***
3. ***While HOLDING STOP and UP buttons replace the batteries on the transmitter. The status light will start to flash red rapidly.***
4. ***Provide power to the receiver. Wait untill you see the transmitter status light flashing slower.***
5. ***At this point you have two options* (1) PRESS DOWN to Copy information from the receiver to the transmitter (2) PRESS UP to Copy information from the transmiter to the receiver.***
6. ***Repeat the "Start Procedure" section on page 20 to start normal operation.***



Wireless Remote Control Transmitter

STOP Button: *Used to STOP all communication between transmitter and receiver.*

START Button: *Hold for 5 seconds to START communication between transmitter and receiver.*

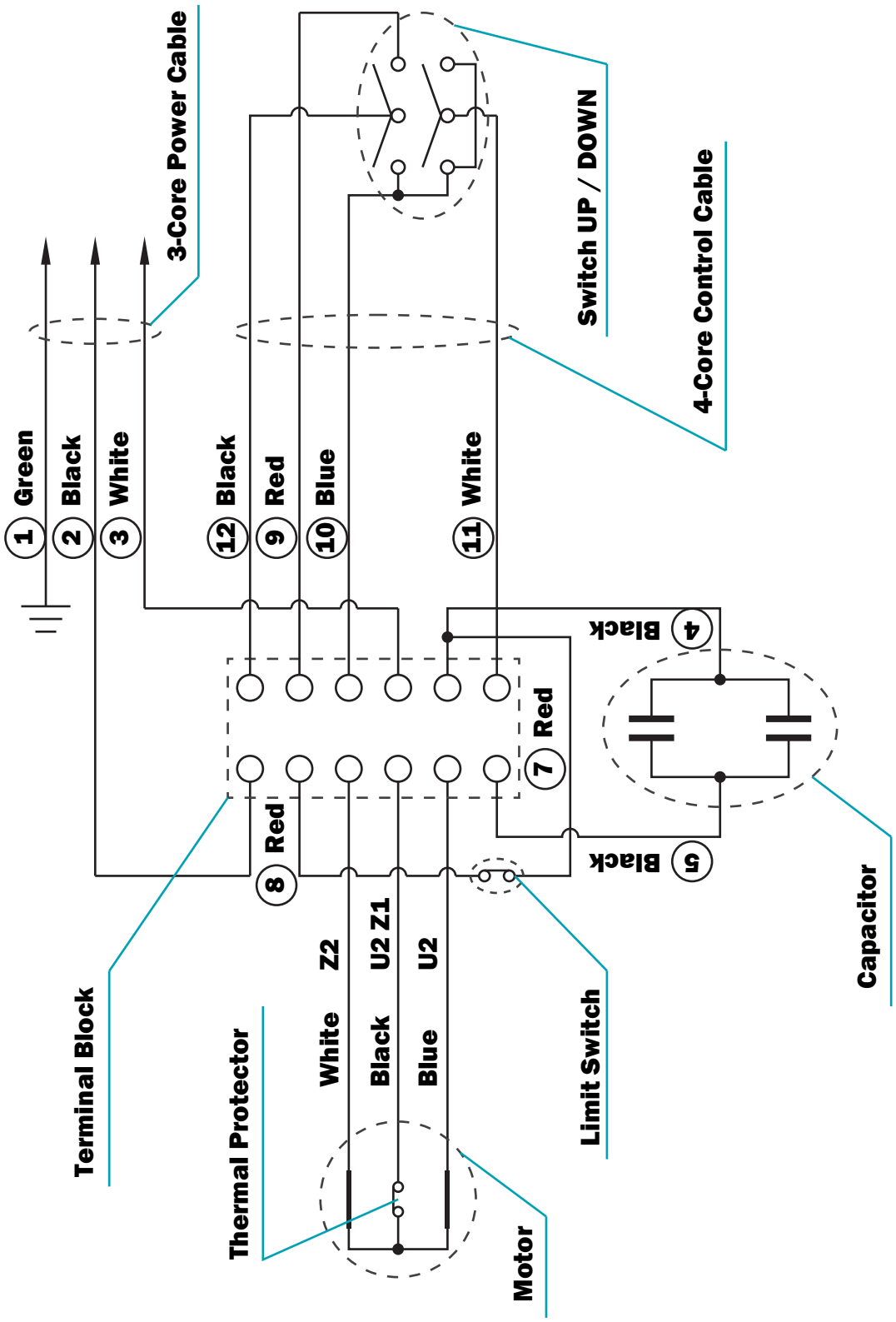
UP Button: *Use to raise the hook until the desired position.*

DOWN Button: *Use to lower the hook until the desired position.*

EAST Button: *Use to move the trolley along the I-beam to the east direction.*

WEST Button: *Use to move the trolley along the I-beam to the west direction.*

Safety Key: *Rotate to the ON position to allow transmitter communication, rotate to the OFF position to prevent communication, remove the key to make the transmitter nonoperational.*


3-Core Power Cable
Switch UP / DOWN
4-Core Control Cable
1 Green
2 Black
3 White
12 Black
9 Red
10 Blue
11 White
4 Black
7 Red
8 Red
5 Black
Capacitor
Terminal Block
Thermal Protector
White Z2
Black U2 Z1
Blue U2
Limit Switch
Motor

DAILY INSPECTION AND MAINTENANCE

Only allow trained technicians to perform maintenance on this product. For additional information contact the us.

The use of other than genuine replacement parts may result in safety hazards, decreased performance and increased maintenance and will invalidate all warranties.

Original instructions are in English. Other languages are a translation of the original instructions.

Refer all communications to the nearest Ingersoll Rand Office or Distributor.

Inspection

Frequent inspections should be performed on equipment in regular service. Refer to Product Information Manual.

Periodic Inspection

Refer to Table 2 'Inspection Classifications' on page 2 for suggested inspection classifications for Periodic Inspection Intervals. Select conditions most appropriate to application.

Conditions	Usage	Load Characterization
Normal	**<=25% duty cycle**	**Regular**
Heavy	**>25% duty cycle**	**Usually medium loads, frequent maximum loads**
Severe	**Loads normally less than 50% of rated load with running time up to continuous; or, Loads normally above 50% of rated load with running time up to 50% of work period.**	

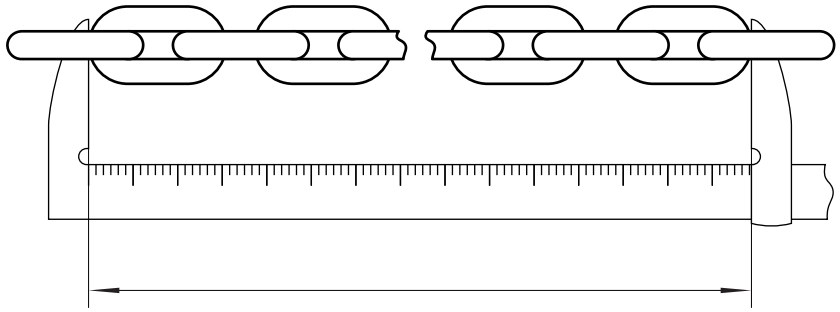
Table 2: Inspection Classifications

Maintain written records of periodic inspections to provide an accumulative basis for continuing evaluation. Inspect all items listed in 'Frequent Inspection' in the Product Information Manual. Also inspect the following at the suggested intervals recommended in Table 5 'Periodic Maintenance/Inspection Interval' on page 3.

1. ***Fasteners. Check rivets, capscrews, nuts, cotter pins and other fasteners on hooks and hoist body. Replace if missing and tighten or secure if loose.***
2. ***All Components. Inspect for wear, damage, distortion, deformation and cleanliness. If external evidence indicates the need, disassemble. Check gears, shafts, bearings, sheaves, chain guides, springs and covers. Replace worn or damaged parts. Clean, lubricate and reassemble.***
3. ***Hooks. Inspect hooks for cracks. Use magnetic particle or dye penetrant to check for cracks. Inspect hook retaining parts. Tighten, repair or replace if necessary. Refer to the latest edition of ASME B30.10 (Hooks) for additional hook inspection information.***
4. ***Load Chain Sprocket. Check for damage or excessive wear. Replace if necessary. Observe the action of load chain feeding through hoist. Do not operate a hoist unless load chain feeds through hoist and hook block smoothly and without audible clicking or other evidence of binding or malfunctioning.***
5. ***Brake. Ensure proper operation. Brake must hold hoist rated capacity. If load test indicates the need, disassemble. Brake discs must be free of oil, any grease, unglazed and uniform in thickness. Refer to "MAINTENANCE" section for allowable brake disc wear. Check all other brake surfaces for wear, deformation or foreign deposits. Inspect gear teeth, pawl and pawl spring for damage. Check that brake pawl stops counterclockwise rotation of ratchet gear. Clean and replace damaged components as necessary.***

6. *Supporting Structure. Check for distortion, wear and continued ability to support hoist and rated load.*
7. *Labels and Tags. Check for presence and legibility. Replace if necessary.*
8. *End Anchor. Ensure both ends of load chain are securely attached. Secure if loose, repair if damaged, replace if missing. Check chain stoppers are correctly installed and functional.*
9. *Trolley (if equipped). Check that the trolley wheels track beam properly and trolley is correctly adjusted in accordance with manufacturer's literature. Check that wheels and beam are not excessively worn and inspect side plates for spreading due to bending. Do not operate hoist until problem has been determined and corrected.*
10. *Load Chain. Check the chain for stretching. Measure the load chain over five link sections all along chain, paying particular attention to the most frequently reeved links. Refer to Dwg. MHP0455 on page 2, A. Gauge Length over "X" links with light load suspended from hook. When any five links in the working length reaches or exceeds the discard length, replace entire chain. Refer to Table 3 'Load Chain Normal and Discard Length' on page 2. Always use genuine Ingersoll Rand replacement chain. Zinc plated load chain is standard on Liftchain hoists.*

Capacity	Chain Size	Normal Length		Discard Length	
	mm	in	mm	in	mm
0.25	4 x 12	2.35	60	2.42	61.5
0.5	5 x 15	2.95	75	3.03	76.9
1	6.3 x 19	3.75	95	3.83	97.4
1.5	7.1 x 21	4.15	105	4.24	107.6
2	8 x 24	4.70	120	4.84	123
3	10 x 28	5.5	140	5.65	143.5
5	9 x 27	5.3	135	5.45	138.4
7.5	9 x 27	5.3	135	5.45	138.4
10	9 x 27	5.3	135	5.45	138.4
20	9 x 27	5.3	135	5.45	138.4



Gauge Lenght over "X" links with light load suspended

Inspection

After considering the previous section, regarding loading, it is possible to determine the necessary maintenance intervals. Given that the load spectrum has been determined and the duration of use has been recorded, the following chart is intended to be used to determine service intervals for major overhauls and unit gear box lubrication. Accordingly, the following table is given:

Load Spectrum (LF)	Characterization	Time Before Overhaul (hours)	Check Oil Level (*) (hours)
L1 - Light 0 < LF < = 0.50	**Hoist is usually subject to very small loads and in exceptional cases only to maximum loads.**	**6300**	**400**
L2 - Medium (normal) 0.5 < LF < = 0.63	**Hoist is usually subject to small loads but rather often to maximum loads.**	**3200**	
L3 - Heavy 0.63 < LF < = 0.80	**Hoist is usually subject to medium loads but frequently to maximum loads.**	**1600**	
L4 - Heavy 0.80 < LF < = 1.00	**Hoist is usually subject to maximum or almost maximum loads.**	**800**	

(*) Operation specifics may warrant modification to this interval.

Maintenance

Never perform maintenance on the hoist while it is supporting a load.

Before performing maintenance, tag controls:

WARNING - DO NOT OPERATE EQUIPMENT BEING REPAIRED.

- ***Only allow personnel instructed in service and repair of this hoist to perform maintenance.***
- ***After performing any maintenance on the hoist, dynamically test hoist to 100% of its rated capacity, in accordance with ASME B30.16 standards, before returning hoist to service. Testing to more than 100% of rated capacity may be required to comply with standards and regulations set forth in areas outside of the USA.***
- ***Use of other than genuine Ingersoll Rand replacement parts may result in safety hazards, decreased performance and increased maintenance and may invalidate all warranties.***

General

Correct disassembly (to prevent loss or damage of good parts), repair, assembly, testing and adjusting are critical to proper product operation. Maintenance procedures are technical in nature and require training and experience to accomplish correctly. In addition, repair and testing require specialized equipment that is not typically found at the hoist-mounting site. Proper use, inspections and maintenance increase the life and usefulness of your Ingersoll Rand equipment.
During assembly, lubricate gears, nuts, capscrews and all machined threads with applicable lubricants. Use of antiseize compound and/or thread lubricant on capscrew and nut threaded areas prevents corrosion and allows for easy disassembly of components. It is extremely important that anyone involved with maintaining the hoist be familiar with the servicing procedures of these products, and be physically capable of conducting the procedures. These personnel shall have skills that include:

1. ***Proper and safe use and application of mechanics' common hand tools as wellas special Ingersoll Rand or recommended tools.***
2. ***Safety procedures, precautions and work habits established by accepted industry standards.***

We cannot know of, or provide all the procedures by which product operations or repairs may be conducted and the hazards and/or results of each method. If operation or maintenance procedures not specifically recommended by the manufacturer are conducted, it must be ensured that product safety is not endangered by the actions taken. If unsure of an operation or maintenance procedure or step, personnel should place the product in a safe condition and contact supervisors and/or the factory for technical assistance.

Maintenance Intervals

Refer to Table 5 'Periodic Maintenance/Inspection Interval' on page 3 for recommended maintenance schedule.

Load Chain Replacement

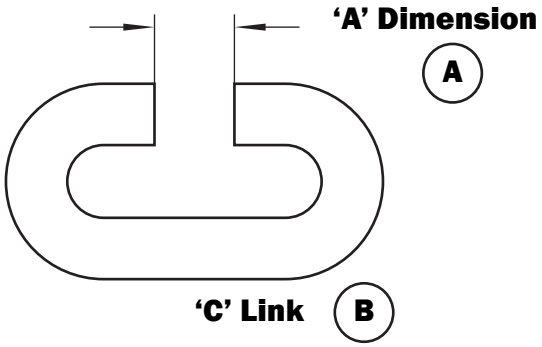
Warning

To prevent a falling load, which can cause death, injury or property damage, the hook must be on left fall of load chain and right fall must be attached to hoist body with anchor pin and anchor hanger. Right and left designations are as viewed from the hand chain side of the hoist.

Note

For ease of installation, do not remove old chain from hoist. Use the old chain to feed new chain through hoist.

1. *Disconnect chain end from hoist body if attached.*
2. *Remove load pin and nut (23), if equipped.*
3. *Remove load hook.*
4. *Using an abrasive wheel, cut a section from the last link as shown in Dwg. MHP0817 on page 5, A. 'A' dimension; B. 'C' Link. Use a 'C' link which is the same size as the chain. Refer to Table 6 "C' Link Dimension' on page 5.*

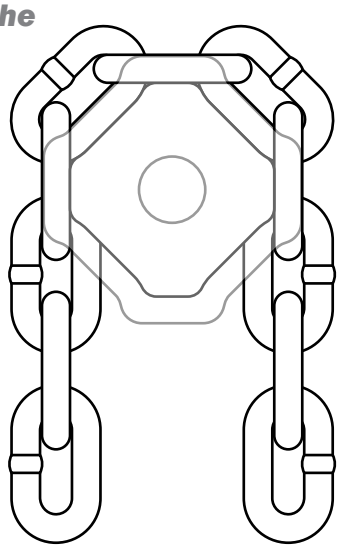


Capacity (t)	Chain Size	'A' Dimension	
	mm	in	mm
0.25	4.0 X 12.0	0.236	6
0.5	5.0 X 15.0	0.276	7
1	6.3 X 19.0	0.354	9
1.5	7.1 X 21.0	0.394	10
2	8.0 X 24.0	0.433	11
3	10.0 X 28.0	0.551	14
5	9.0 X 27.0	0.512	13
7.5	9.0 X 27.0	0.512	13
10	9.0 X 27.0	0.512	13
20	9.0 X 27.0	0.512	13

Caution

Do not distort link in any manner. Link must be able to pass over the chain sprocket and idler wheels without binding.

5. ***Connect new chain to old chain by hooking end of new chain onto 'C' link. The last link of the chain must be in the same direction as the first, if not, cut off the last link. The end link must be a standing link (perpendicular to the axle of hoist sprockets). Make certain welds and links on new chain match positioning of welds and links on chain being replaced.***

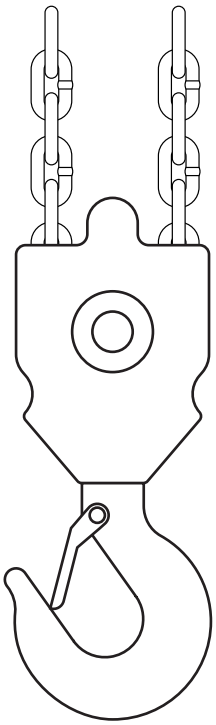


6. ***Slowly run hoist in lower direction, running off old chain and reeving new chain over the chain wheel. The first link of new chain over the chain wheel must be a standing link. Illustrations may not be a true representation of actual pocket wheel. Use for tinstructions only.***

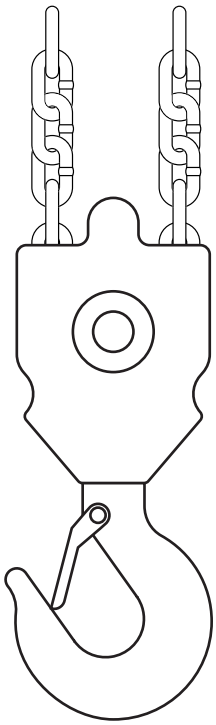
7. ***Reinstall load hook to load side of chain. Connect free end of chain to hoist body.***

Determining Twisted, Kinked or 'Capsized' Load Chain

Ensure chain is not twisted, kinked or 'capsized' during installation. Refer to Dwg. MHP0020 on page 5, A. Appearance of Chain Not Twisted; B. Appearance of Chain Twisted.



Chain not twisted



Twisted Chain

Disassembly

General Disassembly Instructions

The following instructions provide necessary information to disassemble, inspect, repair, and reassemble product. Parts drawings are provided in Product Parts Information Manual unless otherwise noted.

If product is being completely disassembled for any reason, follow the order of topics as they are presented. It is recommended that all maintenance work on the product be performed in a clean dust free work area.

In the process of disassembling the product, observe the following:

1. *Never disassemble product any further than is necessary to accomplish needed repair. A good part can be damaged during the course of disassembly.*
2. *Never use excessive force when removing parts. Tapping gently around perimeter of a cover or housing with a soft hammer, for example, is sufficient to break the seal.*
3. *Do not heat a part with a flame to free it for removal unless part being heated is already worn or damaged beyond repair and no additional damage will occur to other parts. In general, product is designed to permit easy disassembly and reassembly. The use of heat or excessive force should not be required.*
4. *Keep work area as clean as practical, to prevent dirt and other foreign matter from getting into bearings or other moving parts.*
5. *When grasping a part in a vise, always use leather-covered or copper-covered vise jaws to protect the surface of the part and help prevent distortion. This is particularly true of threaded members, machined surfaces and housings.*
6. *Do not remove any part that is a press fit in or on a subassembly unless removal of that part is necessary for repairs or replacement.*

TROUBLESHOOTING

Hoist Does Not Lift or Lower

One possible cause is that the emergency stop button is on or the mainline switch is shut off. Next check for a blown fuse (applicable only to wireless units). Replace the fuse if necessary. The next thing to check is that the motor may have overheated and needs to cool down (reset the overload protection switch if neccesary). If these steps don't resolve the problem please contact technical support.

Hoist Cannot Lift Load

If the hoist is overloaded then reduce the load. Another problem may be that the brake is not releasing. Check your electrical connection and make sure youre using the right gauge for the extension cord.

Load Drift

If the load drifts more than 4 inches the brake lining may be worn and needs to be replaced.

Abnormal Noises

If the chain host makes strange noises while lifting or lowering, the chain may need to be cleaned and lubricated. Check the load chain or idler sprocket for wear and replace if necessary. Finally inspect the load chain for kinks or twists.

Motor Does Not Run

If the ready indicator (RF) is on but the motor will not run, check the fuse inside the receiver box (applicable to wireless units only). Also check the voltage at the run command terminals and the digital inputs. Another connection to inspect is the motor cable connection.

Motor Does Not Run

If the motor is running but not performing well, see if the load is over the nominal limit and that all cables are connected. Check the voltage of the lowdown limit switch input and the digital inputs. If there is still a problem, be sure that the motor brake is open completely.

Motor or Brake Overheating

If the motor or brake is overheating then the load may be excessive and need to be reduced or the frequency of use may need to be reduced. Check the voltage and frequency of the power supply and make sure it complies with your specific hoist. If the external temperature exceeds 140 degrees F, the hoist should be ventilated or shielded from the heat source.

Motor or Brake Overheating

Inspect the collectors to see if they are making contact and see if the contacts are arcing and need to be replaced. Check for a loose connection in all wires and terminals in the circuit and replace if necessary.