



R&M Materials Handling, Inc  
Springfield, Ohio USA  
☎: 800 955-9967  
web: [www.rmhoist.com](http://www.rmhoist.com)

RMP Premium Manual Chain Hoist  
Manual  
September 2003

# RMP Premium Manual Chain Hoist



## Installation, Operation and Maintenance Manual

Job Number: \_\_\_\_\_

Serial Number: \_\_\_\_\_

(RECORD MANUAL CHAIN HOIST SERIAL NUMBER FOR FUTURE REFERENCE)



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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.

### Standard Guarantee and Warranty

[R&M Materials Handling, Inc.](#), hereinafter called the Company, will repair or replace, at its option, equipment or parts with defects in material and/or workmanship identified within one year of shipment from [R&M](#) for manual chain hoists, manual lever pullers, trolleys and beam clamps. Should a problem develop, contact the Warranty Administrator.

The Warranty Administrator will provide a written Return Goods Authorization (RGA) for return of the equipment. The form must be completed and returned before any warranty is authorized. All equipment shall be returned freight prepaid to the factory or authorized repair center; the RGA number should be clearly indicated on the outside of the package. If the problem is covered under warranty, the equipment will be repaired or replaced and returned freight prepaid. If inspection reveals that the problem is not warranty related, the purchaser will be provided a quotation for repairs. If no purchase order is provided for repairs, the equipment will be returned freight collect. The purchaser is responsible for removal and installation. In event that replacement parts are issued for warranty related field repairs, parts will be invoiced at net value; original parts must be returned (freight collect) for failure evaluation. If evaluation reveals a warranty situation, a credit will be issued against the replacement parts invoice.

This warranty does not cover failure due to normal operating wear and tear. All products shall be regularly maintained and operated in accordance to the equipment's Installation, Operation and Instruction manual. The original warranty period is not renewed or extended by repair work or parts supplied after the original ship date.

This warranty does not cover damage due to abuse from side pulling of load, excessive jogging, eccentric loading, chemical exposure not specified in order, damage resulting from an accident, or damage resulting from improper storage or handling prior to placing the equipment in service. Failure of equipment to meet published performance specifications due to abnormal operating conditions beyond [R&M's](#) knowledge or control shall not be considered defective workmanship and/or material unless [R&M's](#) examination discloses such a defect. Correction of such defects shall constitute fulfillment of this warranty.

This warranty is void if parts or materials used in the repair or maintenance of [R&M's](#) equipment are not supplied or approved by [R&M](#). Any modification or change made by the Purchaser without [R&M's](#) written approval will void the warranty.

### How to Order Repair Parts Correctly

The Spare Parts section of this manual covers replacement parts required for [R&M](#) 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.



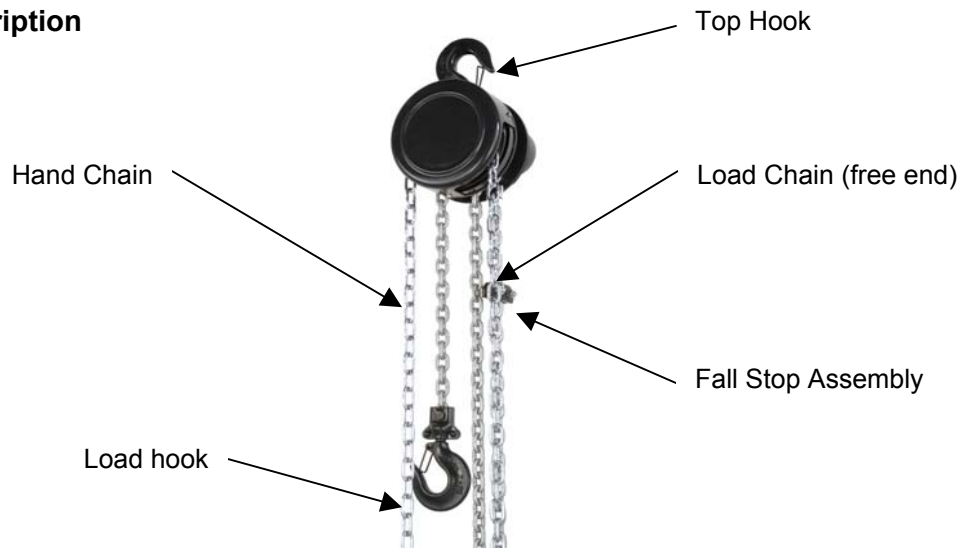
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## 1 General

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



### 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 fall stop assembly is placed at least 6" [150mm] from the free end the load chain.
- ❑ 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.

### 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.

### 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
- 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.



### **3 SAFE OPERATING PRACTICES - DOS AND DON'TS**

#### **3.1 DOS:**

##### **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.).



## **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 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 with surrounding objects may provoke an overload.
- Never remove the safety latches.
- 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 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.

## 4 Inspection

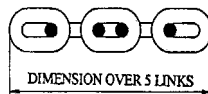
### 4.1 Load Chain

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 %.

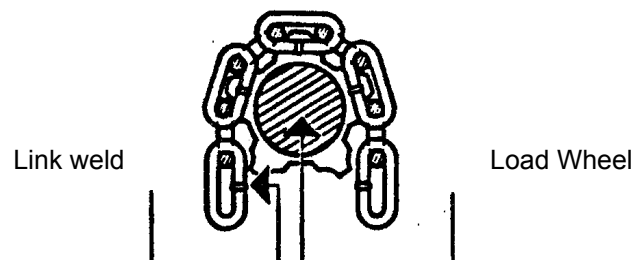
### 4.2 Load Chain Technical Specification



Chain diameter x pitch	6.5 x 19.5	11.5 x 33
Grade	80	80
Class	T	T
Minimum breaking strain (N/mm <sup>2</sup> )	800	800
Standard	DIN 5684-5	DIN 5684-5
Safe load limit on 1 fall (kg)	1000	3200
Breaking load (kN)	53	166
Min. total elongation over 7 links	10%	10%
Dimension over 5 links + 2 diameters (mm)	110.5 (+0.5/-0)	188 (+0.71/-0.36)
Dimension over 5 links + 2 diameters (inch)	4.350 (+0.020/-0)	7.402 (+0.028/-0.014)
Weight (kg) per meter	0.945	3.060
Weight (lb) per foot	0.64	2.06

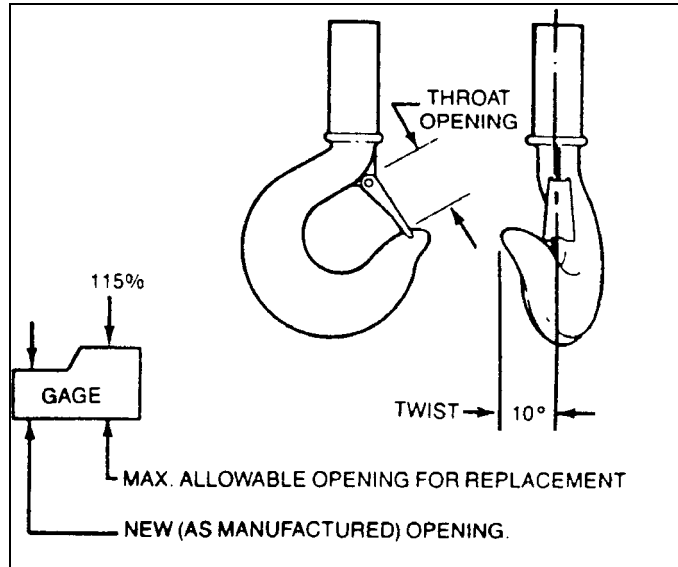
### 4.3 Load Chain Installation

- 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.



#### 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.



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.**

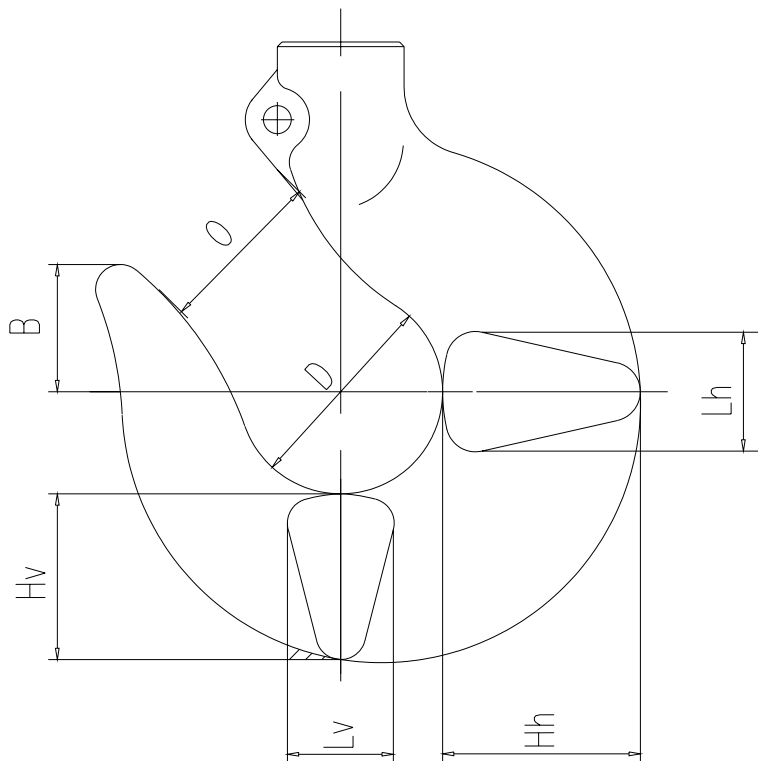
Safety latches shall be replaced if bent or broken to the extent that they no longer provide proper closure of the throat opening of the hook.

### **CAUTION**

**Repairing hooks by welding or reshaping is strictly forbidden.**

#### 4.5 Hook Certificate

Hook I.D.	Material	Load		Test load	Breaking load	D	O	B	H <sub>h</sub>	L <sub>h</sub>	H <sub>v</sub>	L <sub>v</sub>
		ton	kg	kg	kg	inch mm	inch mm	inch mm	inch mm	inch mm	inch mm	inch mm
16S	AF50SAL	1/2	500	1000	2000	1.22 31	0.9843 25	1.024 26	1.024 26	0.6299 16	0.9843 25	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	XC38	2	2000	4000	8000	2.087 53	1.693 43	1.299 33	1.693 43	1.102 28	1.378 35	0.9843 25
24S	AF55C35	3	3000	6400	12800	2.362 60	1.85 47	1.614 41	2.008 51	1.378 35	1.811 46	1.22 31
27P		5	5000	12000	25000	2.087 53	1.969 50	1.575 40	2.638 67	1.673 42.5	2.205 56	1.398 35.5
28P		6	6300	12600	25200	2.953 75	2.402 61	1.89 48	2.953 75	1.89 48	2.48 63	1.614 41
29P		7 1/2	8000	16000	32000	3.346 85	2.598 66	2.244 57	3.346 85	2.087 53	2.795 71	1.89 48
30P	AF50SAL	10	10000	20000	40000	3.74 95	2.953 75	2.441 62	3.74 95	2.362 60	3.15 80	1.969 50
31P		12 1/2	12500	25000	50000	4.055 103	3.071 78	2.677 68	3.937 100	2.677 68	3.346 85	2.323 59
33P	XC38	15	16000	32000	64000	5.118 130	3.74 95	3.346 85	5.039 128	3.15 80	4.173 106	2.756 70
33P		20	20000	40000	80000	5.118 130	3.74 95	3.346 85	5.039 128	3.15 80	4.173 106	2.756 70



## 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.

Interval	Type of Check	Inspection / Maintenance
1 month	Visual examination	<ul style="list-style-type: none"> <li>✓ Check the external condition of the unit</li> <li>✓ Check the condition of the load chain and the attachments</li> <li>✓ Check the condition of the hooks and safety latches</li> <li>✓ Clean the dust from the equipment</li> <li>✓ Check the lubrication levels of the load chain and hook swivel point:</li> <li>✓ Lubricate the load chain with a brush (oil grade SAE 80)</li> <li>✓ Use oil to lubricate the swivel points of the hooks</li> </ul>
6 month	In-depth examination	<ul style="list-style-type: none"> <li>✓ Check the operation of the brake</li> <li>✓ Check the condition of the load wheel</li> <li>✓ Inspect the load chain for wear or distortion</li> <li>✓ Inspect the hooks for wear or distortion</li> </ul>
12 month	Maintenance	<ul style="list-style-type: none"> <li>✓ Open the gear cover and grease the gears</li> </ul>

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 Brake Installation for Units with Overload Limiting Device

- 1) Place the hoist on the gear cover.
- 2) Slide the ratchet gear hub and the ratchet gear onto the main shaft.

Ratchet gear hub and ratchet gear preassembled



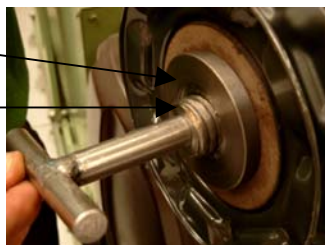
- 3) Make sure that the ratchet gear meshes with the locking device pinion.



- 4) Screw in the threaded insert into the hub of the overload-limiting device until it is flush.

Backside of the hub

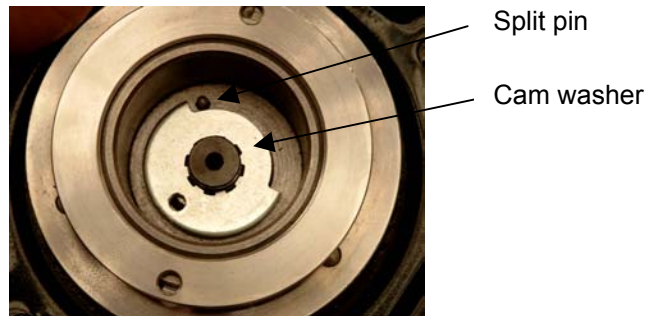
Threaded insert



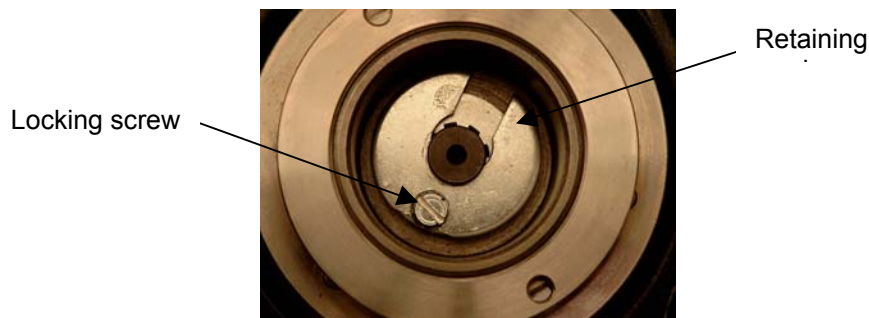
- 5) Slide the hand chain wheel and overload limiting device hub subassembly onto the main shaft.



- 6) Place the cam washer onto the main shaft so that the left edge of the indentation is as near as possible to the split pin by turning the washer clockwise. Remove any play in the brakes by immobilizing the shaft and turning the hand chain wheel clockwise. Recheck the gap distance between the cam washer and the split pin. Gap distance should measure between 0.08" and 0.16" [2 and 4 mm]



- 7) Place the retaining washer over the cam washer. Align the holes, and insert and tighten the locking screw.



- 8) Test with load.

### 5.3 Overload Limiting Device

#### 5.3.1 Removal

- 1) Remove the cap.
- 2) Remove the retaining washer by unscrewing the locking screw.
- 3) Remove the cam washer.
- 4) Remove the hand chain wheel and overload limiting device hub subassembly.

#### 5.3.2 Installation

- 1) Rest the hoist on its gear cover.
- 2) Slide the hand chain wheel and overload limiting device hub subassembly onto the main shaft.
- 3) Reinsert the cam washer so that the indentation is as near as possible to the split pin by turning the washer clockwise.
- 4) Reinstall the retaining washer so the 5-mm diameter holes are aligned.
- 5) Insert and tighten the locking screw CB 5 x 8.

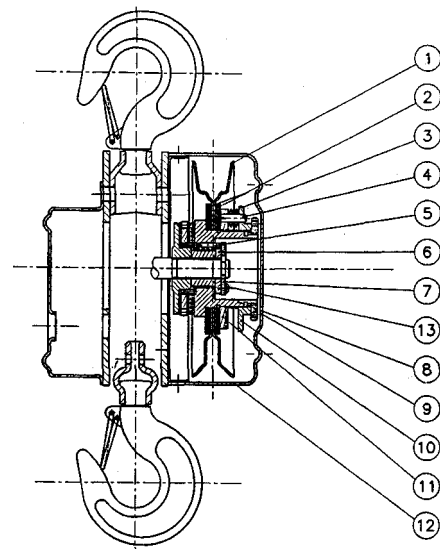
#### 5.3.3 Adjustment

- 1) Adjusting for compensation: rated capacity plus 25% ± 5%. Tighten the adjusting nut so that the hoist can lift a load between 125% and 140% of the rated capacity. The next compensation adjustment is carried out when the hoist reaches 110% of the nominal load.

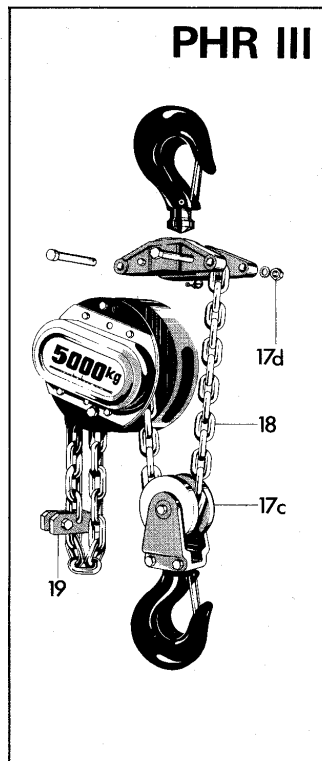
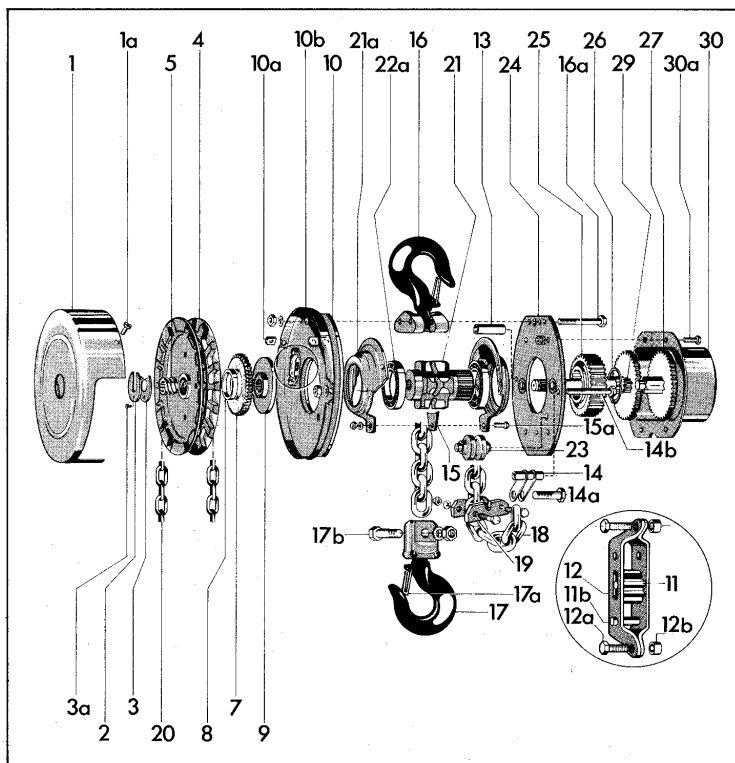
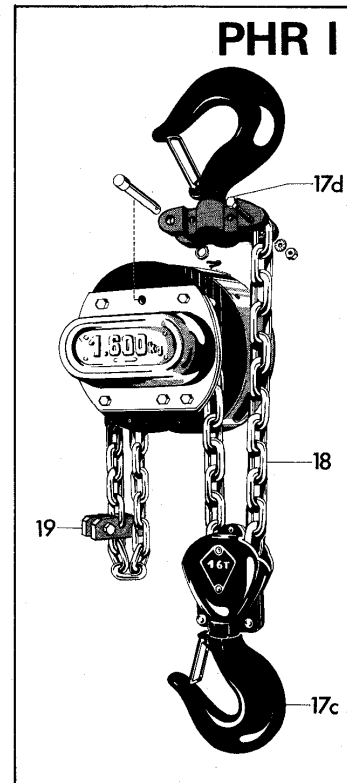
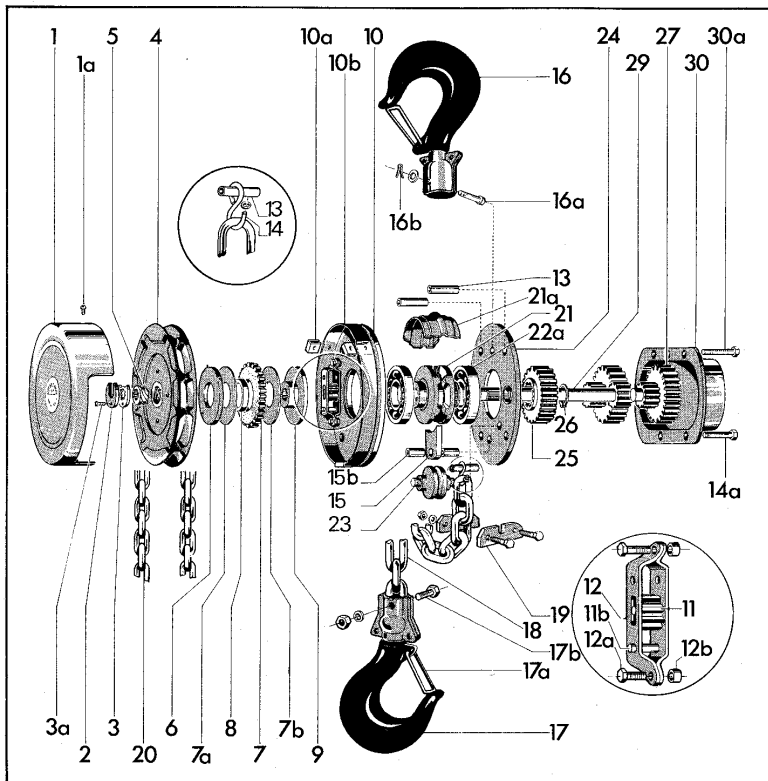


Adjusting nut

Item	Description	Qty
1	Hand chain wheel	1
2	Friction disc	2
3	Spring	3
4	Split pin – 6 x 18	3
5	Split pin – 3 x 18	1
6	Cam washer	1
7	Retaining washer	1
8	Overload limiting device hub	1
9	Adjusting nut	1
10	Plate	1
11	Pressure plate	1
12	Cover	1
13	Locking screw CB 5 x 8	1



## 6 Spare Parts





### Spare Parts

Item	Part number ≤ 1 ½ ton [ ≤ 1600 kg]	Part number ≤ 1 ½ ton [ > 1600 kg]	Qty ≤ 1 ½ ton [ < 1600 kg]	Qty > 1 ½ ton [ > 1600 kg]	Description
1			1	1	Hand wheel cover
1a			3	3	Cover screw
2			1	1	Retaining plate
3			1	1	Cam washer
3a			1	1	Locking screw
4			1	1	Hand chain wheel
5	001601	100250	1	1	Threaded insert
6	001251		1	Does not apply	Friction disc
7	002001	100328	1	1	Ratchet gear (bonded friction discs on units > 1 ½ ton)
7a			1	Does not apply	Brass disc internal f int. 3
7b			1	Does not apply	Brass disc internal f int. 32
8	001803	100309	1	1	Brake plate
9			1	1	Ratchet gear hub
10			1	1	Flanged plate assembly – includes items 10a & 10b
10a			3	3	Screw sockets
10b			1	1	Locking device assembly
11			1	1	Pinion
11b			1	1	Brake bar
12			2	2	U-shape bracket
12a			2	2	Screw
12b			2	2	Spacer sleeve
13			3	2	Slack chain anchor (1/2 – 1 ½ ton [500 - 1600 kg])
14			1	(1)	Securing screw for slack chain
14a			1	(1)	Tie bolt
14b			Does not apply	2	Stripper
15			1	1	Bolt for stripper (and chain guide 2 – 20 ton [2000 – 20000 kg])
15b			2	Does not apply	Sleeve
16			1	1	Top hook assembly
16a			(1)	(2)	Bolt & hardware
17			1	(1)	Load hook assembly
17a	001512		1	Does not apply	Safety latch – ½ ton [500kg]
17a	001515		1	Does not apply	Safety latch – 1 ton [1000kg]
17a	001513		1	Does not apply	Safety latch – 1 ½ ton [1600kg]
17a		001514	Does not apply	1	Safety latch – 2 ton [2000kg]
17a		128005	Does not apply	1	Safety latch – 3 ton [3200kg]
17a		129002	Does not apply	1	Safety latch – 5 ton [6300kg]
17b			1	(1)	Chain bolt for load block
17c			1	1	Bottom load block assembly
17d			1	1	Load chain anchor bolt
18	820150	820152	Specify lift	Specify lift	Load chain
19			1	1	Fall stop assembly
20	820003	820003	Specify lift	Specify lift	Hand chain
21			1	1	Load wheel with bushing
21a			1	1	Chain guide
22a			2	2	Bearing
23			1	1	Guide roller
24			1	1	Side plate (gear end)
25			1	1	Load wheel pinion
26			1	1	Circlip (retaining ring)
27			2	2	Intermediate gear
29			1	1	Main shaft
30			1	1	Gear cover
30a			3	4	Bolt (for gear cover)

Parentheses around the quantity number indicate for single fall units only.

Items without part numbers are non-stock replacement items.