

# Hand Chain Hoist

22950

## Operating, Maintenance & Parts Manual

# Series 622



### Rated Loads:

**1/2, 1, 2, 3, 5 and 10 tons  
(500, 1000, 2000, 3000, 5000,  
and 10,000kg.)**

**Follow all instructions and warnings for  
inspecting, maintaining and operating this hoist.**

The use of any hoist presents some risk of personal injury or property damage. That risk is greatly increased if proper instructions and warnings are not followed. Before using this hoist, each operator should become thoroughly familiar with all warnings, instructions and recommendations in this manual.

**Retain this manual for future reference and use.**

Forward this manual to operator.

Failure to operate equipment as directed in manual may cause injury.

Before using the hoist, fill in the information below.

Model Number 2216

Serial Number 1418 JF-6

Purchase Date MAR 20 2013



Columbus McKinnon Corporation  
Industrial Products Division  
140 John James Audubon Parkway  
Amherst, New York 14228-1197

Price: \$5.00

Manual No. B622-E

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

As a CM Hoist and Trolley 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. To quickly obtain the name of the Master Parts Depot or Service Center located nearest you, call (800) 888-0985. Fax: (716) 689-5644.



# Hoist safety is up to you...

## ⚠ WARNING

— DO NOT LIFT MORE THAN RATED LOAD.

### 1 CHOOSE THE RIGHT HOIST FOR THE JOB...

Choose a hoist with the capacity for the job. Know the capacities of your hoists and the weight of your loads. Then match them.

The application, the size and type of load, the attachments to be used and the period of use must also be taken into consideration in selecting the right hoist for the job.

Remember the hoist was designed to ease our burden and carelessness not only endangers the operator, but in many cases, a valuable load.



## ⚠ WARNING

— DO NOT OPERATE DAMAGED OR MALFUNCTIONING HOIST.  
— DO NOT OPERATE WITH TWISTED, KINKED OR DAMAGED CHAIN.

### 2 INSPECT

All hoists should be visually inspected before use, in addition to regular, periodic maintenance inspections.

Inspect hoists for operations warning notices and legibility.

Deficiencies should be noted and brought to the attention of supervisors. Be sure defective hoists are tagged and taken out of service until repairs are made.



Under no circumstances should you operate a malfunctioning hoist.

Check for gouged, twisted, distorted links and foreign material. Do not operate hoists with twisted, kinked or damaged chain links.

Load chain should be properly lubricated.

Hooks that are bent, worn or whose openings are enlarged beyond normal throat opening should not be used. If latch does not engage throat opening of hook, hoist should be taken out of service.

Chains should be checked for deposits of foreign material which may be carried into the hoist mechanism.

Check brake for evidence of slippage under load.



## ⚠ WARNING

— DO NOT PULL AT AN ANGLE. BE SURE HOIST AND LOAD ARE IN A STRAIGHT LINE.  
— DO NOT USE LOAD CHAIN AS A SLING.

### 3 USE HOIST PROPERLY

Be sure hoist is solidly held in the uppermost part of the support hook arc.



Be sure hoist and load are in a straight line. Do not pull at an angle.



Be sure load is hooked securely. Do not tip load the hook. Do not load hook latch. Hook latch is to prevent detachment of load under slack chain conditions only.



Do not operate with hoist head resting against any object. Lift the load gently. Do not jerk it.

## ⚠ WARNING

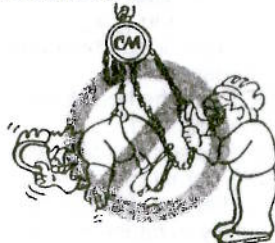
— DO NOT LIFT PEOPLE OR LOADS OVER PEOPLE.

### 4 PRACTICE CAUTION ALWAYS

Do not lift co-workers with a hoist.

Make sure everyone is clear of the load when you lift.

Do not remove or obscure operational warning notices.



### 5 OPERATOR SERVICE

#### CLEANING

Hoists should be kept clean and free of dust, dirt, moisture, etc., which will in any way affect the operation or safety of the equipment.

#### LUBRICATION

Chain should be properly lubricated.

#### AFTER REPAIRS

Carefully operate the hoist before returning it to full service.



**VIOLATIONS OF ANY OF THE WARNINGS LISTED MAY RESULT IN SERIOUS PERSONAL INJURY TO THE OPERATOR OR NEARBY PERSONNEL BY NATURE OF RELEASED LOAD OR BROKEN HOIST COMPONENTS.**



## SAFETY PRECAUTIONS

Each Series 622 Hand Hoist is built in accordance with the specifications contained herein and at the time of manufacture complies with our interpretation of applicable sections of the \* American Society of Mechanical Engineers Code B30.16 "Overhead Hoist" and the Occupation Safety and Health Act.

The safety laws for elevators and for dumbwaiters may specify construction details that are not necessarily incorporated in CM industrial hoists. We recommend the use of equipment that meets state and national safety codes. Columbus McKinnon Corporation cannot be responsible for applications other than those for which CM equipment is recommended.



**THIS SYMBOL POINTS OUT IMPORTANT SAFETY INSTRUCTIONS WHICH IF NOT FOLLOWED COULD ENDANGER THE PERSONAL SAFETY AND/OR PROPERTY OF YOURSELF AND OTHERS. READ AND FOLLOW ALL INSTRUCTIONS IN THIS MANUAL AND ANY PROVIDED WITH THE EQUIPMENT BEFORE ATTEMPTING TO OPERATE YOUR SERIES 622 HOIST.**



Consult Columbus McKinnon Corporation for any usage of Series 622 Hoists that do not involve raising of the load on the lower hook, or usage of Series 622 Hoists in the inverted position. Using hoists, without special precautions, in such applications may cause an accident that could result in injury and/or property damage.

\* Copies of this standard can be obtained from ASME Order Department, 22 Law Drive, Box 2300, Fairfield, NJ 07007-2300, 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 understand this manufacturer's 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 chain.
7. **NOT** use the hoist to lift, support, or transport people.
8. **NOT** lift loads over people and make sure all personnel remain clear of the supported load.
9. **NOT** attempt to lengthen the load chain or repair damaged load chain.
10. Protect the hoist's load chain from weld splatter or other damaging contaminants.
11. **NOT** use load chain as a sling or wrap load chain around load.
12. **NOT** apply the load to the tip of the hook or to the hook latch.
13. **NOT** apply load unless load chain is properly seated in the chain wheel(s) or sprocket(s).
14. **NOT** apply load if bearing prevents equal loading on all load supporting chains.
15. **NOT** operate beyond the limits of the load chain travel.
16. **NOT** leave load supported by the hoist unattended unless specific precautions have been taken.
17. **NOT** allow the chain or hook to be used as an electrical or welding ground.
18. **NOT** allow the chain or hook to be touched by a live welding electrode.
19. **NOT** remove or obscure the warnings on the hoist.
20. **NOT** operate a hoist which has Not been securely attached to a suitable support.
21. **NOT** operate a hoist unless load slings or other approved single attachments are properly sized and seated in the hook saddle.

22. **NOT** operate a hoist when it is restricted from forming a straight line from hook to hook in the direction of loading.
23. **NOT** lift loads that are Not balanced and that the holding action is Not secure, taking up slack carefully.
24. **NOT** operate a hoist unless all persons are and remain clear of the supported load.
25. Report malfunctions or unusual performances of a hoist after it has been shut down until repaired.
26. **NOT** operate a hoist on which the safety placards or decals are missing or illegible.
27. 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 piling 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 any 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. Inspect the hoist regularly, replace damaged or worn parts, and keep appropriate records of maintenance.
8. Use the hoist manufacturer's recommended parts when repairing the unit.
9. Lubricate load chain per hoist manufacturer's recommendations.
10. **NOT** use the hoist load limiting or warning device to measure load.
11. **NOT** operate except with manual power.
12. **NOT** permit more than one operator to pull on a single hand chain at the same time. More than one operator is likely to cause hoist overload.
13. **NOT** allow your attention to be diverted from operating the hoist.
14. **NOT** allow the hoist to be subjected to sharp contact with other hoists, structures, or objects through misuse.
15. **NOT** adjust or repair the hoist unless qualified to perform such adjustments or repairs.



## GENERAL INFORMATION

This manual contains important information to help you properly install, operate and maintain your Series 622 Hoist for maximum performance, economy and safety.

Please study its contents thoroughly before putting your hoist into operation. By practicing correct operating procedures and by carrying out the recommended preventive maintenance suggestions, you will be assured of long, dependable and safe service.

After you have completely familiarized yourself with the contents of this manual, we recommend that you carefully file it for future reference.

The information herein is directed to the proper use, care and maintenance of the Series 622 Hoist and does not comprise a handbook on the broad subject of rigging.

Rigging can be defined as the process of lifting and moving heavy loads using hoists and other mechanical equipment. Skill acquired through specialized experience and study is essential to safe rigging operations. For rigging information, we recommend consulting a standard textbook on the subject.

## CM REPAIR/REPLACEMENT POLICY

All Columbus McKinnon (CM) Series 622 Hoists are inspected and performance tested prior to shipment. If any properly maintained hoist develops a performance problem, within one year of shipment, 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 Series 622 Hoists installed, maintained and operated as outlined in this manual, and specifically excludes hoists subject to normal wear, abuse, improper installation, improper or inadequate maintenance, hostile environmental effects and unauthorized repairs/modifications.

We reserve the right to change materials or design if, in our opinion, such changes will improve our 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 Acknowledgment. Also, refer to the back cover for Limitations of Warranties, Remedies and Damages, and Indemnification and Safe Operation.

## UNPACKING

After opening the carton, the hoist should be carefully inspected for damage which may have occurred during shipment or handling. Check the hoist frame for dents or cracks and inspect the load chain for nicks and gouges. If shipping damage has occurred, refer to the packing list envelope on the carton for claim procedure.



## WARNING

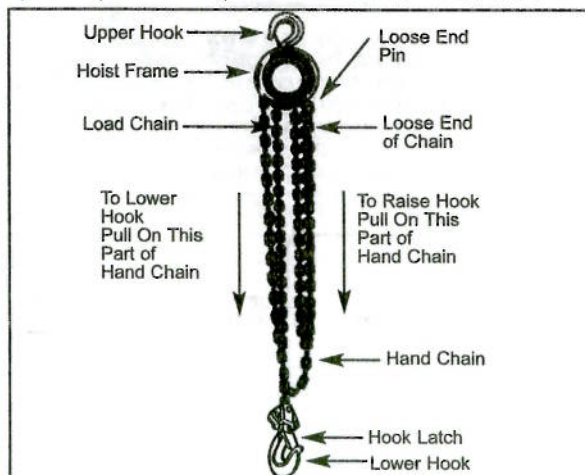
Operating a unit with obvious external damage may cause load to drop and that may result in personal injury and/or property damage.

### TO AVOID INJURY:

Carefully check unit for external damage prior to installation.

## OPERATING INSTRUCTIONS

After mounting and before placing in service, check the hoist for proper operation. Before operating the 3, 5, and 10 ton units, make sure that all strands of chain are straight and have no twists (due to capsized hook). If the chain is twisted, reverse capsize. To operate the hoist, pull on the hand chain as indicated below.



Operate the hoist with no load and then a light load of approximately 50 pounds (23 Kg.) times the number of load supporting chains to make sure it operates properly and the brake holds the load when the hand chain is released; then operate with a rated load as shown on the capacity plate.



## WARNING

Operating the 3, 5, and 10 ton hoists in the lifting direction with the hook block in contact with the frame and/or hoist hanger may break the chain and allow the load to drop.

### TO AVOID INJURY:

Stop operating in the lifting direction when the hook block contacts the hoist frame and/or hanger, as noted by sudden increase in hand chain pull or tipping of the hook block.

## SAFETY PROCEDURES

1. The hoist must always be rigged to lift in a straight line from hook to hook. The hoist must always be free to swivel on the upper hook. Under no condition should the hoist frame be allowed to bear on any support when in use as this would cause bending of the hook or frame and damage the unit.
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 tip of the hook. Also observe that the chain hangs straight (without twist) from hoist to lower hook.
3. When lifting, raise the load only enough to clear the floor or support, and check to be sure brake will hold load and that attachments to the load are firmly seated. Continue the lift only after you are assured the load is free of all obstructions.
4. Do not load beyond the rated capacity of the hoist. Rated capacity can be

| Hoist Rated Load Tons (Kg.) | Hand Chain Pull To Lift Rated Load Pounds (Kg.) |
|-----------------------------|---|
| 1/2 (500)                   | 53 (25)   |
| 1 (1000)                    | 77 (35)   |
| 2 (2000)                    | 82 (37)   |
| 3 (3000)                    | 65 (30)   |
| 5 (5000)                    | 105 (48)  |
| 10 (10,000)                 | 109 (50)  |

Since these hand chain pulls can easily be applied by one person, under no circumstances should more than one person operate the hoist hand chain. Overloading can cause immediate failure of some load carrying parts or result in damage causing future failure at less than rated capacity. When in doubt, use the next larger capacity CM hoist.



## WARNING

Exceeding the rated capacity of the hoist may cause load to fall.

### TO AVOID INJURY:

Do not exceed the hand chain pulls specified in 4 above.

5. Do not wrap load chain around the load or bring the load in contact with the hoist. Doing this will result in the loss of the swivel effect of the hook which could mean twisted chain and a jammed liftwheel. The chain could be damaged at the hook.
6. Stand clear of all loads and avoid moving a load over the heads of other personnel. Warn personnel of your intention to move a load in their area.
7. Do not leave the load in the air unattended.
8. Do not lower the hook to a point where the chain becomes taut between the liftwheel and loose end pin.
9. Do not run the lower hook block into the hoist frame. Frame and/or chain guide damage may result.
10. The hoist has been designed for manual operation only.





## WARNING

Power operation may result in structural damage or premature wear that may cause a part to break and allow the load to fall.

### TO AVOID INJURY:

Operate Series 622 Hoists using hand power only.

11. Do not use this or any other overhead materials handling equipment for lifting persons.
12. Do not allow the load to bear against the hook latch. The latch is to help maintain the hook in position while the chain is slack before taking up slack chain.



## 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.

13. Never operate the hoist when flammable materials or vapors are present. Sharp contact between metal parts can produce sparks that can cause a fire or explosion.
14. STAY ALERT! Watch what you are doing and use common sense. Do not use the hoist when you are tired, distracted or under the influence of drugs, alcohol or medication causing diminished control.

## MAINTENANCE INSPECTION

To maintain continuous and satisfactory operation, a regular inspection procedure must be initiated so that worn or damaged parts can be replaced before they become unsafe. The intervals of inspection must be determined by the individual application and are based upon the type of service to which the hoist will be subjected. The inspection of hoists is divided into two general classifications designated as "frequent" and "periodic".

### Frequent Inspections:

These inspections are usually visual examinations by the operator or other designated personnel. The frequent inspections are to be performed daily or monthly and shall include the following items:

- a. Braking mechanisms for evidence of slippage — daily.
- b. Load Chain for lubricant, wear, damaged links or foreign material — daily. See below.
- c. Hooks for damage, cracks, twists, latch engagement and latch operation — monthly. See below.

Any deficiencies noted are to be corrected before the hoist is returned to service.

### Periodic Inspections:

These are visual inspections by an appointed person who makes records of apparent external conditions to provide the basis for a continuing evaluation. For normal service, the periodic inspections are to be performed yearly and for heavy service, the periodic inspections are to be performed semi-annually.

Due to the construction of the hoist, it will be necessary to partially disassemble the unit to perform the periodic inspections. The periodic inspections are to include those items listed under frequent inspections as well as the following:

- a. Chain for excessive wear or stretch. See below.
- b. Worn, cracked or distorted parts such as hook blocks, hoist hanger, chain guide, stripper, loose end pin, shafts, gears, hook collar and bearings.
- c. Inspect for wear on the tip of the pawl, teeth of the ratchet and pockets of the liftwheel and handwheel.
- d. Loose or missing bolts, nuts, pins or rivets.
- e. Inspect brake components for worn, glazed or contaminated friction discs and scoring of the handwheel hub, ratchet and friction hub. Replace friction discs if the thickness is less than 0.044 in. (1.12 mm) on 1/2 & 1 ton units and 0.059 in. (1.50 mm) on 2, 3, 5 and 10 ton units.
- f. Corroded, stretched or broken pawl spring.
- g. Free movement of the pawl on the pawl stud. Also, apply a thin coat of lubricant to the pawl stud (see page 6) before reassembling the unit.

- h. Hooks — dye penetrant, magnetic particle or other suitable crack-detecting inspections should be performed at least once a year, if external conditions indicate there has been unusual usage.

Any deficiencies noted are to be corrected before the hoist is returned to service. Also, the external conditions may show the need for more detailed inspection which, in turn, may require the use of nondestructive-type testing.

Any parts that are deemed unserviceable 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 possible future use as a repair item and properly disposed of.

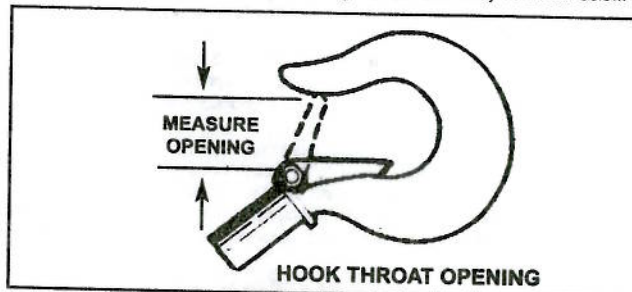
## HOOK INSPECTION

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

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

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

The chart below should be used to determine when the hook must be replaced. To measure throat opening, depress the latch against the hook body as shown below.



| Hoist<br>Rated Load<br>Tons (Kg.) | Replace Hook When<br>Opening is Greater Than: |      |
|-----------------------------------|---|------|
|                                   | Inches  | mm   |
| 1/2 (500)                         | 1.00  | 25.3 |
| 1 (1000)                          | 1.20  | 30.5 |
| 2 (2000)                          | 1.43  | 36.8 |
| 3 (3000)                          | 1.65  | 41.8 |
| 5 (5000)                          | 2.10  | 53.2 |
| 10 (10000)                        | 2.58  | 65.5 |

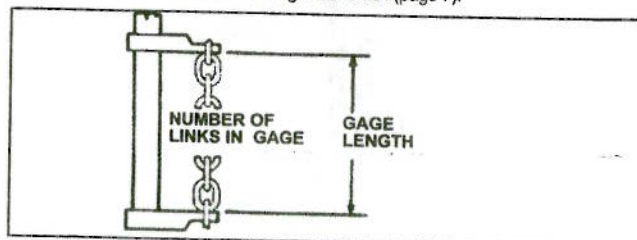
Also, check to make sure that the latch is not damaged or bent and that it operates properly with sufficient spring pressure to keep the latch tightly against the tip of the hook and allow the latch to spring back to the tip when released. If the latch does not operate properly, it should be replaced.

## 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 its entire length and replaced if beyond serviceable limits.

To determine if load chain should be continued in service, check gage lengths as indicated in figure below. Chain worn beyond length indicated, nicked, gouged or twisted should be replaced before returning hoist 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 in section on Reeving Load Chain (page 7).





| Hoist Rated Load Tons (Kg.) | Chain Stock Diameter In. (mm) | No. of Links to Gage | Max. Length Allowable for Used Chain In. (mm) |
|-----------------------------|-------------------------------|----------------------|---|
| 1/2 (500)                   | 0.197 (5)                     | 11                   | 7.031 (178.6)                                 |
| 1 (1000)                    | 0.236 (6)                     | 11                   | 8.531 (216.7)                                 |
| 2-10 (2000-10000)           | 0.394 (10)                    | 11                   | 14.125 (358.7)                                |
| Hand Chain                  | 0.194 (4.9)                   | 15                   | 14.812 (376.2)                                |

Note that worn chain can be an indication of worn hoist components. For this reason, the hoist's chain guide roller and liftwheel should be examined for wear and replaced as necessary when replacing worn chain.

Also, load chains are specially heat treated and hardened and should never be repaired.



## 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 the size requirements and physical properties, use only CM Hoistaloy® load chain in the Series 622 Hand Hoist.

**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.**

Before returning chain to service or after replacing a load chain, 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.

## HAND CHAIN

Hand chain should be cleaned, inspected and gaged in the same manner as load chain.

As received from the factory, the hand chain contains an unwelded link. This link can be placed in a vise and twisted open to facilitate changing chain length. Please note that opening and closing of the connecting link more than twice is not recommended. Also, connecting links must not be made by cutting the weld side of a standard hand chain link.

Hand chain should be assembled to handwheel free from twists with weld on vertical link facing inwards towards handwheel and weld on horizontal link facing towards the handwheel side plate.

Care must be taken to assure that there is no twist in the hand chain loop.

## LUBRICATION




## WARNING

The Lubricants used in and recommended for the Series 622 Hand Hoist may contain hazardous materials that mandate specified handling and disposal procedures.

**AVOID CONTACT AND CONTAMINATION:**

Handle and dispose of lubricants only as directed in applicable material safety data sheets and in accordance with applicable local, state and federal regulations.

Lubricate load chain with a light coat of Lubriplate Bar and Chain Oil 10-R (Fiske Bros. Refining Co.) or equal lubricant. Be sure the lubricant reaches the bearing surfaces between the links. Remove excess oil from the chain.



## WARNING


Used motor oils contain unknown 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.

The hoist normally requires no additional lubrication, except for periodically lubricating the load chain as indicated above or when the unit is disassembled for periodic inspections, cleaning or repairs.

**The brake is designed to operate dry. Do not use any grease or lubricant on the braking surfaces. When lubricating parts adjacent to the brake, do not use an excessive amount of lubricant which could seep onto the brake surfaces.**



## WARNING

Using any grease or lubricant on the braking surfaces will cause brake slippage and loss of load control which may result in injury and/or property damage.

**TO AVOID INJURY:**

Do not use any grease or lubricant on braking surfaces. The brake is designed to operate dry.

When the hoist is disassembled for periodic inspections, check the pawl for free movement and apply a light coat of WD-40 (WD-40 Co.) lubricant to the pawl stud.

When the hoist is disassembled for cleaning or repairs, the following locations should be lubricated using approximately 1 oz. (29.5mL) per hoist of Molykote BR-2-S (Dow Corning Corp.) grease or equivalent—threads of handwheel; gears; liftwheel rollers; gear bearing rollers; journals of chain guide and dead end pin; sheave wheel rollers (3, 5 and 10 ton); hook ball bearings (3 and 5 ton); hook collar journals (3 and 5 ton); dead end stud (3, 5 and 10 ton); bearing surface of hook knob (10 ton); hook block pin (10 ton); and hanger pin (10 ton).

**NOTE: To assure extra long life and top performance, be sure to lubricate the various parts of the hoist using the lubricants specified above. If desired, these lubricants may be purchased from CM. Refer to pages 8 and 10 for information on ordering the lubricants.**

## DISASSEMBLY

Two points of caution to be observed in disassembly are:

1. Loose rollers and bearing balls are used in various locations in the units. Care must be taken so as to not lose or misplace these since they may drop from the unit as the various parts are disassembled. The number of rollers or bearing balls used are:

| Hoist Rated Load Tons (Kg.) | Location     | Rollers Required |
|-----------------------------|--------------|------------------|
| 1/2 (500)                   | Liftwheel    | 33 Each End      |
| 1 (1000)                    | Liftwheel    | 30 Each End      |
| 2-10 (2000-10000)           | Liftwheel    | 35 Each End      |
| 3-5 (3000-5000)             | Sheave Wheel | 29               |
| 3 (3000)                    | Hook         | *15              |
| 5 (5000)                    | Hook         | *16              |
| 10 (10000)                  | Sheave Wheel | 36               |

\*Bearing Balls

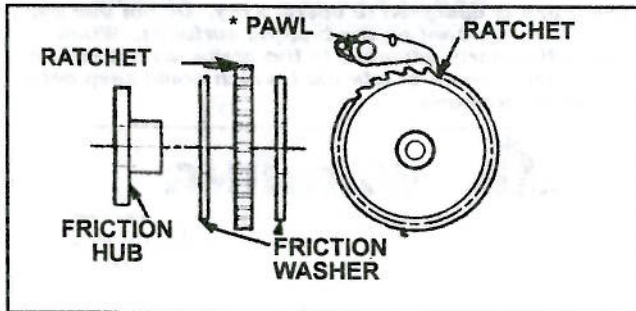


2. The latch is secured to the hook (upper and lower) by a rivet. To remove the latch, it is necessary to remove the head of the rivet by grinding or drilling. For replacement of the latch, refer to paragraph 4 of the Assembly Instructions.

## ASSEMBLY

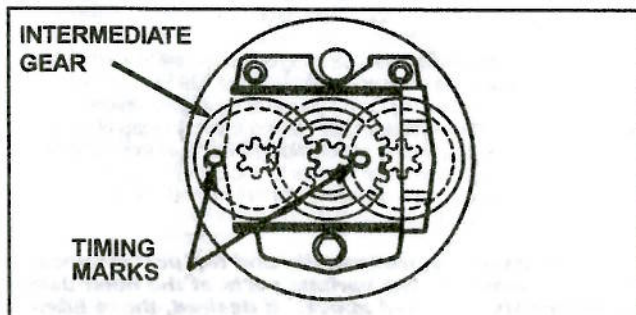
Consideration must be given to the following when assembling the hoist:

1. Assemble the brake components as shown below. The ratchet teeth must face as shown and engage the pawl. Do not lubricate the brake surfaces. The brake operates dry. Assemble handwheel to pinion shaft and turn handwheel to seat brake components. Assemble the pinion shaft nut to the shaft until the nut bottoms. Then back nut off at least one but not more than two flats. Insert cotter pin and bend ends to secure same.



\* 1/2 ton hoist has two pawls 180° apart.

2. The intermediate gears (622-8) have timing marks (letter "O" stamped on one tooth). The gears must be assembled with these marks orientated as shown below.



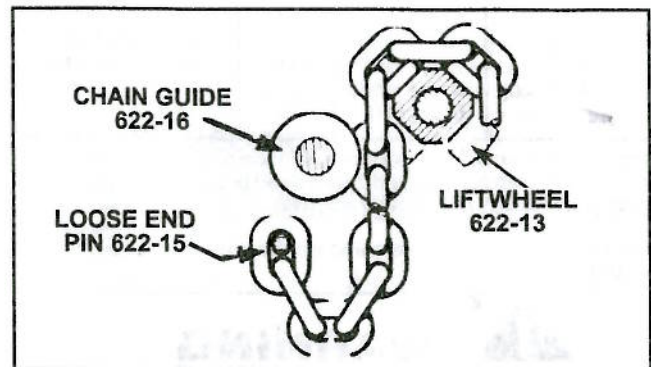
3. For proper operation, the correct number of rollers must be installed at the rotating points of the liftwheel, hook block sheave (3, 5 and 10 ton) and hoist hanger sheave (10 ton). Also, on the 3 and 5 ton units, the correct number of bearing balls must be installed in the hook collar to retain the hook and insure proper loading. Refer to Disassembly Instructions above for the number of rollers at these locations. Applying grease, Molykote BR - 2 - S (Dow Corning Corp.) or equal EP grease, to the rollers or bearing balls will help hold them in position during assembly.
4. When assembling the latch to the hook, the end of the rivet must be peened over. When peening over the rivet, only apply enough force to form the head and retain the rivet. Excessive force will deform the latch and make the latch inoperable.

## REEVING LOAD CHAIN

### A. 1/2, 1, 2, 3, 5 and 10 Ton Hoists

Attach approximately 20" (508mm) of soft wire to the loose end of the chain. Pass the wire over the top of the liftwheel (622-13) and down between the liftwheel and the chain guide (622-16). Position the chain so that the first, as well as the third, link stands on edge with the weld away from the liftwheel and the second link lays flat on the liftwheel. After the chain has been started, pull hand chain in the hoisting direction until about 2 feet (0.6M) of chain has passed over the liftwheel. The wire should now be removed from the chain. Remove the cotter pin from the loose end pin (622-15) and slide the loose end pin to the side into the gear housing, leaving approximately 1/2" (12.7mm) of the pin protruding from the geared side plate (622-5). Loop the chain, making sure there are no twists, up to the loose end pin and slide the pin

through the last link of the chain. Slide the loose end pin into hole in the handwheel side plate (622-4), until the cotter pin hole is visible. Secure the loose end pin by reinstalling the cotter pin and spreading the legs of the cotter pin.



## WARNING

Failure to properly install the load chain between chain guide and liftwheel may cause the chain to lift out of the liftwheel pockets and allow the load to drop.

### TO AVOID INJURY:

Feed load chain between liftwheel and chain guide, as shown above, before attaching it to the loose end pin.

### B. 3 and 5 Ton Hoists

The load chain must have an odd number of links. After attaching the chain to the loose end pin per above, operate in the hoisting direction until the load end of the chain is approximately 5 feet (1.5M) long. Run chain thru the hook block (first link around the sheave must stand on edge) and up to the dead end block (622-26). Secure chain to dead end block using the stud, nut and cotter pin. Refer to illustration below.

### 10 Ton Hoist

The load chain must have an odd number of links. After attaching the chain to the loose end pin per above, operate in the hoisting direction until the load end of the chain is approximately 20 feet (6M) long. Run the chain thru the hook block (first link around the sheave must stand on edge) around the first hook block sheave, up around the hanger sheave, down around the second hook block sheave and up to the hoist hanger. Secure the chain to the hoist hanger using the dead end stud, nut and cotter pin (622-38). Refer to illustration below.



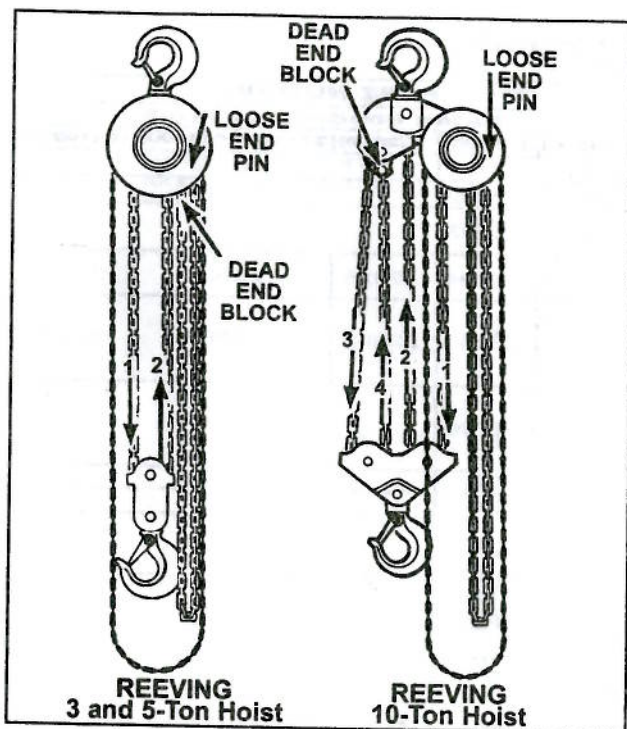
## WARNING

On the 3, 5 and 10 ton units, twisted load chain will cause the chain to jam in the liftwheel or sheave wheels and this may break the chain and allow the load to drop.

### TO AVOID INJURY:

Check each stage of reeving the chain to be sure it has no twists.





## EXTERIOR FINISH

The exterior surfaces of the hoists have a durable, scratch resistant finish. Normally, the exterior surfaces can be cleaned by wiping with a cloth. However, if the finish is damaged, compatible touch-up paint can be purchased from CM. Order one case (12-12 oz.-354mL aerosol cans) of orange touch-up paint Part Number 84190. Touch-up paint is only available in case quantities. See below for ordering information.

## RECOMMENDED SPARE PARTS

To insure continued operation, it is recommended that two friction washers for each Series 622 Hand Hoist in service, Key No. 622-39, be kept on hand at all times to replace friction washers that are worn, contaminated or glazed. See below for ordering information.

## PREVENTIVE MAINTENANCE

In addition to the periodic inspection procedure, a preventive maintenance program should be established to prolong the useful life of the hoist and maintain its dependability 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.

## TESTING

Before using, all altered, repaired or used hoists that have not been operated for the previous 12 months should be tested by the user for proper operation. First, test the unit without a load and then with a light load of 50 pounds (23Kg.) times the number of load supporting chains to be sure that the hoist operates properly and that the brake holds the load when the hand chain is released. Next test with a load of 125% of rated capacity. In addition, hoists in which load sustaining parts have been replaced should be tested with 125% of rated capacity by or under the direction of an appointed person and written report prepared for record purposes.

**NOTE: For additional information on inspection and testing, refer to Code B30.16 "Overhead Hoists" obtainable from ASME Order Department, 22 Law**

## ORDERING INFORMATION

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

1. Hoist Capacity
2. Serial Number -- stamped on the capacity label.

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.

Parts should be ordered from CM's Master Parts Depots conveniently located throughout the United States and Canada. Refer to the inside of the front cover of this manual to locate the Master Parts Depot nearest you.



## WARNING

Using "commercial" or other manufacturer's parts to repair the CM Series 622 Hoist 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.



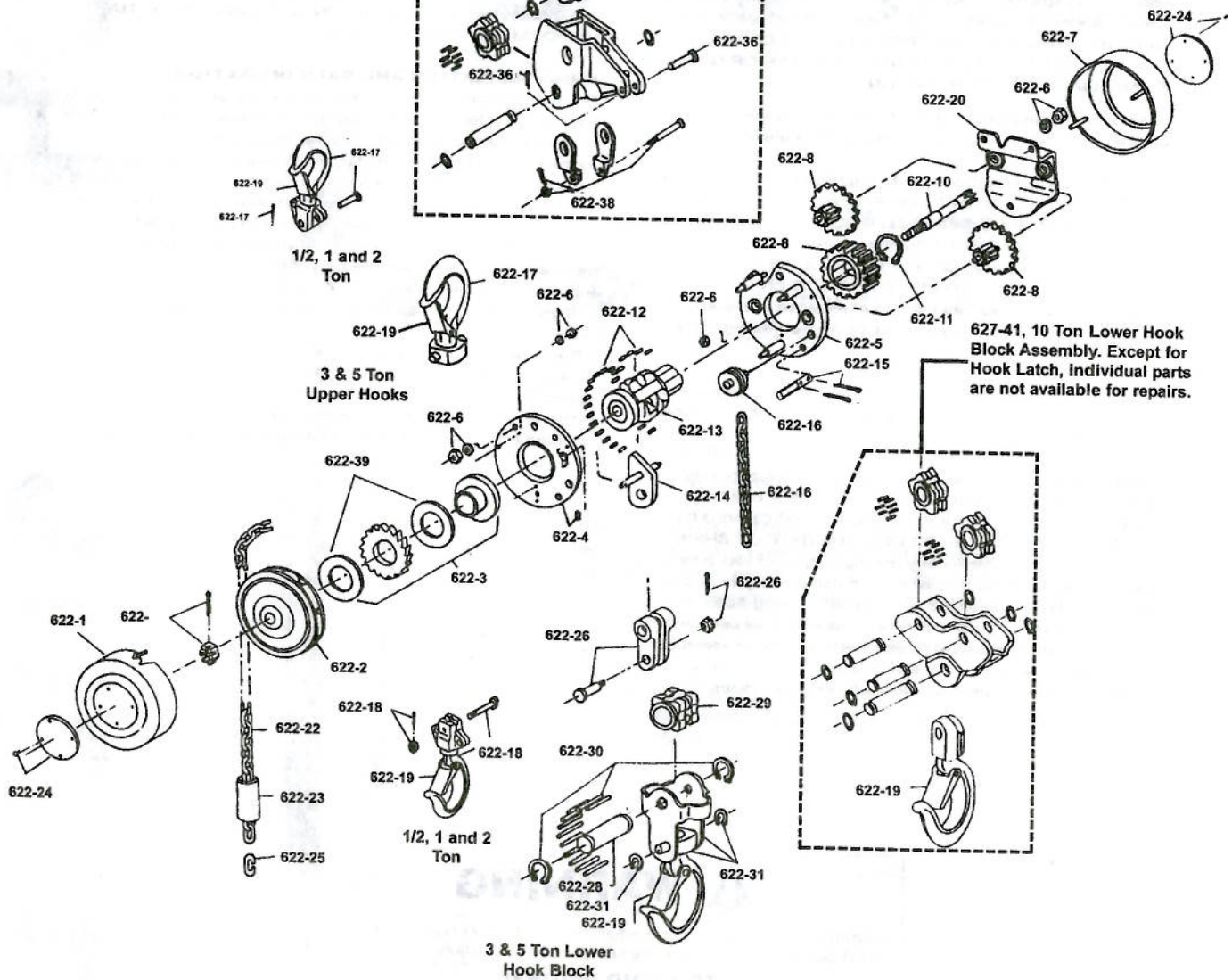
# **SERIES 622 HAND HOIST PARTS LIST**

| KEY NO. | NO. REQ'D | PART NUMBER  | PART NUMBER           |          |          |          |          |            |
|---------|-----------|--|-----------------------|----------|----------|----------|----------|------------|
|         |           |  | Rated Load—Tons (Kg.) |          |          |          |          |            |
|         |           |  | 1/2 (500)             | 1 (1000) | 2 (2000) | 3 (3000) | 5 (5000) | 10 (10000) |
| 622-1   | 1         | Handwheel Cover with Studs   | 22910                 | 22791    | 22812    |          |          |            |
| 622-2   | 1         | Handwheel  | 22911                 | 22792    | 22813    |          |          |            |
| 622-3   | 1         | Brake Set (2 Friction Washers, Ratchet and Hub)  | 22912                 | 22793    | 22814    |          |          |            |
| 622-4   | 1         | Handwheel Side Plate (includes Bearing Race, Pawl and Pawl Spring)   | 22913                 | 22794    | 22925    | 22931    |          | 22935      |
| 622-5   | 1         | Geared Side Plate (includes Bearing Race, 2 Bushings and 3 Studs)  | 22914                 | 22261    | 22262    | 22263    |          | 22936      |
| 622-6   | 1         | Main Hardware Set (2 Gear Cover Nuts, 3 Handwheel Cover Nuts and Lockwashers, 6 Side Plate Nuts and Lockwashers)   | 22775                 | 22796    | 22817    |          |          |            |
| 622-7   | 1         | Gear Cover with Studs  | 22915                 | 22797    | 22818    |          |          |            |
| 622-8   | 1         | Gear Set   | 22916                 | 22798    | 22819    |          |          |            |
| 622-10  | 1         | Pinion Shaft   | 22917                 | 22800    | 22821    |          |          |            |
| 622-11  | 1         | Pinion and Liftwheel Hardware Kit (Pinion Shaft Nut, Cotter Pin and Liftwheel Snap Ring)   | 22918                 | 22801    | 22822    |          |          |            |
| 622-12  | 1         | Liftwheel Roller Kit (66 Rollers for 1/2 Ton, 60 Rollers for 1 Ton, 70 Rollers for 2, 3, 5 and 10 Ton)   | 22781                 | 22802    | 22823    |          |          |            |
| 622-13  | 1         | Liftwheel (includes 2 Bearing Races)   | 22919                 | 22803    | 22824    |          |          |            |
| 622-14  | 1         | Stripper   | 22920                 | 22804    | 22825    |          |          |            |
| 622-15  | 1         | Loose End Pin (includes 2 Cotter Pins)   | 22921                 | 22805    | 22927    |          |          |            |
| 622-16  | 1         | Chain Guide Roller   | 22922                 | 22806    | 22827    |          |          |            |
| 622-17  | 1         | Upper Hook Assembly (includes Hook with Latch, Hook Block, Clevis Pin and Cotter Pin for 1/2, 1 and 2 Ton; Hook with Latch, Hook Block, Bearing Balls and Set Screw for 3 and 5 Ton) | 22923                 | 22807    | 22830    | 22836    | 22847    | —          |
| 622-18  | 1         | Lower Hook Assembly (includes Hook with Latch, Hook Block, Screw, Nut and Cotter Pin)  | 22787                 | 22808    | 22831    | —        | —        | —          |
| 622-19  | 2         | Latch Kit (Latch, Spring and Rivet)  | 22928                 | 22929    | 22930    | 22933    | 22934    | 22937      |
| 622-20  | 1         | Gear Cage with Bushings  | 22924                 | 22264    | 22265    |          |          |            |
| 622-21  | -         | Load Chain (Specify Lift or Length Required.)  | 85834                 | 85959    | 85960    |          |          |            |
| 622-22  | -         | Hand Chain (Specify Lift or Length Required.)  | 85832                 |          |          |          |          |            |
| 622-23  | 1         | Warning Tube   | 946735                |          |          |          |          |            |
| 622-24  | 1         | Label Set (Capacity and Warning Labels and 8 Drive Screws)   | 22603                 | 22604    | 22608    | 22609    | 22610    | 22611      |
| 622-25  | 1         | Hand Chain Connecting Link   | 661019                |          |          |          |          |            |
| 622-26  | 1         | Dead End Kit (includes 2 Anchor Plates, Stud, Nut and Cotter Pin)  | —                     | —        | —        | 22839    |          | —          |
| 622-28  | 1         | Sheave Shaft   | —                     | —        | —        | 22841    |          | —          |
| 622-29  | 1         | Sheave Wheel   | —                     | —        | —        | 22842    |          | —          |
| 622-30  | 1         | Sheave Shaft Hardware Kit (29 Rollers and 2 Snap Rings)  | —                     | —        | —        | 22843    |          | —          |
| 622-31  | 1         | Lower Hook Assembly (includes Hook Block, Hook with Latch, Bearing Balls, Set Screw and 2 Snap Rings)  | —                     | —        | —        | 22844    | 22850    | —          |
| 622-36  | 1         | Hoist Hanger Kit (Hanger Pin and 2 Cotter Pins)  | —                     | —        | —        | —        | —        | 22864      |
| 622-38  | 1         | Dead End Kit (Stud, Nut and Cotter Pin)  | —                     | —        | —        | —        | —        | 22866      |
| 622-39  | 2         | Friction Washer  | 22867                 | 22868    | 22869    |          |          |            |
| 622-40  | 1         | Hoist Hanger Assembly (includes Hanger, Sheave Wheel, Hook with Latch, Hook Block, Dead End Anchor, Shafts and Snap Rings)   | —                     | —        | —        | —        | —        | 22938      |
| 622-41  | 1         | Lower Hook Block Assembly (includes Hook Block, Hook with Latch, Sheave Wheels, Shafts and Snap Rings)   | —                     | —        | —        | —        | —        | 22939      |



622-40, 10 Ton Hoist Hanger Assembly. Except for Latch Kit, Hoist Hanger Kit and Dead End Kit, individual parts are not available for repairs.

**NOTE: Metric Tools Required for Fasteners.**



### Series 622 Hand Hoist Exploded View

| PART NUMBERS FOR PACKAGED LUBRICANTS<br>Used in the Series 622 Hand Hoists<br>(Refer to page 6 for Lubrication Instructions) |  |  |
|--|--|--|
| Lubricant Usage  | Type of Lubricant                                | Part Numbers and Packaged Quantities of Lubricants       |
| Gears, Rollers of Liftwheel and Gear Bearings  | Grease (Molykote BR-2-S or Equal)                | 28606 - 1/2 lb.(.23Kg.) can<br>28618 - 1 lb.(.46Kg.) can |
| Pawl Stud  | Oil (WD-40 or Equal)                             | Obtain locally—not stocked by CM                         |
| Load Chain   | Oil (Lubriplate Bar and Chain Oil 10-R or Equal) | 28608 - 1 pint (.5L) can<br>28619 - 1 gal.(3.8L) can     |



Note: When ordering parts, always furnish rated load and serial number of hoist on which the parts are to be used.

To quickly obtain the name of the Master Parts Depot or Service Center located nearest you, call (800) 888-0985. Fax: (716) 689-5644.

## **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.

## **WARNING**

Alterations or modifications of equipment and use of non-factory repair parts can lead to dangerous operation and injury.

### **TO AVOID INJURY:**

- Do not alter or modify equipment.
- Do use only factory replacement parts.



**Columbus McKinnon Corporation • Industrial Products Division • 140 John James Audubon Parkway  
Amherst, New York 14228-1197 • 1-800-888-0985 • Fax 716-689-5644**



### CERTIFICATE of TEST

|               |               |
|---------------|---------------|
| Model Number  | 2216          |
| Serial Number | 1418 UF - B   |
| Capacity      | 0.5 T x 12 TF |
| Test Load     | 0.63 T        |
| Lift          | 500 mm        |
| Date of Test  | 2010年 6月 /    |
| Inspector     | 檢 7           |

This is to certify that this unit has been tested with the stated proof load and examined by a competent person. The rated capacity stated on the hoist is the maximum permissible working load and should not be exceeded. See manual for safe operation instruction





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**1-800-888-0985**

**Fax: 716-689-56454**



Manufactured in China