INSTALLATION & MAINTENANCE MANUAL

EZ LIFT MANUAL PRODUCTS

English
STD-R-KHA-F-CQD-ENG

HOOSIER CRANE SERVICE COMPANY

R&M Materials Handling, Inc. | 4501 Gateway Boulevard, Springfield, Ohio 45502 | PH: 1-937-525-5100 | FAX: 1-937-325-5319

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CAUTION: Read the instructions supplied with the product before installation and commissioning.

CAUTION: Keep the instructions in a safe place for future reference.

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CONTENTS

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INSTALLATION, OPERATION AND INSTRUCTION MANUAL

RBC BEAM CLAMP – 1 TON TO 5 TONS

English
STD-R-KHA-F-CQD-ENG

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Table of contents

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1 INSTRUCTIONS TO READ BEFORE USE

CAUTION

Never modify the beam clamp unless the manufacturer has studied and authorized the modification.

Never modify the values and adjustments of the safety components, outside the limits provided for in the manual, or without the approval of the manufacturer.

Never try to repair such as welding on the beam clamp without the authorization of the manufacturer or a trained maintenance agent.

Do not let an unqualified person use the hoist.

Never lift more than the maximum working load indicated on the beam clamp. Shocks or accidental collision of the load with objects can cause excess loads.

Never remove the hook safety catches.

Never block, adjust or remove the limit switches or stops to go higher or lower moving distance

Never use the hoist to extract, loosen, or pull sideways.

Never use the hoist to transport people.

Do not touch the moving components.

Do not operate equipment if your physical condition does not allow it.

Never use the beam clamp when condition is bad *(wear, deformation...).*

Never use suspect spare parts or parts whose origin is not known.

Never swing the load intentionally.

Do not subject the beam clamp to shocks loading.

Do not use the mechanical stops as a repetitive means of stopping.

Never use the lifting chain as a sling

Never use a hook other than in the vertical position.

Never distract the operator while the hoist is being operated.

Never leave a suspended load hanging.

Do not use the beam clamp for a purpose or in an area for which it is not intended.

Do not expose the beam clamp to an inappropriate atmosphere.

Do not use the safety components as operation components.

Never angle pull the load, maximum angle 3 degrees.

Never transport a load with people nearby. Do not move the hook, with or without a load, over personnel

CHECKS

Handle the beam clamp by its structure, or by the devices provided for this purpose, or in its original packing.

Make sure that the hoist is properly cleaned and protected from corrosion *(lubrication...).*

Only a competent technician should install the clamp.

Make sure that the clamp attaching structure is rigid.

Make sure that the safety rules are followed *(harness, clearance of work areas, posting up of instructions to be followed in the area...).*

Use only original replacement parts that are compatible with the type of clamp being repaired.

Always be ready during operation to press the emergency stop button. This makes all functions inactive.

Make sure that the load is correctly balanced before moving it. Avoid lifting using only a single load point. Use adequate accessories *(slings, lifting beam...).* Pay attention to the center of gravity of the load to be moved.

The device used to suspend the load should be flexible in relation to the load to be moved *(prefer a sling to a rigid beam).*

When moving the load, make sure that it is sufficiently raised to clear surrounding machines and other objects.

The prevention instructions to be carried out during the different operations should be well known.

Avoid rocking the load or the hook when using the traveling trolley or crane, by limiting the starting and braking jerks.

In the case of several speeds, do the starting and braking operations at slow speed.

Use the material under normal working conditions *(ambient temperature, atmosphere...).*

Only an experienced operator should rig the use of several machines to move a single load. All the necessary precautions should be taken to carefully ensure the distribution of the loads and to avoid overloading a single machine. The machines should be carefully checked before such an operation.

Notify the necessary people after a dangerous operation or if the hoist seems problematic (*abnormal noise, abnormal behavior...).*

Material used outdoors should be protected as well as possible against bad weather conditions. Hoist should be covered to avoid water going inside the chain bucket. A hole must be made to the chain bucket's bottom to let water to drain out.

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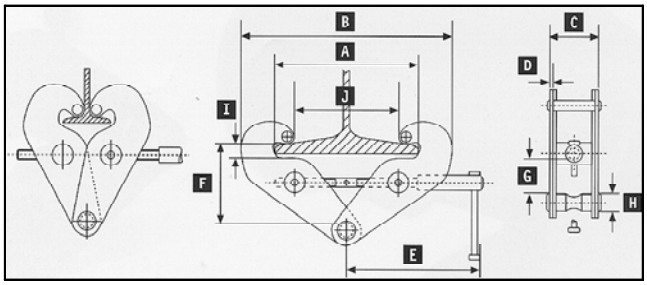
2 TECHNICAL CHARACTERISTICS

Figure 1. Beam Clamp Dimensions



Type	SWL (kg)	Beam width (mm)	Weight (kg)
RBC 1	1000	75-230	3.9
RBC 2	2000	75-230	5
RBC 3	3000	80-320	9.5
RBC 5	5000	90-310	11.3

Table 1. Beam Clamp Dimensions

Type	Dimensions (mm)											
	A max	B max	B min	C	D	E	F Max	F min	G Min	H	I	J
RBC 1	240	192	340	70	5	210	150	45	45	20	20	185
RBC 2	240	192	340	70	5	210	150	45	45	20	20	185
RBC 3	316	238	445	106	8	250	207	165	76	22	34	261
RBC 5	306	248	455	114	10	250	210	167	76	28	34	251

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INSTALLATION, OPERATION AND INSTRUCTION MANUAL

RM SERIES II MANUAL CHAIN HOIST

English
STD-R-KHA-F-CQD-ENG

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CAUTION: Read the instructions supplied with the product before installation and commissioning.

CAUTION: Keep the instructions in a safe place for future reference.

Before proceeding with the operation or maintenance of the equipment it is important that the operating and maintenance personnel read this bulletin carefully in order to ensure the safe and efficient use of the equipment.

Also, it is strongly recommended that the personnel responsible for the operation, inspection, and servicing of this hoist, read and follow the Safety Standard ASME B30.16-1998 (or current revised edition). This standard covers Overhead Hoists (under-hung) as promulgated by the American National Standards Institute and is published by the American Society of Mechanical Engineers. Copies of this publication are available from the Society at United Engineering Center, 345 East 47th St., New York, NY 10017.

If any instructions are unclear, contact the manufacturer or distributor of the equipment before attempting to install or use the hoist.

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Foreword

This manual has been prepared to acquaint you of the procedures necessary for the installation, operation and maintenance of the equipment you have purchased.

Proper use is important to the ultimate performance of this equipment. Careful study of and adherence to the instructions will help ensure safe, dependable operation. It is also recommended that you keep this manual readily accessible to operators as well as maintenance and safety personnel.

Information in this manual is subject to change without notice.

Warranty

All sales are subject to the R&M Materials Handling, Inc. Standard Terms and Conditions of Sale (Revision 101707), a copy of which is available at www.rmhoist.com or upon request from R&M Materials Handling, Inc. customer service/sales representatives and the terms of which are incorporated as if fully rewritten herein.

How to Order Repair Parts Correctly

The Spare Parts section of this manual covers replacement parts required for R&M MATERIALS HANDLING, INC. equipment. To ensure prompt service, each repair parts order must contain the following information:

1. Equipment serial number
2. Capacity
3. Reference number from applicable bulletin or spare parts identification sheet
4. Quantity
5. Description
6. Correct shipping destination.

The serial number of your equipment is on the nameplate affixed to the equipment. Without this serial number, we cannot be sure of sending you the correct parts, so always mention the serial number for prompt service.

Minimum Charges

All orders for repair parts are subject to a minimum charge.

Claims for Damage in Shipment

All shipments are carefully inspected and are delivered to the carrier in good order. Upon receipt of shipment caution should be exercised so that there is no loss or damage. If damage has occurred, refuse to accept the shipment until the carrier makes the proper notation to that effect.

In the event of concealed loss or damage, notify the carrier immediately. By following these suggestions you will encounter less difficulty collecting your claim.

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Table of contents

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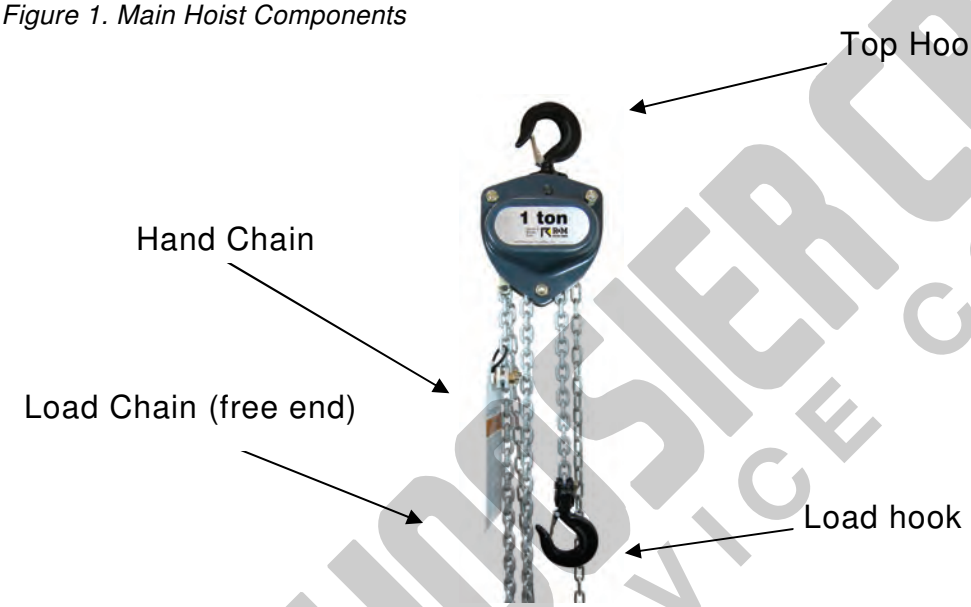
1 GENERAL

Check that the equipment furnished corresponds with the details on the packing slip attached to the packaging.

Limit loads to half of the nominal load capacity during periods of extreme cold weather where the ambient temperature is less than 5°F [-15 °C].

1.1 Description

Figure 1. Main Hoist Components



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1.2 Installation

1.2.1 Support

- Make sure the supporting structure is designed to withstand the loads and forces imposed by the hoist/trolley.
- Make sure trolley stops are installed at the limits of trolley travel. Trolley stops shall not be used as a continuing means of stopping the trolley, if a trolley is used.

1.2.2 Start-up Check Points

Before operating the new unit, carry out the following start-up procedures:

- Read the attached WARNING tag or other legends affixed to the unit that includes cautionary language AGAINST:
  1. Lifting more than rated load;
  2. Operating hoist with twisted, kinked, or damaged chain;
  3. Operating damaged or malfunctioning hoist;
  4. Lifting people or loads over people;
  5. Operating hoist with other than manual power;
  6. Removing or obscuring warning information.
- With a brush, oil the chain generously along the entire length.
- Make sure that the load chain is not twisted or kinked. If so, untwist the load chain before using.
- Grease the swivel joints of the hooks.
- Make sure the trolley wheels have proper spacing in relation to the beam flange, if a trolley is used.
- Without a load, carry out several lifting and lowering operations using the entire length of the load chain.
- With a load, carry out several lifting and lowering operations observing the operation of the load chain and sprocket. The load chain should feed smoothly into and away from the sprocket.
- Check to see that all functional operating mechanisms including the mechanical brake are operating correctly.

1.3 Operating Procedures

The hoist lifts and lowers the rated load in a controlled manner when a manual force is applied to the hand chain. The hoist is equipped with a brake, which sustains and controls the rated load when the hoist is being operated in either direction.

The manual chain hoists are for lifting and lowering. The use of the hoists for pulling or side pulling is not allowed because the chain guides and positioning of other parts are not designed for this type of operation.

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1.4 Operating Practices

In addition to the Safe Operating Practices – Dos and Don'ts, it is recommended that the following operating practices be adhered to when using a manual chain hoist.

The operator shall familiarize himself with the operation of the equipment and its proper care. If adjustments are necessary or damage is known, the unit must be removed from service and not used until corrections are made.

Before lifting a load, check that:

- The load chain is in good condition and properly oiled,
- The load chain is correctly fitted and not twisted or kinked,
- The load lifted is not greater than the rated capacity marked on the unit,
- Load is not caught on any obstructions,
- Clearance is available to avoid personal injury or property damage.

During lifting a load, it's recommended:

- To initially lift the load with caution so to check that the slings are adequate and correctly positioned,
- To stand clear while lifting or lowering the load,
- To stop lifting or lowering the load if the effort required on the hand chain is greater than normal because the equipment may be overloaded.
- That the operator shall make sure that all people in the area are clear of the load.
- That the operator shall not engage in any activity, which will divert his attention while operating the equipment.
- The unit shall always be operated by hand power only.

Handling the Load

- The rated load shall not be exceeded.
- The load chain shall not be wrapped around the load.
- The load shall be attached to the load hook or attached by means of slings or other approved apparatus.
- Slings or other approved apparatus shall be seated properly in the saddle of the hook.
- Hook safety latch shall be closed before operating the unit.
- Hooks shall not be tip loaded
- The hoist shall not be operated until load-block, chain and hoist body are directly inline with the direction of loading to avoid side pull.
- Do not leave a loaded hoist unattended at any time.

2 PACKAGING

The various models are delivered assembled and packed in cardboard boxes.

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3 SAFE OPERATING PRACTICES – DO'S AND DON'TS

3.1 DO'S:

3.1.1 General

Read the manual carefully and always follow the recommendations, instructions, warning information, and make all people who will operate the equipment aware of these. Only use "original parts" when repairing or maintaining. Keep the manual near the equipment and readily available to the operator and the maintenance and safety personnel at all times.

3.1.2 Transport / Storage

Handle the equipment by its structure either using the fittings provided for this purpose or in its original packaging. Store the equipment in a non-aggressive environment away from sources of dust or dampness etc. Regularly clean and protect from corrosion (oil, etc.).

3.1.3 Installation / Maintenance / Servicing

- Only trained and competent personnel may install and operate equipment.
- Ensure that safety regulations are complied with (safety harness, evacuation of work areas, warning signs, etc.).
- Verify the strength of the structure to which the equipment is to be attached.
- Carefully follow the installation instructions provided in the equipment's instruction manual.
- The load chain must be checked for proper installation and oiled before any load is applied.
- Establish an inspection program and maintain records of all maintenance performed. Pay particular attention to hooks, pulley blocks, load chain, brake, end stops, overload limiting device, etc.
- Replace any worn or suspect parts.
- Verify that all safety items are in good working order (brake, end stop, etc.) in accordance with the instruction manual.
- Regularly check the condition of the load chain and hooks (joints, swivels, etc.).
- If any distortion or abnormal wear is observed, the parts concerned must be replaced.
- Keep the load chain clean of debris and properly lubricated.
- Periodically check tightness of bolts and mounting hardware.
- Check that the chains are not twisted or damaged in any way.

3.1.4 During Use

- Before lifting ensure that the load is adequately attached to the hook. The hook safety latch must be properly closed. Balance the load before moving it. Avoid lifting the load from a single point, use appropriate accessories (slings, cross struts, etc.). Balance the load properly before handling.
- Make sure load clears neighboring stockpiles, machinery or other obstructions when moving the load. Take up slack slowly. Avoid swinging the load or load hook when traveling.
- Avoid hook tip loading.
- Be aware of and observe the safety rules while operating the equipment.
- Operate the equipment in normal environmental conditions.
- Equipment used outside should be adequately protected against the weather.
- Oil the chain regularly under no-load conditions.
- Inform maintenance personnel following any dangerous or unsafe operation of the equipment (strange noise, abnormal behavior, etc.).

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3.2 DON'TS:

3.2.1 Transport / Storage

Do not put the equipment on anything without suitable support otherwise parts on the underside may become damaged.

3.2.2 Installation / Maintenance / Servicing

- Never modify the equipment without the authorization of the manufacturer.
- Never modify the values and adjustments of the safety devices beyond the ranges specified in the instruction manual or without the manufacturer's approval.
- Never override limiting or safety equipment.

3.2.3 During Use

- Do not allow the hook, whether it is loaded or not, to pass over the heads of people below.
- Never attempt to move a load greater than the capacity indicated on the equipment.
- Remember that accidental impacts or snagging of the load being handled with surrounding objects may provoke an overload.
- Never remove the safety latches.
- Do not use the equipment for extracting or un-jamming purposes or for lateral pulling etc.
- Never use the equipment to transport people.
- Do not touch any moving parts.
- Never use the equipment if it is in an unsatisfactory condition (worn, bent, etc.).
- Do not use spare parts of unknown or doubtful origin.
- Never intentionally allow the load to tip over.
- Do not provoke violent impacts with the equipment.
- Do not constantly use the end stops as a means of stopping.
- Never use the load chain as a sling.
- Never attach a sling on the point of the hook (risk of hook being damaged and load falling).
- Never use the hook in a slanting position.
- Never twist the load chain (risk of pulley block turning over, etc.).
- Do not leave a load suspended unless absolutely necessary.
- Never use the equipment as a ground for welding.
- Do not use the equipment for a purpose or in a situation for which it is not designed.
- Do not use the safety devices as a means of measuring loaded weight.
- Do not jerk the load as this causes deterioration of the equipment.
- Never pull the load sideways, always center equipment over the load before moving it.

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4 INSPECTION

4.1 Load Chain

Check the condition of the load chain regularly. Never use the equipment if any of its links are cracked or deformed. Link wear must not exceed 10 % of the specified diameter of the load chain.

Measure the load chain over 5 links + 2 diameters as shown below in the Load Chain Technical Specification section. Compare the measurement with the appropriate value of the Dimension over 5 links + 2 diameters for a new load chain.

Replace the unit if the link wear exceeds 10 %.

4.2 Load Chain Technical Specification

Table 1. Load Chain Technical Specifications

Chain diameter x pitch (mm)	4 x 12	5 x 15	6 x 18	7.1 x 21	8 x 24	10 x 28	9 x 27
Grade	80	80	80	80	80	80	80
Class	T	T	T	T	T	T	T
Minimum breaking strain (N/mm2)	900	900	900	900	900	900	900
Standard	DIN 5684	DIN 5684	DIN 5684	DIN 5684	DIN 5684	DIN 5684	DIN 5684
Safe load limit on 1 fall (kg)	250	500	1000	1500	2000	3000	2500
Breaking load (kN)	20	31.36	49	63.5	73.5	126	105
Min. total elongation over 7 links	10%	10%	10%	10%	10%	10%	10%
Dimension over 5 links + 2 diameters (mm)	68 (+0.28 /-0.15)	85 (+0.33/-0.16)	102 (+0/-0.6)	119.2 (+0/-0.8)	136 (+0.12/-0.66)	160 (+0.5/-0.3)	153 (+0.45/-0.25)
Dimension over 5 links + 2 diameters (inch)	2.677 (+0.011 /-0.005)	3.346 (+0.013/-0.006)	4.016 (+0/-0.024)	4.693 (+0/-0.031)	5.354 (+0.005/-0.026)	6.299 (+0.019/-0.012)	6.024 (+0.018/-0.010)
Weight (kg) per meter	0.235	0.370	0.524	0.732	0.934	1.378	1.156
Weight (lb) per foot	0.16	0.25	0.35	0.49	0.63	0.92	0.78

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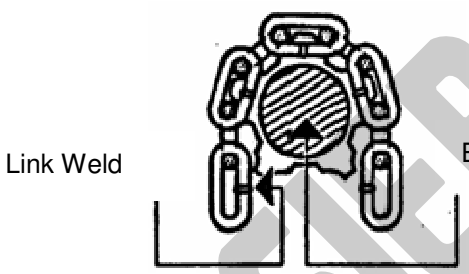
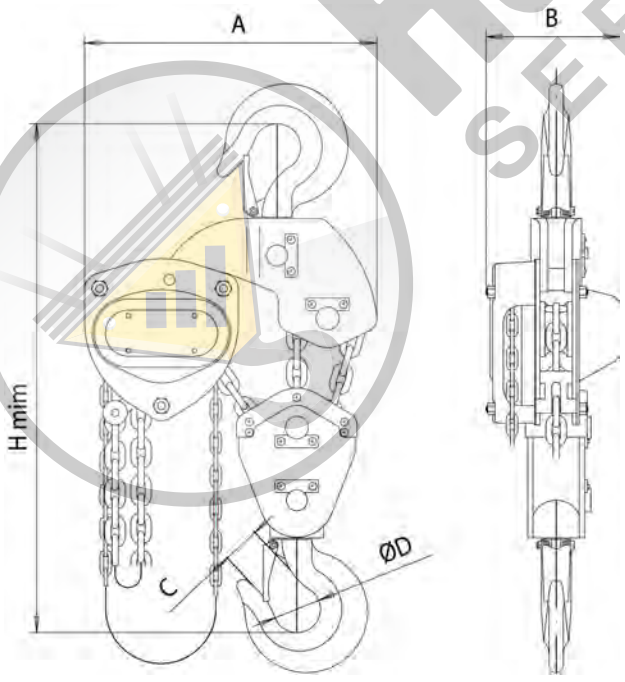
4.3 Load Chain Installation

1. Take a flexible wire of about 20 inches (50 cm) in length and insert the wire between the load wheel and the chain guide until it comes out on the other side.
2. Hook the chain onto the end of the wire on the load side.
3. Pull the wire to bring the chain in contact with the load wheel while checking the position of the vertical links. The link weld must be on the inside. (See figure)
4. Regulate the load chain tension.
5. Pull the hand chain.
6. Install the fall stop assembly. Fall stop assembly must be place at least 6" [150mm] from the free end of the load chain.

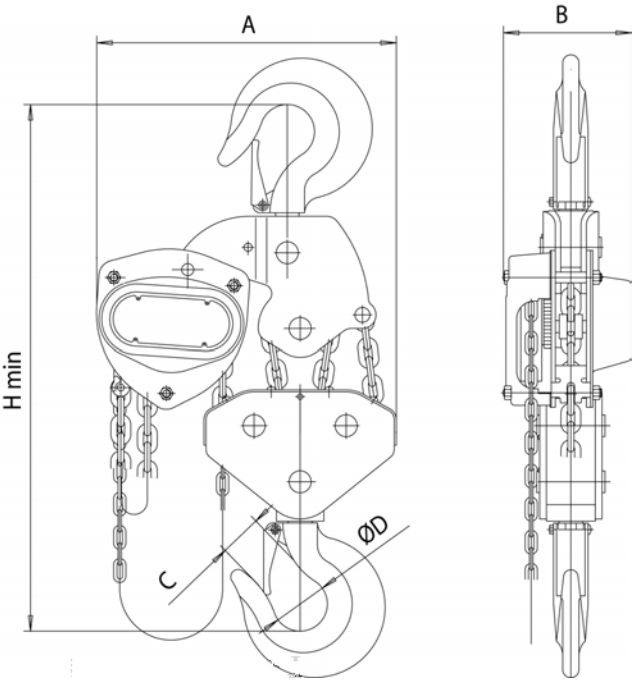
Figure 2. Link Weld Orientation



3 Fall Hoist



4 Fall Hoist



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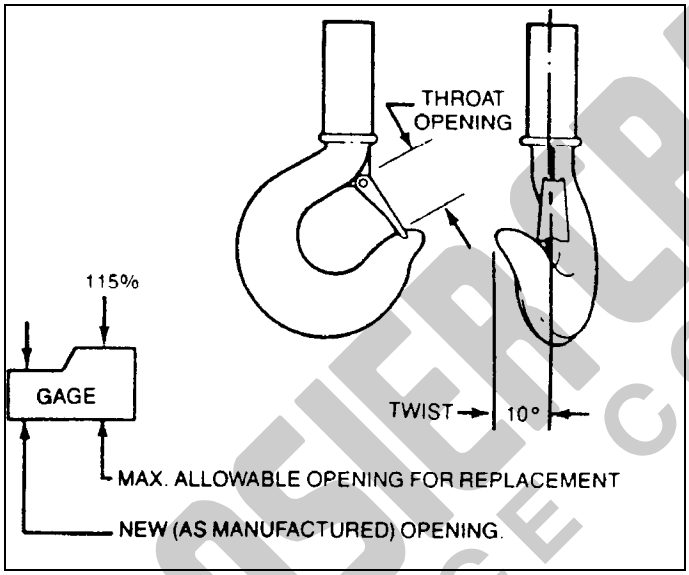
4.4 Hook Inspection

Check the hooks for deformation or cracks. The hooks must be replaced if the throat opening has increased by more than 15%, or if the throat opening has more than 10-degree twist from the plane of the unbent hook.

Figure 3. Measuring Hook Deformation



Due to many types and sizes of hooks that can be furnished and specified by the user, it is recommended that the user measure the actual throat opening of the hook as originally furnished and record it on the above sketch and retain for a permanent record. This record can then be used for determining when the hook must be replaced due to deformation or excessive throat opening.

Note: Any hook that is twisted or has a throat opening in excess of normal indicates abuse or overloading of the unit. Other load bearing components shall be checked for damage.

Safety latches shall be replaced if bent or broken to the extent that they no longer provide proper closure of the throat opening of the hook.

CAUTION: Repairing hooks by welding or reshaping is strictly forbidden.

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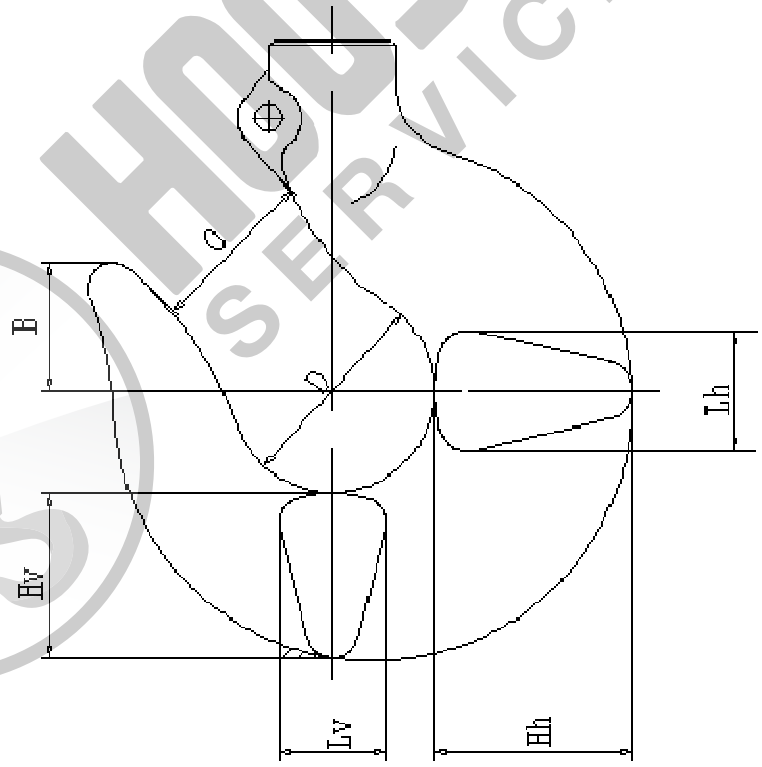
4.5 Hook Certificate

Table 2. Hook Dimensions

Hook I.D.	Load		Test load	Breaking load	D	O	B	H_h	L_h	H_v	L_v
	ton	kg	kg	kg	inch mm	inch mm	inch mm	inch mm	inch mm	inch mm	inch mm
15S	1/4	250	500	1000	1.22 31	0.9449 24	0.6299 16	0.7008 17.8	0.4528 11.5	0.5906 15	0.4134 10.5
16S	1/2	500	1000	2000	1.24 31.5	0.9843 25	0.7874 20	1.012 25.7	0.6299 16	0.8583 21.8	0.5512 14
19S	1	1000	2000	4000	1.476 37.5	1.181 30	0.9291 23.6	1.319 33.5	0.811 20.6	1.102 28	0.7283 18.5
21S	1 1/2	1500	3000	6000	1.673 42.5	1.319 33.5	1.043 26.5	1.575 40	0.9567 24.3	1.319 33.5	0.8583 21.8
22S	2	2000	4000	8000	1.772 45	1.398 35.5	1.102 28	1.72 43.7	1.043 26.5	1.437 36.5	0.9291 23.6
24S	3	3000	6000	12000	1.969 50	1.575 40	1.24 31.5	2.028 51.5	1.24 31.5	1.72 43.7	1.102 28
25S	5	5000	10000	20000	2.087 53	1.673 42.5	1.319 33.5	2.205 56	1.358 34.5	1.87 47.5	1.398 35.5
28T	7 1/2	7500	15000	30000	2.953 75	2.362 60	1.870 47.5	2.953 75	1.870 47.5	2.480 63	1.575 40
28T	10	10000	20000	40000	2.953 75	2.362 60	1.870 47.5	2.953 75	1.870 47.5	2.480 63	1.575 40

Figure 4. Hook DImensions



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5 PREVENTATIVE MAINTENANCE

5.1 Maintenance Schedule

The maintenance and inspection intervals are based on normal duty under normal environmental conditions (free from excessive dust, moisture, and corrosive fumes). If duty is heavier or environment more severe, maintenance and inspection intervals should be shortened and more frequent.

Table 3. Maintenance Schedule

Interval	Type of Check	Inspection / Maintenance
1 month	Visual examination	• Check the external condition of the unit • Check the condition of mechanism • Check the condition of the load chain and the attachments • Check the condition of the hooks • Check the condition of the hook safety latch • Check the condition of accessories • Clean the dust from the equipment • Check the greasing: • Lubricate the load chain with a brush (oil grade SAE 80) • Use oil to lubricate the heads of the hooks
6 month	In-depth examination	• Check the operation of the brake • Check the condition of the load wheel • Inspect the load chain for wear or distortion • Inspect the hooks for wear or distortion
12 month	Maintenance	• Open the gear cover and grease the gears

Always keep the chain clean and free of debris. Clean as necessary with paraffin or diesel, drain and re-oil. Do not clean the chain with thinners or degreasing agents under any circumstances.

5.2 Brake

5.2.1 Removing the Friction Disc

1. Remove the hand chain wheel cover.
2. Remove the cotter pin from the castle nut.
3. Remove the castle nut.
4. Remove the hand chain from the hand chain wheel.
5. Unscrew the hand chain wheel.
6. Remove the ratchet sub-assembly and the two friction discs.

Using a wire brush, clean:

- Threaded section of the main shaft
- Brake plate
- Threaded bore of the chain wheel

5.2.2 Installing the Friction Disc

1. Install the first friction disc.
2. Slightly separate the two pawls and install the ratchet gear.
3. Ensure that both pawls are correctly positioned in the teeth of the ratchet gear.
4. Install the second friction disc.
5. Screw on the hand chain wheel, machined face towards the discs, until tight.
6. Screw on the castle nut until tight, back off the castle nut until the first slot available lines up with the pinhole.
7. Insert the cotter pin and bend the ends away from each other.
8. Install the hand chain on the chain wheel.
9. Install the chain wheel cover.
10. Test the brake under load conditions.

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5.2.3 Replacement Criteria for Brakes

Table 4. Replacement Criteria for Brakes

TON - ITEM	THICKNESS AS NEW	REPLACE WHEN
1/4 - 52308624	0.125 inches (3.18 mm)	0.086 inches (2.18 mm)
1/2 - 52308625	0.102 inches (2.59 mm)	0.063 inches (1.59 mm)
1 - 52308626	0.098 inches (2.50 mm)	0.059 inches (1.50 mm)
1 1/2 - 52308627	0.100 inches (2.55 mm)	0.061 inches (1.55 mm)
2 - 52308712	0.102 inches (2.59 mm)	0.063 inches (1.59 mm)
3 - 52308713	0.101 inches (2.56 mm)	0.061 inches (1.56 mm)
5 - 52308629	0.100 inches (2.54 mm)	0.061 inches (1.54 mm)
7 1/2 - 52308629	0.100 inches (2.54 mm)	0.061 inches (1.54 mm)
10 - 52308629	0.100 inches (2.54 mm)	0.061 inches (1.54 mm)

Figure 5. Brake Measurement

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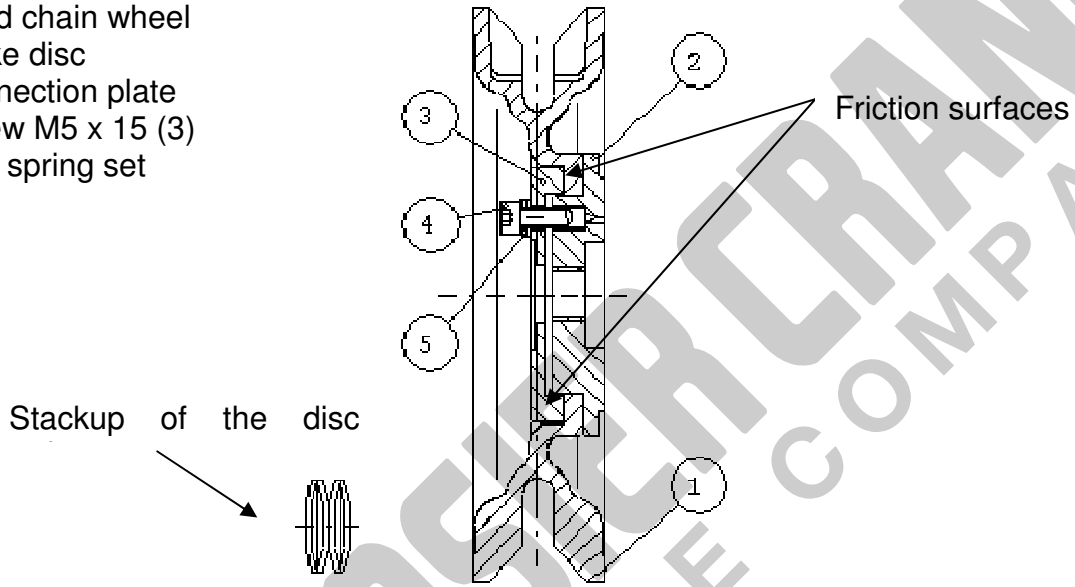
5.3 Setting the Overload Limiting Device

Figure 6. Cross Section of Overload Limiting Device

1. Hand chain wheel
2. Brake disc
3. Connection plate
4. Screw M5 x 15 (3)
5. Disc spring set



Setting the overload device

1. Make sure the friction surfaces are clean, free from any rust, dirt, dust, etc.
2. Lightly lubricate the friction surfaces with grease.
3. Tighten each M5 screw (4) evenly until tight.
4. Attach a test load of 1.3 times the rated capacity to the load hook.
5. Loosen each M5 screw an equal number of turns until the hand wheel slides and the test load can no longer be lifted.
6. Test with load at capacity.

Removing the hand wheel to check the condition of the friction surfaces

1. Remove the hand chain wheel cover.
2. Remove each M5 screw (4).
3. Remove the connection plate (3).
4. Pull off the hand chain wheel (1).
5. Remove the hand chain from the hand chain wheel.

Installing the hand wheel after checking the friction surfaces

1. Place the hand chain around the wheel.
2. Insert the hand chain wheel (1).
3. Add the connection plate (3)
4. Insert each M5 screw (4) making sure the stackup of the disc springs is correct.
5. Set the overload device.
6. Reinstall the hand chain wheel cover.

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6 SPARE PARTS

Figure 7. Spare Parts Diagrams

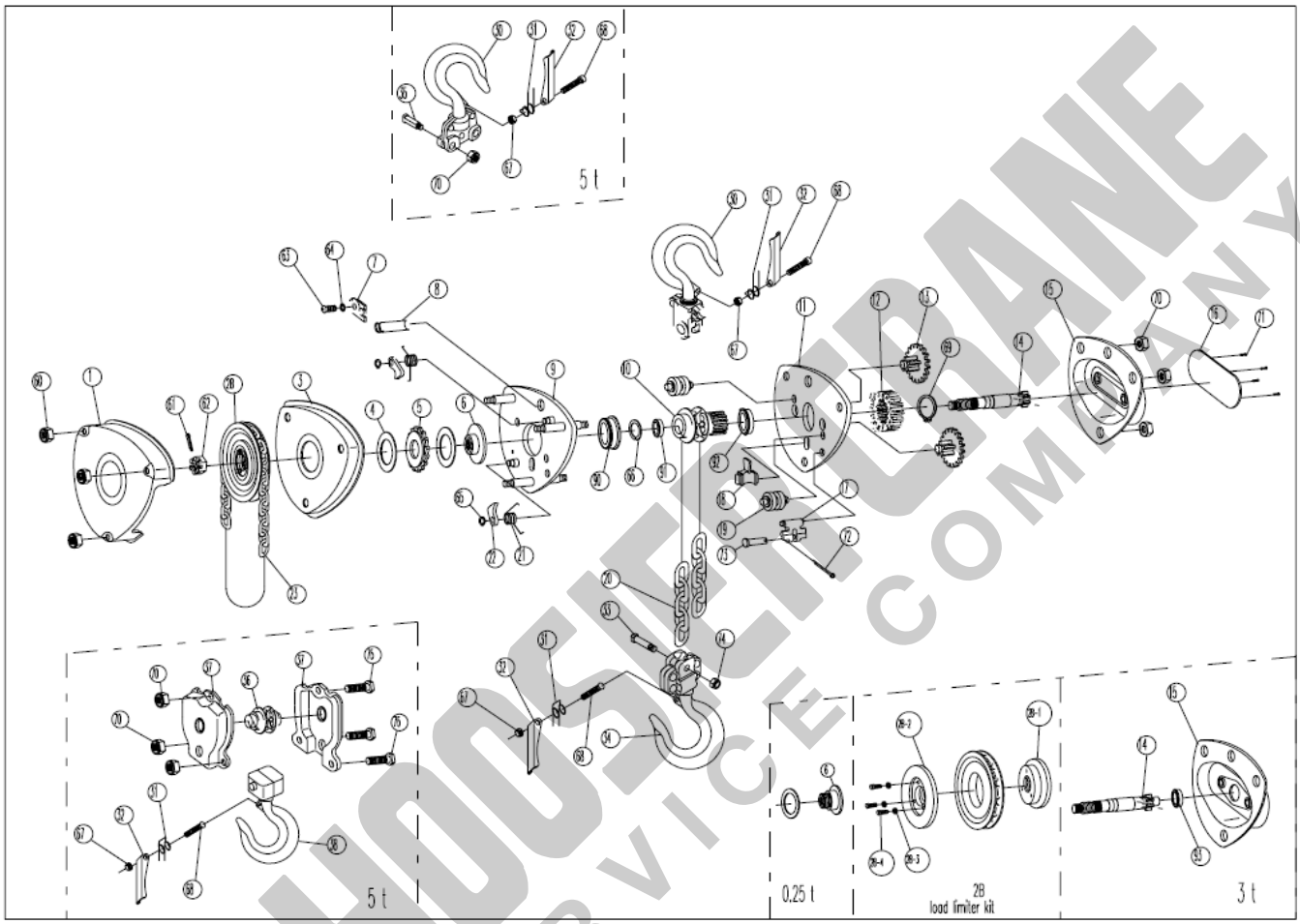

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Table 5. Spare Parts List

Item	Description	Capacity	Part Number	Quantity
1	Hand chain wheel cover	¼ ton [250 kg]	52308656	1
1	Hand chain wheel cover	½ ton [500 kg]	52308657	1
1	Hand chain wheel cover	1 ton [1000 kg]	52308658	1
1	Hand chain wheel cover	1-½ ton [1500 kg]	52308659	1
1	Hand chain wheel cover	2 ton [2000 kg]	52308718	1
1	Hand chain wheel cover	3 ton [3000 kg]	52308719	1
1	Hand chain wheel cover	5 ton [5000 kg]	52308660	1
1	Hand chain wheel cover	7-½ ton [7500 kg]	52308660	1
1	Hand chain wheel cover	10 ton [10000 kg]	52308660	1
2A	Hand chain wheel without overload device	¼ ton [250 kg]		1
2B	Hand chain wheel with overload device	> ¼ ton [250 kg]		1
3	Brake cover			1
4	Friction disc	¼ ton [250 kg]	52308624	2
4	Friction disc	½ ton [500 kg]	52308625	2
4	Friction disc	1 ton [1000 kg]	52308626	2
4	Friction disc	1-½ ton [1500 kg]	52308627	2
4	Friction disc	2 ton [2000 kg]	52308712	2
4	Friction disc	3 ton [3000 kg]	52308713	2
4	Friction disc	5 ton [5000 kg]	52308629	2
5	Ratchet gear	¼ ton [250 kg]	52308630	1
5	Ratchet gear	½ ton [500 kg]	52308632	1
5	Ratchet gear	1 ton [1000 kg]	52308633	1
5	Ratchet gear	1-½ ton [1500 kg]	52308634	1
5	Ratchet gear	2 ton [2000 kg]	52308716	1
5	Ratchet gear	3 ton [3000 kg]	52308717	1
5	Ratchet gear	5 ton [5000 kg]	52308635	1
5	Ratchet gear	7 ½ ton [7500kg]	52308635	1
5	Ratchet gear	10 ton [10000kg]	52308635	1
6	Brake plate	¼ ton [250 kg]	52308666	1
6	Brake plate	½ ton [500 kg]	52308667	1
6	Brake plate	1 ton [1000 kg]	52308668	1
6	Brake plate	1-½ ton [1500 kg]	52308669	1
6	Brake plate	2 ton [2000 kg]	52308714	1
6	Brake plate	3 ton [3000 kg]	52308715	1
6	Brake plate	5 ton [5000 kg]	52308670	1
6	Brake plate	7 ½ ton [7500 kg]	52308670	1
6	Brake plate	10 ton [10000 kg]	52308670	1
7	Position plate			1
8	Shaft			1
9	Side plate A assembly			1
10	Load chain wheel			1
11	Side plate B assembly			1
12	Gear with center spline			1
13	Drive shaft assembly			1
14	Shaft			1
15	Gear cover	¼ ton [250 kg]	52308661	1
15	Gear cover	½ ton [500 kg]	52308662	1
15	Gear cover	1 ton [1000 kg]	52308663	1
15	Gear cover	1-½ ton [1500 kg]	52308664	1

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Item	Description	Capacity	Part Number	Quantity
15	Gear cover	2 ton [2000 kg]	52308720	1
15	Gear cover	3 ton [3000 kg]	52308721	1
15	Gear cover	5 ton [5000 kg]	52308665	1
15	Gear cover	7 ½ ton [7500kg]	52308665	1
15	Gear cover	10 ton [10000kg]	52308665	1
16	Nameplate			1
17	Chain end frame			1
18	Stripper			1
19	Guide roller			1
20	Load chain - 4 x 12 Grade 80	¼ ton [250 kg]	52288022	Specify lift
20	Load chain - 5 x 15 Grade 80	½ ton [500 kg]	820151	Specify lift
20	Load chain - 6 x 18 Grade 80	1 ton [1000 kg]	900545	Specify lift
20	Load chain – 7.1 x 21 Grade 80	1-½ ton [1500 kg]	52288023	Specify lift
20	Load chain – 8 x 24 Grade 80	2 ton [2000 kg]	900546	Specify lift
20	Load chain – 10 x 28 Grade 80	3 ton [3000 kg]	52298372	Specify lift
20	Load chain – 9 x 27 Grade 80	5 ton [5000 kg]	52308372	Specify lift
20	Load chain – 9 x 27 Grade 80	7 ½ ton [7500 kg]	52308372	Specify lift
20	Load chain – 9 x 27 Grade 80	10 ton [10000 kg]	52308372	Specify lift
20	SS Load chain - 4 x 12 Grade 80	¼ ton [250 kg]	52371830	Specify lift
20	SS Load chain - 5 x 15 Grade 80	[450 kg]	820161	Specify lift
20	SS Load chain - 6 x 18 Grade 80	½ ton [500 kg]	52294715	Specify lift
20	SS Load chain – 7.1 x 21 Grade 80	[950 kg]	52371831	Specify lift
20	SS Load chain – 8 x 24 Grade 80	2 ton [2000 kg]	52320993	Specify lift
20	SS Load chain – 10 x 28 Grade 80	[1950 kg]	52371832	Specify lift
21	Pawl spring			1
22	Pawl			1
23	Hand chain – 5 x 23.7	All units	52292623	Specify lift
23	SS Hand chain – 5 x 23.7	All units	52316995	Specify lift
30	Top hook assembly	¼ ton [250 kg]	52308649	1
30	Top hook assembly	½ ton [500 kg]	52308650	1
30	Top hook assembly	1 ton [1000 kg]	52308651	1
30	Top hook assembly	1-½ ton [1500 kg]	52308652	1
30	Top hook assembly	2 ton [2000 kg]	52308653	1
30	Top hook assembly	3 ton [3000 kg]	52308654	1
30	Top hook assembly	5 ton [5000 kg]	52308655	1
30	Top hook assembly	7 ½ ton [7500 kg]	52307038	1
30	Top hook assembly	10 ton [10000 kg]	52307040	1
32	Hook safety latch	¼ ton [250 kg]	52308671	1 per hook
32	Hook safety latch	½ ton [500 kg]	52308672	1 per hook
32	Hook safety latch	1 ton [1000 kg]	52308673	1 per hook
32	Hook safety latch	1-½ ton [1500 kg]	52308674	1 per hook
32	Hook safety latch	2 ton [2000 kg]	52308675	1 per hook
32	Hook safety latch	3 ton [3000 kg]	52308676	1 per hook
32	Hook safety latch	5 ton [5000 kg]	52308677	1 per hook
32	Hook safety latch	7 ½ ton [7500 kg]	52307274	1 per hook
32	Hook safety latch	10 ton [10000 kg]	52307274	1 per hook
33	Bottom suspension pin			1
34	Bottom block assembly for 1 fall units			1
35	Top suspension pin			1

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Item	Description	Capacity	Part Number	Quantity
36	Load chain wheel for bottom block for 2 fall units			1
37	Bottom block assembly for 2 fall units			1
38	Load hook with bottom block	¼ ton [250 kg]	52308640	1
38	Load hook with bottom block	½ ton [500 kg]	52308641	1
38	Load hook with bottom block	1 ton [1000 kg]	52308642	1
38	Load hook with bottom block	1-½ ton [1500 kg]	52308643	1
38	Load hook with bottom block	2 ton [2000 kg]	52308645	1
38	Load hook with bottom block	3 ton [3000 kg]	52308646	1
38	Load hook with bottom block	5 ton [5000 kg]	52308647	1
38	Load hook with bottom block	7 ½ ton [7500 kg]	52307033	1
38	Load hook with bottom block	10 ton [10000 kg]	52307036	1
60	Lock nut			
61	Split pin			
62	Castle nut			
63	Screw			
64	Spring washer			
65	Circlip for shaft			
66	Circlip for hole			
67	Lock nut			
68	Screw			
69	Circlip for shaft			
70	Lock nut			
71	Rivet			
72	Split pin			
73	Pin shaft			
74	Lock nut			
75	Bolt			
90	Bearing			
91	Bearing			
92	Bearing			
93	Bearing			
-	Body plus load block (without chains)	¼ ton [250 kg]	52308350	
-	Body plus load block (without chains)	½ ton [500 kg]	52308354	
-	Body plus load block (without chains)	1 ton [1000 kg]	52308357	
-	Body plus load block (without chains)	1-½ ton [1500 kg]	52308360	
-	Body plus load block (without chains)	2 ton [2000 kg]	52308363	
-	Body plus load block (without chains)	3 ton [3000 kg]	52308366	
-	Body plus load block (without chains)	5 ton [5000 kg]	52308369	
-	Body plus load block (without chains)	7 ½ ton [7500 kg]	52324122	
-	Body plus load block (without chains)	10 ton [10000 kg]	52324123	

☞ NOTE: Items without part numbers are non-stocked replacement parts.

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OPERATION AND MAINTENANCE MANUAL 1/4 TON TO 3 TON CAPACITY

RL MANUAL LEVER PULLER

English

STD-R-KHA-F-CQD-ENG

HOOSIER CRANE SERVICE COMPANY

R&M Materials Handling, Inc. | 4501 Gateway Boulevard, Springfield, Ohio 45502 | PH: 1-937-525-5100 | FAX: 1-937-325-5319

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CAUTION: Read the instructions supplied with the product before installation and commissioning.

CAUTION: Keep the instructions in a safe place for future reference.

Before proceeding with the operation or maintenance of the equipment it is important that the operating, and maintenance personnel read this bulletin carefully in order to ensure the safe and efficient use of the equipment.

Also, it is strongly recommended that the personnel responsible for the operation, inspection, and servicing of this hoist, read and follow the Safety Standard ASME B30.21-1999 (or current revised edition). This standard covers Manually Lever Operated Hoists as promulgated by the American National Standards Institute and is published by the American Society of Mechanical Engineers. Copies of this publication are available from the Society at United Engineering Center, 345 East 47th St., New York, NY 10017.

If any instructions are unclear, contact the manufacturer or distributor of the equipment before attempting to install or use the manual lever puller.

R&M MATERIALS HANDLING, INC.
4501 Gateway Boulevard
Springfield, OH 45502

General Telephone: 937 - 328-5100
Toll Free Telephone (US): 800 - 955-9967

General Fax: 937 - 325-5319
Parts Department Fax (US): 800 - 955-5162
Parts Dept. Fax (other): 937 - 328-5162

Website: www.rmhoist.com

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FOREWORD

This manual has been prepared to acquaint you of the procedures necessary for the installation, operation and maintenance of the equipment you have purchased.

Proper use is important to the ultimate performance of this equipment. Careful study of and adherence to the instructions will help ensure safe, dependable operation. It is also recommended that you keep this manual readily accessible to operators as well as maintenance and safety personnel.

Information in this manual is subject to change without notice.

Warranty

All sales are subject to the R&M Materials Handling, Inc. Standard Terms and Conditions of Sale (Revision 101707), a copy of which is available at www.rmhoist.com or upon request from R&M Materials Handling, Inc. customer service/sales representatives and the terms of which are incorporated as if fully rewritten herein.

How to Order Repair Parts Correctly

The Spare Parts section of this manual covers replacement parts required for R&M MATERIALS HANDLING, INC. equipment. To ensure prompt service, each repair parts order must contain the following information:

1. Equipment serial number
2. Capacity
3. Reference number from applicable bulletin or spare parts identification sheet
4. Quantity
5. Description
6. Correct shipping destination.

The serial number of your equipment is on the nameplate affixed to the equipment. Without this serial number, we cannot be sure of sending you the correct parts, so always mention the serial number for prompt service.

Minimum Charges

All orders for repair parts are subject to a minimum charge.

Claims for Damage in Shipment

All shipments are carefully inspected and are delivered to the carrier in good order. Upon receipt of shipment caution should be exercised so that there is no loss or damage. If damage has occurred, refuse to accept the shipment until the carrier makes the proper notation to that effect.

In the event of concealed loss or damage, notify the carrier immediately. By following these suggestions you will encounter less difficulty collecting your claim.

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Table of contents

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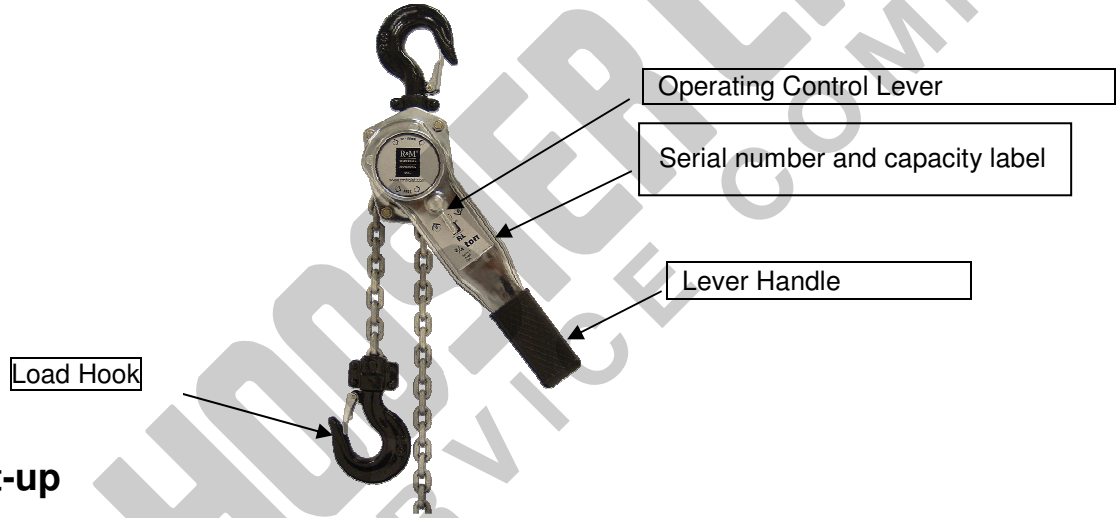
1 GENERAL

Check that the equipment furnished corresponds with the details on the packing slip attached to the packaging.

Limit loads to half of the nominal load capacity during periods of extreme cold weather where the ambient temperature is less than 5°F [-15 °C].

1.1 Description

Figure 1. Main Hoist Components



1.2 Start-up

Before operating the new unit, carry out the following start-up procedures:

- Read the attached WARNING tag or other legends affixed to the unit that includes cautionary language AGAINST:
  1. Lifting or pulling more than rated load;
  2. Operating unit when it is restricted from forming a straight line with the direction of loading;
  3. Operating unit with a lever extender;
  4. Operating damaged or malfunctioning unit;
  5. Lifting people or loads over people;
  6. Operating unit with twisted, kinked, or damaged chain;
  7. Removing or obscuring warning information.

- With a brush, oil the chain generously along the entire length.
- Make sure that the load chain is not twisted or kinked. If so, untwist the load chain before using.
- Grease the swivel joints of the hooks.
- Without load, carry out several raising and lowering operations using the entire length of the load chain.
- With load, carry out several raising and lowering operations using the entire length of the load chain.

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1.3 Operating Procedures

The control functions (UP-NEUTRAL-DOWN) are clearly identified on the unit. The unit has a free-chaining (wheeling) capability, which allows the operator to adjust the load hook position when the unit is not under load. Free-chaining capability is activated when the operating control lever is in the neutral position.

1.4 Operating Practices

In addition to the Safe Operating Practices – Dos and Don'ts, it recommended that the following operating practices (taken in part from American National Standards ASME HST-3M) be adhered to when using a lever-operated puller.

- The supporting structure or anchoring means shall have a load rating at least equal to that of the hoist.
- The operator shall familiarize himself with the operation of the equipment and its proper care. If adjustments are necessary or damage is known, the unit must be removed from service and not used until corrections are made.
- Hoists shall be used only in locations that will allow the operator to be free of the load.
- The operator shall make sure that all people in the area are clear of the load.
- The operator shall not engage in any activity, which will divert his attention while operating the equipment.
- The operator shall not attempt to use free-chaining feature with any load on the unit. A load shall not be applied with the control function in the neutral position.
- The unit shall always be operated by hand power only and never operated with an extension on the lever.

1.5 Handling the Load

- The rated load shall not be exceeded.
- The load chain shall not be wrapped around the load.
- The load shall be attached to the load hook or attached by means of slings or other approved apparatus.
- Slings or other approved apparatus shall be seated properly in the saddle of the hook.
- Hook safety latch shall be closed before operating the unit.
- Hooks shall not be tip loaded
- Before lifting or pulling, the operator must be certain that
  1. Load chain is not twisted, kinked and is properly seated in the load wheel.
  2. Load is not caught on any obstructions,
  3. Clearance is available to avoid personal injury or property damage.
- Unit shall not be operated until the load block; chain and unit body are directly inline with the direction of loading to avoid side pull.
- Do not leave a loaded lever puller unattended at any time.

2 PACKAGING

The various models are delivered assembled and packed in cardboard boxes.

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3 SAFE OPERATING PRACTICES – DO'S AND DON'TS

3.1 DO'S:

3.1.1 General

Read the manual carefully and always follow the recommendations, instructions, warning information, and make all people who will operate the equipment aware of these. Only use "original parts" when repairing or maintaining. Keep the manual near the equipment and readily available to the operator and the maintenance and safety personnel at all times.

3.1.2 Transport / Storage

Handle the equipment by its structure either using the fittings provided for this purpose or in its original packaging. Store the equipment in a non-aggressive environment away from sources of dust or dampness etc. Regularly clean and protect from corrosion (oil, etc.).

3.1.3 Installation / Maintenance / Servicing

- Only trained and competent personnel may install and operate equipment.
- Ensure that safety regulations are complied with (safety harness, evacuation of work areas, warning signs, etc.).
- Verify the strength of the structure to which the equipment is to be attached.
- Carefully follow the installation instructions provided in the equipment's instruction manual.
- Establish an inspection program and maintain records of all maintenance carried out. Pay particular attention to hooks, pulley blocks, the chain, the brake, the end stops, etc.
- Replace any worn or suspect parts.
- Verify that all safety items are in good working order (brake, end stop, etc.) in accordance with the instruction manual.
- Regularly check the condition of the chain and hooks (joints, swivels, etc.).
- If any distortion or abnormal wear is observed, the parts concerned must be replaced.
- Keep the chain clean of debris and properly lubricated.
- Periodically check tightness of bolts and mounting hardware.
- Check that the chain is not twisted or damaged in any way.

3.1.4 During Use

- Before lifting ensure that the load is adequately attached to the hook. The hook safety latch must be properly closed. Balance the load before moving it. Avoid lifting the load from a single point, use appropriate accessories (slings, cross struts, etc.). Balance the load properly before handling.
- Make sure load clears neighboring stockpiles, machinery or other obstructions when moving the load. Take up slack slowly. Avoid swinging the load or load hook when traveling.
- Avoid hook tip loading.
- Be aware of and observe the safety rules while operating the equipment.
- Operate the equipment in normal environmental conditions.
- Equipment used outside should be adequately protected against the weather.
- Oil the chain regularly under no-load conditions.
- Inform maintenance personnel following any dangerous or unsafe operation of the equipment (strange noise, abnormal behavior, etc.).

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3.2 DON'TS:

3.2.1 Transport / Storage

Do not put the equipment on anything without suitable support otherwise parts on the underside may become damaged.

3.2.2 Installation / Maintenance / Servicing

- Never modify the equipment without the authorization of the manufacturer.
- Never modify the values and adjustments of the safety devices beyond the ranges specified in the instruction manual or without the manufacturer's approval.
- Never override limiting or safety equipment.

3.2.3 During Use

- Do not allow the hook, whether it is loaded or not, to pass over the heads of people below.
- Never attempt to move a load greater than the capacity indicated on the equipment.
- Remember that accidental impacts or snagging of the load being handled with surrounding objects may provoke an overload of the equipment.
- Never remove the safety latches.
- Never use the equipment to transport people.
- Do not touch any inappropriate moving parts.
- Never use the equipment if it is in an unsatisfactory condition (worn, bent, etc.).
- Do not use spare parts of unknown or doubtful origin.
- Never intentionally allow the load to tip over.
- Do not shock load the equipment.
- Do not constantly use the end stops as a means of stopping.
- Never use the lifting chain as a sling.
- Never attach a sling on the point of the hook (risk of hook being damaged and load falling).
- Never use the hook in a slanting position.
- Never twist the lifting chain (risk of pulley block turning over, etc.).
- Do not leave a load suspended unattended.
- Never use the equipment as a ground for welding.
- Do not use the equipment for a purpose or in a situation for which it is not designed.
- Do not use the safety devices as a means of measuring loaded weight.
- Do not jerk the load as this causes deterioration of the equipment.
- Never pull the load sideways, always center equipment over the load before moving it.

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4 INSPECTIONS

4.1 Load Chain Inspection

Check the condition of the load chain regularly. Never use the equipment if any of its links are cracked or deformed. Link wear must not exceed 10 % of the specified diameter of the load chain.

Measure the load chain over 5 links + 2 diameters as shown below in the Load Chain Technical Specification section. Compare the measurement with the appropriate value of the Dimension over 5 links + 2 diameters for a new load chain.

Replace the unit if the link wear exceeds 10 %.

4.1.1 Load Chain Technical Specification

Table 1. Load Chain Technical Specifications

Capacity	¼ Ton	¾ Ton	1 ½ Ton	3 Ton
	250 kg	750 kg	1500 kg	3000 kg
Chain diameter x pitch	4 x 12	6 x 18	7.1 x 21	10x30
Grade	80	80	80	80
Class	T	T	T	T
Minimum breaking strain (N/mm2)	900	900	900	900
Standard	DIN 5684	DIN 5684	DIN 5684	DIN 5684
Safe load limit on 1 fall (kg)	250	750	1500	3000
Breaking load (kN)	32.8	49	63.5	147
Min. total elongation over 7 links	10%	10%	10%	10%
Dimension over 5 links + 2 diameters (mm) / (inch)	68 (+0/-0.16) 2.677 (+0/-0.006)	102 (+0/-0.6) 4.016 (+0/0.0236)	119.2 (+0/- 0.8) 4.693 (+0/- 0.0315)	170 (+0.74/- 0.37) 6.693 (+0.0291/- 0.0146)
Weight (kg) per meter Weight (lb) per foot	0.235 0.16	0.78 0.52	1.09 0.73	2.17 1.46

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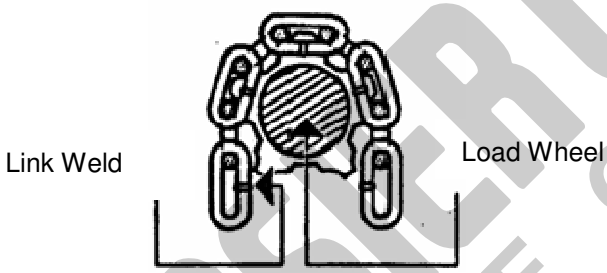
4.1.2 Load Chain Installation

1. Release the control lever.
2. Take a flexible wire of about 20 inches (50 cm) in length and insert it over the lifting head axle until it comes out on the other side.
3. Hook the chain onto the end of the wire on the load side.
4. Pull the wire to bring the chain in contact with the load wheel while checking the position of the vertical links. **The link weld must be on the inside.** (See figure)
5. Regulate the chain tension.
6. Engage the control lever.
7. Adjust the chain.
8. Reinstall the end stop ring.

Figure 2. Link Weld Orientation



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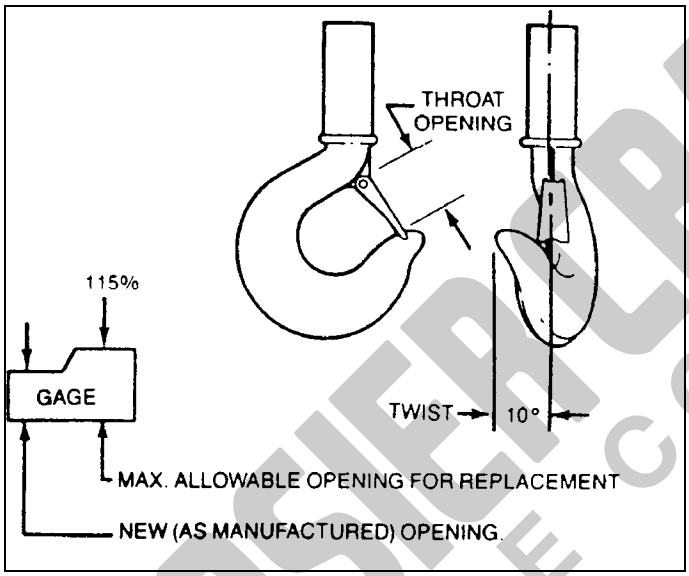
4.2 Hook Inspection

Check the hooks for deformation or cracks. The hooks must be replaced if the throat opening has increased by more than 15%, or if the throat opening has more than 10-degree twist from the plane of the unbent hook.

Figure 3. Measuring Hook Deformation



Due to many types and sizes of hooks that can be furnished and specified by the user, it is recommended that the user measure the actual throat opening of the hook as originally furnished and record it on the above sketch and retain for a permanent record. This record can then be used for determining when the hook must be replaced due to deformation or excessive throat opening.

Note: Any hook that is twisted or has a throat opening in excess of normal indicates abuse or overloading of the unit. Other load bearing components shall be checked for damage.

Safety latches shall be replaced if bent or broken to the extent that they no longer provide proper closure of the throat opening of the hook.

CAUTION: Repairing hooks by welding or reshaping is strictly forbidden.

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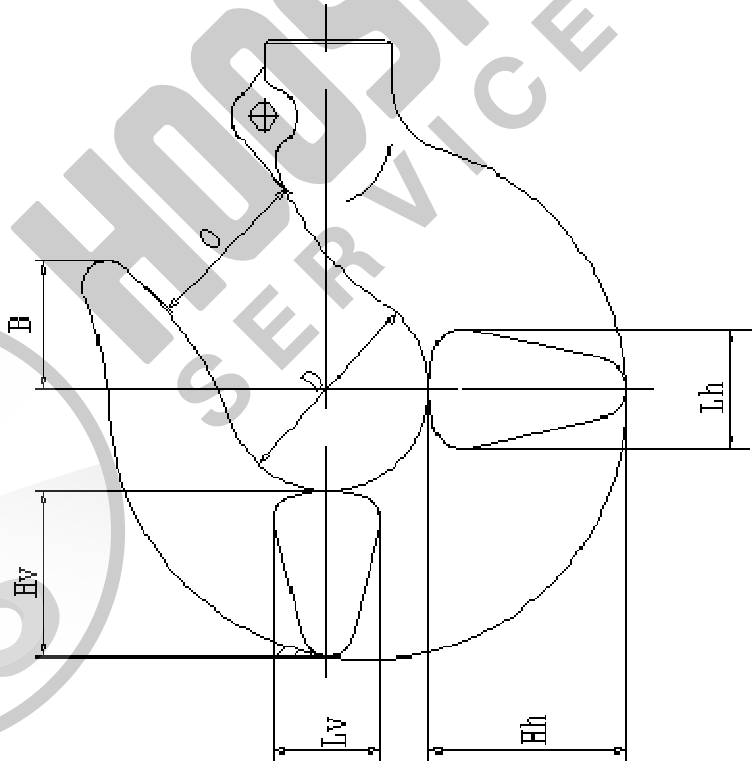
4.3 Hook Certificate

Table 2. Hook Dimensions

Hook I.D.	Load capacity Ton	kg	Load test lbs [kg]	Minimum breaking load lbs [kg]	D in [mm]	O in [mm]	B in [mm]	H_h in [mm]	L_h in [mm]	H_v in [mm]	L_v in [mm]
13S	¼	250	1102 [500]	2204 [1000]	1.043 [26.5]	0.835 [21.2]	0.669 [17]	0.787 [20]	0.476 [12.1]	0.669 [17]	0.429 [10.9]
19S	3/4	750	4409 [2000]	8818 [4000]	1.476 [37.5]	1.181 [30]	0.929 [23.6]	1.319 [33.5]	0.811 [20.6]	1.102 [28]	0.728 [18.5]
21S	1 1/2	1500	6614 [3000]	13228 [6000]	1.673 [42.5]	1.319 [33.5]	1.043 [26.5]	1.575 [40]	0.957 [24.3]	1.319 [33.5]	0.858 [21.8]
24S	3	3000	13228 [6000]	26456 [12000]	1.968 [50]	1.575 [40]	1.240 [31.5]	2.028 [51.5]	1.240 [31.5]	1.720 [43.7]	1.102 [28]

Figure 4. Hook Dimensions



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5 PREVENTATIVE MAINTENANCE

5.1 Maintenance Schedule

The maintenance and inspection intervals are based on normal duty under normal environmental conditions (free from excessive dust, moisture, and corrosive fumes). If duty is heavier or environment more severe, maintenance and inspection intervals should be shortened and more frequent.

Table 3. Maintenance Schedule

Interval	Type of Check	Inspection / Maintenance
1 month	Visual examination	• Check the external condition of the unit • Check the condition of the mechanism • Check the condition of the load chain and the attachments • Check the condition of the hooks • Check the condition of the hook safety latch • Check the condition of accessories • Clean the dust from the equipment • Check the greasing: • Lubricate the load chain with a brush (oil grade SAE 80) • Use oil to lubricate the heads of the hooks
6 month	In-depth examination	• Check the operation of the brake • Check the condition of the load wheel • Inspect the load chain for wear or distortion • Inspect the hooks for wear or distortion
12 month	Maintenance	• Open the gear cover and grease the gears

☞ **Note: Always keep the chain clean and free of debris. Clean as necessary with paraffin or diesel, drain and re-oil. Do not clean the chain with thinners or degreasing agents under any circumstances.**

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6 SPARE PARTS

6.1 ¼ ton [250 kg] capacity unit

Figure 5. Spare Parts Diagram

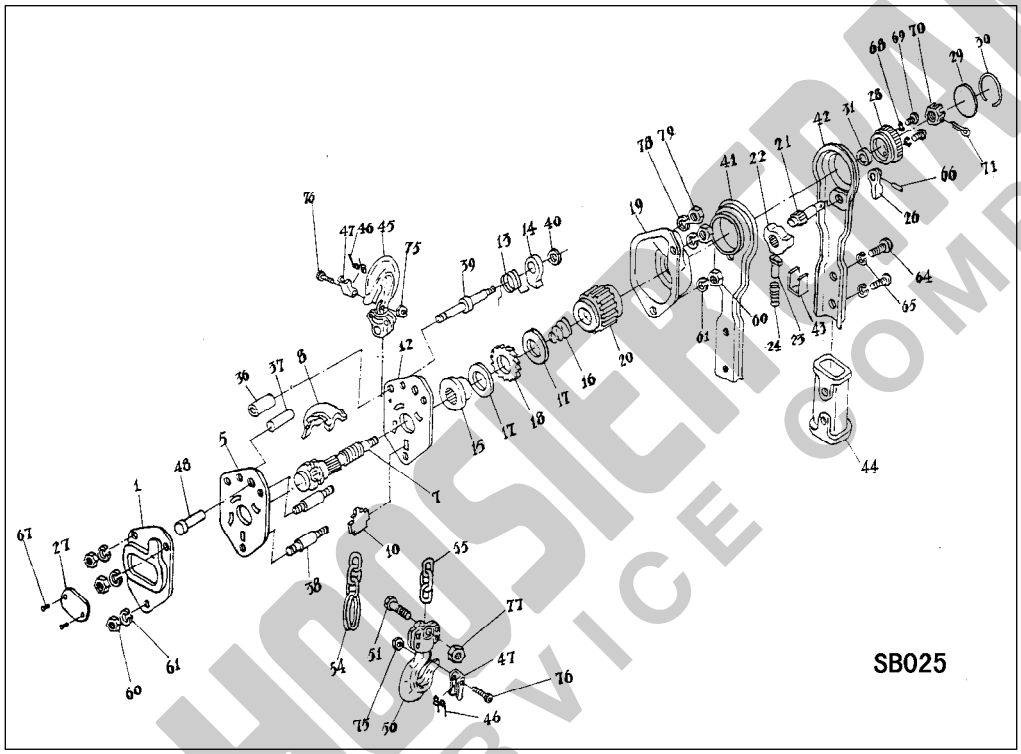

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Table 4. Spare Parts List

Item	Description	Part	Qty
1	Cover		1
5	Side Plate A		1
7	Load shaft		1
8	Guide plate		1
10	Stripper		1
12	Side plate B		1
13	Pawl spring		1
14	Pawl		1
15	Disk hub		1
16	Free spring		1
17	Friction disk		2
18	Ratchet disk		1
19	Brake cover		1
20	Change over gear		1
21	Selector shaft		1
22	Change over pawl		1
23	Spring shaft		1
24	Change over spring		1
26	Selector lever		1
27	Name plate		1
28	Hand wheel		1
29	Indicator cap		1
30	Retainer wire		1
31	Bushing		1
36	Bushing		1
37	Special pin		1
38	Stay bolt A		2
39	Stay bolt B		1

Item	Description	Part	Qty
40	Washer		1
41	Lever handle assembly A		1
42	Lever handle assembly B		1
43	Spring seat		1
44	Handle rubber grip		1
45	Top hook assembly	52291854	1
46	Double spring		1 / hook
47	Safety latch	52308671	1 / hook
48	Top pin		1
50	Load hook assembly	52291849	1
51	Chain pin		1
54	Chain ring		1
55	Load chain 4 x 12	52288022	Specify lift
60	Hexagon nut M6		5
61	Spring washer 6		5
64	Screw M6×20		2
65	Spring washer 6		2
66	Spring pin 2×12		1
67	Rivet 2×5		2
68	Spring washer 4		3
69	Screw M4×10		3
70	Castle nut M8		1
71	Split pin 2×16		1
75	Prevailing torque type nut M3		2
76	Screw M3×18		2
77	Prevailing torque type nut M5		1
78	Spring washer 5		1
79	Hexagon nut M5		1

Note: Items without part numbers are non-stocked replacement parts.

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6.2 3/4 ton [750 kg] and higher capacity units

Figure 6. Spare Parts Diagram

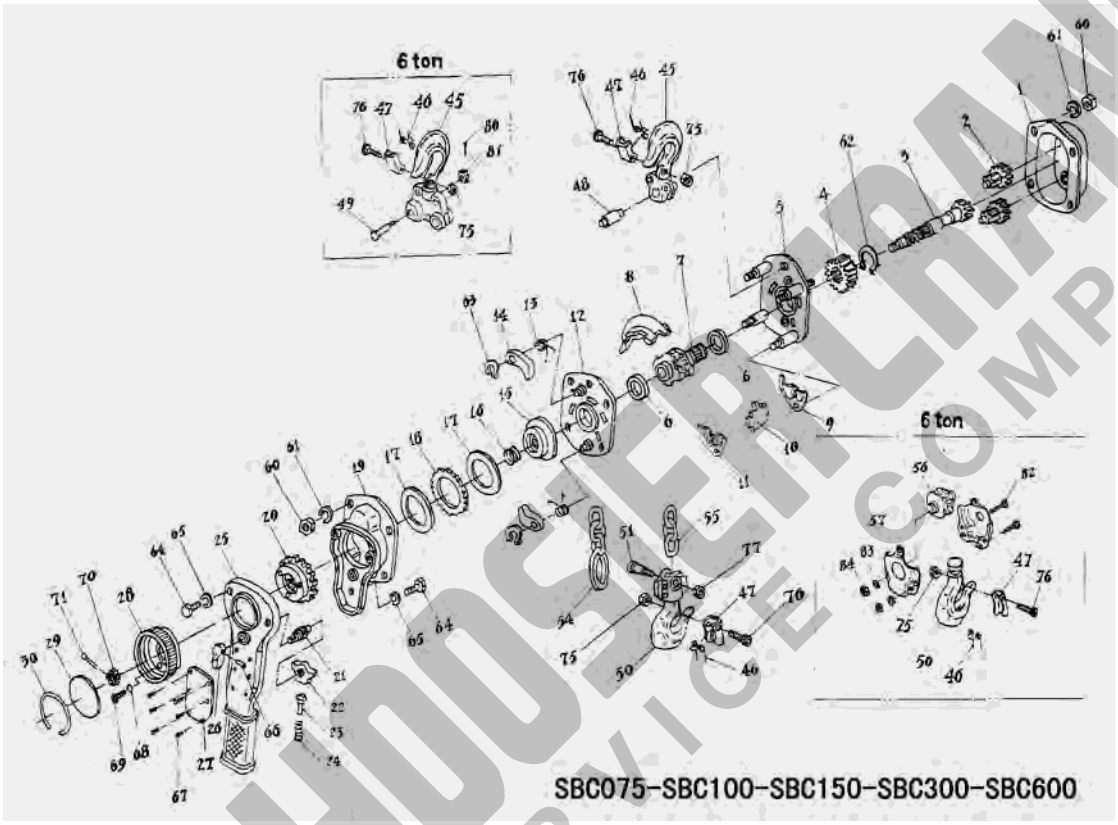

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Table 5. Spare Parts List

Item	Description	Part Number	Qty
1	Gear case assembly		1
2	Driven shaft assembly		2
3	Drive shaft		1
4	Splined gear		1
5	Side Plate assembly A		1
6	Bushing		2
7	Load sheave		1
8	Guide plate		1
9	Chain leader A		1
10	Stripper		1
11	Chain leader B		1
12	Side plate assembly B		1
13	Pawl spring		2
14	Pawl		2
15	Disk hub		1
16	Free spring		1
17	Friction disk		2
18	Ratchet disk		1
19	Brake cover assembly		1
20	Change over gear		1
21	Selector shaft		1
22	Change over pawl		1
23	Spring shaft		1
24	Change over spring		1
25	Lever handle assembly		1
26	Selector lever		1
27	Name plate		1
28	Hand wheel		1
29	Indicator cap		1
30	Retainer wire		1
45	Top hook assembly ¾ ton [750 kg]	52291855	1
45	Top hook assembly 1 1/2 ton 1500 kg]	52291857	1
45	Top hook assembly 3 ton [3000 kg]	52291858	1
46	Double spring		1/ hook
47	Safety latch ¾ ton [750 kg]	52308673	1/ hook
47	Safety latch 1 1/2 ton [1500 kg]	52308674	1/ hook
47	Safety latch 3 ton [3000 kg]	52308676	1/ hook
48	Top pin		1
50	Load hook assembly	52291851	1
50	Load hook assembly	52291697	1
50	Load hook assembly	52291853	1
51	Chain pin		1
54	Chain ring		1
55	Load chain 6 x 18	900545	
55	Load chain 7.1 x 21	52288023	
55	Load chain 10 x 30	52288024	
60	Hexagon nut M8		8
61	Spring washer 8		8
62	Snap ring 26		1
63	Snap ring 8		2
64	Screw M6×10		3
65	Spring washer 6		3
66	Spring pin 2.5×18		1
67	Rivet 2.5×6		6
68	Spring washer 5		3
69	Screw M5×10		3
70	Castle nut M10		1
71	Split pin 2.5×20		1
75	Prevailing torque type nut M3		2
76	Screw M3×18		2
77	Prevailing torque type nut M8		1

Note: Items without part numbers are non-stocked replacement parts.

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OPERATION AND MAINTENANCE MANUAL ¾ TON TO 6 TON CAPACITY

RLP PREMIUM MANUAL LEVER PULLER

English
STD-R-KHA-F-CQD-ENG

R&M Materials Handling, Inc. | 4501 Gateway Boulevard, Springfield, Ohio 45502 | PH: 1-937-525-5100 | FAX: 1-937-325-5319

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CAUTION: Read the instructions supplied with the product before installation and commissioning.

CAUTION: Keep the instructions in a safe place for future reference.

Before proceeding with the operation or maintenance of the equipment it is important that the operating, and maintenance personnel read this bulletin carefully in order to ensure the safe and efficient use of the equipment.

Also, it is strongly recommended that the personnel responsible for the operation, inspection, and servicing of this hoist, read and follow the Safety Standard ASME B30.21-1999 (or current revised edition). This standard covers Manually Lever Operated Hoists as promulgated by the American National Standards Institute and is published by the American Society of Mechanical Engineers. Copies of this publication are available from the Society at United Engineering Center, 345 East 47th St., New York, NY 10017.

If any instructions are unclear, contact the manufacturer or distributor of the equipment before attempting to install or use the manual lever puller.

R&M MATERIALS HANDLING, INC.
4501 Gateway Boulevard
Springfield, OH 45502

General Telephone: **937 - 328-5100**
Toll Free Telephone (US): **800 - 955-9967**

General Fax: **937 - 325-5319**
Parts Department Fax (US): **800 - 955-5162**
Parts Dept. Fax (other): **937 - 328-5162**

Website: **www.rmhoist.com**

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FOREWORD

This manual has been prepared to acquaint you of the procedures necessary for the installation, operation and maintenance of the equipment you have purchased.

Proper use is important to the ultimate performance of this equipment. Careful study of and adherence to the instructions will help ensure safe, dependable operation. It is also recommended that you keep this manual readily accessible to operators as well as maintenance and safety personnel.

Information in this manual is subject to change without notice.

Warranty

All sales are subject to the R&M Materials Handling, Inc. Standard Terms and Conditions of Sale (Revision 101707), a copy of which is available at www.rmhoist.com or upon request from R&M Materials Handling, Inc. customer service/sales representatives and the terms of which are incorporated as if fully rewritten herein.

How to Order Repair Parts Correctly

The Spare Parts section of this manual covers replacement parts required for R&M MATERIALS HANDLING, INC. equipment. To ensure prompt service, each repair parts order must contain the following information:

1. Equipment serial number
2. Capacity
3. Reference number from applicable bulletin or spare parts identification sheet
4. Quantity
5. Description
6. Correct shipping destination.

The serial number of your equipment is on the nameplate affixed to the equipment. Without this serial number, we cannot be sure of sending you the correct parts, so always mention the serial number for prompt service.

Minimum Charges

All orders for repair parts are subject to a minimum charge.

Claims for Damage in Shipment

All shipments are carefully inspected and are delivered to the carrier in good order. Upon receipt of shipment caution should be exercised so that there is no loss or damage. If damage has occurred, refuse to accept the shipment until the carrier makes the proper notation to that effect.

In the event of concealed loss or damage, notify the carrier immediately. By following these suggestions you will encounter less difficulty collecting your claim.

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Table of contents

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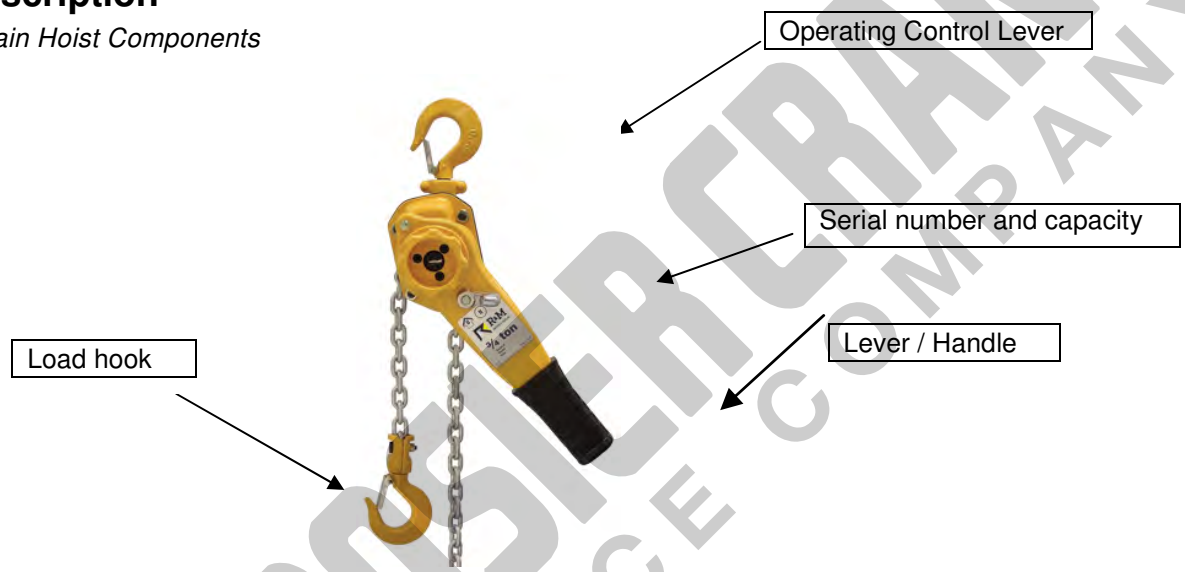
1 GENERAL

Check that the equipment furnished corresponds with the details on the packing slip attached to the packaging.

Limit loads to half of the nominal load capacity during periods of extreme cold weather where the ambient temperature is less than 5°F [-15 °C].

1.1 Description

Figure 1. Main Hoist Components



1.2 Start-up Check Points

Before operating the new unit, carry out the following start-up procedures:

- Read the attached WARNING tag or other legends affixed to the unit that includes cautionary language AGAINST:
  1. Lifting or pulling more than rated load;
  2. Operating unit when it is restricted from forming a straight line with the direction of loading;
  3. Operating unit with a lever extender;
  4. Operating damaged or malfunctioning unit;
  5. Lifting people or loads over people;
  6. Operating unit with twisted, kinked, or damaged chain;
  7. Removing or obscuring warning information.

- With a brush, oil the chain generously along the entire length.
- Make sure that the load chain is not twisted or kinked. If so, untwist the load chain before using.
- Grease the swivel joints of the hooks.
- Without load, carry out several raising and lowering operations using the entire length of the load chain.
- With load, carry out several raising and lowering operations using the entire length of the load chain.

1.3 Operating Procedures

The control functions (UP-NEUTRAL-DOWN) are clearly identified on the unit. The unit has a free-chaining (wheeling) capability, which allows the operator to adjust the load hook position when the unit is not under load. Free-chaining capability is activated when the operating control lever is in the neutral position.

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1.4 Operating Practices

In addition to the Safe Operating Practices – Dos and Don'ts, it recommended that the following operating practices (taken in part from American National Standards ASME HST-3M) be adhered to when using a lever-operated puller.

- The supporting structure or anchoring means shall have a load rating at least equal to that of the hoist.
- The operator shall familiarize himself with the operation of the equipment and its proper care. If adjustments are necessary or damage is known, the unit must be removed from service and not used until corrections are made.
- Hoists shall be used only in locations that will allow the operator to be free of the load.
- The operator shall make sure that all people in the area are clear of the load.
- The operator shall not engage in any activity, which will divert his attention while operating the equipment.
- The operator shall not attempt to use free-chaining feature with any load on the unit. A load shall not be applied with the control function in the neutral position.
- The unit shall always be operated by hand power only and never operated with an extension on the lever.

1.5 Handling the Load

- The rated load shall not be exceeded.
- The load chain shall not be wrapped around the load.
- The load shall be attached to the load hook or attached by means of slings or other approved apparatus.
- Slings or other approved apparatus shall be seated properly in the saddle of the hook.
- Hook safety latch shall be closed before operating the unit.
- Hooks shall not be tip loaded
- Before lifting or pulling, the operator must be certain that
  1. Load chain is not twisted, kinked and is properly seated in the load wheel.
  2. Load is not caught on any obstructions,
  3. Clearance is available to avoid personal injury or property damage.
- Unit shall not be operated until the load block; chain and unit body are directly inline with the direction of loading to avoid side pull.
- Do not leave a loaded lever puller unattended at any time.

2 PACKAGING

The various models are delivered assembled and packed in cardboard boxes.

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3 SAFE OPERATING PRACTICES – DO'S AND DON'TS

3.1 DO'S:

3.1.1 General

Read the manual carefully and always follow the recommendations, instructions, warning information, and make all people who will operate the equipment aware of these. Only use "original parts" when repairing or maintaining. Keep the manual near the equipment and readily available to the operator and the maintenance and safety personnel at all times.

3.1.2 Transport / Storage

Handle the equipment by its structure either using the fittings provided for this purpose or in its original packaging. Store the equipment in a non-aggressive environment away from sources of dust or dampness etc. Regularly clean and protect from corrosion (oil, etc.).

3.1.3 Installation / Maintenance / Servicing

- Only trained and competent personnel may install and operate equipment.
- Ensure that safety regulations are complied with (safety harness, evacuation of work areas, warning signs, etc.).
- Verify the strength of the structure to which the equipment is to be attached.
- Carefully follow the installation instructions provided in the equipment's instruction manual.
- Establish an inspection program and maintain records of all maintenance carried out. Pay particular attention to hooks, pulley blocks, the chain, the brake, the end stops, etc.
- Replace any worn or suspect parts.
- Verify that all safety items are in good working order (brake, end stop, etc.) in accordance with the instruction manual.
- Regularly check the condition of the chain and hooks (joints, swivels, etc.).
- If any distortion or abnormal wear is observed, the parts concerned must be replaced.
- Keep the chain clean of debris and properly lubricated.
- Periodically check tightness of bolts and mounting hardware.
- Check that the chain is not twisted or damaged in any way.

3.1.4 During Use

- Before lifting ensure that the load is adequately attached to the hook. The hook safety latch must be properly closed. Balance the load before moving it. Avoid lifting the load from a single point, use appropriate accessories (slings, cross struts, etc.). Balance the load properly before handling.
- Make sure load clears neighboring stockpiles, machinery or other obstructions when moving the load. Take up slack slowly. Avoid swinging the load or load hook when traveling.
- Avoid hook tip loading.
- Be aware of and observe the safety rules while operating the equipment.
- Operate the equipment in normal environmental conditions.
- Equipment used outside should be adequately protected against the weather.
- Oil the chain regularly under no-load conditions.
- Inform maintenance personnel following any dangerous or unsafe operation of the equipment (strange noise, abnormal behavior, etc.).

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3.2 DON'TS:

3.2.1 Transport / Storage

Do not put the equipment on anything without suitable support otherwise parts on the underside may become damaged.

3.2.2 Installation / Maintenance / Servicing

- Never modify the equipment without the authorization of the manufacturer.
- Never modify the values and adjustments of the safety devices beyond the ranges specified in the instruction manual or without the manufacturer's approval.
- Never override limiting or safety equipment.

3.2.3 During Use

- Do not allow the hook, whether it is loaded or not, to pass over the heads of people below.
- Never attempt to move a load greater than the capacity indicated on the equipment.
- Remember that accidental impacts or snagging of the load being handled with surrounding objects may provoke an overload of the equipment.
- Never remove the safety latches.
- Never use the equipment to transport people.
- Do not touch any inappropriate moving parts.
- Never use the equipment if it is in an unsatisfactory condition (worn, bent, etc.).
- Do not use spare parts of unknown or doubtful origin.
- Never intentionally allow the load to tip over.
- Do not shock load the equipment.
- Do not constantly use the end stops as a means of stopping.
- Never use the lifting chain as a sling.
- Never attach a sling on the point of the hook (risk of hook being damaged and load falling).
- Never use the hook in a slanting position.
- Never twist the lifting chain (risk of pulley block turning over, etc.).
- Do not leave a load suspended unattended.
- Never use the equipment as a ground for welding.
- Do not use the equipment for a purpose or in a situation for which it is not designed.
- Do not use the safety devices as a means of measuring loaded weight.
- Do not jerk the load as this causes deterioration of the equipment.
- Never pull the load sideways, always center equipment over the load before moving it.

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4 INSPECTIONS

4.1 Load Chain Inspection

Check the condition of the load chain regularly. Never use the equipment if any of its links are cracked or deformed. Link wear must not exceed 10 % of the specified diameter of the load chain.

Measure the load chain over 5 links + 2 diameters as shown below in the Load Chain Technical Specification section. Compare the measurement with the appropriate value of the Dimension over 5 links + 2 diameters for a new load chain.

Replace the unit if the link wear exceeds 10 %.

4.1.1 Load Chain Technical Specification

Table 1. Load Chain Technical Specifications

Capacity	3/4 Ton	1 ½ Ton	3 Ton	6 Ton
	750 kg	1500 kg	3000 kg	6000 kg
Chain diameter x pitch	5.6 x 17	7.1 x 21	9 x 27	
Grade	100	100	100	
Class	V	V	V	
Minimum breaking strain (N/mm2)	1000	1000	1000	
Standard	DIN 5684	DIN 5684	DIN 5684	
Safe load limit on 1 fall (kg)	750	1500	3000	
Breaking load (kN)	49.3	79.2	127	
Min. total elongation over 7 links	10%	10%	10%	
Dimension over 5 links + 2 diameters (mm) / (inch)	96.2 (+0/-0.5) 3.787 (+0/-0.0197)	119.2 (+0/-0.8) 4.693 (+0/-00315)	153 (+0.45/- 0.25) 6.024 (+0.0177/-0.0098)	
Weight (kg) per meter Weight (lb) per foot	0.69 0.46	1.09 0.73	1.72 1.16	

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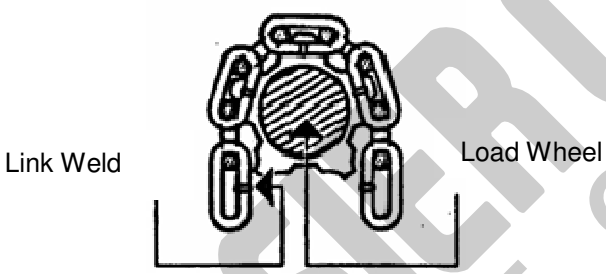
4.1.2 Load Chain Installation

1. Release the control lever.
2. Take a flexible wire of about 20 inches (50 cm) in length and insert it over the lifting head axle until it comes out on the other side.
3. Hook the chain onto the end of the wire on the load side.
4. Pull the wire to bring the chain in contact with the load wheel while checking the position of the vertical links. **The link weld must be on the inside.** (See figure)
5. Regulate the chain tension.
6. Engage the control lever.
7. Adjust the chain.
8. Reinstall the end stop ring.

Figure 2. Link Weld Orientation



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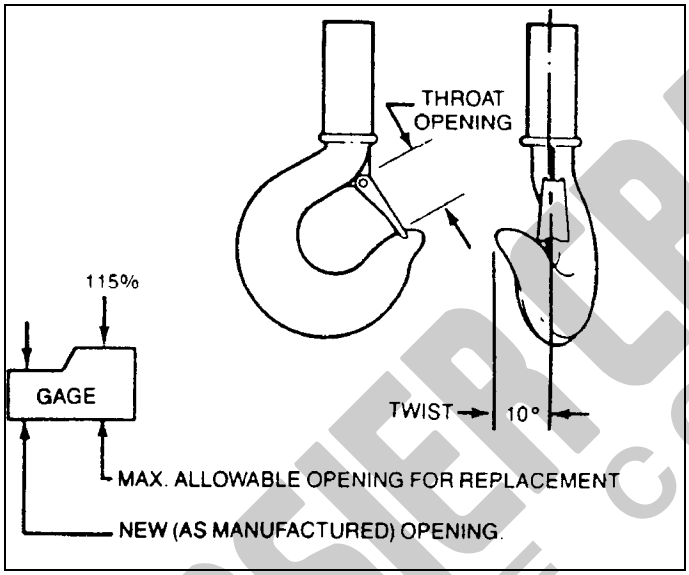
4.2 Hook Inspection

Check the hooks for deformation or cracks. The hooks must be replaced if the throat opening has increased by more than 15%, or if the throat opening has more than 10-degree twist from the plane of the unbent hook.

Figure 3. Measuring Hook Deformation



Due to many types and sizes of hooks that can be furnished and specified by the user, it is recommended that the user measure the actual throat opening of the hook as originally furnished and record it on the above sketch and retain for a permanent record. This record can then be used for determining when the hook must be replaced due to deformation or excessive throat opening.

Note: Any hook that is twisted or has a throat opening in excess of normal indicates abuse or overloading of the unit. Other load bearing components shall be checked for damage.

Safety latches shall be replaced if bent or broken to the extent that they no longer provide proper closure of the throat opening of the hook.

CAUTION: Repairing hooks by welding or reshaping is strictly forbidden.

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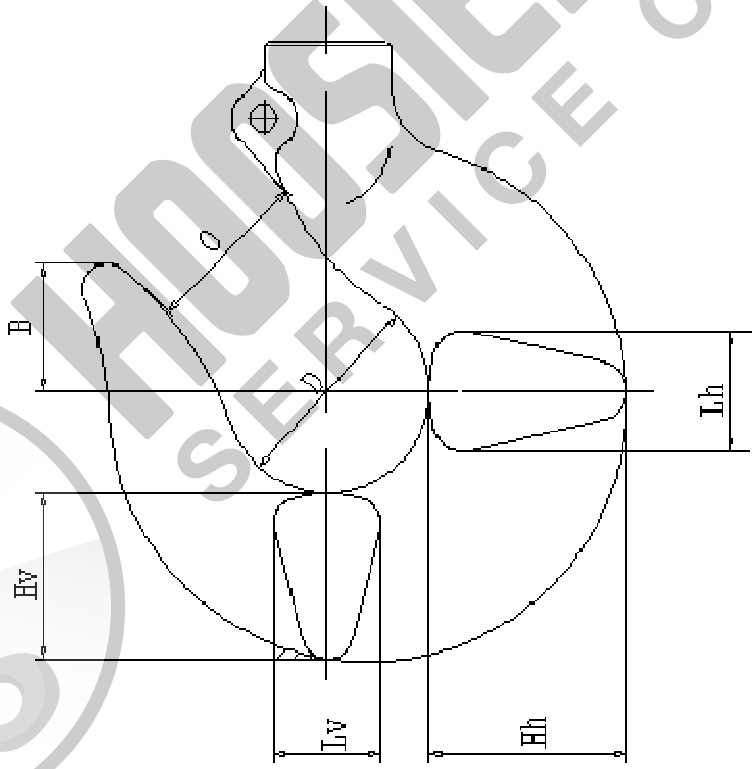
4.3 Hook Certificate

Table 2. Hook Dimensions

Load Capacity		Load Test	Minimum Breaking Load	D	O	B	H_h	L_h	H_v	L_v
Ton	kg	lbs [kg]	lbs [kg]	in [mm]	in [mm]	in [mm]	in [mm]	in [mm]	in [mm]	in [mm]
3/4	750	3307 [1500]	6614 [3000]	1.378 [35]	0.906 [23]	0.709 [18]	0.945 [24]	0.571 [14.5]	0.925 [23.5]	0.571 [14.5]
1 1/2	1500	6614 [3000]	13228 [6000]	1.575 [40]	1.141 [29]	0.906 [23]	1.181 [30]	0.787 [20]	1.063 [27]	0.787 [20]
3	3000	13228 [6000]	26456 [12000]	2.047 [52]	1.516 [38.5]	1.102 [28]	1.673 [42.5]	1.063 [27]	1.378 [35]	1.063 [27]
6	6000	26456 [12000]	52912 [24000]	2.362 [60]	1.811 [46]	1.240 [31.5]	2.067 [52.5]	1.26 [32]	1.673 [42.5]	1.26 [32]

Figure 4. Hook Dimensions



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4.4 Replacement Criteria for Brakes

Table 3. Replacement Criteria for Brakes

TON - ITEM -	THICKNESS AS NEW	REPLACE WHEN
3/4 - 52308974	0.166 inches (4.21 mm)	0.126 inches (3.21 mm)
1 1/2 - 52308975	0.146 inches (3.71 mm)	0.107 inches (2.71 mm)
3 - 52308976	0.144 inches (3.66 mm)	0.105 inches (2.66 mm)
6 - 52308977	0.144 inches (3.66 mm)	0.105 inches (2.66 mm)

Figure 5. Brake Measurement

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5 PREVENTATIVE MAINTENANCE

5.1 Maintenance Schedule

The maintenance and inspection intervals are based on normal duty under normal environmental conditions (free from excessive dust, moisture, and corrosive fumes). If duty is heavier or environment more severe, maintenance and inspection intervals should be shortened and more frequent.

Table 4. Maintenance Schedule

Interval	Type of Check	Inspection / Maintenance
1 month	Visual examination	• Check the external condition of the unit • Check the condition of the mechanism • Check the condition of the load chain and the attachments • Check the condition of the hooks • Check the condition of the hook safety latch • Check the condition of accessories • Clean the dust from the equipment • Check the greasing: • Lubricate the load chain with a brush (oil grade SAE 80) • Use oil to lubricate the heads of the hooks
6 month	In-depth examination	• Check the operation of the brake • Check the condition of the load wheel • Inspect the load chain for wear or distortion • Inspect the hooks for wear or distortion
12 month	Maintenance	• Open the gear cover and grease the gears

☞ Note: Always keep the chain clean and free of debris. Clean as necessary with paraffin or diesel, drain and re-oil. Do not clean the chain with thinners or degreasing agents under any circumstances.

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6 SPARE PARTS

Figure 6. Spare Parts Diagrams

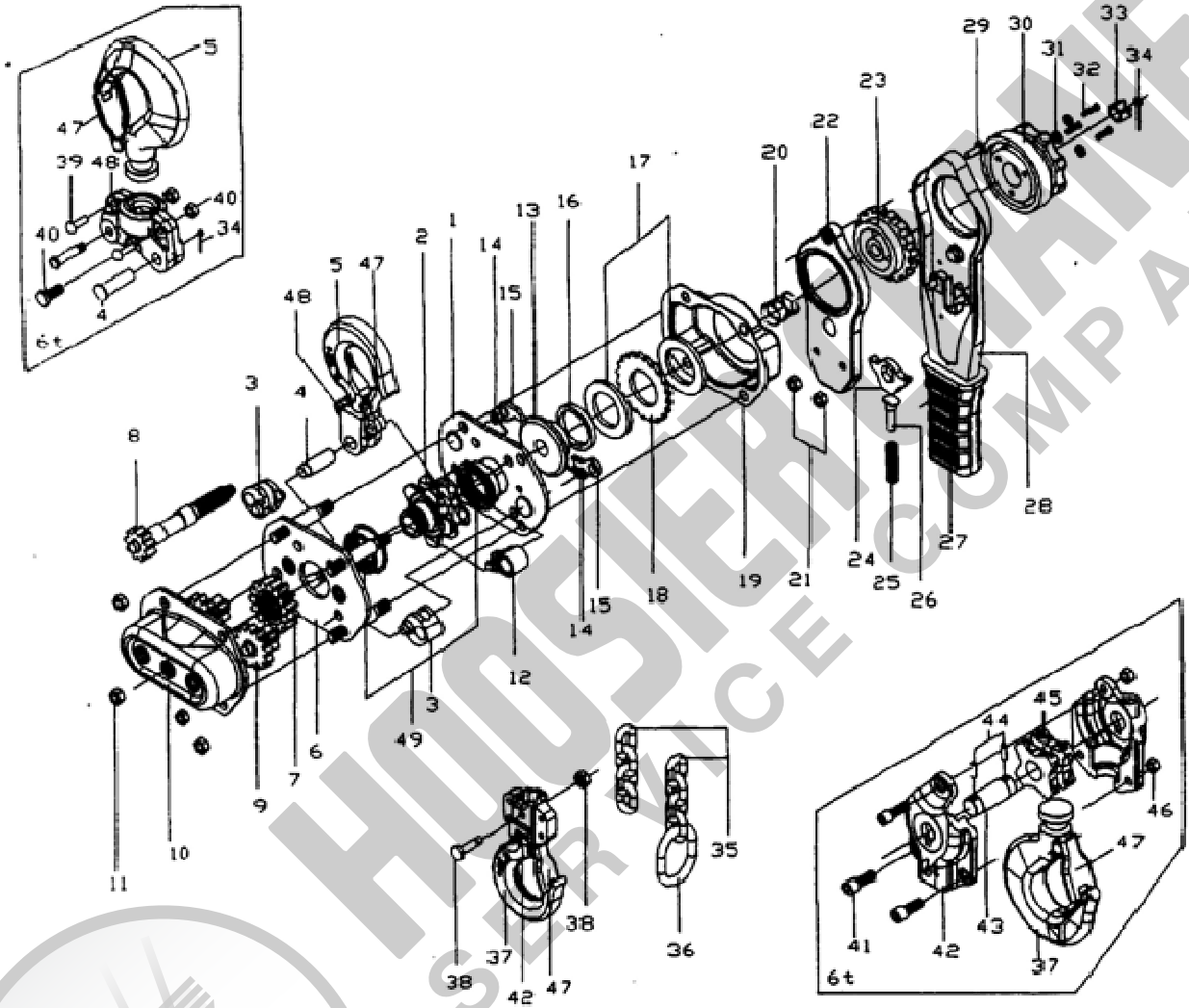

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Table 5. Spare Parts List

Item	Description	Capacity of unit	Part Number	Quantity
-	Unit without chain (includes load block)	¾ ton [750 kg]	52308578	1
-	Unit without chain (includes load block)	1 ½ ton [1500 kg]	52308580	1
-	Unit without chain (includes load block)	3 ton [3000 kg]	52308582	1
-	Unit without chain (includes load block)	6 ton [6000 kg]	52308584	1
1	Left Side Plate			1
2	Sprocket			1
3	Chain Guide			1
4	Top Hook pin	¾ ton [750 kg]		1
4	Top Hook pin	1 ½ ton [1500 kg]		1
4	Top Hook pin	3 ton [3000 kg]		1
4	Top Hook pin	6 ton [6000 kg]		2
5	Top hook assembly	¾ ton [750 kg]	52308986	1
5	Top hook assembly	1 ton [1000 kg]	52313744	1
5	Top hook assembly	1 ½ ton [1500 kg]	52308987	1
5	Top hook assembly	3 ton [3000 kg]	52308988	1
5	Top hook assembly	6 ton [6000 kg]	52308989	1
6	Right Side Plate			1
7	Gear with splined center			1
8	Drive pinion			1
9	Pinion shaft and Disc gear			2
10	Gear cover assembly			1
11	Locking nut			4
12	Chain stripper			1
13	Brake seat	¾ ton [750 kg]	52308991	1
13	Brake seat	1 ½ ton [1500 kg]	52308992	1
13	Brake seat	3 ton [3000 kg]	52308993	1
13	Brake seat	6 ton [6000 kg]	52308994	1
14	Pawl Spring	¾ ton [750 kg]	52308999	2
14	Pawl Spring	1 ½ ton [1500 kg]	52309000	2
14	Pawl Spring	3 ton [3000 kg]	52309001	2
14	Pawl Spring	6 ton [6000 kg]	52309002	2
15	Pawl	¾ ton [750 kg]	52308995	2
15	Pawl	1 ½ ton [1500 kg]	52308996	2
15	Pawl	3 ton [3000 kg]	52308997	2
15	Pawl	6 ton [6000 kg]	52308998	2
16	Bushing	¾ ton [750 kg]	52309003	1
16	Bushing	1 ½ ton [1500 kg]	52309004	1
16	Bushing	3 ton [3000 kg]	52309005	1
16	Bushing	6 ton [6000 kg]	52309006	1
17	Friction disc	¾ ton [750 kg]	52308974	2
17	Friction disc	1 ½ ton [1500 kg]	52308975	2
17	Friction disc	3 ton [3000 kg]	52308976	2
17	Friction disc	6 ton [6000 kg]	52308977	2
18	Ratchet Disc	¾ ton [750 kg]	52308978	1
18	Ratchet Disc	1 ½ ton [1500 kg]	52308979	1
18	Ratchet	3 ton [3000 kg]	52308980	1

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Item	Description	Capacity of unit	Part Number	Quantity
18	Ratchet	6 ton [6000 kg]	52308981	1
19	Brake cover			1
20	Spring			1
21	Locking nut			
22	Handle cover assembly			1
23	Changeover gear			1
24	Changeover pawl			1
25	Changeover spring			1
26	Pawl Spring			1
27	Handle sleeve			1
28	Lever handle assembly			1
29	Hex head screw			
30	Hand wheel			1
31	Spring washer			2
32	Screw			2
33	Castle nut			1
34	Split pin			1
35	5.6 x 17 Grade 100 load chain	¾ ton [750 kg]	52308586	Specify lift
35	7.1 x 21 Grade 100 load chain	1 ½ ton [1500 kg]	52308587	Specify lift
35	9 x 27 Grade 100 load chain	3 ton [3000 kg]	52309336	Specify lift
35	9 x 27 Grade 100 load chain	6 ton [6000 kg]	52309336	Specify lift
36	End chain ring			1
37	Load hook	¾ ton [750 kg]	52308982	1
37	Load hook	1 ton [1000 kg]	52313743	1
37	Load hook	1 ½ ton [1500 kg]	52308983	1
37	Load hook	3 ton [3000 kg]	52308984	1
37	Load hook	6 ton [6000 kg]	52308985	1
38	Chain pin & Locking nut			1
39	Bolt	6 ton [6000 kg]		2
40	Hex head screw & nut	6 ton [6000 kg]		2
41	Socket head bolt	6 ton [6000 kg]		3
42	Load block side plate	6 ton [6000 kg]		2
43	Sprocket shaft	6 ton [6000 kg]		1
44	Pin	6 ton [6000 kg]		2
45	Sprocket	6 ton [6000 kg]		1
46	Hex head nut	6 ton [6000 kg]		3
47	Hook safety latch	¾ ton [750 kg]	52309528	1 per hook
47	Hook safety latch	1 ton [1000 kg]	52309528	1 per hook
47	Hook safety latch	1 ½ ton [1500 kg]	52309529	1 per hook
47	Hook safety latch	3 ton [3000 kg]	52309530	1 per hook
47	Hook safety latch	6 ton [6000 kg]	52309531	1 per hook

☞ Note: Items without part numbers are non-stocked replacement parts.

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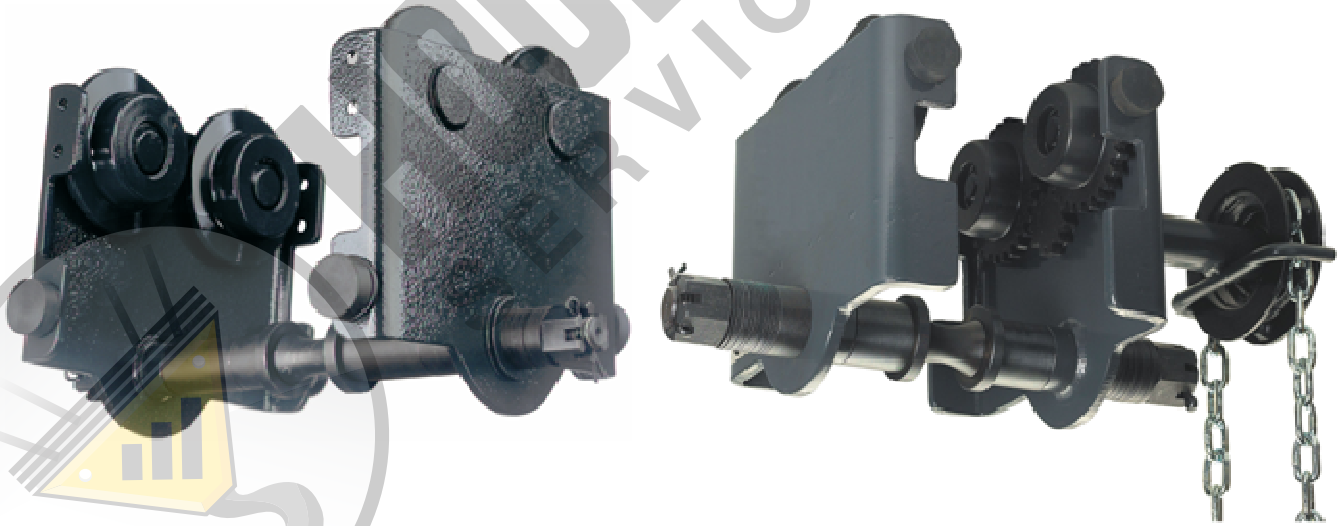
INSTRUCTION MANUAL
RPT PUSH TROLLEY / RPTC HAND-GEARED TROLLEY

RPT / RPTC

English
STD-R-KHA-F-CQD-ENG



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FOREWORD

This manual has been prepared to acquaint you of the procedures necessary for the installation, operation, and maintenance of the equipment you have purchased.

Proper installation is important to the ultimate performance of this equipment. Careful study of and adherence to the instructions will help ensure safe, dependable operation. It is also recommended that you keep this manual readily accessible to operators as well as maintenance and safety personnel.

Information in this manual is subject to change without notice.

Warranty

All sales are subject to the R&M Materials Handling, Inc. Standard Terms and Conditions of Sale (Revision 101707), a copy of which is available at www.rmhoist.com or upon request from R&M Materials Handling, Inc. customer service/sales representatives and the terms of which are incorporated as if fully rewritten herein.

Claims for Damage in Shipment

All shipments are carefully inspected and are delivered to the carrier in good order. Upon receipt of shipment caution should be exercised so that there is no loss or damage. If damage has occurred, refuse to accept the shipment until the carrier makes the proper notation to that effect.

In the event of concealed loss or damage, notify the carrier immediately. By following these suggestions you will encounter less difficulty collecting your claim.

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CAUTION: Read the instructions supplied with the product before installation and commissioning.

CAUTION: Keep the instructions in a safe place for future reference.

Table of contents

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1 INSTALLATION

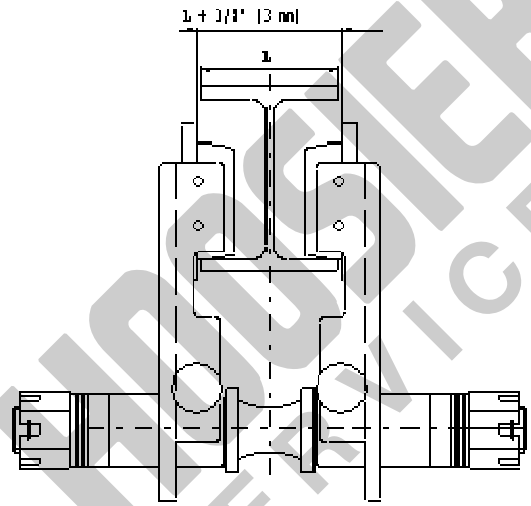
Check that:

- The beam is adequate for the loads to be supported.
- The beam flange dimensions correspond to the trolley to be installed.
- The wheels will be able to travel freely along the rail.
- All nuts are properly tightened and include the cotter pin.
- The trolley wheels have adequate clearance along the entire length of rail.
- The end stops are in place before operating.

1.1 Trolley Adjustment

Most trolley models have two flange width ranges. In these cases, the trolley has two cross shaft lengths, one for each range. Depending on the cross shaft supplied, the trolley is adjustable only for that individual flange width range. The table below indicates the beam flange ranges for each trolley model.

Figure 1. Trolley Adjustment



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Trolley assembly procedure

1. Place the equal number of spacers of the same length on the cross shaft in between the side plates to achieve approximately 1/8" [3 mm] of total wheel clearance between the rail and wheel flanges.
2. Place and distribute equally the spare spacers on the exterior side of both side plates.
3. Hand-tighten the nuts to hold the trolley side plates together.
4. Gently pull the trolley downward to take up any play and even out the cross shaft holes.
5. Make sure the load point on the cross shaft is centered with the center of the rail.
6. Tighten each cross shaft nut until tight, aligning the slots in the nut with the hole in the shaft.
7. Insert the cotter pins through each nut. Spread the cotter pin end open.

Table 1. Trolley Specifications

Models	Beam Flange Range inch [mm]	Cross Shaft Length inch [mm]	Maximum Capacity lbs. [kg]
RPT-250	2 – 7.88 [50 – 200]	11 [278]	550 [250]
RPT-500	2 –7.88 [50 – 200]	12 [303]	1100 [500]
	7.40 – 12.2 [188 – 310]	16.2 [411]	
RPT-1000 RPTC-1000	2.56 – 7.88 [65 – 200]	12.7 [322]	2200 [1000]
	7.88 – 12.2 [200 – 310]	17 [430]	
RPT-2000 RPTC-2000	3.46 – 7.88 [88 – 200]	13.4 [340]	4400 [2000]
	7.40 – 12.2 [188 – 310]	17.7 [448]	
RPT-3000 RPTC-3000	3.93 – 7.95 [100 – 202]	14.3 [362]	6600 [3000]
	7.40 – 12.20 [188 – 310]	18.5 [470]	
RPT-5000 RPTC-5000	4.5 – 7.95 [114 – 202]	15.1 [384]	11000 [5000]
	7.40 – 12.20 [188 – 310]	19.3 [490]	
RPTC-10000	4.88 – 7.87 [124 – 200]	16.1 [408]	22000 [10000]
	7.40 – 12.20 [188 – 310]	20.2 [514]	

2 MAINTENANCE

2.1 Maintenance Table

Table 2. Maintenance Schedule

Check	Interval	Qualification of personnel
For loose screws and signs of corrosion	Annually	Qualified mechanic
Condition of the drive pinion	Annually	Operator
Measurement of the wheel tread diameter	Annually	Operator
Lubrication of open gear	monthly	Operator

2.2 Lubrication

Table 3. Lubrication Specifications and Brands

Lubrication point	Specifications	Possible brands	Quantity
wheel drive pinion	KP 0 K grease (DIN 51502) Soap-based lithium + MoS 2 Approx. melting point + 356°F Worked penetration 671 - 725°F Operating temperature	Tribol: Molub Alloy multi-purpose grease BP: Multi-purpose grease L 21 M Mobil: Mobilgrease Special Shell: Shell Retimax AM Texaco: Molytex grease EP 2	As necessary

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3 RPT PUSH TROLLEY & RPTC HAND-GEARED TROLLEY

3.1 Description of the RPT Push Trolley and the RPTC Hand-geared Trolley

The cross shaft of the RPT push trolley and the RPTC hand-geared trolley is suited for the top hook of manual chain hoists or manual lever pullers. In addition, the LM1, LM5 or LM10 electric chain hoists can be adapted to the RPT push trolley, either with a top hook or a lug. The top hook, equipped with a safety latch, simply hooks over the cross shaft. The shaft is specially shaped to keep the top hook or the lug centered in place.

Most RPT and RPTC trolley models have two beam flange width ranges to cover a wide range of beam flange widths. In these cases, the trolley has two cross shaft lengths, one for each range.

The trolley wheels are single flange and crown tread type suitable for Wide Flange beams or tapered flange beams.

Wheel bearings are permanently lubricated and do not require greasing.

Trolleys have safety drop lugs and rubber bumpers are standard.

Capacity range of the RPT Push trolley models is ¼ ton [250 kg] to 5 ton [5000 kg].
Capacity range of the RPTC Hand-geared trolley models is 1 ton [1000 kg] to 10 ton [10,000 kg].

Table 4. RPT and RPTC Trolley Specifications

Models	Beam Flange Width Range inch [mm]	Maximum Capacity lbs. [kg]	Min. radius Curve ft [m]	Weight lbs. [kg]
RPT-250	2 – 7.88 [50 – 200]	550 [250]	3.28 [1]	7.75 [3.5]
RPT-500	2 – 7.88 [50 – 200] 7.40 – 12.2 [188 – 310]	1100 [500]	3.28 [1]	7 [3] 9 [4]
RPT-1000 RPTC-1000	2.56 – 7.88 [65 – 200] 7.88 – 12.2 [200 – 310]	2200 [1000]	3.28 [1]	27 [12] 33 [15]
RPT-2000 RPTC-2000	3.46 – 7.88 [88 – 200] 7.40 – 12.2 [188 – 310]	4400 [2000]	4.92 [1.5]	35 [16] 42 [19]
RPT-3000 RPTC-3000	3.93 – 7.95 [100 – 202] 7.40 – 12.20 [188 – 310]	6600 [3000]	6.56 [2]	84 [38] 88 [40]
RPT-5000 RPTC-5000	4.5 – 7.95 [114 – 202] 7.40 – 12.20 [188 – 310]	11000 [5000]	6.56 [2]	130 [59] 134 [61]
RPTC-10000	4.88 – 7.87 [124 – 200] 7.40 – 12.20 [188 – 310]	22000 [10000]	Straight	256 [116] 262 [119]

4 HANDLING & STORAGE

(Also see ‘Do’s and Don'ts’)

Do not allow the equipment to fall.

Do not stack these items of equipment on top of each other.

Handle the equipment by its structure or in its original packaging.

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5 DO'S AND DON'TS

5.1 DO'S:

5.1.1 General

Read the manual carefully and always follow its recommendations. Only use "original parts" when repairing or maintenance. Keep this instruction manual near the equipment and readily available to the operator and the maintenance mechanic at all times.

5.1.2 Handling / Storage

- Handle the equipment by its structure either using the fittings provided for this purpose or in its original packaging.
- Store the equipment in a non-aggressive environment away from sources of dust or dampness etc.
- Regularly clean and protect from corrosion (oiling etc.).

5.1.3 Installation / Maintenance / Servicing

- Have the equipment installed by mechanically competent and trained personnel.
- Ensure that safety regulations are complied with (safety harness, evacuation of work areas, warning signs, etc.).
- Verify the strength of the structure to which the equipment is to be attached.
- Carefully follow the installation instructions provided in the equipment's instruction manual.
- Ensure correct trolley wheel spacing relative to the rail being used.
- Carry out regular maintenance of the equipment in accordance with the instruction manual.
- Establish an inspection program and record details of all maintenance work carried out, particularly with regard to the end stops, the suspension crosspiece, etc.
- Replace any worn or suspect parts.
- Verify that all safety items are in good working order (end stop, etc.) in accordance with the instruction manual.
- Regularly check the equipment.
- If any distortion or abnormal wear is observed, the parts concerned must be replaced.
- Periodically check tightness of bolts and locking cotter pins.

5.1.4 During Use

- Before any maneuver, ensure that the load is adequately secured.
- Balance the load correctly before moving it.
- Do not side pull the load.
- Be aware of the safety rules to be observed during the various maneuvers.
- Operate the equipment in normal conditions of use (ambient temperature, atmosphere,).
- Equipment used outside should be adequately protected against the weather.
- Inform a competent person following any dangerous or doubtful operation of the equipment (strange noise, abnormal behavior, etc.).

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5.2 DON'TS:

5.2.1 Handling / Storage

Do not put the equipment on anything without suitable support otherwise parts on the underside may become damaged.

5.2.2 Installation / Maintenance / Servicing

- Never modify the equipment.
- Never overload the equipment.

5.2.3 During Use

- Never attempt to move a load greater than the capacity indicated on the equipment.
- Remember that accidental impacts or snagging of the load being handled with surrounding objects may provoke an overload.
- Never side pull the load.
- Do not use the equipment for extracting or un-jamming purposes or for lateral pulling etc.
- Never use the equipment to transport people.
- Keep hands away from moving parts.
- Never use the equipment if it is in bad condition (worn, bent, etc.).
- Do not use spare parts of unknown or doubtful origin.
- Do not provoke violent impacts or shock loads with the equipment.
- Do not constantly use the end stops as a means of stopping.
- Never use the equipment as a ground for welding.
- Do not use the equipment for a purpose or in a situation for which it is not designed.
- Do not expose the equipment to an aggressive environment (temperature, acidity, etc).
- Do not operate jerkily as this provokes deterioration of the equipment.
- Never pull loads sideways; center the equipment above the load before lifting it.

☞ **Note: Check that the equipment corresponds to the details on the delivery note attached to the packaging.**

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6 PART NUMBERS

Part numbers listed are for complete trolleys.

6.1 RPT Push Trolley

Table 5. RPT Push Trolley Part Numbers

Model	Maximum Capacity lbs. [kg]	Beam Flange Width Range in [mm]	Part Number
RPT-250	550 [250]	2 – 7.88 [50 – 200]	52291758
RPT-500	1100 [500]	2 –7.88 [50 – 200]	52291759
		7.40 – 12.20 [188 – 310]	52291760
RPT-1000	2200 [1000]	2.56 – 7.88 [65 – 200]	52291761
		7.88 – 12.20 [200 – 310]	52291762
RPT-2000	4400 [2000]	3.46 – 7.88 [88 – 200]	52291763
		7.40 – 12.20 [188 – 310]	52291764
RPT-3000	6600 [3000]	3.93 – 7.95 [100 – 202]	52296722
		7.40 – 12.20 [188 – 310]	52296723
RPT-5000	11000 [5000]	4.5 – 7.95 [114 – 202]	52296724
		7.40 – 12.20 [188 – 310]	52296725

6.2 RPTC Hand-Geared Trolley

Table 6. RPTC Hand-Geared Trolley Part Numbers

Model	Maximum Capacity lbs. [kg]	Beam Flange Width Range in [mm]	Part Number
RPTC-1000	2200 [1000]	2.56 – 7.88 [65 – 200]	52296613
		7.88 – 12.20 [200 – 310]	52296614
RPTC-2000	4400 [2000]	3.46 – 7.88 [88 – 200]	52296615
		7.40 – 12.20 [188 – 310]	52296617
RPTC-3000	6600 [3000]	3.93 – 7.95 [100 – 202]	52296618
		7.40 – 12.20 [188 – 310]	52296619
RPTC-5000	11000 [5000]	4.5 – 7.95 [114 – 202]	52296620
		7.40 – 12.20 [188 – 310]	52296621
RPTC-10000	22000 [10000]	4.88 – 7.87 [124 – 200]	52305633
		7.40 – 12.20 [188 – 310]	52305634

Note: Part number of the hand chain for RPTC Hand-geared trolley is 52292623. Trolley is furnished with hand chain, and the chain drop, unless otherwise specified, is for a hoist with 10 ft [3 m] of lift.

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INSTRUCTION MANUAL
LOW HEADROOM
RMLH PUSH TROLLEY / RMLHC
HAND-GEARED TROLLEY

RMLH / RMLHC

English

STD-R-KHA-F-CQD-ENG

HOOSIER CRANE SERVICE COMPANY

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FOREWORD

This manual has been prepared to acquaint you of the procedures necessary for the installation, operation, and maintenance of the equipment you have purchased.

Proper installation is important to the ultimate performance of this equipment. Careful study of and adherence to the instructions will help ensure safe, dependable operation. It is also recommended that you keep this manual readily accessible to operators as well as maintenance and safety personnel.

Information in this manual is subject to change without notice.

Warranty

All sales are subject to the R&M Materials Handling, Inc. Standard Terms and Conditions of Sale (Revision 101707), a copy of which is available at www.rmhoist.com or upon request from R&M Materials Handling, Inc. customer service/sales representatives and the terms of which are incorporated as if fully rewritten herein.

Claims for Damage in Shipment

All shipments are carefully inspected and are delivered to the carrier in good order. Upon receipt of shipment caution should be exercised so that there is no loss or damage. If damage has occurred, refuse to accept the shipment until the carrier makes the proper notation to that effect.

In the event of concealed loss or damage, notify the carrier immediately. By following these suggestions you will encounter less difficulty collecting your claim.

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⚠ **CAUTION: Read the instructions supplied with the product before installation and commissioning.**

⚠ **CAUTION: Keep the instructions in a safe place for future reference.**

Table of contents

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1 INSTALLATION

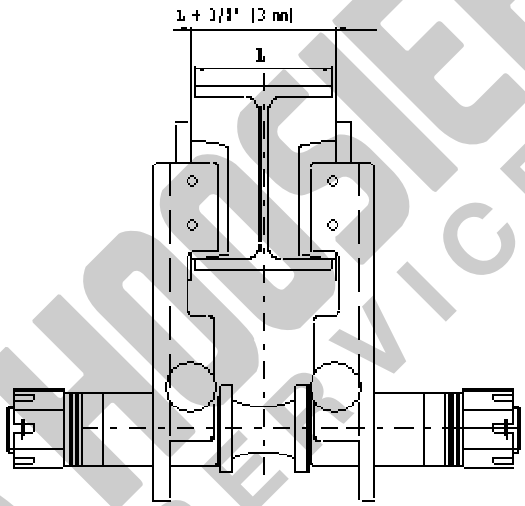
Check that:

- The beam is adequate for the loads to be supported.
- The beam flange dimensions correspond to the trolley to be installed.
- The wheels will be able to travel freely along the rail.
- All nuts are properly tightened and include the cotter pin.
- The trolley wheels have adequate clearance along the entire length of rail.
- The end stops are in place before operating.

1.1 Trolley Adjustment

Trolley models have a single flange width range. The trolley is adjustable only for that individual flange width range. Table 1 on the following page indicates the beam flange range for each trolley model.

Figure 1. Trolley Adjustment



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Trolley assembly procedure

1. Place the equal number of spacers of the same length on the cross shaft in between the side plates to achieve approximately 1/8" [3 mm] of total wheel clearance between the rail and wheel flanges.
2. Place and distribute equally the spare spacers on the exterior side of both side plates.
3. Hand-tighten the nuts to hold the trolley side plates together.
4. Gently pull the trolley downward to take up any play and even out the cross shaft holes.
5. Make sure the load point on the cross shaft is centered with the center of the rail.
6. Tighten each cross shaft nut until tight, aligning the slots in the nut with the hole in the shaft.
7. Insert the cotter pins through each nut. Spread the cotter pin end open.

Table 1. Trolley Specifications

Models	Beam Flange Range inch [mm]	Maximum Capacity lbs. [kg]
RMLH-500 RMLHC-500	1.96 –8.0 [50 – 203]	1100 [500]
RMLH-1000 RMLHC-1000	2.52 – 12.0 [64 – 305]	2200 [1000]
RMLH-2000 RMLHC-2000	3.46 – 12.0 [88 – 305]	4400 [2000]
RMLH-5000 RMLHC-5000	4.49 – 12.0 [114 – 305]	11000 [5000]

2 MAINTENANCE

2.1 Maintenance Table

Table 2. Maintenance Schedule

Check	Interval	Qualification of personnel
For loose screws and signs of corrosion	Annually	Qualified mechanic
Condition of the drive pinion	Annually	Operator
Measurement of the wheel tread diameter	Annually	Operator
Lubrication of open gear	monthly	Operator

2.2 Lubrication

Table 3. Lubrication Specifications and Brands

Lubrication point	Specifications	Possible brands	Quantity
wheel drive pinion	KP 0 K grease (DIN 51502) Soap-based lithium + MoS 2 Approx. melting point + 356°F Worked penetration 671 - 725°F Operating temperature	Tribol: Molub Alloy multi-purpose grease BP: Multi-purpose grease L 21 M Mobil: Mobilgrease Special Shell: Shell Retimax AM Texaco: Molytex grease EP 2	As necessary

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3 RMLH PUSH TROLLEY & RMLHC HAND-GEARED TROLLEY

3.1 Description of the RMLH Push Trolley and the RMLHC Hand-geared Trolley

RMLH and RMLHC trolley models have a single beam flange width to cover a wide range of beam flange widths.

The trolley wheels are single flange and crown tread type suitable for Wide Flange beams or tapered flange beams.

Wheel bearings are permanently lubricated and do not require greasing.

Trolleys have safety drop lugs and rubber bumpers are standard.

Capacity range of the RMLH Push trolley models is ½ ton [500 kg] to 5 ton [5000 kg].
Capacity range of the RMLHC Hand-geared trolley models is ½ ton [500 kg] to 5 ton [5000 kg].

Table 4. RMLH and RMLHC Trolley Specifications

Models	Beam Flange Width Range inch [mm]	Maximum Capacity lbs. [kg]	Min. radius Curve ft [m]	Weight lbs. [kg]
RMLH-500 RMLHC-500	1.96 – 8.0 [50 – 203]	1100 [500]	3.28 [1]	46.2 [21.0]
RMLH-1000 RMLHC-1000	2.52 – 12.0 [64 – 305]	2200 [1000]	3.28 [1]	64.5 [29.3]
RMLH-2000 RMLHC-2000	3.46 – 12.0 [88 – 305]	4400 [2000]	4.92 [1.5]	113.3 [51.5]
RMLH-5000 RMLHC-5000	4.49 – 12.0 [114 – 305]	11000 [5000]	6.56 [2]	210.1 [95.5]

4 HANDLING & STORAGE

(Also see 'Do's and Don'ts')

Do not allow the equipment to fall.

Do not stack these items of equipment on top of each other.

Handle the equipment by its structure or in its original packaging.

5 DO'S AND DON'TS

5.1 DO'S:

5.1.1 General

Read the manual carefully and always follow its recommendations. Only use "original parts" when repairing or maintenance. Keep this instruction manual near the equipment and readily available to the operator and the maintenance mechanic at all times.

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5.1.2 Handling / Storage

- Handle the equipment by its structure either using the fittings provided for this purpose or in its original packaging.
- Store the equipment in a non-aggressive environment away from sources of dust or dampness etc.
- Regularly clean and protect from corrosion (oiling etc.).

5.1.3 Installation / Maintenance / Servicing

- Have the equipment installed by mechanically competent and trained personnel.
- Ensure that safety regulations are complied with (safety harness, evacuation of work areas, warning signs, etc.).
- Verify the strength of the structure to which the equipment is to be attached.
- Carefully follow the installation instructions provided in the equipment's instruction manual.
- Ensure correct trolley wheel spacing relative to the rail being used.
- Carry out regular maintenance of the equipment in accordance with the instruction manual.
- Establish an inspection program and record details of all maintenance work carried out, particularly with regard to the end stops, the suspension crosspiece, etc.
- Replace any worn or suspect parts.
- Verify that all safety items are in good working order (end stop, etc.) in accordance with the instruction manual.
- Regularly check the equipment.
- If any distortion or abnormal wear is observed, the parts concerned must be replaced.
- Periodically check tightness of bolts and locking cotter pins.

5.1.4 During Use

- Before any maneuver, ensure that the load is adequately secured.
- Balance the load correctly before moving it.
- Do not side pull the load.
- Be aware of the safety rules to be observed during the various maneuvers.
- Operate the equipment in normal conditions of use (ambient temperature, atmosphere,).
- Equipment used outside should be adequately protected against the weather.
- Inform a competent person following any dangerous or doubtful operation of the equipment (strange noise, abnormal behavior, etc.).

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5.2 DON'TS:

5.2.1 Handling / Storage

Do not put the equipment on anything without suitable support otherwise parts on the underside may become damaged.

5.2.2 Installation / Maintenance / Servicing

- Never modify the equipment.
- Never overload the equipment.

5.2.3 During Use

- Never attempt to move a load greater than the capacity indicated on the equipment.
- Remember that accidental impacts or snagging of the load being handled with surrounding objects may provoke an overload.
- Never side pull the load.
- Do not use the equipment for extracting or un-jamming purposes or for lateral pulling etc.
- Never use the equipment to transport people.
- Keep hands away from moving parts.
- Never use the equipment if it is in bad condition (worn, bent, etc.).
- Do not use spare parts of unknown or doubtful origin.
- Do not provoke violent impacts or shock loads with the equipment.
- Do not constantly use the end stops as a means of stopping.
- Never use the equipment as a ground for welding.
- Do not use the equipment for a purpose or in a situation for which it is not designed.
- Do not expose the equipment to an aggressive environment (temperature, acidity, etc).
- Do not operate jerkily as this provokes deterioration of the equipment.
- Never pull loads sideways; center the equipment above the load before lifting it.

☞ **Note: Check that the equipment corresponds to the details on the delivery note attached to the packaging.**

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6 PART NUMBERS

Part numbers listed are for complete trolleys.

6.1 RMLH Push Trolley

Table 5. RMLH Push Trolley Part Numbers

Model	Maximum Capacity lbs. [kg]	Beam Flange Width Range in [mm]	Part Number
RMLH-500	1100 [500]	1.96 –8.0 [50 – 203]	52426366
RMLH-1000	2200 [1000]	2.52 – 12.0 [64 – 305]	52426367
RMLH-2000	4400 [2000]	3.46 – 7.88 [88 – 200]	52426368
RMLH-5000	11000 [5000]	4.5 – 7.95 [114 – 202]	52426369

6.2 RMLHC Hand-Geared Trolley

Table 6. RMLHC Hand-Geared Trolley Part Numbers

Model	Maximum Capacity lbs. [kg]	Beam Flange Width Range in [mm]	Part Number
RMLHC-500	1100 [500]	1.96 –8.0 [50 – 203]	52392718
RMLHC-1000	2200 [1000]	2.52 – 12.0 [64 – 305]	52392719
RMLHC-2000	4400 [2000]	3.46 – 7.88 [88 – 200]	52392720
RMLHC-5000	11000 [5000]	4.5 – 7.95 [114 – 202]	52392721

Note: Part number of the hand chain for RMLHC Hand-geared trolley is 52292623. Trolley is furnished with hand chain, and the chain drop, unless otherwise specified, is for a hoist with 10 ft [3 m] of lift.

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