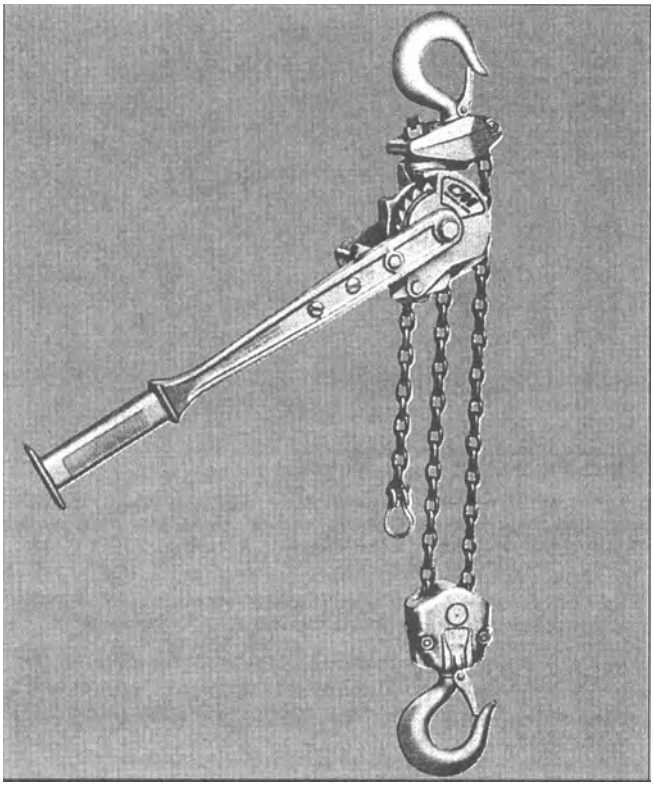


Operating, Maintenance and Parts Manual

CM RIGGER®

Manually Lever Operated Chain Hoist

Capacities: 3/4 and 1½ Tons (700 and 1400 Kg.)

CAUTION-IMPORTANT

If not properly installed, operated and maintained, the use of all mechanical equipment presents the possibility of personal injury or property damage. Before hoist use, all persons who will install, operate or maintain should read this manual thoroughly. For safe, dependable and economical performance, follow all instructions and recommendations contained herein. It is also important to retain this manual for current and future use.

SAFETY PRECAUTIONS

Each CM Rigger Manually Lever Operated Chain Hoist is built in accordance with the specifications contained herein and at the time of manufacture complies with our interpretation of applicable sections of ANSI/ASME B30.21, ANSI/ASME HST-3M and the Occupational Safety and Health Act.

The safety laws for elevators and dumbwaiters specify contruction details that are not incorporated in Columbus McKinnon Corporation industrial hoists. We recommed the use of equipment that meets state and national safety code for such use. Columbus McKinnon Corporation cannot be responsible for applications other than those for which Columbus McKinnon Corporation equipment is recommended.

*Copies of these standards may be obtained from: The American National Standaards Institute, 1430 Broadway, New York, NY 10018, U.S.A.

WARNING

Improper operation of a hoist can create a potentially hazardous situation which, if not avoided, could result in death or serious injury. To avoid such a potentially hazardous situation, the operator shall:

1. NOT operate a malfunctioning or unusually performing hoist.
2. NOT operate the hoist until you have thoroughly read and understood this Operating, Maintenance and Parts Manual.
3. NOT operate a hoist which has been modified without the manufacturer's approval or certification to be in conformity with applicable OSHA regs.
4. NOT lift or pull more than rated load for the hoist.
5. NOT use damaged hoist or hoist that is Not working properly.
6. NOT use hoist with twisted, kinked, damaged or worn load chain.
7. NOT operate with any lever extension (cheater bar).
8. NOT attempt to "free chain" the hoist while a load is applied.
9. NOT use the hoist to lift, support, or transport people.
10. NOT lift loads over people and make sure all personnel remain clear of the supported load
11. NOT attempt to lengthen the load chain or repair damaged load chain.
12. Protect the hoist's load chain from weld splatter or other damaging contaminants.
13. NOT operate hoist when it is restricted from forming a straight line from hook to hook in the direction of loading.
14. NOT use load chain as a sling, or wrap load or chain around load.
15. NOT apply the load to the tip of the hook or to the hook latch.
16. NOT apply load unless load chain is properly seated in the chain wheel(s) or sprocket(s).
17. NOT apply load if bearing prevents equal loading on all load supporting chains.
18. NOT operate beyond the limits of the load chain travel.
19. NOT leave load supported by the hoist unattended unless specific precautions have been taken.
20. NOT allow the load chain or hook to be used as an electrical or welding ground.
21. NOT allow the load chain or hook to be touched by a live welding electrode.
22. NOT remove or obscure the warnings on the hoist.
23. NOT operate a hoist which has Not been securely attached to a suitable support.
24. NOT operate a hoist unless load slings or other approved single attachments are properly sized and seated in the hook saddle.
25. NOT lift loads that are Not balanced and that the holding action is Not secure, taking up slack carefully.
26. NOT operate a hoist unless all persons are and remain clear of the supported load.
27. Report malfunctions or unusual performances of a hoist, after it has been shut down until repaired.
28. NOT operate a hoist on which the safety placards or decals are missing or illegible.
29. Be familiar with operating controls, procedures and warnings.

CAUTION

Improper operation of a hoist can create a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. To avoid such a potentially hazardous situation, the operator shall:

1. Maintain a firm footing or be otherwise secured when operating the hoist.
2. Check brake function by tensioning the hoist prior to each lift or pulling operation.
3. Use hook latches. Latches are to retain slings, chains, etc. under slack conditions only.
4. Make sure the hook latches are closed and not supporting and parts of the load.
5. Make sure the load is free to move and will clear all obstructions.
6. Avoid swinging the load or hook.
7. Avoid lever "flyback" by keeping a firm grip on the lever until operating stroke is completed and the lever is at rest.
8. Inspect the hoist regularly, replace damaged or worn parts, and keep appropriate records of maintenance.
9. Use the hoist manufacturer's recommended parts when repairing the unit.
10. Lubricate load chain per hoist manufacturer's recommendations.
11. NOT use the hoist load limiting or warning device to measure load.
12. NOT operate except with manual power.
13. NOT permit more than one operator to pull on lever at the same time. More than one operator is likely to cause hoist to overload.
14. NOT allow your attention to be diverted from operating the hoist.
15. NOT allow the hoist to be subjected to sharp contact with other hoists, structures or objects through misuse.
16. NOT adjust or repair the hoist unless qualified to perform such adjustments or repairs

SAFETY PROCEDURES

1. The rigger must be kept clean to assure proper operation of the pawls and liftwheel. Before use, check to be sure both pawls are free and engage ratchet. For lubrication of unit after cleaning, see page 4. The cover must be flat and firmly in place at all times. Make sure there is no foreign material in the ratchet, cover and pawl area before operating.
2. When preparing to lift or move a load be sure that the attachments to both hooks are firmly seated in the saddles of the hooks. Avoid off-center loading of any kind especially loading on the point of the hook. Do not load the hook latch as it is to retain slack chain as an aid in hook-up only.

⚠ WARNING

ALLOWING THE LOAD TO BEAR AGAINST THE HOOK LATCH AND/OR HOOK TIP CAN RESULT IN LOSS OF LOAD.

TO AVOID INJURY:

DO NOT ALLOW THE LOAD TO BEAR AGAINST THE HOOK LATCH AND/OR HOOK TIP. APPLY LOAD TO HOOK BOWL OR SADDLE ONLY.

3. When pulling or tensioning, move the load only enough to load the unit, then check to be sure holding pawl is engaging and that attachments to hooks and load are firmly seated. Continue movement only after you are assured the load is free of all obstruction.
4. Do not load beyond the rated capacity. Overload can cause immediate failure or cause damage resulting in future failure even at less than rated capacity.
5. The rigger has been designed for hand powered operation only. Do not use an extension on the handle. A handle pull of approximately 100 pounds will result in rated capacity on the unit, any greater pull is an indication of either an overload or an incorrectly maintained unit.
6. Under no condition should the holding pawl be pried out of engagement when a load is on the unit, since this will allow the load to be released in a sudden and uncontrolled manner.
7. Do not use this or any other materials handling equipment for lifting or moving persons.
8. Warn other personnel of your intention to move a load in their area.
9. Do not leave a load on the unit unattended.
10. Do not take up load chain to the point where the end ring or hook block becomes jammed against frame.
11. Read warnings and instructions on handle before each use.
12. Do not wrap load chain around the load or bring the load in contact with the tool.
13. Do not operate the Rigger unless it is rigged to pull in a straight line from hook to hook, and the frame is free to swivel on the upper hook. Refer to the following illustrations.

⚠ WARNING

IF THE UNIT IS NOT RIGGED IN A STRAIGHT LINE HOOK TO HOOK MANNER, AND IF THE FRAME IS NOT FREE TO SWIVEL, LEVER MAY BREAK FRAME AND CAUSE PHYSICAL INJURY AND LOSS OF LOAD

TO AVOID INJURY:

RIG THE UNIT IN A STRAIGHT LINE HOOK TO HOOK MANNER AND KEEP FRAME FREE TO SWIVEL - SEE FIGURE 1.

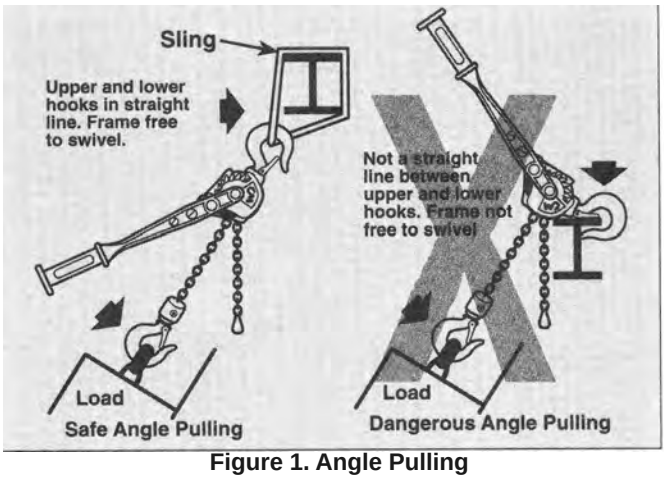


Figure 1. Angle Pulling

INSPECTION

To maintain continous and satisfactory operation, a regular periodic inspection procedure must be initiated so that worn or damaged parts can be replaced before they become unsafe. The frequency of inspection must be determined by the individ ual application.

For normal usage under normal conditions, these inspections are to be performed daily, monthly, or quarterly and should include the following items:

a. Holding and driving pawls for proper operation and engagement with the teeth of the liftwheel-daily.

b. Load chain for lubricant, wear, damaged links or foreign material-daily.

c. Hooks for damage, cracks, twists, latch engagement and latch operation-monthly.

d. Chain for excessive wear or stretch-every three months.

e. Worn, cracked or distorted parts such as hook blocks, frame, hoist hanger, chain guide, direction lever, springs, handle, cover, sheave wheel, liftwheel and driving pawl shaft-every three months.

f. Loose or missing screws, nuts and snap rings-every three months.

When the unit is subjected to heavy usage or dusty, gritty, moist or corrosive atmospheric conditions, shorter time periods must be assigned. Inspection must be made of all parts for unusual wear, corrosion or damage, in addition to those specifically mentioned in the schedule.

Any parts that are deemed unserviciable are to be replaced with new parts before the unit is returned to service. It is very important that the unserviceable parts be destroyed to prevent their possible future use as a repair item and properly disposed of.

Preventative Maintence

In addition to the above periodic inspection procedure, a preventive maintenance program should be established to prolong the useful life of the tool and maintain its reliability and continued safe use. The program should include the periodic inspections with particular attention being paid to the lubrication of various components using the recommended lubricants.

CM REPAIR/REPLACEMENT POLICY

All Columbus McKinnon (CM) Riggers are thoroughly inspected and performance tested prior to shipment. If any properly maintained Rigger within 1 year of shipment develops a performance problem due to a material or workmanship defect, as verified by CM, repair or replacement of the unit will be made to the original purchaser without charge. This repair/replacement policy applies only to Riggers installed, maintained and operated as outlined in this manual, and specifically excludes parts subject to normal wear, abuse, improper installation, improper or inadequate maintenance, hostile environmental effects, and unauthorized repairs/modifications.

CM reserves the right to change materials or design if, in its opinion, such changes will improve its product. Abuse, repair by an unauthorized person, or use of non-CM replacement parts voids the guarantee and could lead to dangerous operation. For full “Terms of Sale”, see Sales Order Acknowledgement. Also, refer to the back page for Limitations of Warranties, Remedies and Damages and, Indemnification and Safe Operation.

OPERATING INSTRUCTIONS

⚠ WARNING

IF NOT USED AS DIRECTED, RIGGER MAY CAUSE INJURY.

TO AVOID INJURY:

USE ONLY AS DIRECTED BELOW

Before operating the Rigger, familiarize yourself with the nomenclature shown in Figures 3 and 4.

1. Free Wheeling: In this condition the chain can be pulled through the Rigger in either direction by hand. This allows quick and easy attachment of the load. Set directional lever to unload position and release pawls as shown in Figure 2.

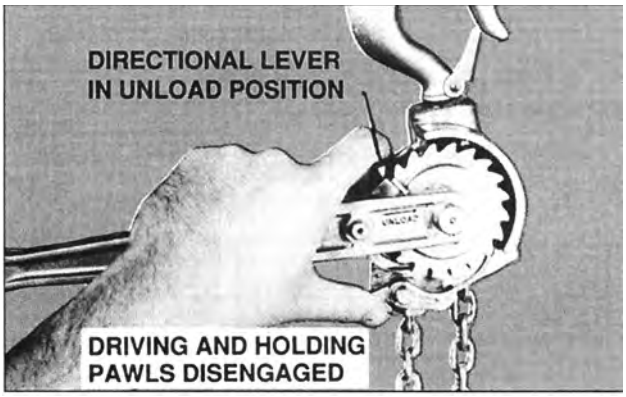


Figure 2. Free Wheeling Position

2. Attachment To The Load: The CM Rigger can be used in any position provided it is rigged to pull in a straight line from hook to hook. It is important that the frame is free to swivel on the upper hook. Under no condition should the frame be allowed to touch the load or bear on any support when in use as this might cause bending of the hook or frame and possible failure. When operating in limited areas, it is recommended that attachments or slings be used to keep the frame and handle from being obstructed.
3. Operation (see Safety Procedures): After attachment of load, the slack in the chain can be taken up by pulling on the end ring attached to the loose end of the chain. Set directional lever to "load". Operate the handle up and down and the load will be pulled or tensioned. Shift directional lever to "unload" position and load will be loosened one tooth at a time by the same operation of the handle. When operating the handle, make certain that the load is retained by the Rigger before releasing handle.

⚠ WARNING

TO AVOID INJURY:

Use as directed above. Failure to do so may cause injury to you and others.

1. **DO NOT** exceed capacity shown on frame or lower hook block.
2. **DO NOT** use to lift people or loads over people.
3. **DO NOT** use unless the Rigger's frame and chain form a straight line between hooks.
4. **DO NOT** use if the frame is in contact with any object.
5. **DO NOT** use if the unit is damaged or malfunctions.
6. **DO NOT** use extension on lever. Use hand power only.
7. **DO NOT** use if chain is twisted, kinked or damaged.
8. **DO NOT** release handle until load is transferred to Rigger.

MAINTENANCE

HOOK INSPECTION

Hooks damaged from chemicals, deformations or cracks, or that have more than a 10 degree twist from the plane of the unbent hook or excessive opening or seat wear must be replaced.

Also, on latch type hooks, hooks that are opened and allow the latch to disengage the tip, must be replaced.

Figure 3. 3/4 Ton CM Rigger

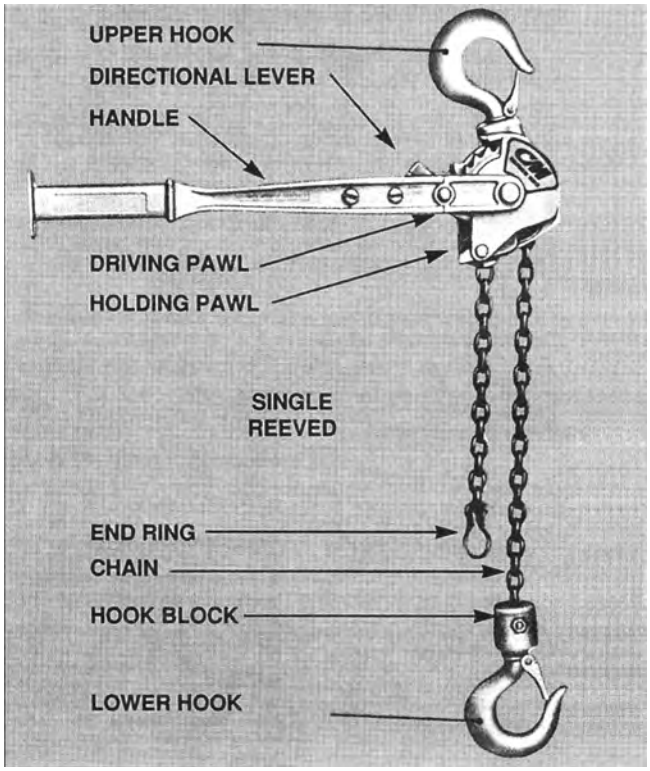
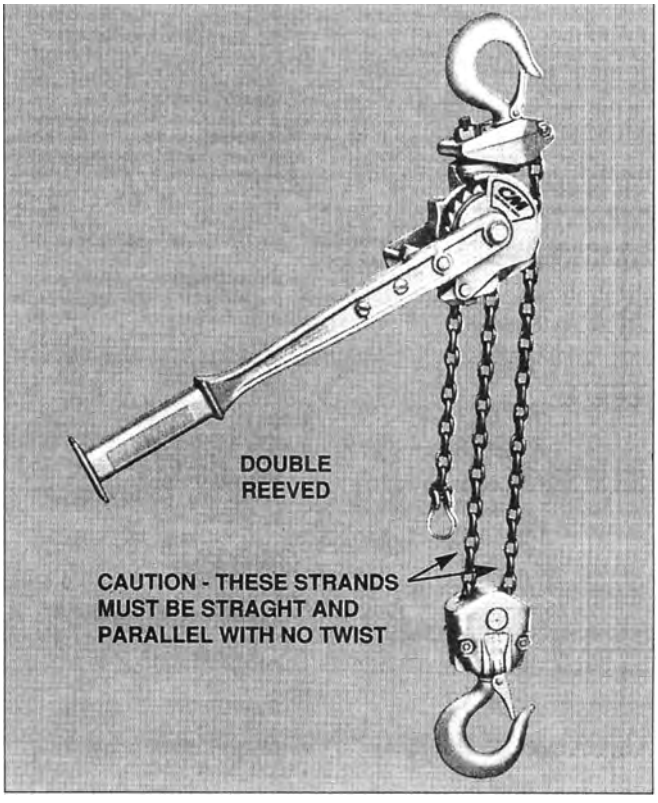


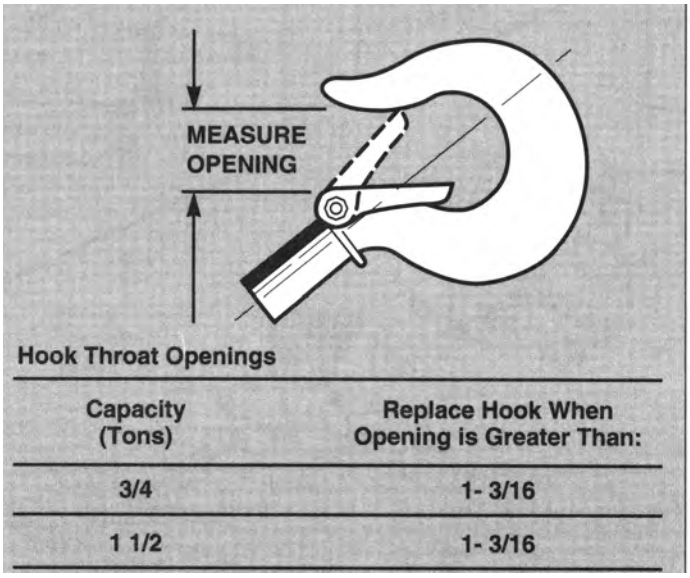
Figure 4. 1 1/2 Ton CM Rigger



Any hook that is twisted or has excessive throat opening indicates abuse or overloading of the unit. Other load sustaining components of the tool should be inspected for damage.

Check to assure latch is not damaged or bent and that it operates properly with sufficient spring pressure to keep the latch tightly against the tip of the hook and allows the latch to spring back to the tip when released. If the latch does not operate properly, it should be replaced.

Use Figure 5 to determine when the hook must be replaced.



Hook Throat Openings

Capacity (Tons)	Replace Hook When Opening is Greater Than:
3/4	1- 3/16
1 1/2	1- 3/16

Figure 5. Maximum Allowable Hook Throat Opening

⚠ WARNING

THE LUBRICANTS USED IN AND RECOMMENDED FOR THE RIGGER MAY CONTAIN HAZARDOUS MATERIALS THAT MANDATE SPECIFIC HANDLING AND DISPOSAL PROCEDURES

TO AVOID INJURY:

HANDLE AND DISPOSE OF LUBRICANTS ONLY AS DIRECTED IN APPLICABLE MATERIAL SAFETY DATA SHEETS AND IN ACCORDANCE WITH APPLICABLE LOCAL STATE AND FEDERAL REGULATIONS.

LOAD CHAIN

Cleaning and Inspection

First clean the load chain with a non-acid or non-caustic type solvent then slack the chain and make a link-by-link inspection for nicks, gouges, twisted links and excessive wear or stretching. Worn chain should be gaged throughout it entire length and replaced if beyond serviceable limits.

⚠ WARNING

USING OTHER THAN CM SUPPLIED LOAD CHAIN MAY CAUSE THE CHAIN TO JAM IN THE HOIST AND/OR ALLOW THE CHAIN TO BREAK AND THE LOAD TO DROP.

TO AVOID INJURY:

DUE TO SIZE REQUIREMENTS AND PHYSICAL PROPERTIES, USE ONLY CM HOISTALOY® LOAD CHAIN IN THE CM RIGGER.

These chains are specifically heat treated and hardened and should never be repaired.

Before returning a chain to service, lubricate liberally with Lubriplate Bar and Chain Oil 10-R (Fiske Bros. Refining Co.) or equal lubricant. Remove excess lubricant from the chain by wiping with a cloth.

⚠ WARNING

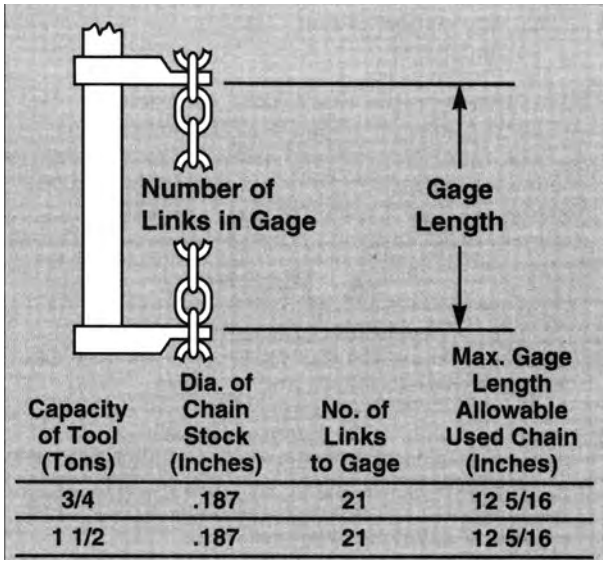
USED MOTOR OILS CONTAIN KNOWN CARCINOGENIC MATERIALS.

TO AVOID HEALTH PROBLEMS:

NEVER USE USED MOTOR OILS AS A CHAIN LUBRICANT, ONLY USE LUBRIPLATE BAR AND CHAIN OIL 10-R AS A LUBRICANT FOR THE LOAD CHAIN.

GAGING LOAD CHAIN WEAR

To determine if load chain should be continued in service, check gage lengths as indicated in Figure 6. Chain worn beyond length indicated, nicked, gouged or twisted should be replaced before returning tool to service. Chain should be clean, free of twists and pulled taut before measuring. In cases where the wear is localized and not beyond serviceable limits, it is sometimes possible to reverse the load chain, end for end, and allow a new section to take the wear. Proper installation of the load chain is covered below.



Capacity of Tool (Tons)	Dia. of Chain Stock (Inches)	No. of Links to Gage	Max. Gage Length Allowable Used Chain (Inches)
3/4	.187	21	12 5/16
1 1/2	.187	21	12 5/16

Figure 6. Gaging Load Chain Wear

IMPORTANT:

Do not use replaced chain for other purposes such as lifting or pulling. Load chain may break suddenly without visual deformation. For this reason, cut replaced chain into short lengths to prevent use after disposal.

Assembling Load Chain

Load chain must be assembled to units with weld side of upstanding links facing away from the liftwheel. Refer to Figure 3 and 4 for proper relation of lower hooks to upper hooks (frame is marked :Hook Side"). On 1 1/2 ton units, the chain must have an odd number of links and when assembling chain to liftwheel, always start with an upstanding link, (this is to assure chain can be attached to dead end with no twist). Check to be sure there is not twist in chain before attaching lower hook block and dead end screw.

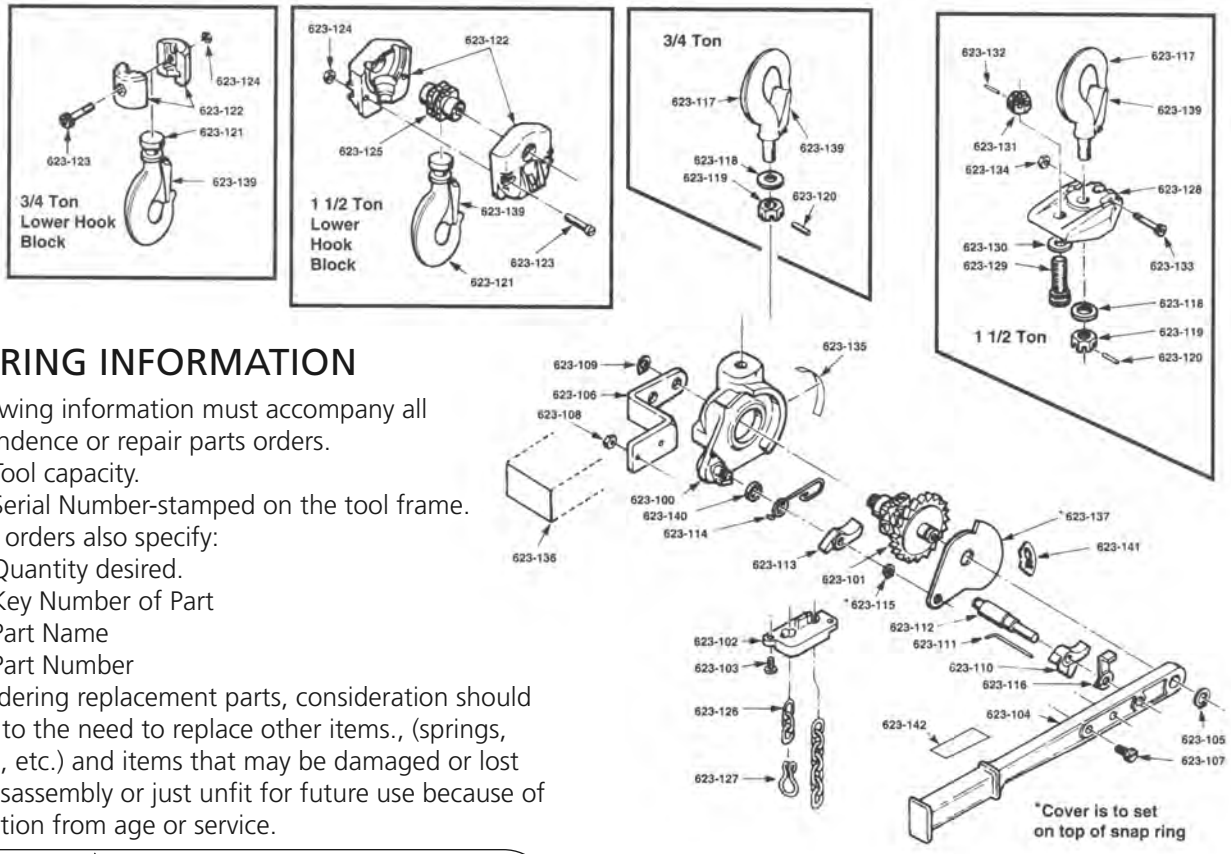
Lubrication

(After Cleaning or Disassembling)

Coat the four liftwheel journals, frame stud for holding pawl, the three journals of the driving pawl shaft, lower sheave journals, tips of driving and holding pawls, seat for hook knob, edge of frame where holding pawl spring contacts same and surfaces of cover where it contacts the liftwheel and handle with a medium coat of grease (master Lubricant Co. Lubriko M-32, Dow Corning Corp. Molykote BR-2-S, or equal).

IMPORTANT: To assure extra long life and top performance, be sure to lubricate the various parts of the tool using the lubricant specified above. If desired, these lubricants may be purchased from CM.

Figure 7. Exploded View 3/4-1½ Ton CM® Rigger



ORDERING INFORMATION

The following information must accompany all correspondence or repair parts orders.

1. Tool capacity.
2. Serial Number-stamped on the tool frame.

For parts orders also specify:

1. Quantity desired.
2. Key Number of Part
3. Part Name
4. Part Number

When ordering replacement parts, consideration should be given to the need to replace other items., (springs, fasteners, etc.) and items that may be damaged or lost during disassembly or just unfit for future use because of deterioration from age or service.

⚠ WARNING

Using "Commercial" or other Manufacturer's parts to repair the CM Rigger may cause load loss.

TO AVOID INJURY:

Use only CM supplied replacement parts. Parts may look alike but CM parts are made of specific materials or processed to achieve specific properties.

CM RIGGER PARTS LIST

KEY NUMBER	NO. REQ'D.	PART NAME	PART NUMBER	
			3/4 Ton	1½ Ton
623-100	1	Frame	23602	
623-101	1	Liftwheel	23023	
623-102	1	Clover Leaf Chain Guide	23705	
623-103	2	Chain Guide Attaching Screw	982599	
623-104	1	Handle	23701	
623-105	1	Handle Snap Ring	82680	
623-106	1	Handle Support	23003	
623-107	2	Support Screw	983593	
623-108	2	Support Screw Nut	982646	
623-109	1	Support Snap Ring	45767	
623-110	1	Driving Pawl	23720	
623-111	1	Driving Pawl Spring	23704	
623-112	1	Driving Pawl Shaft	23354	
623-113	1	Holding Pawl (with Pivot for Spring)	23663	
623-114	1	Holding Pawl Spring	23734	
623-115	1	Holding Pawl Snap Ring	82679	
623-116	1	Directional Lever	23703	
623-117	1	Upper Hook with Latch	23625	23627
623-118	1	Upper Hook Washer	23706	923714
623-119	1	Upper Hook Nut	988165	982526
623-120	1	Upper Hook Pin	989371	983768
623-121	1	Lower Hook with Latch	40602	23626
623-122	2	Lower Hook Block	23028	23717
623-123	1	Hook Block Screw (Special)	23708	----

CM RIGGER PARTS LIST-Continued

KEY NUMBER	NO. REQ'D.	PART NAME	PART NUMBER	
			3/4 Ton	1½ Ton
623-123	2	Hook Block Screw	----	987395
623-124	1	Hook Block Screw Nut	982515	----
623-124	2	Hook Blcok Screw Nut	----	982646
623-125	1	Lower Sheave Wheel	----	23349
623-126	1	Load Chain (Specify Length Req,d.)	85843	
623-127	1	End Ring	23730	
623-128	1	Hanger	----	23716
623-129	1	Hanger Screw	----	23718
623-130	1	Hanger Screw Washer	----	23706
623-131	1	Hanger Screw Nut	----	988165
623-132	1	Hanger Screw Pin	----	989371
623-133	1	Dead End Screw (Special)	----	23708
623-134	1	Dead End Screw Nut	----	982515
623-135	1	*Capacity Label-Frame	923950	923951
623-136	1	Capacity Label-Handle Support	923961	923962
623-137	1	Cover	23732	
623-139	2	Latch Kit	45661	
623-141	1	Cover Label	923737	
623-142	1	Caution Label	23739	

*For Export units, part numbers for the frame capacity labels are 923954 for 700 Kg. unit and 923955 for 1400 Kg. unit.

The Following Parts Were Used On Discontinued Units

KEY NUMBER	NO. REQ'D.	PART NAME	PART NUMBER	
			3/4 Ton	1½ Ton
623-113	1	Holding Pawl (with Hole for Spring)	23014	
623-114	1	Holding Pawl Spring (both ends bent ½")	23015	
623-138	1	Liftwheel Spacer (See Note Below)	923733	
623-140	1	Pawl Spacer	23356	

Note: Refer to instruction sheet 1f-5407; Spacer 923733 used only on units without liftwheel cover that contain liftwheel 23023 (623-101).

LIMITATION OF WARRANTIES, REMEDIES AND DAMAGES

THE WARRANTY STATED BELOW IS GIVEN IN PLACE OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR OTHERWISE, NO PROMISE OR AFFIRMATION OF FACT MADE BY ANY AGENT OR REPRESENTATIVE OF SELLER SHALL CONSTITUTE A WARRANTY BY SELLER OR GIVE RISE TO ANY LIABILITY OR OBLIGATION.

Seller warrants that on the date of delivery to carrier the goods are free from defects in workmanship and materials.

SELLER'S SOLE OBLIGATION IN THE EVENT OF BREACH OF WARRANTY OR CONTRACT OR FOR NEGLIGENCE OR OTHERWISE WITH RESPECT TO GOODS SOLD SHALL BE EXCLUSIVELY LIMITED TO REPAIR OR REPLACEMENT, F.O.B. SELLER'S POINT OF SHIPMENT, OF ANY PARTS WHICH SELLER DETERMINES TO HAVE BEEN DEFECTIVE or if Seller determines that such repair or replacement is not feasible, to a refund of the purchase price upon return of the goods to Seller.

Any action against Seller for breach of warranty, negligence or otherwise, must be commenced within one year after such cause of action occurs.

NO CLAIM AGAINST SELLER FOR ANY DEFECT IN THE GOODS SHALL BE VALID OR ENFORCEABLE UNLESS BUYER'S WRITTEN NOTICE THEREOF IS RECEIVED BY SELLER WITHIN ONE YEAR FROM THE DATE OF SHIPMENT.

Seller shall not be liable for any damage, injury or loss arising out of the use of the goods if, prior to such damage, injury or loss, such goods are (1) damaged or misused following Seller's delivery to carrier; (2) not maintained, inspected, or used in compliance with applicable law and Seller's written instructions and recommendations; or (3) installed, repaired, altered or modified without compliance with such law, instructions or recommendations. UNDER NO CIRCUMSTANCES SHALL SELLER BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES AS THOSE TERMS ARE DEFINED IN SECTION 2-715 OF THE UNIFORM COMMERCIAL CODE.

INDEMNIFICATION AND SAFE OPERATION

Buyer shall comply with and require its employees to comply with directions set forth in instructions and manuals furnished by Seller and shall use and require its employees to follow such instructions and manuals and to use reasonable care in the use and maintenance of the goods. Buyer shall not remove or permit anyone to remove any warning or instruction signs on the goods. In the event of personal injury or damage to property or business arising from the use of the goods, Buyer shall within 48 hours thereafter give Seller written notice of such injury or damage. Buyer shall cooperate with Seller in investigating any such injury or damage and in the defense of any claims arising therefrom.

If Buyer fails to comply with this section or if any injury or damage is caused, in whole or in part, by Buyer's failure to comply with applicable federal or state safety requirements, Buyer shall indemnify and hold Seller harmless against any claims, loss or expense for injury or damage arising from the use of the goods.

CM HOIST PARTS AND SERVICES ARE AVAILABLE IN THE UNITED STATES AND IN CANADA

As a CM Hoist user, you are assured of reliable repair and parts services through a network of Master Parts Depots and Service Centers that are strategically located in the United States and Canada. These facilities have been selected on the basis of their demonstrated ability to handle all parts and repair requirements promptly and efficiently.

Below is a list of the Master Parts Depots in the United States and Canada. To quickly obtain the name of the U.S. Service Center located nearest you, call (800) 888-0985. Fax: (716) 689-5644. In the following list, the Canadian Service Centers are indicated.

UNITED STATES MASTER PARTS DEPOT

CALIFORNIA
OTTO SYSTEMS, INC.
12010 Bloomfield Ave.
Sante Fe Springs, CA 90670
562/462-1612 or 800/596-7392
Fax 562/462-1617
or
7656 Las Positas Road
Livemore, CA 94551
925/245-8800
Fax 925/245-8804

GEORGIA
ACE INDUSTRIES, INC.
6295 McDonough Drive
Norcross, GA 30093
770/441-0898 or 800/733-2231
Fax 800/628-3648

INDIANA
HORNER ELECTRIC COMPANY, INC.
1521 East Washington Street
Indianapolis, IN 46201
317/639-4261
Fax 317/639-4342

IOWA
VMI HOIST & CRANE SERVICES
901 17th Street NE
Cedar Rapids, IA 52406
319/365-4662
Fax 319/365-8075

KANSAS
INDEPENDENT ELECTRIC MACHINERY
4425 Oliver Street
Kansas City, KS 66106
913/362-1155
Fax 913/904-3330

LOUISIANA
BEERMAN PRECISION, INC.
4206 Howard Ave.
New Orleans, LA 70125
504/486-9391
Fax 504/486-7482

MASSACHUSETTS
ABEL DISTRIBUTORS, INC.
50 Parker Street, Unit 2
Newburyport, MA 01950
978/463-0700
Fax 978/463-5200

NEW JERSEY
SHUPPER-BRICKLE EQUIPMENT CO.
2394 Route 130, Suite C
Dayton, NJ 08810
732/438-3888
Fax 732/438-3889

NEW YORK
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