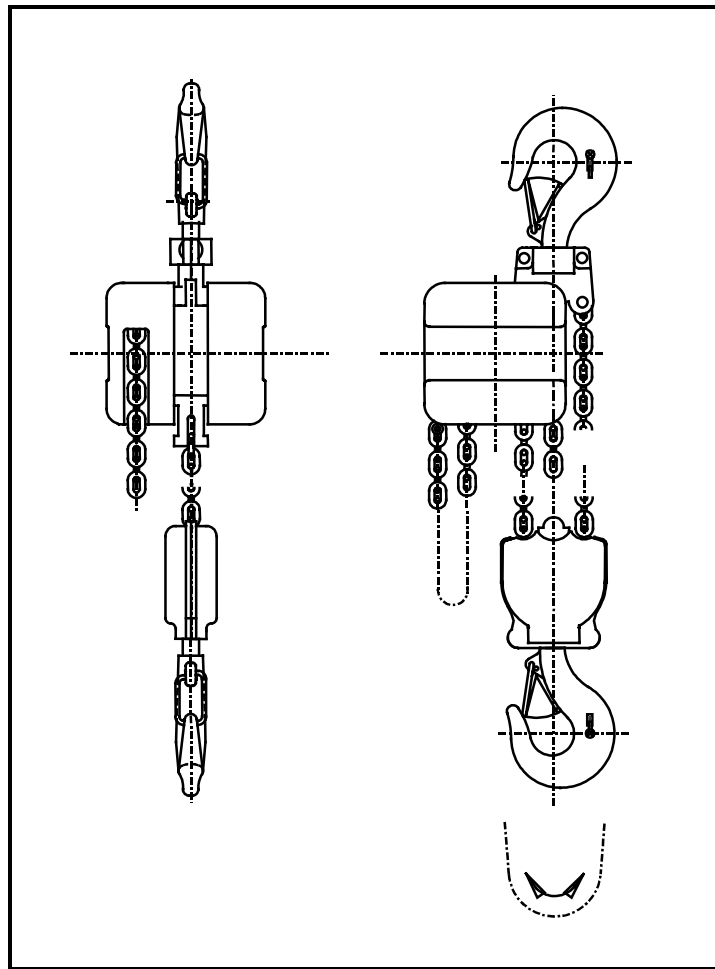


RM Manual Chain Hoist

¼ TON to 3 TONS



Installation, Operation and Instruction Manual



Foreword

This manual has been prepared to acquaint you with the procedures necessary for the installation, operation, and maintenance of the hoist 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.

Standard Guarantee and Warranty

R&M Materials Handling, Inc., hereinafter called the Company, will repair or replace, at its option, defects in material or workmanship developing within two years from date of shipment from the factory. This warranty is contingent upon receiving a written claim notice using the form specified by the Company. The written notice must be provided within ten (10) days after discovery of any defects. Defective parts must be returned with a copy of the associated claim form for inspection and warranty credit. Failure to comply will result in full charge for parts supplied to repair the equipment. See "Returned Goods Authorization" section of our sales policy for details. Correction of such defects by repair or replacement, F.O.B. the Company's factory, shall constitute fulfillment of this guarantee.

This guarantee will not be applicable unless the apparatus has been properly maintained and operated under normal conditions. This guarantee does not cover damage due to abuse from situations as follows:

- Side pulling of load
- Excessive jogging and/or loading
- Damage as a result of an accident

The Company will not be responsible for damage resulting from improper storage or handling prior to placing the apparatus in service.

The Company has no liability for any unauthorized repairs or modifications made outside the Company's factory. The Service Department at the Company's factory is the only source for repair authorization unless an Authorized Repair Station performs the work.

Extended warranties are offered for cases of installation delays and will be agreed to before time of purchase. The terms and conditions are the same as listed above, but may include a reasonable cost and may require inspection by a R&M Authorized Service Station at the time of installation and/or customer use.

This guarantee is void if parts or materials are used in the repair or maintenance that are not supplied by R&M Materials Handling, Inc.

Guarantee on Purchased Items

The guarantee of the Company on purchased items, assemblies, or accessories that are installed as a separate unit shall not extend beyond the guarantee made by the manufacturer of the item, assembly, or accessory.

How to Order Repair Parts Correctly

The Parts Catalog section of this manual covers replacement parts required for R&M hoist and/or crane. To ensure prompt service, each repair parts order must contain the following information:

1. Hoist and/or crane serial number (see cover)
2. Capacity
3. Reference number from applicable bulletin, or Spare Parts Identification sheet
4. Quantity
5. Description
6. Voltage, phase, cycles
7. Correct shipping destination.



The serial number of your hoist is on the nameplate affixed to the hoist. 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.

Return of Parts

R&M will not accept the return of any parts unless accompanied by a claim tag. These claim tags are issued at the time authorization of such return is made. Tags must be attached to the outside of the package.

Claims for Damage in Shipment

All shipments are carefully inspected and they are delivered to the carrier in good order. Upon receipt of a shipment, caution should be exercised so 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 in collecting your claim.

All verbal orders must be followed up with a written confirmation since R&M cannot assume correctness of the verbal message.

R&M spare parts are available locally in most major industrial areas. Contact our Customer Service Department should you desire the name and address of an Authorized Stocking Parts Distributor for your area.

IMPORTANT

Carefully read these instructions to help you to install and use your equipment correctly, to properly maintain equipment, and to decrease any risks involved while operating equipment.

The manufacturer will not accept liability for any accident or damage caused by misuse or operation of the equipment in a manner other than as described below. Please ensure that the following instructions are properly followed.



SAFE OPERATING PRACTICES DOS AND DON'TS

DOS:

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 and near the equipment and readily available to the operator and the maintenance personnel at all times.

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 (oiling etc.).

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 chain must be fitted in accordance with the instructions and oiled before any load is applied.
- 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 oiled.
- Periodically check tightness of bolts and mounting hardware.
- Check that the chains are not twisted or damaged in any way.

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 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.
- 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 a competent maintenance person or supervisor following any dangerous or doubtful operation of the equipment (strange noise, abnormal behavior, etc.).



DON'TS:

TRANSPORT / STORAGE

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

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.

DURING USE

- Do not allow the hook, whether its 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 on surrounding objects may cause an overload.
- Never remove the safety latches.
- Never jam, adjust or remove the end stops in order to increase left or right travel to more than would otherwise be possible.
- Do not use the equipment for extracting or unjamming 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 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 unless absolutely necessary.
- Never use the equipment as an earth 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 laden 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.

FILL IN THE INFORMATION FROM THE PLATE ON YOUR HOIST

LOAD:	<input style="width: 95%;" type="text"/>		
SERIAL NUMBER:	<input style="width: 150px;" type="text"/>	DATE OF MANUFACTURE:	<input style="width: 150px;" type="text"/>
TYPE:	<input style="width: 150px;" type="text"/>		

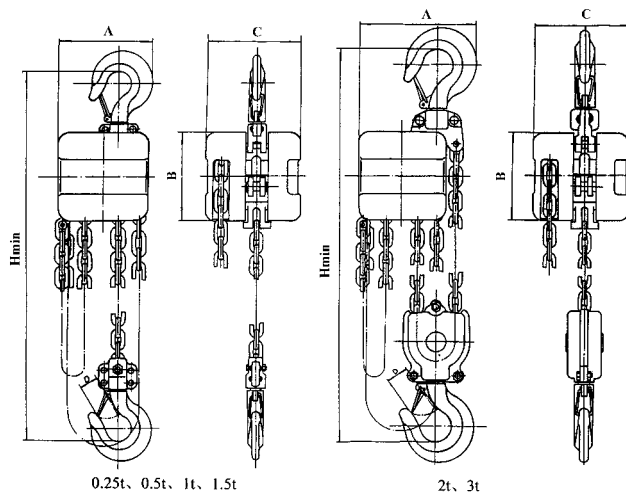
Check that the equipment corresponds with the details on the packing slip attached to the packaging.

DESCRIPTION OF THE HOIST

The hoist consists of:

- Load chain guard that holds the chain to the pockets of the load wheel for safe operation,
- Treated steel shafts, gears, sprockets,
- Load wheel with accurately made pockets,
- Treated steel alloy load and suspension hooks with safety latches,
- Failsafe brake,
- Galvanized coated alloy steel hand and load chains,
- Steel covers.

TECHNICAL DATA AND DIMENSIONS



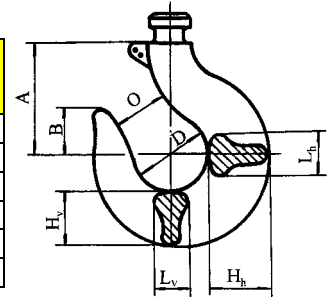
Cap Kg	Load chain		Weight with 3m load chain (Kg)	Overhaul ratio/ 1m	Normal Chain Pull (kg)	Dimensions				
	Fall	$\phi \times \text{pitch}$				A mm	B mm	C mm	D mm	H mm
250	1	4x12	4	19	28	102	102	52	26	245
500	1	5x15	11	29	25	122	122	82	31	310
1000	1	6x18	12	56	30	138	138	82	37	350
1500	1	8x24	19	112	30	176	176	88	42	420
2000	2	6x18	18	83	30	138	138	82	45	480
3000	2	8x24	30	165	30	176	176	88	50	570

LOAD CHAIN CERTIFICATE

Type of chain	4x12	5x15	6x18	8x24
Chain $\phi \times$ pitch	4x12	5x15	6x18	8x24
Class	T	T	T	T
Minimum breaking strain	900	900	900	900
Standard	DIN 5684-8	DIN 5684-8	DIN 5684-8	DIN 5684-8
Safe load limit on 1 trace (kg)	250	500	1000	1500
Breaking load (kN)	20	31.36	49	73.5
Min. total elongation over 7 links	10%	10%	10%	10%
Dimension over 5 links + 2	68(+0.25,-0.15)	85(+0.33,-0.16)	102(0,-0.6)	136(+0.12,-0.66)
Weight per meter (kg)	0.35	0.55	0.78	1.39

LIFTING HOOK CERTIFICATE

Load Kg	Testing Load Kg	Fall	Breaking load Kg	ID	D mm	O mm	B mm	H _h mm	L _h mm	H _v mm	L _v mm	A mm
250	500	1	1000	13S	26.5	21.2	17	20	12.1	17	10.9	40
500	1000	1	2000	16S	31.5	25	20	25.7	16	21.8	14	47.5
1000	2000	1	4000	19S	37.5	30	23.6	33.5	20.6	28	18.5	58
1500	3000	1	6000	21S	42.5	33.5	26.5	40	24.3	33.5	21.8	64
2000	4000	2	8000	22S	45	35.5	28	43.7	26.5	36.5	23.6	67
3000	6000	2	12000	24S	50	40	31.5	51.5	31.5	43.7	28	75



PACKAGING

The various models are delivered either packed in cardboard boxes, in boxes on pallets or on film wrapped pallets.

INSTALLATION & START-UP

The hoist you have just acquired must only be used for a maximum load equal to the nominal load indicated on the apparatus.

- Provide fixed anchoring points whenever possible.
- Oil the chains generously along the entire length. Make sure chain is not twisted.
- Without a load, carry out several raising and lowering operations using the entire length of the chain.
- Grease the hook swivel joints.
- Ensure that the mechanical stop is fitted at 6 inches (15 cm) from the end of the chain.

Carry out a dynamic test:

This test consists of using the hoist with a load at all working positions. Check that the hoist functions properly and that there is no distortion. Carry out a complete maneuver, lifting a load corresponding to the hoist's maximum safe load multiplied by a coefficient of 1.1.

OPERATION

Before lifting a load, check:

- Condition and lubrication of load chain,
- That load chain is properly fitted and not twisted, especially on equipment fitted with pulley blocks,
- That the load does not exceed the capacity indicated on the equipment,
- That load is free and clear of any obstruction before lifting.

While operating, it is recommended to:

- Initially lift the load with caution to check that the slings are adequate and properly positioned,
- Stand clear while lifting,
- Limit loads to half of the nominal load capacity during periods of extreme cold weather (<-15 ° C),
- Stop the lifting if the effort required on the hand chain is greater than normal.

PRECAUTIONS

- Using the hoists for horizontal or oblique traction is forbidden as the chain guides and the other parts are not designed for this type of operation.
- Using more than one hoist simultaneously to lift the same load may be dangerous and should be avoided.

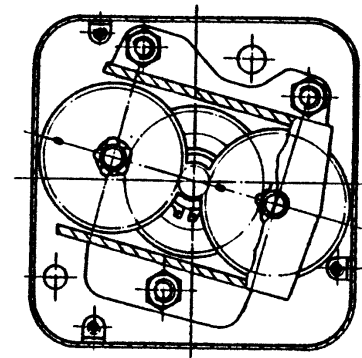
MAINTENANCE

INTERVAL	TYPE OF CHECK	INSPECTION / Maintenance
1 month	Visual examination	<ul style="list-style-type: none"> - External condition - Condition of mechanism - Check that the load chain and attachments are in good condition (1) - Check that the hooks are in good conditions - Check the condition of accessories - Check that there is no dust - Check the lubrication points 1° - With a rag, oil the load chain (oil grade SAE 80) 2° - Lubricate with oil the head of the hooks and the hoist of the block (for blocks and pulleys)
6 months	In-depth examination	<ul style="list-style-type: none"> - Correct the operation of the brake - Condition of the sheave, load sprocket - Check for wear

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.

REPLACING THE BRAKE LININGS

1. Remove the three screws on chain wheel flange side.
2. Remove the chain wheel case
3. Remove the split pin from the castle nut.
4. Remove the chain from the chain wheel.
5. Unscrew the chain wheel.
6. Remove the ratchet sub-assembly and the two linings.
7. Remove the brake plate.



CLEANING

Using a wire brush, clean:

- Threaded section of the cog shaft,
- Brake plate,
- Threaded bore of the chain wheel,
- Brake plate.

Change or degrease the linings.

REASSEMBLY OF BRAKE

1. Refit the brake plate and completely tighten the bolts while exerting upward pressure on the shaft.
2. Fit the first lining.
3. Slightly separate the two pawls and fit the ratchet.
4. Ensure that the two pawls are both correctly positioned in the teeth of the ratchets.
5. Fit the second lining.
6. Bolt on the large chain wheel, machined face towards linings.
7. Completely tighten the bolt, lining up the split pinhole with a nut.
8. Fit the split pin and bend both ends.
9. Refit the chain on the chain wheel.
10. Fit the chain wheel case, use a large screwdriver to ease the fixing tabs over, line up the three tabs with the holes on the flange.
11. Fit and tighten the 3 screws.
12. Test the brake under load conditions.



Preventative Maintenance

Check the condition of the load chain regularly. The load chain should be replaced immediately if any of its links are cracked or deformed. Link wear must not exceed 10 % of the diameter of the steel. Dimension X depends on chain type.

Only a qualified person should perform any maintenance. We recommend that you number each hoist and keep a maintenance log.

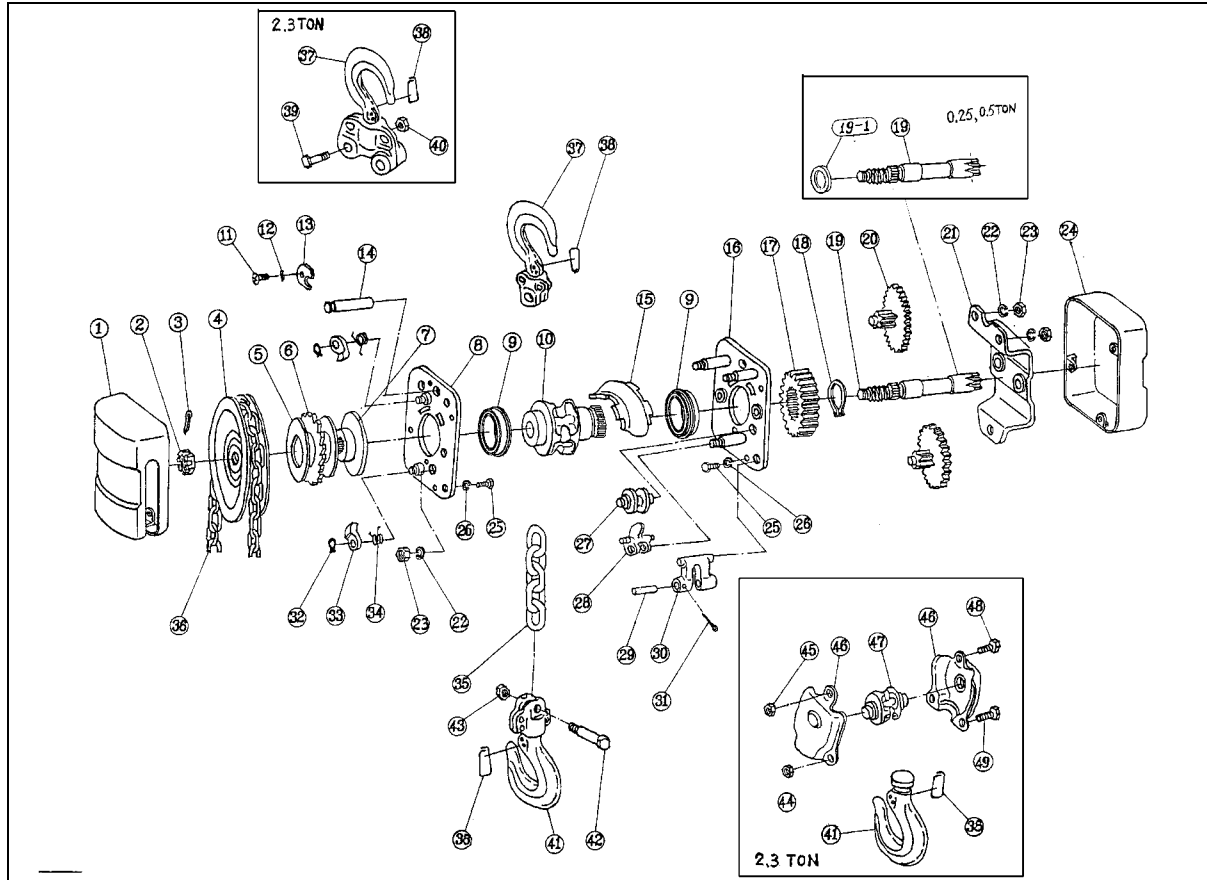
Installation of load chain:

1. Take a flexible wire of about 20 inches (50cm).
2. Insert wire into the chain guide opening and push until one end of wire 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 sheave while checking the position of the vertical links where the link weld must be on the inside.
5. Fix the end-of-run stop device.

INSTRUCTIONS FOR EMERGENCY SITUATIONS

Take hoist out of service if the brake shows any sign of slipping and notify service personnel.

SPARE PARTS LIST



Item No	Description	Item No	Description
1	Hand wheel cover assembly	25	Screw M5 x 10
2	Castle nut M10	26	Spring washer 5
3	Split pin 2.5 x 25	27	Guide roller
4	Hand wheel	28	Stripper
5	Friction plate	29	Suspension pin
6	Ratchet disc	30	Suspension plate
7	Brake seat	31	Split pin 2 x 26
8	Side plate assembly B	32	Snap ring 8
9	Ball bearing 50104	33	Pawl
10	Chain sprocket	34	Pawl spring
11	Screw M6 x 8	35	Load chain 6 x 18
12	Spring washer 6	36	Hand chain
13	Lock plate	37	Top hook assembly
14	Top pin	38	Safety latch
15	Guide plate	39	Screw
16	Side plate assembly A	40	Nut
17	Gear	41	Bottom hook assembly
18	Snap ring 20	42	Chain pin
19	Driving shaft	43	Prevailing torque type nut M8
19-1	Washer	44	Screw
20	Driven shaft assembly	45	Nut
21	Gear case assembly	46	Hook block cover
22	Spring washer 8	47	Chain nut
23	Hexagon nut M8	48	Screw
24	Gear cover assembly	49	Screw



RECOMMENDED SPARES

Parts Description	250 kg	500 kg	1000 kg	1500 kg	2000 kg	3000 kg
Lifting head						
Load chain						
Guide roller						
Load wheel						
Friction disc	X	X	X	X	X	X
Ratchet						
Lower hook assembly						
Upper hook assembly						