



OPERATIONS MANUAL

CHAIN HOIST

IMPORTANT SAFETY INFORMATION

Please read, understand and follow all safety information contained in these instructions prior to the use of this hoist. Retain these instructions for further use. These instructions are applicable for **Manually Operated Chain Hoists (Chain Falls)** offered by Premium Tool & Abrasives Co. Ltd.

INTENDED USE

This hoist is designed to be used to lift a load from a stationary position. Only accessories specifically recommended by PTA Canada should be used with this tool. Use in any other manner or with other accessories could lead to unsafe operating conditions.

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WARNING

This unit must only be used in compliance with all applicable safety regulations and standards, including ASME B30.16, concerning installation, use, maintenance and inspection of equipment lifting devices.



WARRANTY

Premium Tool & Abrasives warrants its Chain Hoists for a period of 1 year from the purchase date against manufacturing defects and will repair or replace (at its option) without charge any items returned. Repairs or replacements are warranted as described for the remainder of the original warranty period. Providing proof of purchase is strictly the responsibility of the customer. This warranty is void if the item has been damaged by accident or unreasonable use, neglect, improper service, or other causes not arising out of defects in material or workmanship. No other expressed warranty is given or authorized. Premium Tool & Abrasives disclaims any implied warranty of MERCHANTABILITY or FITNESS for any period beyond the expressed warranty and shall not be liable for incidental or consequential damages. To obtain warranty service, please request a returned goods authorization number (RGA) from your nearest Authorized Warranty Repair Centre or from Premium Tool & Abrasives. Warranty claim items must be shipped to Premium Tool & Abrasives prepaid or delivered to 10761 - 181 ST, NW, Edmonton, AB, Canada, T5S 1N3.

IMPORTANT SAFETY INSTRUCTIONS

- Read, understand and follow the safety information contained in these instructions prior to using this tool. Keep these instructions for further reference.
- Always operate, inspect and maintain this hoist in accordance with American National Standards Institute Safety Code ASME B30.16 and any other applicable safety codes and regulations.
- Hoists are designed to provide a 4 to 1 safety factor. Supporting structures and load-attaching devices used in conjunction with this hoist must provide an adequate safety factor to handle the rated load, plus the weight of the hoist and attached equipment. This is the customer's responsibility.
- Rigging: it is the responsibility of the operator to exercise caution and be familiar with proper rigging techniques. Refer to ASME B30.9 for rigging information.
- Do not exceed rated capacity. Hooks are designed to bend or stretch when overloading is detected.
- Do not use this hoist for lifting, supporting, or transporting people or lifting or supporting loads over people.
- During operation always ensure a firm footing. Operate the hoist from a location that will be clear of the load at all times. People must stay clear of load at all times.
- Before lifting a load, confirm that the chain hoist is in good condition and functioning properly. Inspect the chain hoist regularly. Never use a chain hoist when malfunction, unusual performance, damage, or extensive wear are found.
- Always keep the load chain well lubricated and protect it from weld spatter and other damaging contaminants. Never allow the load chain or hooks be used as a ground for welding and never touch them with live welding electrodes. Never use the hoist with twisted, kinked, damaged or worn load chains. Never attempt to lengthen the load chain.
- Never use a chain hoist as a sling. Always use proper slings and attachments in the correct manner and confirm that they are seated properly in the hook. Also confirm that the safety latch assembly has closed completely and not supporting any part of the load.
- Slacked load chain must be taken up carefully. While checking the balance of the load, lift and lower the load about 4" to test the brake system before lifting further. Loads must be lifted slowly.
- Never divert your attention when operating the chain hoist and never leave a suspended load unattended.
- Do not allow a load to drop, such as over the edge of a platform, while connected to a chain hoist. The sudden drop, even of a small distance, can cause a severe momentary overload, seriously damaging the chain hoist and possibly resulting in the loss of the load. This can occur at loads rated well below the rated capacity.
- Never adjust or repair a chain hoist unless you are qualified to perform hoist maintenance.
- Never modify the chain hoist. Approval from PTA is required for all nonstandard maintenance.
- Use only genuine PTA parts when repairing the chain hoist.
- Never remove or obscure the name plate on the chain hoist.

PRODUCT SPECIFICATIONS

CAPACITY	STD LIFT	LOAD LIMITER	STANDARD	CHAIN DIA. X FALLS	HOOK OPENING	SHIP WEIGHT
1/2 TON	10'	TM0100		6mm X 1	30.0	25 LBS
	20'	TM0105				36 LBS
1 TON	10'	TM0110	TM0210	6mm X 1	30.0	30 LBS
	20'	TM0115	TM0215			41 LBS
1-1/2 TON	10'	TM0120	TM0220	8mm X 1	34.0	42 LBS
	20'	TM0125	TM0225			60 LBS
2 TON	10'	TM0130	TM0230	8mm X 1	33.0	45 LBS
	20'	TM0135	TM0235			60 LBS
3 TON	10'	TM0150	TM0250	8mm X 2	40.0	61 LBS
	20'	TM0155	TM0255			85 LBS
5 TON	10'	TM0160		10mm X 2	50.0	102 LBS
	20'	TM0165				145 LBS
10 TON	20'	TM0175		10mm X 4	64.0	262 LBS

USAGE INSTRUCTIONS

1 PREPARATION FOR USE

- Inspect carefully for any damage that may have occurred during shipping. Check for loose, missing, or damaged parts.
- Lubricate the load chain along the whole length with non-acid, non-corroding machine oil (See Figure 1).
- Examine the load chain to ensure that there are no twists (See Figure 2). 3 and 5 ton chain hoists have 2 falls of load chain, 10 ton has 4 falls. Twists can arise from the bottom hook being turned over through the load chains (See Figure 3). If a twist is found, reverse capsize the chain to correct.
- Confirm the brake is functioning properly by lifting a test load (10% of rated capacity) a few inches off the ground several times.
- Confirm that the supporting structure is strong enough to support the full rated capacity of the chain hoist with a generous factor of safety.

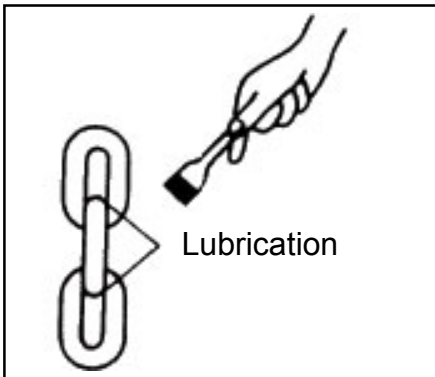


FIGURE 1

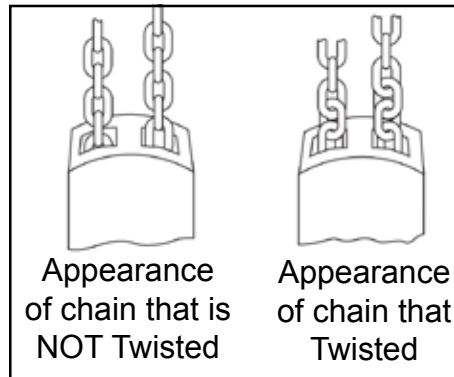


FIGURE 2

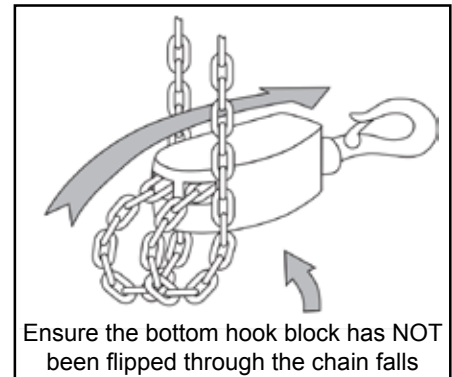


FIGURE 3

2 OPERATING INSTRUCTIONS

Hoisting (Raising the load)

- Pull the silver hand chain clockwise.

Lowering

- Pull the silver hand chain counter-clockwise.

Overload Protection

Overload protection comes with select models of PTA chain hoists and is calibrated at our facility prior to your purchase. The load limiter is integral with the hoist and prevents the operator from lifting loads outside the rated capacity of the hoist. When activated, the operator will notice the chain 'slips' during hoisting operations and the load will not leave the ground. If a load will not lift, the load is too heavy and you must find a larger capacity hoist. Despite the overload protection, it is still possible to lock the brakes on the hoist, rendering it inoperable, during several situations when the hoist is misused.

Brake locking

- Chain hoists are used for vertical lifting of loads from a stationary position. Most lifting malfunctions are due to violating this principle.
- If transferring a load to a chain hoist, the chain hoist must be used to lift the load from the previous stationary environment. The load cannot be dropped onto a chain hoist. This automatically locks the braking mechanism.
- Never allow the load to drop suddenly or to swing when transferring loads.
- Never use a chain hoist as a towing device. Chain hoists are for lifting vertically only.
- Always use from a stationary lifting point. Never lift the hoist and load with another lifting device, such as a crane.

USAGE INSTRUCTIONS

3 OPERATING PRECAUTIONS

- Keep the load within the rated capacity marked on the chain hoist. An excess load may lead to an accident.
LOAD LIMITED: The chain hoist is overloaded when pulling the silver chain will not lift the load and instead slips during pulling. If the chain hoist is shock loaded, overloading is apparent if you cannot raise or lower the load and if the bottom hook is stretched so far that the clasp has sprung outwards.
- **NON-LOAD LIMITED:** The chain hoist is overloaded when the hand chain is no longer operable by a single operator, or the clasp on the load hook will no longer close.
- Before operating, lift and lower the load about 4" (10cm) and test the braking system. Ineffective braking may lead to an accident.
- Loads must be lifted as slowly as possible. Load swinging and abrupt shocks will impose excessive stress on the chain hoist and could lead to overloading or brake locking.
- Extreme temperatures will affect the durability of the chain hoist. In subzero temperatures, loads must be lifted and lowered very slowly and carefully.
- When hooking, the load must be applied squarely to the centre of the hook and the hook must not come loose during operation.
- Mount the top hook for a fixed location. Ensure the fixed suspension point rests on the centre of the hooks saddle and that the hook's safety latch is engaged.
- Do not side load the hoist. Chain hoists are for vertical lifting only.

4 CARE AFTER USE

- Always store your chain hoist in a no-load condition.
- Never leave or store the chain hoist with the brake system locked. Loosen the brake system by operating the chain hoist as if lowering a load.
- Always service and repair the chain hoist after use. Thoroughly clean the dust or if used in the rain, wipe off the dirt and moisture. Lubricate all moving parts of the hoist after use, especially the load chain, to prevent rust.
- Inspect the hooks and load chain for bends and any other type of defects. Also check to see if the hooks freely rotate. If any defect is found, replace the defective component before using the chain hoist again.
- Before returning hoist to service, follow instructions for hoists not in Regular Service in the INSPECTION Section 5.

INSPECTION PROCEDURES

1 OPERATING PRECAUTIONS

- All new, altered or modified equipment should be inspected and tested by personnel trained in the safety, operation and maintenance of this equipment to ensure safe operation at rated specifications before placing equipment in service.
- Frequent and Periodic inspections should be performed on equipment in regular service.
- Frequent inspections are visual examinations performed by operators or service personnel and include observations made during routine equipment operation.
- Periodic inspections are thorough inspections conducted by personnel trained in the safety, operation and maintenance of this equipment.
- ASME B30.16 states inspection intervals depend up the nature of the critical components of the equipment and severity of usage.
- Deficiencies revealed through inspection or operation must be reported to designated personnel trained in safety, operation and maintenance of this equipment. Any corrective action must be completed and documented by written report before placing the equipment in service.

2 RECORDS AND REPORTS

- Inspection records should be maintained for all load bearing equipment requiring periodic inspection.
- Written reports should be made on the condition of the critical parts as a method of documenting periodic inspection. These reports should be dated, signed by the person who performed the inspection, and kept on file where they are readily available for review.

3 FREQUENT INSPECTION

- The Manual Chain Hoist should be inspected at the beginning of each shift. Visual inspections should also be conducted during regular service for any damage or evidence of malfunction which appears between regular inspections.
 - » OPERATION: Check for visual signs or abnormal noises which could indicate a potential problem. Do not operate a hoist unless the chain feeds through the hoist and hook block smoothly. If the chain binds, jumps or is excessively noisy, clean and lubricate the chain. Do not operate the hoist until all problems have been corrected. The bottom hook should stop moving when the hand chain stops moving.
 - » HOOKS: Check for wear and damage monthly. This includes: cracks, twists, latch engagement and latch operation (See Figure 4). Replace hooks that exceed the throat opening discard width (See Inspection Criteria). If the hook latch snaps past the tip of the hook, the hook has been overloaded and must be replaced. Check the hook support bearings for lubrication and damage. Check that hooks swivel easily and smoothly. Repair or lubricate as needed.
 - » HOOK LATCHES: Check operation of hook latches. Replace if broken or missing. Ensure they catch the tip of hook.
 - » CHAIN: Examine each link for bending, cracks in weld areas or shoulders, transverse nicks and gouges, weld spatter, corrosion pits, striation (minute parallel lines) and chain wear, including bearing surfaces between chain links (See Figure 5). Replace a chain that fails any of these inspections. Check lubrication and lubricate if necessary.
 - » LOAD CHAIN REEVING: Make sure welds on standing links are away from the load sheave. Reinstall chain if necessary (See Figure 6). Make sure chain is not capsized, twisted or kinked (See Figure 2 & 3). Adjust as required.

4 PERIODIC INSPECTION

- According to ASME B30.16, frequency of periodic inspection depends on the severity of usage.

NORMAL	HEAVY	SEVERE
Yearly	Semiannually	Quarterly

- Disassembly may be required for HEAVY or SEVERE usage. Any deficiencies must be corrected before hoist is returned to service. Keep records of periodic inspections to provide a basis for continuing evaluation. Inspect all items in 'Frequent Inspection'. Also inspect the following:
 - » Chain for excessive wear or stretch (See Section 5).
 - » Worn, cracked or distorted parts such as hook blocks, top hooks, chain guide, stripper, loose end pin, shafts, gears, hook collar and bearings.
 - » Inspect for wear on the top of the pawl, teeth of the ratchet and pockets of the liftwheel and handwheel.
 - » Loose or missing bolts, nuts, pins or rivets.
 - » Inspect brake components for worn, glazed or contaminated friction discs and scoring of the handwheel hub, ratchet, and friction hub.
 - » Corroded, stretched or broken pawl spring.
 - » Free movement of the pawl on the pawl stud.
 - » Hook inspections using dye penetrant, magnetic particle or other suitable crack-detecting inspections should be performed at least once per year, if external conditions indicate possible unusual usage.

5 HOISTS NOT IN REGULAR USE

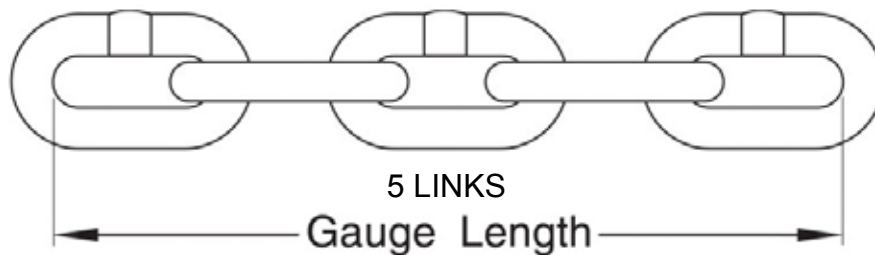
- A hoist that has been idle for a period of one month or more should be given a Frequent Inspection before use.
- A hoist that has been idle for a period longer than one year should be given a Periodic Inspection before use.
- Standby hoists should be inspected at least semiannually in accordance with the Frequent Inspection. In abnormal operating conditions this inspection should be completed at shorter intervals.

INSPECTION CRITERIA

- The chain hoist is designed and manufactured to withstand heavy duty material handling operations, but wear and damage are unavoidable after a extended use in less than ideal environments.
- Never leave the hoist in a damp environment or damp weather such as rain. Always store the hoist in a dry, well ventilated area.
- Proper lubrication will help lengthen the life of the chain hoist. Before storing, check to see if the hoist is well lubricated. Be especially sure that the moving parts, such as gears and bearings, are well lubricated.
- Load chain and hooks
 Note: The load chains and hooks are precisely heat-treated.
 Never weld or heat-treat the load chain.

Load Chain

Load chains worn-out or elongated beyond the permissible dimensions must be replaced at once. To examine, clean the chain with an acid-free solvent and, using a calliper style gauge, measure the inside length of 5 links of chain under light tension. Replace the entire load chain immediately if even one link of the load chain is extensively worn-out, elongated or damaged.



LOAD CHAIN DIMENSIONS

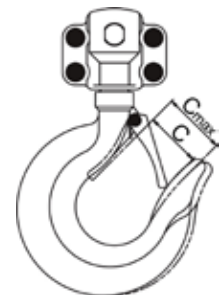
CAPACITY (TONS)	DIAMETER (Ø mm)	STANDARD* (Ø mm)	LIMIT* (mm)
1/2	6	89.9	92.6
1	6	89.9	92.6
1-1/2	8	119.8	123.4
2	8	119.8	123.4
3	8	119.8	123.4
5	10	149.6	154.1
10	10	149.6	154.1

Hooks

PTA material handling hooks are designed to bend slightly when overloaded. If the hook opening is elongated beyond the permissible dimension (10% greater than standard), the hook is dangerously deformed and must be repaired at once. No deformation of the hook will arise when the chain hoist is used and maintained properly.

HOOK DIMENSIONS

CAPACITY (TONS)	STANDARD C SIZE (mm)	MAX C SIZE* (mm)
1/2	30.0	33.0
1	30.0	33.0
1-1/2	34.0	37.4
2	33.0	36.3
3	40.0	44.0
5	50.0	55.0
10	64.0	70.4



*Limit C size is 10% wider than the standard hook opening. The safety latch will not catch the hook tip once the hook is stretched beyond this point.

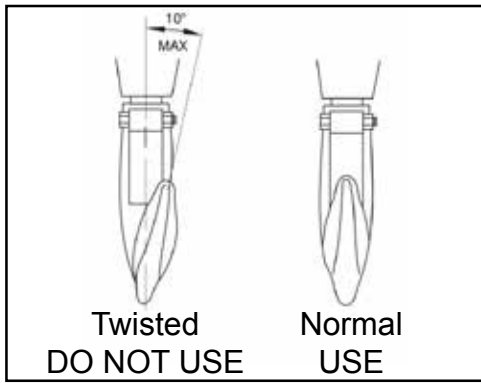


FIGURE 4

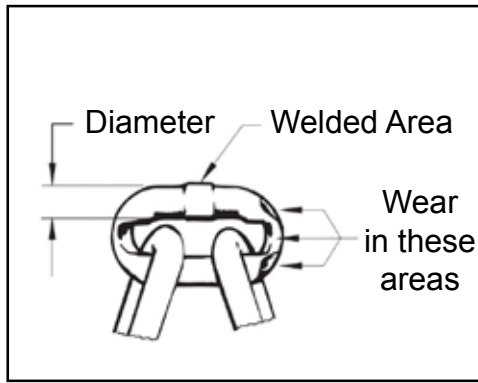


FIGURE 5

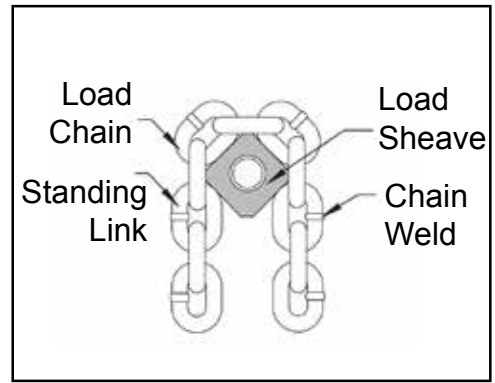


FIGURE 6

TROUBLE SHOOTING PROCEDURES

CONDITION	PROBABLE CAUSE	HOW TO REPAIR
Hoist will not lift load	1. Hoist is overloaded.	1. Reduce load to within hoist rated capacity.
Slip caused by ineffective braking	1. Worn-out friction discs. 2. Excessive oil on the braking surface. 3. Incorrect assembly of the braking system.	1. Replace with new friction discs. 2. Disassemble and clean. 3. Assemble correctly.
Load dropped while lowering	1. Damaged friction discs. 2. Foreign matters in the braking system.	1. Replace with new friction discs. 2. Disassemble and clean.
Load chain binds	1. Damaged load chain or internal parts 2. Load chain not installed properly (twisted, kinked or 'capsized').	1. Disassemble hoist, inspect and repair or replace damaged components. 2. Untwist load chain if possible, or uninstall load chain and re-install.
Hand chain binds	1. Damaged hand chain, hand chain wheel, or internal parts. 2. Hand chain not installed properly (twisted, kinked or 'capsized').	1. Disassemble hoist, inspect and repair or replace damaged components. 2. Untwist hand chain if possible, or uninstall load chain and re-install.
Noises during hoisting and lowering operation	1. Wear or deformation of the load chain and load sheave.	1. Replace with new parts.
Load hook latch does not work	1. Latch broken. 2. Load hook bent or twisted.	1. Replace hook latch. 2. Inspect load hook as described in (Inspection Criteria) for signs of overloading.
Load will not go down	1. The hoist was left under load for extended period. 2. Over tightened brake. 3. Shock loaded during operation. 4. Brake rusted tight.	1. For non-overload protection chain hoists, pulling harder on the chain may loosen brake. 2-4. If load cannot be moved, use another lifting device to remove the load from the affected hoist and replace brake components and perform hoist maintenance.

WARNINGS TAGS AND LABELS

MANUALLY OPERATED CHAIN HOISTS

The warning tags illustrated below are supplied with each hoist shipped from Premium Tool. If the tag is not attached to your hoist's no-load side of the load chain, order a tag from your dealer or PTA Canada and install it. Read and follow all warnings and guidelines attached to this hoist.

⚠ WARNING

IMPROPER chain hoist use could result in death or serious injury.
To AVOID these hazards:

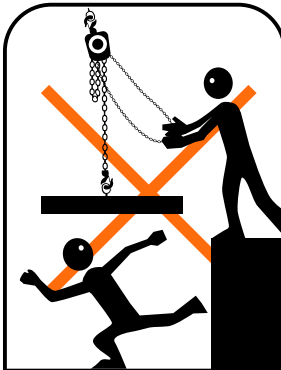


SEE
OTHER
SIDE

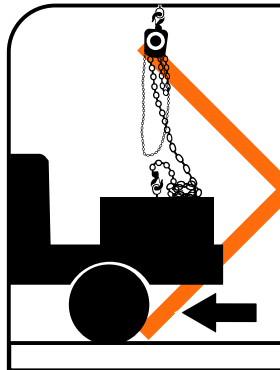


OVER LOAD

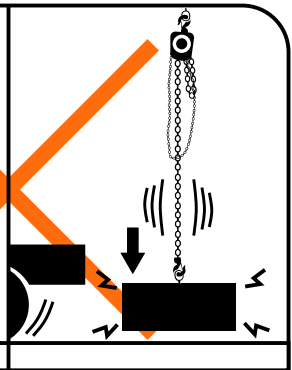
NEVER
lift more than
rated load.



NEVER
lift or transport
loads over or
near people.

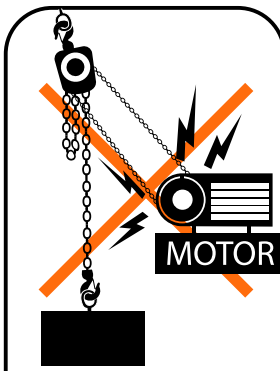


NEVER
drop, shock, or swing loads on hoist.
Hoists are designed for **vertical**
lifting only. When transferring load,
lift load before removing support.



⚠ WARNING

IMPROPER chain hoist use could result in death or serious injury.
To AVOID these hazards:

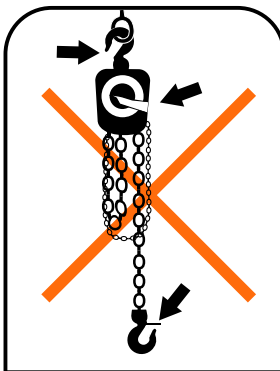


MOTOR

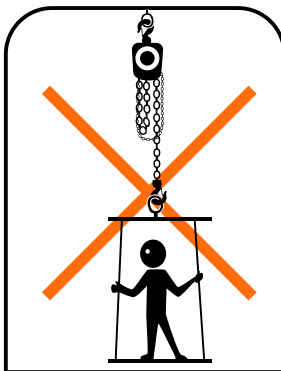
NEVER
operate a hoist
with other than
manual power.



NEVER
run the load
chain over a
sharp edge.



NEVER
operate a hoist if
damaged or
malfunctioning.



NEVER
use a hoist for
lifting, supporting,
or transporting
people.



SEE
OTHER
SIDE

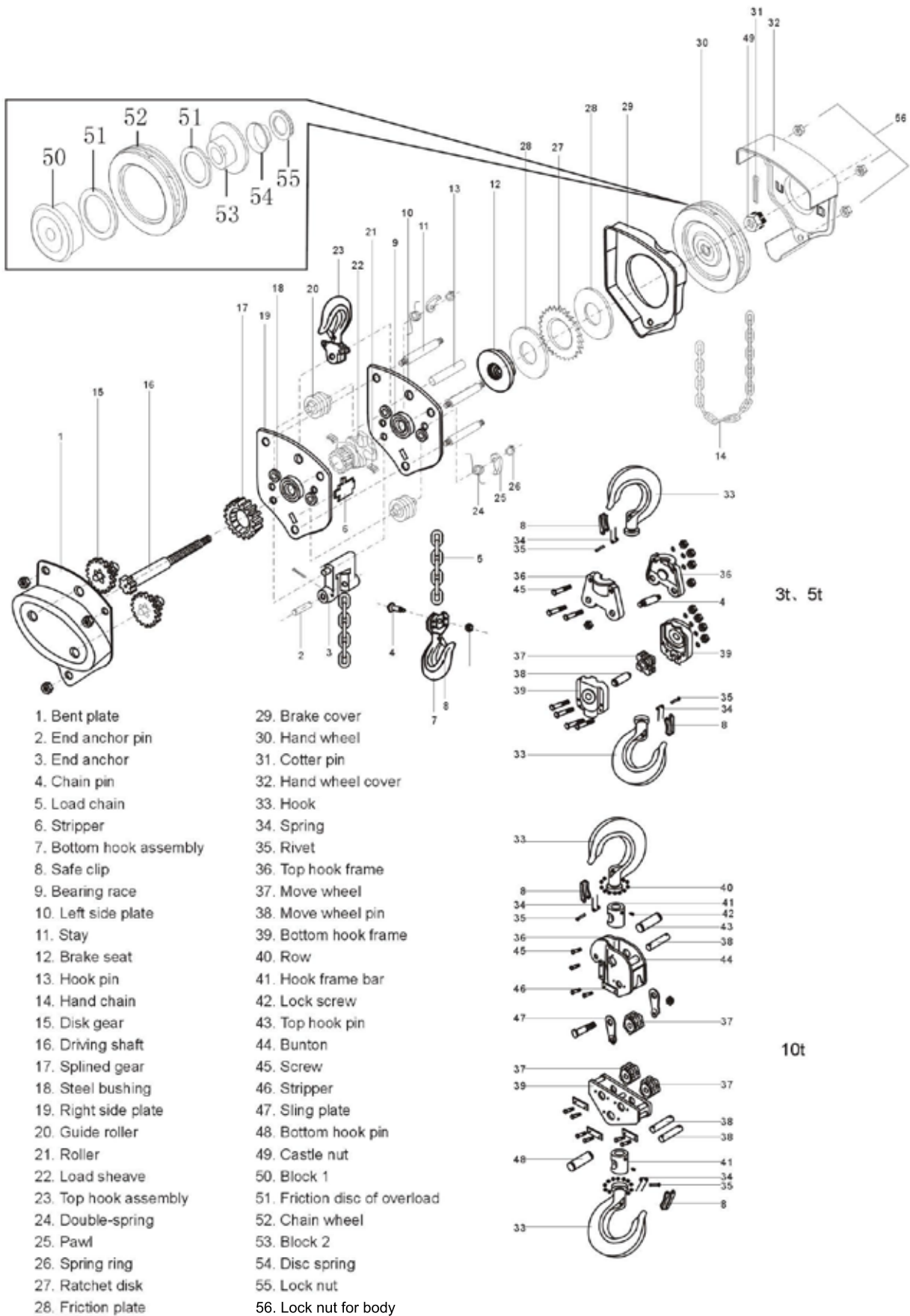
WARNINGS AND PRECAUTIONS

MANUALLY OPERATED CHAIN HOISTS

The following warnings and operating practices are intended to avoid unsafe hoisting practices which might lead to personal injury or property damage.

DO	DO NOT
<ol style="list-style-type: none">1. DO read the operating and maintenance instructions2. DO be familiar with hoist operating controls, procedures, and warnings.3. DO make sure that the unit is securely attached to a suitable support before applying load.4. DO maintain firm footing or be secured when operating unit.5. DO make sure that load slings or other approved sling attachments are properly sized and seated in the hook saddle.6. DO make sure the hook safety latches are closed and not supporting any part of the load.7. DO make sure load is free to move and will clear all obstructions.8. DO take up slack carefully, check load balance, move the load a few inches, and check load holding action before continuing.9. DO make sure all persons stay clear of the supported load.10. DO avoid swinging of load or load hook.11. DO protect load chain from weld spatter or other damaging contaminants.12. DO promptly report any malfunction, unusual performance, or damage of the unit.13. DO inspect unit regularly, replace damaged or worn parts, and keep appropriate records of maintenance.14. DO use the recommended PTA parts when repairing unit.15. DO apply lubricant to load chain as recommended by PTA.	<ol style="list-style-type: none">1. DO NOT lift or pull more than rated load.2. DO NOT use the hoist load limiting device to measure the load weight.3. DO NOT use damaged unit or unit that is not working correctly.4. DO NOT apply a load unless chain is properly seated in chain wheel(s) or sprocket(s).5. DO NOT use with twisted, kinked, damaged or worn chain.6. DO NOT apply a load if any binding prevents equal loading on all load supporting chains.7. DO NOT use load chain as a sling or wrap chain around a load.8. DO NOT apply the load to the tip of the hook.9. DO NOT operate except with hand power.10. DO NOT operate unit when it is restricted from adjusting itself to form a straight line with the direction of loading.11. DO NOT allow your attention to be diverted from operating the unit.12. DO NOT allow more than one operator to pull on chain at same time.13. DO NOT operate unit beyond limits of load chain travel.14. DO NOT use hoist to lift, support or transport people.15. DO NOT lift loads over people.16. DO NOT leave a load supported by the unit unattended unless specific precautions have been taken.17. DO NOT allow unit to be subjected to sharp contact with other units, structures, or objects through misuse.18. DO NOT allow the chain or hook to be used as a ground for welding.19. DO NOT allow the chain or hook to be touched by a live welding electrode.20. DO NOT remove or obscure the warnings on the unit.21. DO NOT adjust or repair a unit unless you are qualified to perform such maintenance.22. DO NOT attempt to lengthen the load chain or repair damaged load chain.23. DO NOT allow loads to drop suddenly while operating this lift.

PART LIST FOR CHAIN HOISTS WITH OVERLOAD PROTECTION



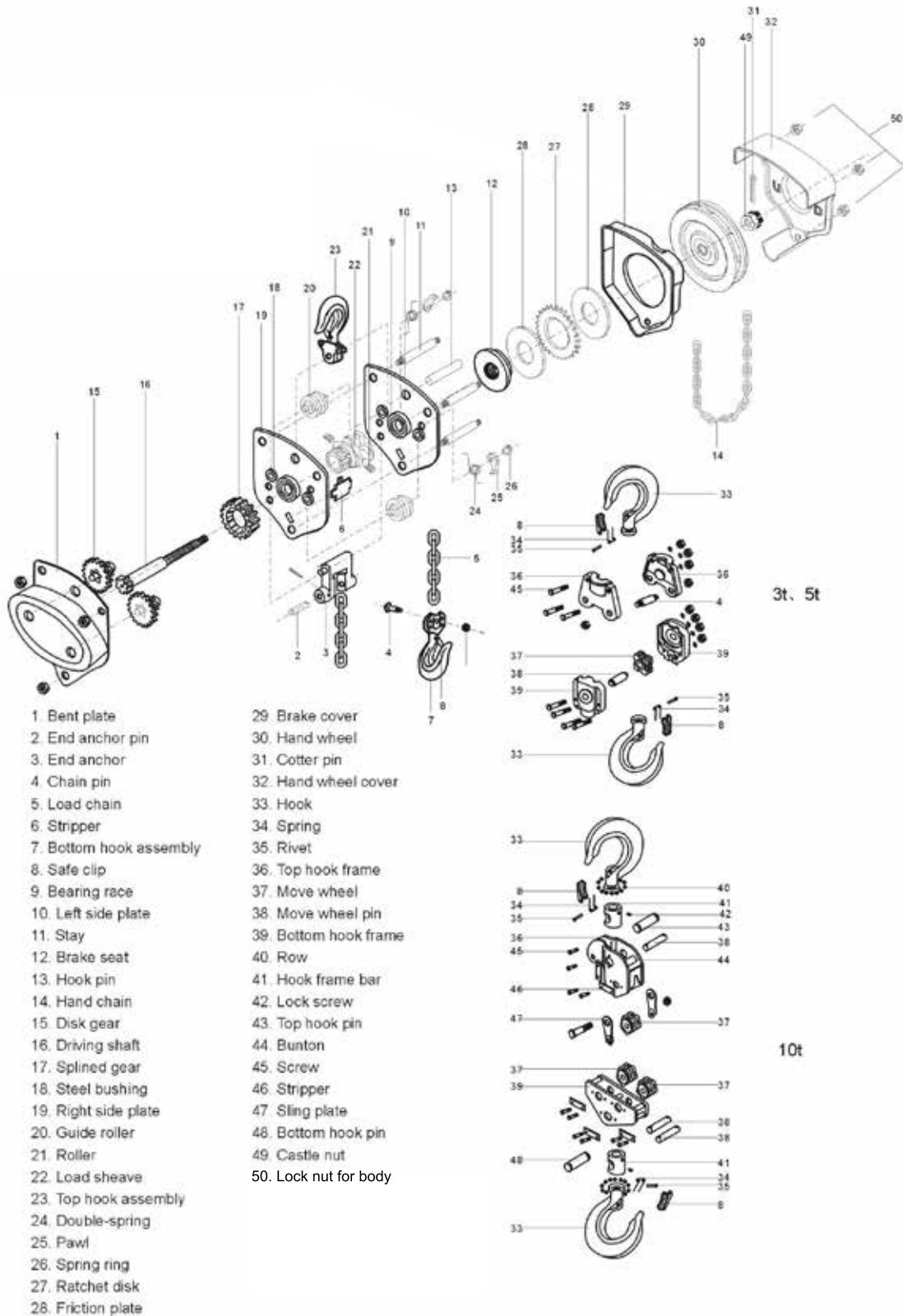
- 1. Bent plate
- 2. End anchor pin
- 3. End anchor
- 4. Chain pin
- 5. Load chain
- 6. Stripper
- 7. Bottom hook assembly
- 8. Safe clip
- 9. Bearing race
- 10. Left side plate
- 11. Stay
- 12. Brake seat
- 13. Hook pin
- 14. Hand chain
- 15. Disk gear
- 16. Driving shaft
- 17. Splined gear
- 18. Steel bushing
- 19. Right side plate
- 20. Guide roller
- 21. Roller
- 22. Load sheave
- 23. Top hook assembly
- 24. Double-spring
- 25. Pawl
- 26. Spring ring
- 27. Ratchet disk
- 28. Friction plate

- 29. Brake cover
- 30. Hand wheel
- 31. Cotter pin
- 32. Hand wheel cover
- 33. Hook
- 34. Spring
- 35. Rivet
- 36. Top hook frame
- 37. Move wheel
- 38. Move wheel pin
- 39. Bottom hook frame
- 40. Row
- 41. Hook frame bar
- 42. Lock screw
- 43. Top hook pin
- 44. Bunton
- 45. Screw
- 46. Stripper
- 47. Sling plate
- 48. Bottom hook pin
- 49. Castle nut
- 50. Block 1
- 51. Friction disc of overload
- 52. Chain wheel
- 53. Block 2
- 54. Disc spring
- 55. Lock nut
- 56. Lock nut for body

3t, 5t

10t

PART LIST FOR CHAIN HOISTS (NO OVERLOAD PROTECTION)





OPERATIONS MANUAL

CHAIN HOIST

PRODUCT INFORMATION

Part Number: _____

Serial Number: _____

Date of Purchase: _____

**Premium Tool & Abrasives Co. Ltd.
10761 181 Street, NW
Edmonton, Alberta, Canada
T5S 1N3**

**Telephone: 780.438.6576
Fax: 780.436.4103
e-mail: pta@premiumtool.com**

**FOR OTHER PRODUCT CATALOGUES,
ASSISTANCE OR A DISTRIBUTOR IN YOUR AREA,
PLEASE CALL:**

1 800 661 6576

Find us online at: www.premiumtool.com

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