Rated Loads:
3/4, 1½ and 3 ton
(750, 1500 and 3,000 kg.)
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.

Capacidades de Carga:
3/4, 1½, y 3 toneladas
(750, 1500 y 3000 kg.)
Siga todas las instrucciones y
 advertencias para inspeccionar,
mantener y operar este polipasto.

El uso de cualquier polipasto presenta
algunos riesgos de daños a las personas o
a las cosas. Este riesgo se ve
incrementado si no se siguen
correctamente las instrucciones y
 advertencias. Antes de usar el polipasto
el operario debería estar familiarizado
con todas las advertencias, instrucciones y
recomendaciones de este manual.
Guarde este manual para futuras
consultas.

Entregue este manual al operario. Si el
equipo no se maneja tal y como se
recomienda en el presente manual, es
 posible que se produzcan situaciones de
peligro que pueden resultar en daños
personales.

Charges nominales:
3/4, 1½ et 3 tonnes
(750, 1500 et 3000 kg.)
Veuillez vous conformer à toutes les
instructions et avertissements
d’inspection, d’entretien et d’opération
de ce palan.

L’utilisation de tout appareil de levage
comporte des risques de blessures ou de
dégâts matériels. Ces risques sont de
beaucoup accru si les instructions et
avertissements ne sont pas suivis.Tous
les opérateurs devraient se familiariser
Complètement avec toutes les
recommandations Instructions et
avertissements de ce manuel avant
d’utiliser ce palan. Conservez ce
manuel pour utilisation et référence
future.

Remettre ce manuel à l’opérateur.
L’utilisation de cet équipement
contrairement aux directives de ce
manuel peut causer des blessures.
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.

LAS PIEZAS Y REPARACIONES DE LOS POLIPASTOS DE CM ESTÁN ASEGURADAS EN ESTADOS UNIDOS Y CANADÁ

Como usuario de un polipasto y carro de CM le aseguramos cualquier reparación o la disponibilidad de cualquier pieza de repuesto a través de una red de almacenes de piezas de repuesto y centros de servicio situados estratégicamente en Estados Unidos y Canadá. Estas instalaciones se han seleccionado en base a su capacidad demostrada en la reparación de equipos y suministro de piezas de repuesto de forma rápida y eficaz. Para obtener la dirección del almacén de piezas de repuesto o del centro de servicio más cercano, llame al teléfono (800) 888-0985. Fax: (716) 689-5644 (sólo en Estados Unidos y Canadá).

LE SERVICE DE RÉPARATION ET DE PIÈCES POUR PALANS CM EST DISPONIBLE AUX ÉTATS-UNIS ET AU CANADA

Soyez assurés qu’en temps d’utilisateur de palan et treuil CM, d’un service de réparation et de pièces fiable par l’entremise d’un réseau de Centres de service et de Dépôts de pièces maîtresses qui sont stratégiquement situés aux États-Unis et au Canada. Ces établissements ont été sélectionnés sur une base de leur habileté démontrée à s’occuper promptement et efficacement des besoins de réparation de pièces. Appelez le (800) 888-0985. Fax: (716) 689-5644 pour obtenir rapidement le nom du dépôt de pièces maîtresses ou du centre de service situé le plus près.
**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 manual.
3. NOT operate a hoist which has been modified without the manufacturer's approval or certification to be in conformity with applicable OSHA regulations.
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 supported load.
11. NOT attempt to lengthen the load chain or repair damaged load chain.
12. Protect the hoists load chain from weld splatter or other damaging contaminants.
13. NOT operate a 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 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 chain or hook to be used as an electrical or welding ground.
21. NOT allow the 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 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 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. Avoid lever “fly-back” by keeping a firm grip on the lever until operating stroke is completed and lever is at rest.
8. Inspect the hoist regularly, replace damaged or worn parts, and keep appropriate records of maintenance.
9. Use Columbus McKinnon parts when repairing the unit.
10. Lubricate load chain as recommended in this manual.
11. NOT operate except with manual power.
12. NOT permit more than one operator to pull on lever 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.

The hoists are intended for general industrial use for moving loads within their load ratings. Prior to installation and operation, the user should review the application for abnormal environmental or handling conditions.

**GENERAL SAFETY INFORMATION**

**ADVERSE ENVIRONMENTAL CONDITIONS**

Do not use the hoists in areas containing flammable vapors, liquids, gasses or any combustible dust or fibers. Do not use the hoist in highly corrosive, abrasive, wet environments or in applications involving exposure to temperatures below -10 or above 130°F.

**MOVING HAZARDOUS LOADS**

The hoists are not recommended for lifting materials that could cause widespread damage if dropped. The lifting or moving of materials that could explode or cause chemical or radioactive contamination requires fail-safe, redundant supporting devices that are not incorporated into these hoists.
Description
Series 653 Hand Operated Lever Hoists are highly versatile tools that can be used in any position to efficiently pull, lift, drag or stretch. The frame, covers and lever are made from steel stampings. The gears are heat treated steel, upper and lower hooks are forged steel and the chain is heat treated, welded link type.

Hoist with load ratings of 3/4, 1½ and 3 ton are available and this manual applies to all of these units. The hoists are available with 5, 10, 15 and 20 foot long chains.

Hooks with latches are standard on all units.

Series 653 Hand Operated Lever Hoists are built in accordance with the specification contained herein and at the time of manufacture complies with the applicable sections of the American Society of Mechanical Engineers (ASME) Standard B30.21: Manually Operated Lever Hoists.

Specifications

![Diagram of lever hoist]

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Load Rating (Tons)</th>
<th>Lift or Reach (Ft.)</th>
<th>Lever Pull To Lift Rated Load (Lbs.)</th>
<th>Net Weight (Lbs.)</th>
<th>Dimensions (in.)</th>
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<tr>
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<td></td>
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</tr>
<tr>
<td>5311</td>
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<td>10</td>
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</tr>
<tr>
<td>5312</td>
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<td>15</td>
<td></td>
<td>16.6</td>
<td></td>
</tr>
<tr>
<td>5313</td>
<td>20</td>
<td></td>
<td></td>
<td>17.3</td>
<td></td>
</tr>
<tr>
<td>5315</td>
<td>1½</td>
<td>5</td>
<td>51</td>
<td>27.0</td>
<td></td>
</tr>
<tr>
<td>5316</td>
<td>1½</td>
<td>10</td>
<td>51</td>
<td>31.4</td>
<td>14 7/16 1 1/8 1 1/4 13/16 16 1/4 4 1/4 2 1/8 2 1/8 6 7/8 3 3/16</td>
</tr>
<tr>
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<td>15</td>
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</tr>
<tr>
<td>5318</td>
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<td></td>
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</tr>
<tr>
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<td>3</td>
<td>5</td>
<td>77</td>
<td>45.0</td>
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</tr>
<tr>
<td>5321</td>
<td>3</td>
<td>10</td>
<td></td>
<td>52.3</td>
<td>18 7/16 1 1/16 1 1/16 1 1/4 16 1/4 7 1/2 3 1/4 4 1/16 7 1/8 3 1/8 4 1/16</td>
</tr>
</tbody>
</table>
Unpacking
After unpacking the hoist, inspect carefully for any damage that may have occurred during transit. Check for loose, missing or damaged parts. Shipping damage claims must be filed with carrier. The hoist is supplied completely assembled and ready to use.

CM® REPAIR/REPLACEMENT POLICY

All Columbus McKinnon (CM®) Series 653 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 CM® Series 653 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 Acknowledgement. Also, refer to the back cover for Limitations of Warranties, Remedies and Damages, and Indemnification and Safe Operation.

Installation
Before installing the hoist:
1. Estimate the weight of the load that is to be lifted or moved and make sure it does not exceed the rated load of the hoist.
2. Make sure the support or sling to which the upper hook is attached is strong enough to hold several times the weight of the load to be lifted or moved. Be sure the hoist is solidly held in the uppermost part of the upper hook and the latch is closed and not in contact with the support or sling.
3. The area in which the hoist is installed must provide sufficient room for:
   - The operator to operate the lever.
   - The operator and other personnel to stand clear of the load at all times.
   - Firm footing for the operator.

   - Clearance between the hoist frame and any object. The frame must be free to swivel on the upper hook.

   - Clearance of the load chain.

   - Clearance of the hoist from any other equipment operating in the area.

Operation

WARNING
Attaching the hoist from an inadequate support may allow the hoist and load to fall and cause injury and/or property damage.

TO AVOID INJURY:
Make sure the structure has sufficient strength to hold several times the hoist weight and its rated load.

FREE CHAINING
In this mode of operation, the chain can be pulled through the hoist in either direction by hand for quick attachment to the load.

TO AVOID INJURY:
Always have a firm and secure footing when using the Series 653 Hand Operated Lever Hoist.

FREE CHAINING
In this mode of operation, the chain can be pulled through the hoist in either direction by hand for quick attachment to the load.

TO AVOID INJURY:
Always have a firm and secure footing when using the Series 653 Hand Operated Lever Hoist.

GENERAL
1. The hoist must be kept clean to assure proper operation. Before use, check to be sure the load chain is clean, that there is no foreign material in the liftwheel area and that the lever operates freely.
2. 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.
3. Do not use this hoist or any other material handling equipment for lifting or moving people, or lifting loads over people.
4. Stand clear of all loads and warn other people of your intention to move a load in their area.
5. Do not leave a load on the unit unattended.
6. Read warnings and instructions on the hoist before each use.
7. Do not hold the load chain while operating the hoist. Should the hoist not operate properly, serious injury may occur.
8. Never operate the hoist when flammable materials or vapors are present. Contact between metal parts may produce sparks that can cause a fire or explosion.
9. 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.

WARNING
Malfuction of unit, rigging slip or loss of footing may cause user to slip resulting in injury.

TO AVOID INJURY:
Always have a firm and secure footing when using the Series 653 Hand Operated Lever Hoist.
Operation (Continued)

Figure 3 - Main Parts of Lever Hoist

Turn the free chaining knob counterclockwise (↺) to disengage the brake and pull on either chain until the lower hook is at the desired position. To disengage the free chaining feature, move the directional lever to the load (↑) or unload position (↓). Pull the load chain in either direction to insure the unit is out of the free chaining mode. Do not take up the load chain to the point where the chain stop or lower hook block becomes jammed against the frame.

ATTACHING THE LOAD

Attach the lower hook to the load so that it is seated in the bowl of the hook and is not bearing against the tip of the hook or latch, and the latch is tight against the hook tip.

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 pull 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 4).

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.

Do not wrap the chain around the load and hook onto itself as a choker chain sling 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 cause twisted chain and a jammed liftwheel. Also, the chain may be damaged at the hook. Make sure the upper and lower hooks are in a straight line and the frame is free to swivel on the upper hook.

TO PULL OR LIFT LOAD

Move directional lever to load (↑) position. Operate lever in up and down motion to shorten the distance between hooks and thus pull or lift the load.

When pulling or lifting move the load only enough to slightly load the unit, then check to be sure that the attachments to the hooks and load are firmly seated. Continue movement only after you are assured the load is free of all obstructions.

The hoist has been designed for hand powered operation only. Do not use an extension on the lever. Lever pulls of 33 pounds on 3/4 ton unit, 51 pounds on 1½ ton unit and 77 pounds on the 3 ton unit will result in rated capacity on the unit. Any greater pull is an indication of either an overload or an incorrectly maintained unit.

Figure 4 - Pulling at an Angle

TO LOOSEN OR LOWER LOAD

Move directional lever to unload (↓) position. Again, operate lever in an up and down motion to increase the distance between hooks and thus loosen or lower the load.

LOCKED BRAKE

If a hoist which is under load is suddenly relieved of the load by lifting the load off of the lower hook by some other means or pulling down walls, the brake will lock.

The brake will also lock if the lower hook block is pulled tightly against the frame.

To unlock the brake, turn the directional lever to the unload (↓) position and pull on the lever sharply.

WARNING

Turning the Free Chaining Knob with a load attached will allow the load to release and may cause injury.

TO AVOID INJURY:

Never turn the Free Chaining Knob when the lever hoist is under load.
1. Braking mechanism for evidence of

include:

or before each use and they are to

inspections are to be performed daily

examinations by the operator. Frequent

These inspections are usually visual

“frequent” and “periodic”.

The inspections are divided into two

sections.

WARNING

Use as directed above. Failure to do so

may cause injury to you or others.

1. DO NOT exceed capacity shown on

nameplate.

2. DO NOT use to lift people or loads over

people.

3. DO NOT use unless the hoist’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.

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 is

subjected. The intervals indicated as

follows are based on normal service.

The inspections are divided into two

general classifications designated as

“frequent” and “periodic”.

FREQUENT INSPECTIONS

These inspections are usually visual

examinations by the operator. Frequent

inspections are to be performed daily

or before each use and they are to

include:

1. Braking mechanism for evidence of slippage.

2. Operation of the directional lever for free movement.

3. Load chain for lubricant, wear, damaged links or foreign material.

4. Hooks for damage, cracks, twists, latch engagement and latch operation.

PERIODIC INSPECTIONS

These are visual inspections of external and internal conditions by a designated

person making records to provide the basis for continuing evaluation of the

condition of the hoist. The periodic inspection should include those items

listed under frequent inspection as well as the following:

1. Chain for excessive wear or stretch (See Figures 6 and 7, page 6) - every three months.

2. Worn, cracked or distorted parts such as lower hook block, upper hook block, upper hook pin, chain guide rollers, bushings, lever, brake cover, free chaining knob, directional pawl, friction hub and lever ratchet - every three months.

3. Inspect for wear on the tip of the pawls, teeth of the ratchet, and pockets of the liftwheel - every three months.

4. Loose or missing bolts, nuts, pins or rivets - every three months.

5. Inspect the brake components for worn, glazed or contaminated friction discs and scoring of the friction hub and ratchet. Replace friction washers if contaminated, glazed or if thickness is less than 0.094 in. (2.4 mm) - every three months.

6. Corroded, stretched or broken pawl springs, directional lever pawl spring and lever ratchet spring - every three months.

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

8. Nameplate and Warning Labels for legibility and retension-every three months.

9. Chain stop in place and properly secured - every three months.

Any deficiency should 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 non-destructive type testing.

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

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.

HOOK INSPECTION

Hooks damaged from chemicals, deformations or cracks, or that have more than a 10" twist from the plane of the unbent hook, excessive opening or seat wear, must be replaced. Also, hooks that are opened to the extent that the latch does not engage the tip must be replaced. Any hook that is twisted or has excessive throat opening indicates abuse or overloading of the hoist. Other load sustaining parts should be inspected for damage.

Figure 5 - Hook Inspection

<table>
<thead>
<tr>
<th>Hoist Capacity (Tons)</th>
<th>Replace Hook When Opening is Greater Than: (in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/4</td>
<td>1 1/4</td>
</tr>
<tr>
<td>1 1/2</td>
<td>1 1/6</td>
</tr>
<tr>
<td>3</td>
<td>1 2/3</td>
</tr>
</tbody>
</table>

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

The chart above should be used to determine when the hook must be replaced.

LOAD CHAIN

Chain should feed smoothly into and away from the hoist. If chain binds, jumps or is noisy, first clean and lubricate it (See Page 6). If trouble persists, inspect chain and mating parts for wear, distortion or other damage.
Maintenance (Continued)

CHAIN INSPECTION

First clean chain with a non-caustic/ non-acid type solvent and make a link by link inspection for nicks, gouges, twisted links, weld spatter, corrosion pits, striations (minute parallel lines), cracks in weld areas, wear and stretching. Chain with any of these defects must be replaced.

**WARNING**

Using other than Series 653 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 Series 653 supplied load chain in the Series 653 Lever Hoist.

Note that worn chain can be an indication of worn hoist components. For this reason, the hoist’s frame, stripper, and liftwheel should be examined for wear and replaced as necessary when replacing worn chain (See DISASSEMBLY and ASSEMBLY below).

Also, the load chain is specially heat treated and hardened and should never be repaired.

**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.

CHAIN LUBRICATION

A small amount of lubricant will greatly increase the life of load chain. Do not allow the chain to run dry. Keep it clean and lubricate at regular intervals with Lubriplate® Bar and Chain Oil 10-R (Fiske Bros. Refining Co.) or equal lubricant.

Normally, weekly lubrication and cleaning is satisfactory, but under hot and dirty conditions, it may be necessary to clean the chain at least once a day and lubricate it several times between cleanings.

When lubricating the chain, apply sufficient lubricant to obtain natural run-off and full coverage, especially in the interlink area.

**WARNING**

Used motor oils contain known carcinogenic materials.

**TO AVOID INJURY:**

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.

Hoist normally requires no additional lubrication except when it had been disassembled for cleaning or repairs.

**IMPORTANT:** 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 cleaning or repairs, the following locations should be lubricated with approximately 1 oz. per hoist of Molykote BR-2-S (Dow Corning), Molytex #2 (Texaco) or TopMoly (Topsal) grease or equal lubricant: gears, rollers of the liftwheel bearing, exterior of pinion shaft, surfaces of frame bushings and surface of gear cover bushings. Be sure to thoroughly clean the old grease from these parts before re-lubricating.

**IMPORTANT:** To insure long life and top performance, be sure to lubricate the various parts of the hoist using the lubricants specified above. If desired, these lubricants can be purchased from Columbus McKinnon (See Figure 13, page 8).

DISASSEMBLY AND ASSEMBLY

The parts illustration and list on pages 12 and 13 show the general arrangement and name of the parts of the Series 653 Lever Hoist. These should be used when disassembling and re-assembling the units so that all parts are properly installed.

DISASSEMBLY

Points of caution to be observed upon disassembly of the hoist are:

1. Loose rollers are used for the liftwheel bearing, (refer to parts list for number required). Care must be taken so as to not loose or misplace these rollers since they may drop from the unit as the various parts are disassembled.
Maintenance (Continued)

2. To replace the liftwheel or stripper, completely disassemble the unit: remove the chain (See REPLACING LOAD CHAIN, page 7) and then remove the brake nut, cotter pin and spacer (19), free chaining knob (17), lever (16), check washer (18), lever ratchet (33), brake cover (14), friction discs (12), ratchet (13), spring (6) and friction hub (11). On the gear side, remove the gear cover (8), gears (5) and pinion (7). Remove snap ring and liftwheel gear (23). Being careful not to loose the rollers, remove the side plate assembly (1). Slide the liftwheel (22) out of the side plate (2), being careful not to loose the rollers. The stripper (4) can also be removed now.

Prior to re-assembly, check all parts for excessive wear, cracks and distortion. Replace parts as necessary and then re-assemble the unit in reverse to the order given above, making sure to install the chain guide rollers (10) and upper hook (25) and pin (26). After assembly, install the chain (See REPLACING LOAD CHAIN, page 7) and then test the unit (See TESTING, page 8).

3. 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 the replacement of the latch, refer to the paragraphs under assembly instructions.

ASSEMBLY:

1. Thread the friction hub (11) onto the pinion shaft (7) and assemble the friction discs and the ratchet on the friction hub (See Figure 8).

Place the check washer (18) on the pinion shaft so that there is 0.094 to 0.312 inches (2 to 8 mm) between the edge of the check washer and the raised stop on the lever ratchet hub (See Figure 9).

![Figure 9 - Position of Check Washer](image)

**Figure 9 - Position of Check Washer**

Make sure the directional lever is in the neutral (“N”) position and the pawl, spring and shaft (20) are in the lever assembly (16), attach the lever assembly to the brake cover (14) using the two locknuts, screw and lockwasher (15). Place the free chaining knob (17) on the lever ratchet hub (33). Place the spacer (19) over the pinion shaft, thread the brake nut (19) onto the pinion shaft, and firmly tighten the nut. Back off the nut one to two flats and insert the cotter pin (19). Bend the legs of the cotter pin to secure.

2. When assembling the latch to the hook, the end of the rivet must be peened over. When peening over rivet, only apply enough force to form a head to retain the pin. Excessive force will deform the latch and make the latch inoperable.

3. When assembling the gears, they must be orientated with the timing marks aligned (See Figure 10).

![Figure 10 - Gear Timing](image)

**Figure 10 - Gear Timing**

REPLACING LOAD CHAIN

To replace the load chain, remove the lower hook block and chain stop from the chain. Move the directional lever to the neutral “N” and pull the old chain out of the hoist. Feed a length of soft wire through one side of the chain guide roller and over the liftwheel until it comes out on the other side of the chain guide roller. Attach the wire to the end of the new chain. Position the chain so that the first link to enter the chain guide roller will be an upstanding link and the welds on all upstanding links will be away from the liftwheel.

Pull on the wire until the chain engages the liftwheel. Turn the free chaining knob, while pulling on the wire, until the chain comes out of the chain guide roller. Pull the chain through and remove the wire. Attach the lower hook block to the chain that is directly below the upper hook. Attach the chain stop to the other end of the chain.

![Figure 11 - Chain Installation](image)

**Figure 11 - Chain Installation**

**WARNING**

Alterations or modifications of equipment and use of any parts other than Series 653 repair parts can lead to dangerous operation and injury.

**TO AVOID INJURY:**

Do not alter or modify equipment. Do use only Series 653 provided replacement parts.

**RECOMMENDED SPARE PARTS**

To insure continued operation, it is recommended that two friction discs (12) for each Series 653 lever hoist in service, be kept on hand at all times to replace friction washers that are worn, contaminated or glazed.
Maintenance (Continued)

PREVENTATIVE MAINTENANCE

In addition to the inspection procedures, a preventative 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 (See Figure 13).

TESTING

Prior to initial use, all repaired or used hoists that have not been operated for the previous 12 months shall be tested by the user for proper operation. Test the unit first in the unloaded state and then with a light load of 100 pounds (45 kg.) times the number of load supporting parts of load chains to be sure it operates properly and the brake holds the load when the lever is released; then test with a load of 125% of rated capacity.

In addition, hoists in which load sustaining parts have been replaced must be tested with 125% of rated capacity by or under the direction of a designated person and a written report prepared for record purposes.

NOTE: For additional information on Inspection and Testing refer to ASME B30.21 “Manually Lever Operated Hoists” obtainable from ASME Order Department, 22 Law Drive, Box 2300, Fairfield, NJ 07007-2300, U.S.A.

---

**INSPECTOR’S REPORT**

<table>
<thead>
<tr>
<th>ITEM</th>
<th>REMARKS (LIST DEFICIENCIES AND RECOMMENDED ACTION)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Inspector’s Signature Date Inspected Approved by Date

**Figure 12 — Recommended Inspector’s Report**

---

**RECOMMENDED LUBRICATION SCHEDULE**

**SERIES 653 HAND OPERATED LEVER HOISTS**

<table>
<thead>
<tr>
<th>REFERENCE NO. (SEE PAGES 12 &amp; 13)</th>
<th>COMPONENT</th>
<th>TYPE OF LUBRICANT</th>
<th>ORDER PART NO.</th>
<th>TYPE OF SERVICE AND FREQUENCY OF LUBRICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>32</td>
<td>Load Chain</td>
<td>Oil (See Page 6)</td>
<td>28619</td>
<td>Daily</td>
</tr>
<tr>
<td>5, 1, 8, 24 &amp; 7</td>
<td>Gears, Bushings, Liftwheel rollers &amp; Pinion shaft</td>
<td>Grease (See page 6)</td>
<td>28618 (1 lb. can)</td>
<td>When hoist is disassembled for cleaning or repairs</td>
</tr>
</tbody>
</table>

(*) This lubrication schedule is based on a hoist operating in normal environment conditions. Hoists operating in adverse atmospheres containing excessive heat, corrosive fumes or vapors, abrasive dust, etc., should be lubricated more frequently.

**Figure 13 — Recommended Lubrication Schedule**
## Maintenance (Continued)

**INSPECTION AND MAINTENANCE CHECK LIST**  
**HAND OPERATED LEVER HOIST**

<table>
<thead>
<tr>
<th>Item</th>
<th>Frequency of Inspection</th>
<th>Possible Deficiencies</th>
<th>OK</th>
<th>Action Required</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Brake Mechanism</strong></td>
<td>*</td>
<td>Slippage or excessive drift. Worn, glazed or contaminated friction discs. Thickness of discs less than 0.094 inches.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Directional Lever</strong></td>
<td>*</td>
<td>Binding and does not move freely.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Load Chain</strong></td>
<td>*</td>
<td>Inadequate lubrication, excessive wear or stretch, cracked damaged or twisted links, corroded or clogged with foreign material.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Hooks</strong></td>
<td>*</td>
<td>Excessive throat opening, twisted more than 10 º, damaged or non-operating hook latch, chemical damage. Cracks (Use dye penetrant, magnetic or other suitable detection method at least once a year).</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Lower Hook Block, Upper Hook Pin, Chain Guide Rollers, Bushings, Gears, Pinion and Friction Hub</strong></td>
<td>*</td>
<td>Cracks, distortion, excessive wear, corrosion or build-up of foreign material.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Tip of Pawls and Lever Pawl Teeth of Ratchet and Lever Ratchet</strong></td>
<td>*</td>
<td>Cracks, distortion, excessive wear, corrosion or build-up of foreign material.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Pockets of Liftwheel, Stripper and Side Plates</strong></td>
<td>*</td>
<td>Cracks, distortion, excessive wear, corrosion or build-up of foreign material.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Nuts, Bolts, Pins and Rivets</strong></td>
<td>*</td>
<td>Cracks, bending, loose, stripped threads.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Pawl Springs, Directional Pawl Spring, and Spring</strong></td>
<td>*</td>
<td>Corrosion, stretched or broken.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Chain Stop</strong></td>
<td>*</td>
<td>Missing, cracked, not secured to chain, not properly positioned.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Nameplate, Warning Labels and Free Chaining Tags</strong></td>
<td>*</td>
<td>Missing, Damaged or illegible.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** Refer to Maintenance and Inspection Sections of this manual for further details.

### FREQUENCY OF INSPECTION

**Frequent** - Indicates items requiring inspection daily or before each use. These inspections may be performed by the operator if properly designated.

**Periodic** – Indicates items requiring inspection every three months. Inspections to be performed by or under the direction of a properly designated person. The exact period of inspection will depend on frequency and type of usage. Determination of this period will be based on the user's experience. It is recommended that the user begin with a quarterly inspection and extend the periods to semi-annually or annually based on the user's quarterly experience.

**NOTE:** This inspection and maintenance check list is in accordance with our interpretation of the requirements of the Safety Standard for Overhead Hoists ASME B30.16. It is, however, the ultimate responsibility of the employer/user to interpret and adhere to the applicable requirements of this safety standard.

**Figure 14 — Recommended Inspection and Maintenance Check List**
## Troubleshooting Chart

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Possible Cause(s)</th>
<th>Corrective Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hoist is hard to operate in either direction.</td>
<td>1. Load chain worn long to gauge, thus binding between liftwheel and chain guide rollers. 2. Load chain rusty, corroded or clogged with foreign matter such as cement or mud. 3. Bushings or liftwheel rollers clogged with matter such as cement or dust. 4. Lever binding. 5. Brake parts corroded or clogged with foreign matter. 6. Liftwheel pockets clogged with foreign matter or worn excessively causing chain to bind between liftwheel and chain guide rollers. 7. Liftwheel twisted or bent - gear teeth bent. 8. Check washer not in correct position.</td>
<td>1. Check chain, (See page 6) and replace if worn excessively. 2. Clean chain by tumble polishing or using a non-acid or non-caustic type solvent. Check chain for gouges, damaged or bent links. Lubricate with Lubriplate® Bar and Chain Oil 10-R (Fiske Bros. Refining Co.) or equal lubricant. 3. Disassemble and clean liftwheel rollers and bushings in gear cover and side plate (gear side). Any parts worn excessively should be replaced. 4. Clean by removing any foreign matter which may be between the lever and the brake cover. 5. Disassemble brake and clean thoroughly (by wiping with a cloth - not by washing in a solvent). Replace discs if too gummy, worn or scored. Keep discs and brake surfaces clean and dry. 6. Clean out pockets and use if not worn excessively. Replace liftwheel if pockets are worn. 7. Excessive overload had been applied. Replace damaged parts.</td>
</tr>
<tr>
<td>Hoist is hard to operate in down direction.</td>
<td>1. Brake adjusting nut is too tight. 2. Brake parts corroded or clogged with foreign matter. 3. Chain binding.</td>
<td>1. See BRAKE ASSEMBLY, page 7. 2. Disassemble brake and clean thoroughly (by wiping with a cloth - not by washing in a solvent). Replace discs if too gummy, worn or scored. Keep discs and brake surfaces clean and dry. 3. Check chain, (See page 6) and replace if worn excessively. Clean chain by tumble polishing or using a non-acid or non-caustic type solvent. Check chain for gouges, damaged or bent links. Lubricate with Lubriplate® Bar and Chain Oil 10-R (Fiske Bros. Refining Co.) or equal lubricant.</td>
</tr>
<tr>
<td>Hoist is hard to operate in up direction.</td>
<td>1. Chain binding. 2. Overload.</td>
<td>1. Check chain, (See page 6) and replace if worn excessively. Clean chain by tumble polishing or using a non-acid or non-caustic type solvent. Check chain for gouges, damaged or bent links. Lubricate with Lubriplate® Bar and Chain Oil 10-R (Fiske Bros. Refining Co.) or equal lubricant. 2. Reduce load or use correct capacity unit.</td>
</tr>
</tbody>
</table>
Please provide the following information:
- Model number
- Serial number
- Part description and number as shown in parts list

Figure 15 — Series 653 Hand Operated Lever Hoist
## Repair Parts List

<table>
<thead>
<tr>
<th>Ref. Qty.</th>
<th>No.</th>
<th>Description</th>
<th>Capacities:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ref. Qty.</td>
<td>No.</td>
<td>Description</td>
<td>Capacities:</td>
</tr>
<tr>
<td>1</td>
<td>53750</td>
<td>Side plate assembly (gear side)-includes 2 bushings and</td>
<td>3/4 TON 1 1/2 TON 3 TON</td>
</tr>
<tr>
<td></td>
<td></td>
<td>bearing race</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>53753</td>
<td>Side plate assembly (brake side)-includes 2 pawl studs,</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>bearing race and 4 studs</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>53756</td>
<td>Pawl, spring and retainer ring</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>53758</td>
<td>Stripper</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>53761</td>
<td>Gear set (2 gears)</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>53764</td>
<td>Spring</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>53766</td>
<td>Pinion</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>53876</td>
<td>Gear cover with bushings</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>53772</td>
<td>Gear and brake cover hardware kit-includes 8 nuts</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>53775</td>
<td>Chain guide roller</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>53778</td>
<td>Friction hub</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>53781</td>
<td>Friction disc</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>53783</td>
<td>Ratchet</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>53877</td>
<td>Brake cover assembly</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>53889</td>
<td>Lever hardware kit-includes 1 screw, 1 lockwasher and</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 locknuts</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>53878</td>
<td>Lever assembly-includes directional lever</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>53879</td>
<td>Free chaining knob</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>53796</td>
<td>Check washer</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>53797</td>
<td>Brake nut kit-includes nut, cotter pin and spacer</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>53799</td>
<td>Directional pawl kit-includes pawl, spring and shaft</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>53801</td>
<td>Lever grip</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>53838</td>
<td>Liftwheel</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>53805</td>
<td>Liftwheel gear kit-includes gear and snap ring</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>53803</td>
<td>Liftwheel roller kit-includes 68 rollers for 3/4 ton unit</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>74 rollers for 1 1/2 ton unit</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>68 rollers for 3 ton unit</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>53808</td>
<td>Upper hook assembly-includes hook, latch and hook block</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>53811</td>
<td>Upper hook pin</td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>53814</td>
<td>Lower hook assembly-includes hook, latch and hook block</td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>53817</td>
<td>Chain bolt kit-includes bolt and nut</td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>53820</td>
<td>Latch kit-includes latch spring and rivet</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>53880</td>
<td>Chain stop kit-includes chain stop, screw and nut</td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>53870</td>
<td>Nameplate kit-includes nameplate and 6 drive screws</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>85959PH</td>
<td>Load chain</td>
<td></td>
</tr>
<tr>
<td></td>
<td>635131PH</td>
<td>6x18-T(8)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>85960PH</td>
<td>10x30-T(8)</td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>53835</td>
<td>Lever ratchet</td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>53873</td>
<td>Warning label and free chaining tag kit-includes 2 labels</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>and 3 tags</td>
<td></td>
</tr>
</tbody>
</table>
LIMITACIÓN DE GARANTÍAS, VÍAS Y DAÑOS

ESTA GARANTÍA ES LA ÚNICA GARANTÍA VÁLIDA Y ANULA CUALQUIER OTRA EXPRESA O IMPLÍCITA DE APROVECHAMIENTO, APTITUD PARA UN PROPÓSITO ESPECÍFICO O CUALQUIER OTRA, SIN PROMESA NI AFIRMACIÓN DE HECHO REALIZADO A LOS BIENES VENDIDOS ESTARÁ LIMITADA EXCLUSIVAMENTE A LA REPARACIÓN O CAMBIO DESDE EL PUNTO DE ENVÍO DEL VENDEDOR. DE LAS PIEZAS QUE EL VENDEDOR DETERMINE QUE SON DEFECTUOSAS o bien, si el Vendedor determina que tales reparaciones o cambios no son factibles, devolverá al Comprador el importe del precio abono cuando el Comprador devuelva la mercancía al Vendedor.

Cualquier acción contra el Vendedor por incumplimiento de la garantía, negligencia o por cualquier otro motivo deberá iniciarse el mismo año en que tal acción tenga lugar.

SI LAS RECLAMACIONES CONTRA EL VENDEDOR POR CUALQUIER DEFECTO DE LOS PRODUCTOS NO SE REALIZA MEDIANTE UN ESCRITO POR PARTE DEL COMPRADOR EN EL MISMO AÑO DE LA FECHA DE ENVÍO NO SERÁ VÁLIDA NI SE PODRÁ EJECUTAR.

Nota: Cuando solicite piezas de repuesto proporcione siempre la carga nominal y el número de serie del palanpo para el que se solicitan las piezas. Para obtener la dirección del almacén de piezas de repuesto o del centro de servicio más cercano, llame al teléfono (800) 888-0985. Fax: (716) 689-5644.

DOMMAGES, CORRECTIFS ET LIMITATION DE GARANTIE–

LA GARANTIE ÉNONCÉE CI-DESSOUS REMPLACE TOUTE AUTRE GARANTIE EXPRESSE OU IMPLICITE, DE PROMOTION, D'APPLICATION PARTICULIÈRE OU AUTRE; ET AUCUNE AUTRE PROMESSE OU AFFIRMATION DE FAIT FAITE PAR QUELQUE AGENT OU REPRÉSENTANT DE MAISON DE VENTE NE CONSTITUERA UNE GARANTIE. LE VENDEUR NE DOIT PAS ÊTRE INDEMNISÉ EXCLUSIVEMENT À LA RÉPARATION OU AU REMPLACEMENT AU POINT DE VENTE F.A.B. DE TOUTE PIÈCE JUGÉE DÉFECTUEUSE PAR LE VENDEUR ou si le vendeur détermine que telle réparation ou remplacement n’est pas réalisable, à un remboursement du prix d’achat sur retour du matériel au vendeur.

Toute action contre le vendeur pour cause de négligence de respect de contrat ou autres autours de la présentation d’un an de la date de la réclamation.

AUCUNE RECLAMATION AU VENDEUR POUR TOUT DÉFAUT DU MATERIEL NE SERA VALIDE ou ACCESSIBLE À MOINS QU’UN AVIS ÉCRIT SOIT REÇU PAR LE VENDEUR EN DEDANS D’UN AN DE LA DATE D’EXPÉDITION.

Le vendeur ne sera responsable d’aucun dommage, blessure ou perte résultant de l’utilisation du matériel si au préalable de tel dommages, blessures ou pertes le dit matériel est (1) endommagé ou utilisé de façon inadéquate après sa remise au transporteur; (2) non entretenu, inspecté ou utilisé en accord avec les règlements applicables et les instructions et recommandations écrites du vendeur ou (3) installé, réparé, altéré ou modifié sans respecter de tels règlements, instructions ou recommandations.

Opération sécuritaire et indemnisation

L’acheteur devra prévoir et obéir aux règles de sécurité énumérées ou recommandées par le vendeur et devra utiliser le matériel conformément aux instructions et réclamer le remboursement des dommages ou perte de gain du matériel en cas d’une commande ou d’un accident. L’acheteur devra se conformer aux réglementations de sécurité de l’État ou du département et devra indemniser tout dommage ou blessure ou perte résultant de l’utilisation du matériel.