

HAND CHAIN HOIST

OPERATING, MAINTENANCE, & PARTS MANUAL



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1.0: GENERAL INFORMATION

This document provides information and maintenance of ACI Hand Chain Hoist. People who are operating or maintaining the hoist should be familiar with this manual. Following the precautions, procedures and maintenance practices in this manual should ensure long and reliable operation.

People responsible for the installation, operation, and/or maintenance of the equipment should be familiar with the American National Standard ANSI B30.16 for guidelines on the safe operation of hoists. That document contains rules on inspection requirements and records that may be required by some regulatory agencies.

1.1: HOIST CONSTRUCTION

This hand chain hoist is an efficient means of lifting freely suspended material loads within its load rating. The frame and covers of the hoist are made from stamped steel construction. The cast hand chain wheel and load activated break will provide smooth, precise spotting of loads.

2.0: SAFETY PRECAUTIONS

2.1: TERMS & SUMMARY

This manual provides important information for personnel involved with the installation, operation, and maintenance of the HOIST. Although you may be familiar with the hoist or similar equipment, it is strongly recommended that you read this manual before installing, operating or maintaining the product.

2.1.1: DANGER, WARNING, CAUTION & NOTICE

Throughout this manual, there are steps and procedures that can present hazardous situations. The following signals words are used to identify the degree or level of hazard seriousness.



Danger indicates an imminently hazardous situation which, if not avoided, **will** result in **death or serious** injury and property damage.



Warning indicates an imminently hazardous situation which, if not avoided, **could** result in **death or serious** injury and property damage.



Caution indicates a potentially hazardous situation which, if not avoided, **may** result in **minor or moderate** injury or property damage.



Notice is used to notify people of installation, operation or maintenance information which is important but not directly hazard related

2.2: SAEFTY RULES

Inspect the hoist for loose, broken or malfunctioning parts. Any hoist should be tagged "out of order" and taken out of service until the problem is corrected.

- DO NOT overload the hoist.
- DO NOT exert more than the hand chain pull to lift rated load by one operator (see Table 1). The hoist is designed to lift its rated capacity when a reasonable force is exerted. If effort appears to be excessive, recheck the load and use a larger capacity hoist if necessary.
- DO NOT side load the hoist. Make sure to pull in the straight line between hooks. Side loading the hoist over a sharp corner may fracture the hoist housing, load block or hook.
- Be sure there are NO twists in the chain. Make sure that the load chain is free to move and clear of all obstructions. With multiple chained hoists the load hook can be turned one or more times causing the chain to twist.
- DO NOT use the hoist from an unbalanced/unstable position. Operators should have firm footing or be secured before operating the hoist.
- Before raising and/or pulling a load always make sure that the slings and other rigging have sufficient capacity to support the load, and are in good condition.
- **DO NOT STAND BENEATH A LOAD!** DO NOT operate a load in a way to endanger personnel.
- DO NOT leave the hoist with a suspended load.
- DO NOT wrap the load chain around the load. USE A SLING!
- DO NOT TIP-LOAD the hook, as this will exert undue strain, resulting in hook failure.
- The hoist is designed for manual operation by one person only. DO NOT use the hoist with another power besides the manual power from one person.
- **DO NOT USE HOIST TO LIFT, SUPPORT OR OTHERWISE TRANSPORT PEOPLE.**
- The hand chain has a safety latch. When the safety latch opens or deforms, stop immediately to find out the cause.
- Hoists are designed to lift loads vertically and SHOULD NOT be used for horizontal or angle hoisting.
- NEVER use the chain or hook as a ground welding.
- Use only parts and chains supplied by the authorized distributor.

2.3: WARNING: TO AVOID INJURY: DO'S & DON'T

These recommendations apply to all hand chain manually operated chain hoists for vertical lifting service involving material handling of freely suspended unguided loads.

1. **DO read ANSI B30.16 Safety Standard for Overhead Hoists and Hoist and Manufacturer's Operating, Maintenance and Instructions.**
2. **DO familiarize yourself with the operating control and procedures for the hoist.**
3. **DO make sure the suspension hook for the hoist is securely attached to an appropriate support.**
4. **DO establish firm footing or be otherwise secured when opening the hoist.**
5. **DO make sure that load slings or other approved attachments are sized properly and seated correctly in the hook saddle.**
6. **DO make sure the hook latch is closed and not supporting any part of the load.**
7. **DO make sure that load is free to move and will clear all obstacles.**
8. **DO make sure all persons stay clear of the suspended load.**
9. **DO avoid swinging of the load or load hook.**
10. **DO protect load chain from weld spatter or other damaging contaminants.**
11. **DO promptly report any malfunction, unusual performance, or damage of the hoist.**
12. **DO inspect hoist regularly, replace damaged or worn parts, and keep appropriate records of maintenance.**
13. **DO use the hoist manufacturer's recommended parts when repairing a hoist.**
14. **DO use the hook latches wherever possible.**

15. DO apply lubricant to load chain as recommended by the hoist manufacturer.
16. DO NOT lift more than rated load.
17. DO NOT use the hoist load-limiting device to measure the load.
18. DO NOT use damaged hoist or hoist that is not working correctly.
19. DO NOT use hoist with twisted, kinked, damaged or worn chain.
20. DO NOT Lift a load unless chain is properly seated in chain wheel(s) or sprockets(s).
21. DO NOT use load chain as a sling or wrap load chain around the load.
22. DO NOT lift a load if any binding prevents equal loading on all supporting chains.
23. DO NOT apply the load to the tip of the hook.
24. DO NOT operate unless load is centered under hoist.
25. DO NOT operate hoist with other than manual power.
26. DO NOT permit more than one operator to pull a single hand chain at one time.
27. DO NOT allow your attention to be diverted from operating the hoist.
28. DO NOT operate hoist beyond limits of load chain travel.
29. DO NOT use hoist to lift, support, or transport people.
30. DO NOT lift loads over people.
31. DO NOT leave a suspended load unattended unless specific precautions have been taken.
32. DO NOT allow sharp contact between two hoists or between hoist and obstructions.
33. DO NOT allow the chain or hook to be used as a ground for welding.
34. DO NOT allow the chain or hook to be touched by a live welding electrode.
35. DO NOT remove or obscure the warnings on the hoist.
36. DO NOT adjust or repair a hoist unless qualified to perform hoist maintenance.
37. DO NOT attempt to lengthen the load chain or repair damaged load chain.

3.0: INSPECTION BEFORE INITIAL USE

After unpacking the hoist, inspect carefully for any damage that may have occurred during shipping. Check for loose, missing or damaged parts.

3.1: INSTALLATION

Be sure that the supporting structures of the hoist are strong enough to support the full rated load of the hoist using a generous factor of safety. The hoist should be suspended directly above the load, so that it can be lifted without side pull. The hoist body must be free to align between the two hooks. Do not allow the hoist frame to rest against the supporting structure.

Installation MUST be performed by a qualified person in accordance with ACI Hoist & Crane. Severe injury, death and/or property damage can result if the hoist is not correctly installed. For service in this area, please contact:

ACI Hoist & Crane
689 S.W. 7th Terrace
Dania, FL 33004
Phone: 954-367-6116
Fax: 954-272-0334
Toll Free: 1-866-424-6478

Make sure to check that the power supply to which the hoist is to be connected matches the information shown on the identification plate located on the bottom of the hoist.

Before using the hoist, fill in the information below:

Model No.: _____
Serial No.: _____
Purchase Date: _____

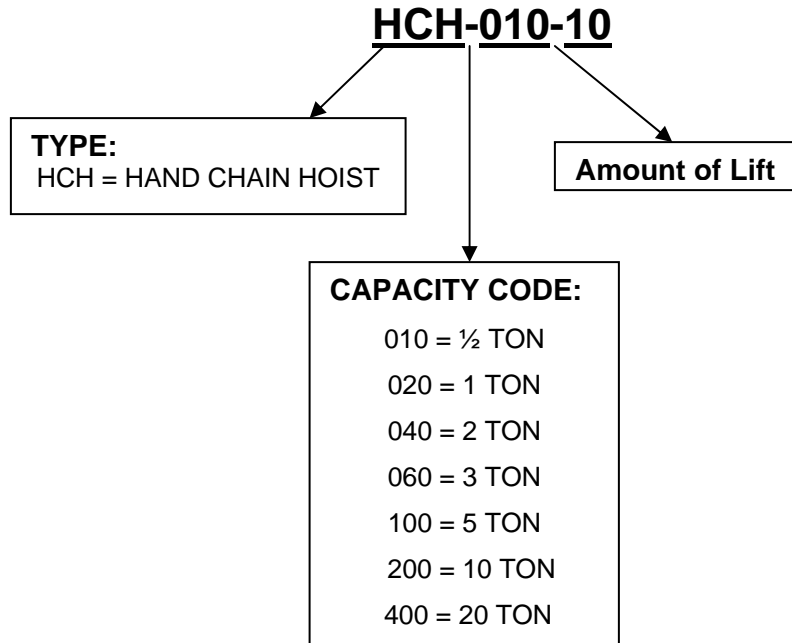
3.2: TESTING

Lift a light load with the hoist to check for a smooth operation and proper braking. If the hoist works properly with the light load, connect the rated load to the hoist and lift the load just clear of the floor. Check that the brake is holding the load before lifting it any higher. The hook shouldn't drift under any size loads that are within the hoists load rating.

4.0 TECHNICAL INFORMATION

4.1 SPECIFICATIONS

PRODUCT CODE



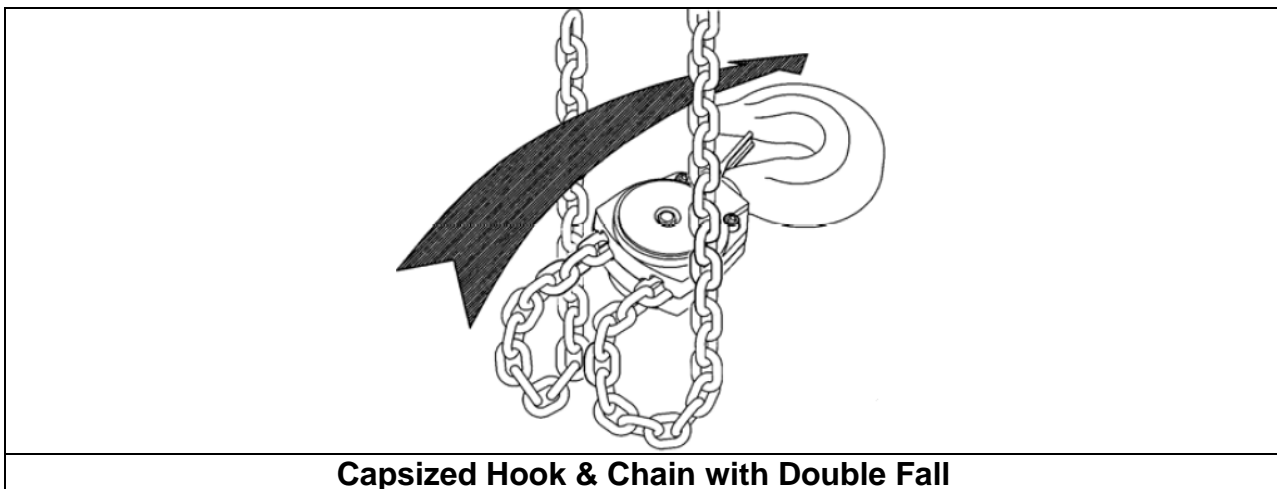
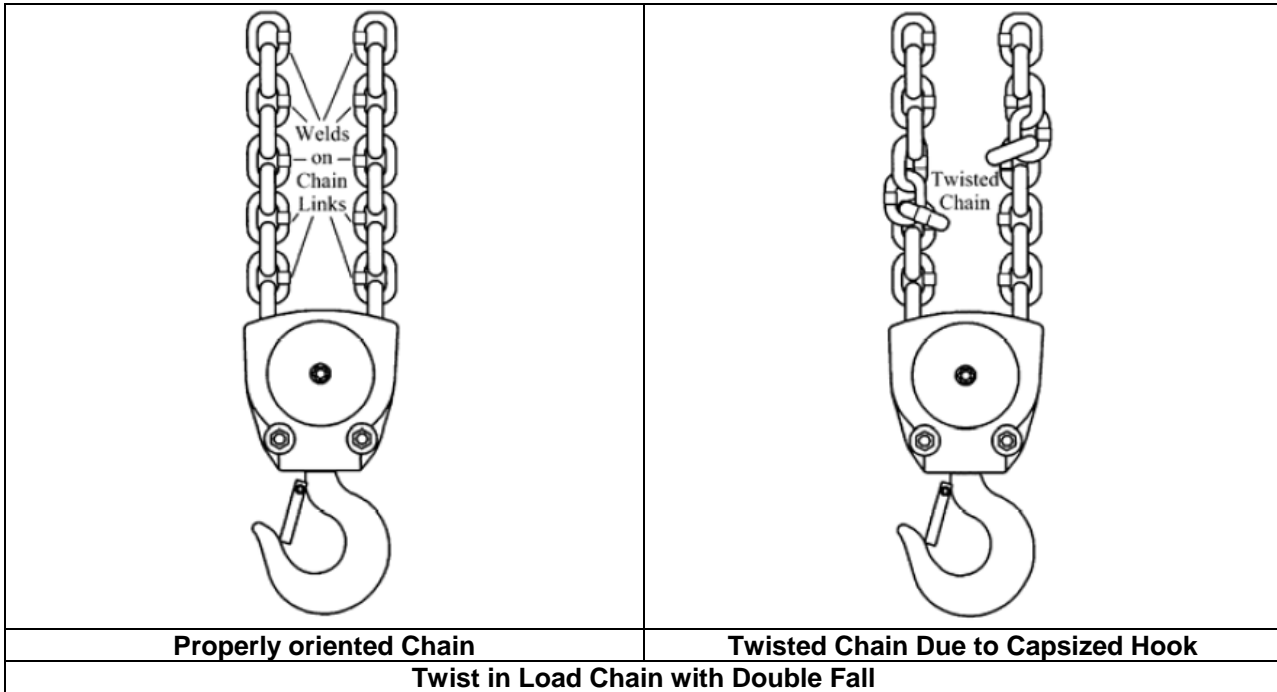
FEATURES

- Load Chain = Heavy Duty, Heated-treated, wear-resistant load chain
- Hook = Forged carbon steel hooks with safety latches. Under excessive loads, hook will open gradually and not fracture. Durable 360° rotating hook pivot.
- Ease of Use = Precise, durable gearing produces maximum lift, with minimal effort.
- Safety = Clutch automatically slips when lifting loads beyond the rated weight capacity, preventing potential damage and/or injury.
- Durability = Highly durable stamped steel construction
- Portability = Lightweight, compact design for easy transport between work locations.
- Braking = Automatic mechanical double-pawl braking system.

5.0 PREOPERATIONAL PROCEDURES

5.1 CHAIN

WARNING: Verify that the load chain is not twisted or tangled prior to operating the hoist. Make sure the bottom hook of the multiple fall hoists is not capsized. Correct all chain irregularities before conducting the first hoist operation.



5.2 ATTACHMENT POINTS

- WARNING: Prior to attaching the hoist, ensure that all attachment points, suspension components and supporting structure are adequate to support the hoist and its load. If necessary consult a professional that is qualified to evaluate the adequacy of the suspension location and its supporting structure.
- NOTICE: Read outdoor installation considerations

5.3 MOUNTING THE HOIST

- Hook Mounted to a fixed Location- Attach the hoist's top hook to the fixed suspension point.
- WARNING: Ensure that the fixed suspension point rests on the center of the hook's saddle and that the hook's latch is engaged.

5.4 PREOPERATIONAL CHECKS AND TRIAL OPERATION

- WARNING: Confirm the adequacy of the rated capacity for all slings, chains, wire ropes and all other lifting attachments before use. Inspect all load suspension member for damage prior to use and replace or repair all damage parts.
- WARNING: Verify and correct all chain irregularities prior to operating the hoist.
- Measure and record the "k" dimension of all hooks on the hoist.
- Record the hoist's Model & Serial Number in the space provided in the Inspection Section.
- Ensure that the hoist is properly installed to a fixed point.
- Ensure that all nuts, bolts and split pins (cotter pins) are sufficiently fastened.
- Confirm proper operation:
 - Before operating read and become familiar with Operation Section in this manual.
 - Before operating ensure that the hoist meets the Inspection, Testing and Maintenance requirements of ANSI/ASME B30.16.
 - Before operating ensure nothing will interfere with the full range of the hoist's operation.

6.0 OPERATION

The operation of a hoist involves more than activating the hoist's controls. Per the ANSI/AME B30 standards, the use of a hoist is subject to certain hazards that cannot be mitigated by engineered features, but only by the exercise of intelligence, care, common sense, and experience in anticipating the effects and results of activating the hoist's controls. Use this guidance in combination with other warnings, cautions, and notices in this manual to administer the operation and use of your hoist.

6.1 OPERATION

1. Face the hand chain wheel side of the hoist.
2. To raise the load, pull hand chain clockwise.
3. To lower the load, pull hand chain counterclockwise.

Note: The clicking sound of the pawl when a load is being raised indicates normal operation.

7.0: HANDLING THE LOAD

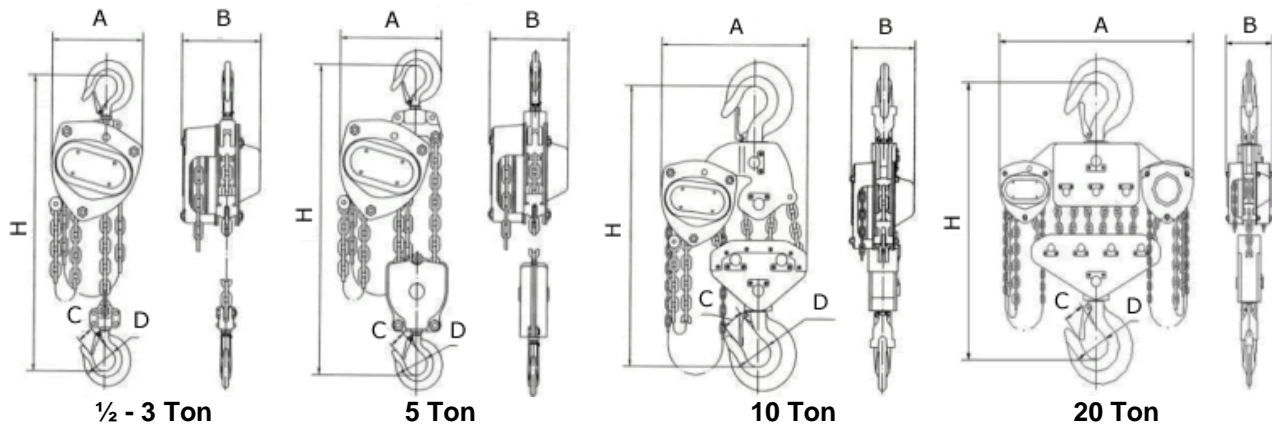
7.1: ATTACHING THE LOAD

- a. The load should be attached to the hook with slings or other appropriate devices. Do not wrap the load chain around a load.
- b. Be sure the load is supported in the saddle of the hook and the latch is closed. Do not lift a load on the tip of the hook.

7.2: LIFTING THE LOAD

- a. Raise the load by pulling the right side hand chain. Lift the load just clear of the floor. Check that the sling is securely in the hook and the load is well balanced, and hoist brake is holding the load. Lift the load to the desired height, standing clear of the load.
- b. Lower the load by pulling the left side hand chain. Pull smoothly and slowly. Do not "spin" the hand chain.
- c. Do not jam the hook block into the bottom of the hoist, or run the hook down until the slack chain is pulled tight.

8.0: DIMENSIONS AND SPECIFICATION



8.1: CHAIN HOIST SPECIFICATION

Capacity (ton)	Model Number	Standard Lift (ft)	Hand Chain Drop (ft)	No. of Chain Falls	A (in)	B (in)	C (in)	D (in)	H (in)
1/2	HCH-010	10	8	1	5.8	5.2	0.98	1.38	13.6
1	HCH-020			1	6.8	6.0	1.06	1.48	14.8
2	HCH-040			1	8.3	6.9	1.40	1.97	18.5
3	HCH-060			1	10.0	8.1	1.54	2.17	21.6
5	HCH-100			2	11.0	7.4	1.77	2.60	27.1
10	HCH-200			4	18.2	7.4	2.13	3.35	33.0
20	HCH-400			8	33.0	7.4	3.23	4.17	38.0

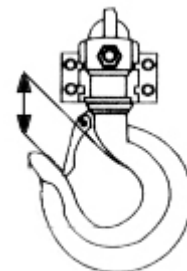
Note: Maximum lift allowed for all capacities is 40 ft.

8.2: HOOK DIMENSIONS (OPENING)

Inspect the hooks for deformation, damage or cracks. If the hook is twisted more than 10 degrees from the plane of the unbent hook it should be replaced. Hooks damaged having a throat opening greater than the reject opening shown in table 2 must be replaced.

8.3: REJECT OPENING (Table 2)

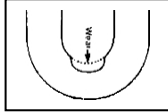
Capacity (ton)	Standard dimension (in)	Reject Opening (in)
1/2	0.98	> 1.08
1	1.06	> 1.30
2	1.40	> 1.45
3	1.54	> 1.73
5	1.77	> 1.84
10	2.13	> 2.60
20	3.15	> 3.68



9.0: MAINTENANCE

9.1: PREVENTIVE MAINTENANCE

It is important to provide periodic inspection and lubrication to enable lengthy and satisfactory operation of the hoist. Inspections are recommended at the intervals listed in Table 3 and are based on intermittent use. The operator should increase or decrease his inspection intervals based on usage and experience.



9.2: CAUTION

If the chain is worn or otherwise damaged, replace entire chain with a new chain supplied by the hoist manufacturer. Do not substitute. Do not attempt to re-weld a damaged chain.

10.0: INSPECTIONS & LUBRICATIONS

10.1: SERVICE & FREQUENCY INFORMATION

Service Information

- Normal Service – Service which involves operating at less than a certain percentage of rated load and less than an unspecified frequency. Refer to the ANSI/ASME 30 volume for the specific definition of your application.
- Heavy Service – Service which involves operation within the rated load limit which exceeds normal service.
- Severe Service – Service which involves normal to heavy service with abnormal operating conditions.

Frequent/Daily Inspections

Frequent/Daily inspections are visual examinations by the operator or other designated personnel with interval per the following criteria.

- Normal Service – Monthly
- Heavy Service – Weekly to Monthly
- Severe Service – Daily to Weekly
- Special or Infrequent Service – As recommended by a qualified person before and after each occurrence.

10.2: INSPECTION SCHEDULE (Table 3)

Interval	Inspection
DAILY	a. Check the hooks and the hook latches for cracks or deformities. Twisted hooks or hooks with throat openings more than the reject openings listed in the above table should be replaced. b. Check chain for wear and twisting. c. Check brake for drift.
QUARTERLY	a. Check for loose screws, nuts, etc. b. Check load sprocket and hand chain wheel for wear.
ANNUALLY	a. Inspect for worn gears, pawl, spring, ratchet and shafts. b. Check for worn brake discs. c. Inspect chain in kerosene or other non-corrosive solvent and inspect for wear, nicks, or distortion of any kind.

10.3: DISASSEMBLY

Breaking down the hoist is straightforward. Make a note of the locations and orientations of the hoist's different parts.

10.4: LUBRICATION

a. Lubrication is essential to prolonged chain life. Always lubricate load chain weekly or more frequently depending on severity of service. Be sure the lubricant reaches the bearing surfaces between the links. Remove the excess oil from the chain. The load chain should be kept well lubricated with chain lube. Be sure that the oil-lube is worked into the area between the links.

b. If the hoist is disassembled for inspection or repair, re-lubricate the moving parts according to table 5.

10.5: LUBRICATION SCHEDULE (Table 4)

PART	DESCRIPTION	FREQUENCY
Gears, bearings	Check operation of the part	Annually
Pawl pivot pin, guide roller pin and hook shanks	Check operation of the part	Annually
Chain wheel treads	Check operation of the part	Quarterly
Chain	Lubricate chain, under normal usage Lubricate chain, under heavy usage require to be lubricated more frequently	Weekly



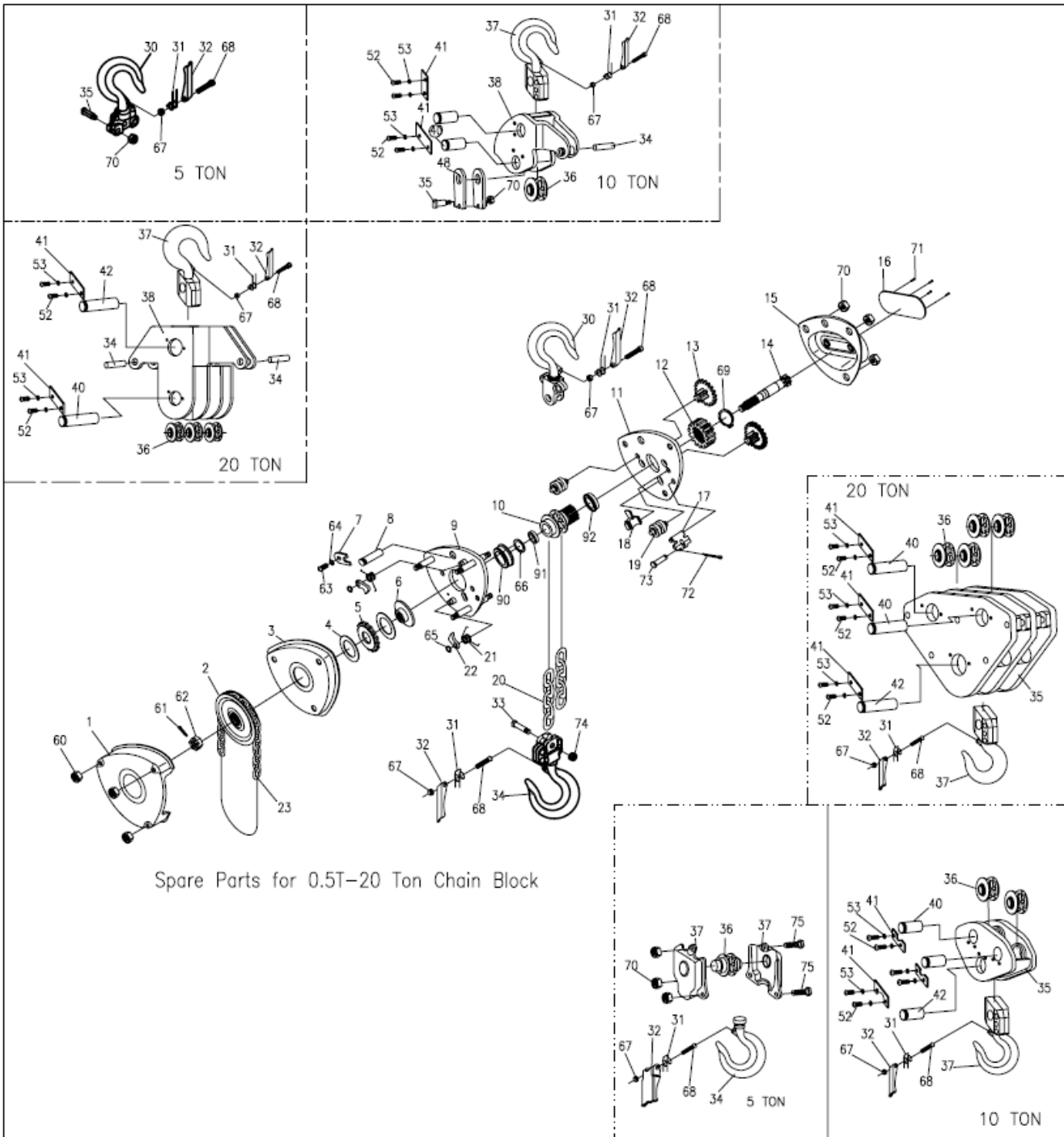
The brake surfaces must be kept free of any trace of oil or grease. Apply lubricant sparingly to the parts near the brake to avoid oil contamination of the brake.

10.6: RECOMMENDED LUBRICANTS (Table 5)

PART	LUBRICANT
Gears, bearings, pawl pivot pin, guide roller pin, hook shanks, and chain wheel treads	Any good quality gear grease
Chain	Chain Lube
Brake parts, ratchet teeth	Do Not Lubricate

11.0: SPARE PARTS

11.1: EXPLODED VIEW



11.2: PART LIST

1. Hand wheel cover assembly	21. Pawl spring	60. Prevailing torque type nut
2. Hand wheel	22. Pawl	61. Split pin
3. Brake cover	23. Hand chain	62. Hexagonal castle nut
4. Friction plate	30. Top hook assembly	63. Screw
5. Ratchet disc	31. Double spring	64. Spring washer
6. Brake seat	32. Safety latch	65. Snap Ring
7. Lock plate	33. Chain pin	66. Snap ring
8. Top pin	34. Bottom hook assembly	67. Prevailing torque type nut
9. Side plate assembly B	35. Hook Hanger Component	68. Screw
10. Chain sprocket	35. Chain pin	69. Snap ring
11. Side plate assembly A	36. Idle sheave assembly (5T)	70. Prevailing torque type nut
12. Splined gear	37. Bottom Hook	71. Rivet
13. Driven shaft assembly	37. Hook assembly	72. Split pin
14. Driving shaft	37. Hook Hanger Component	73. Pin
15. Gear case assembly	38. Beam assembly	74. Prevailing torque type nut
16. Name plate	40. Idle sheave pin	75. Hexagonal Bolt
17. Suspension plate	41. Idle sheave pin plate	90. Bearing A
18. Stripper	42. Hook pin	91. Roller Bearing
19. Guide roller	52. Screw	92. Bearing B
20. Load chain	53. Washer	

12.0: WARRANTY

WARRANTY

Every hoist is thoroughly inspected and tested before it is shipped from the factory. If any problem develops within one-year return the complete hoist prepaid to the factory. If an inspection reveals that the problem is caused by defective workmanship or material, repairs will be made without charge and the hoist will be returned, transportation prepaid.

This warranty does not cover: (a) deterioration caused by normal wear, abuse, eccentric or side loading, overloading, chemical or abrasive actions, improper maintenance or excessive heat; (b) problems resulting from repairs, modifications or alterations made by people other than factory or ACI representative; (c) the hoist has been abused or damaged due to an accident; (4) repair parts or accessories other than ACI equipment are used on the hoist. Equipment and accessories not of the seller's manufacture are warranted only to extent that they are warranted by the manufacturer. EXCEPT AS STATED HERE, ACI MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES FOR A PARTICULAR PURPOSE.