

OWNER'S MANUAL AND SAFETY INSTRUCTIONS

FOR

**HARRINGTON  
PEERLESS CB  
CHAIN HOIST**

1/2 to 20 Ton Capacity

Model M3

BEFORE USING THIS PRODUCT:

**ALWAYS SAVE THIS BOOK FOR FUTURE REFERENCE**

**ALWAYS READ OWNER'S (OPERATOR'S) MANUAL AND SAFETY INSTRUCTIONS**

- ⚠ WARNING** : IMPROPER chain hoist use could result in death or serious injury. To avoid these hazards:
- : NEVER hoist loads over or near people.
  - : NEVER work under or near hoisted loads.
  - : ALWAYS operate, inspect and maintain this hoist in accordance with applicable safety codes and regulations.

These safety instructions contain important information to help you use the chain hoist in a safe manner.

**HARRINGTON**  
**HOISTS AND CRANES**

HARRINGTON HOISTS, INC. • 401 WEST END AVENUE • MANHEIM, PA 17545  
PHONE: 717-665-2000 • TOLL FREE: 800-233-3010 • FAX: 717-665-2861

WESTERN FACTORY WAREHOUSE • 2341 POMONA RINCON RD. #103 • CORONA, CA 91720  
PHONE: 951-279-7100 • TOLL FREE: 800-317-7111 • FAX: 951-279-7500

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# DEFINITIONS

**⚠ WARNING** : indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

## 1. BEFORE USE

### 1.1 Safety Summary

Danger exists when heavy loads are transported, particularly when the equipment is not being used properly or is poorly maintained. Because accidents and serious injury could result, special safety precautions apply to the operation, maintenance and inspection of the Model M3 Manual Chain Hoist.

Following these simple rules can help to avoid hoisting accidents:

**⚠ WARNING** : IMPROPER chain hoist use could result in death or serious injury. To avoid these hazards:

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



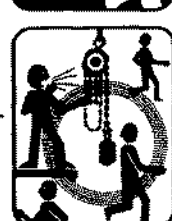
**NEVER** lift or transport loads over or near people.



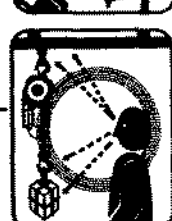
**NEVER** work near or under hoisted loads.



**NEVER** lift more than rated load.



**ALWAYS** let people around you know when a lift is about to begin.



**ALWAYS** make sure that the supporting structures and load attaching device are strong enough to hold the weight of the load and hoist.



**ALWAYS** read Owner's (Operator's) manual and safety instructions.



Remember, proper rigging and lifting techniques are the responsibility of the operator. It is the owner's responsibility to see that every operator reads and understands the instructions contained in this manual before using your hoist. Check all applicable safety codes, regulations and other applicable laws for further information about the safe use of your hoist.

**More detailed safety information** is contained in the following pages. For additional information, please contact Harrington Hoists, Inc. or your local authorized Harrington Distributor.

## 1.2 Safety Instructions

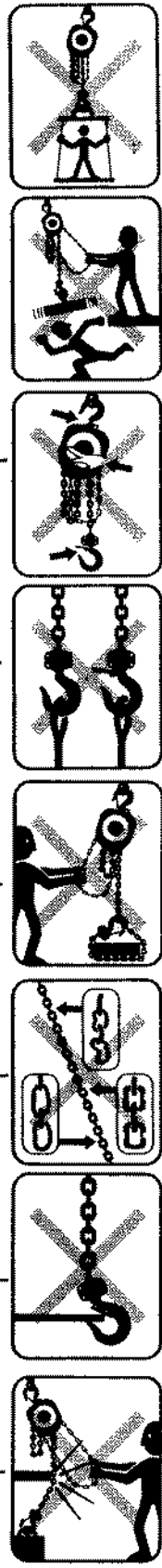
Serious injury could result if the following safety instructions are not followed.

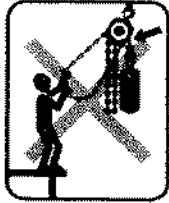
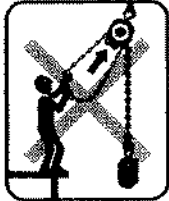


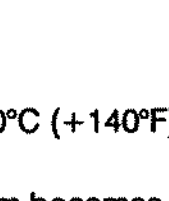
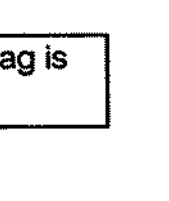
**⚠ WARNING:** **IMPROPER chain hoist use could result in death or serious injury. To avoid these hazards:**

- ALWAYS** make sure that you and others are clear of the load before lifting begins.
- ALWAYS** allow only qualified (trained in safety and operation) people to operate the hoist.
- ALWAYS** operate a hoist only if you are physically fit.
- ALWAYS** check the hoist before daily use according to the Recommended Daily Inspection. (Refer to section 4.2)
- ALWAYS** let authorized personnel inspect the hoist periodically. (Refer to section 4.3).
- ALWAYS** make sure that the chain length is long enough for the intended job.
- ALWAYS** check that the hook latches are in proper working order before use. (Refer to section 4.3)
- ALWAYS** replace all missing or broken hook latches.
- ALWAYS** use a hoist with a rated capacity well in excess of the weight of the load and see the hoist's label for the hoist's rated capacity.
- ALWAYS** be sure that the load is properly seated in the saddle of the hook.
- ALWAYS** keep the load from hitting the chain.
- ALWAYS** use two hoists which have rated capacities equal to or more than the load to be lifted whenever you must use two hoists to lift a load. This will provide adequate protection in the event that a sudden load shift or failure of one hoist occurs.
- ALWAYS** check the brake before use. (Refer to section 4.3)
- ALWAYS** check for loose or missing parts before use.
- ALWAYS** lubricate the hoist regularly. (Refer to section 5.1)
- ALWAYS** pay attention to the load at all times when operating the hoist.
- ALWAYS** ease the slack out of the chain and sling when starting a lift to prevent a sudden loading.
- ALWAYS** secure a hoist and loads properly after use.
- ALWAYS** consult the manufacturer or your dealer if you plan to use a hoist in a dusty, moist or greasy environment.
- ALWAYS** consult the manufacturer or your dealer if you plan to use a hoist in an excessively corrosive environment.
- ALWAYS** destroy worn out load chain.
- ALWAYS** operate the hoist with manual power.

**⚠ WARNING : IMPROPER chain hoist use could result in death or serious injury.**  
**TO avoid these hazards:**

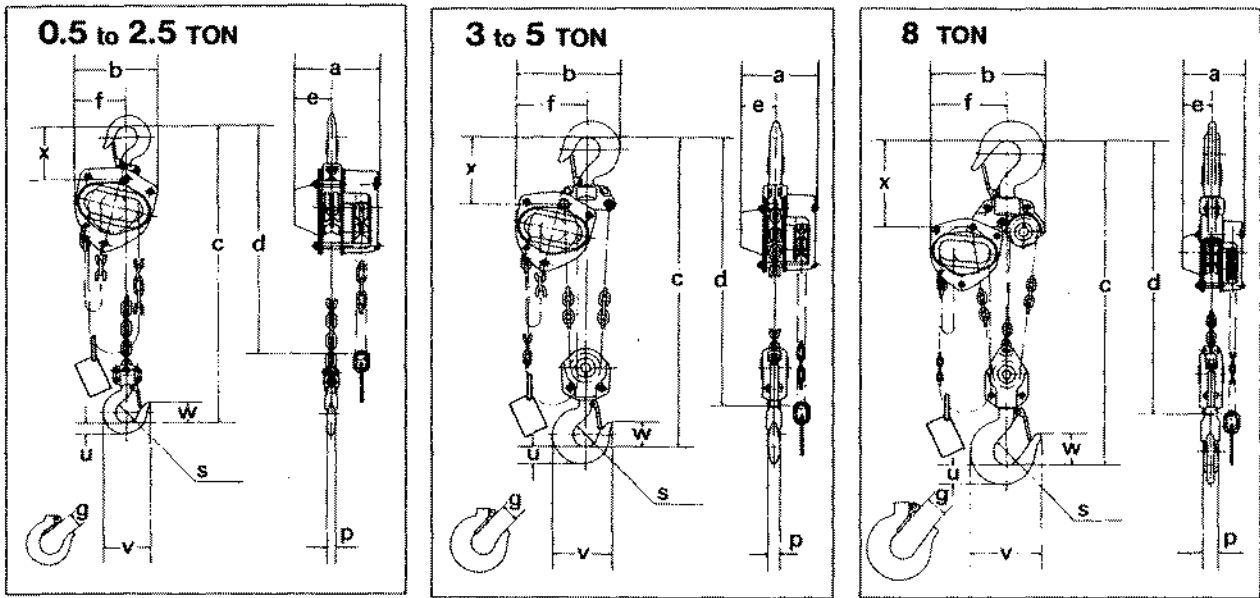
- NEVER** use the hoist to transport people.
- NEVER** lift a load over people.
- NEVER** work near or under hoisted loads.
- NEVER** operate a hoist if damaged or malfunctioning.
- NEVER** use a hoist which has been taken out of service until the hoist has been properly repaired or replaced.
- NEVER** use a hoist if the hook latch is missing or broken.
- NEVER** lift a load unless it is directly under the hook.
- NEVER** splice a hoist chain.
- NEVER** use non-authentic Harrington chains on the hoist.
- NEVER** use the hoist chain as a sling.
- NEVER** force a chain or hook into place by hammering.
- NEVER** jerk a load and cause sudden loading.
- NEVER** use a twisted, kinked, damaged or stretched load chain.
- NEVER** swing a suspended load.
- NEVER** support a load on the tip of the hook.
- NEVER** suspend a load for an extended period of time.
- NEVER** leave a suspended load unattended.
- NEVER** run the load chain over a sharp edge.
- NEVER** weld or cut a load suspended by a hoist.
- NEVER** use the hoist chain as a welding electrode.
- NEVER** use the hoist with rusty chain.



- NEVER** lift so far that the hook touches the block. 
- NEVER** lower so far that no unloaded chain is left. 
- NEVER** operate so far that the hook or chain stopper link touches the hoist body. 
- NEVER** operate a hoist if chain jumping, excessive noise, jamming, overloading or binding occurs. 
- NEVER** use a hoist without a chain stopper link at the end of the no load side of the chain.
- NEVER** throw a hoist. 
- NEVER** use a hoist without a nameplate or warning label or with illegible nameplate or warning label.
- NEVER** remove or obscure the warning tag. 
- NEVER** use modified or deformed hooks.
- NEVER** use a motor to operate a manual hoist.
- NEVER** use a hoist near fire or where hot objects may touch them.
- NEVER** use the hoist in temperatures below  $-20^{\circ}\text{C}$  ( $-4^{\circ}\text{F}$ ) or above  $+60^{\circ}\text{C}$  ( $+140^{\circ}\text{F}$ ).
- NEVER** lift the bottom hook so close to the top hook that the headroom becomes smaller than the standard for multi chain fall hoists.

The **WARNING TAG** is installed on the hand chain. Replacement warning tag is available at no charge.

## 2. Main Specifications



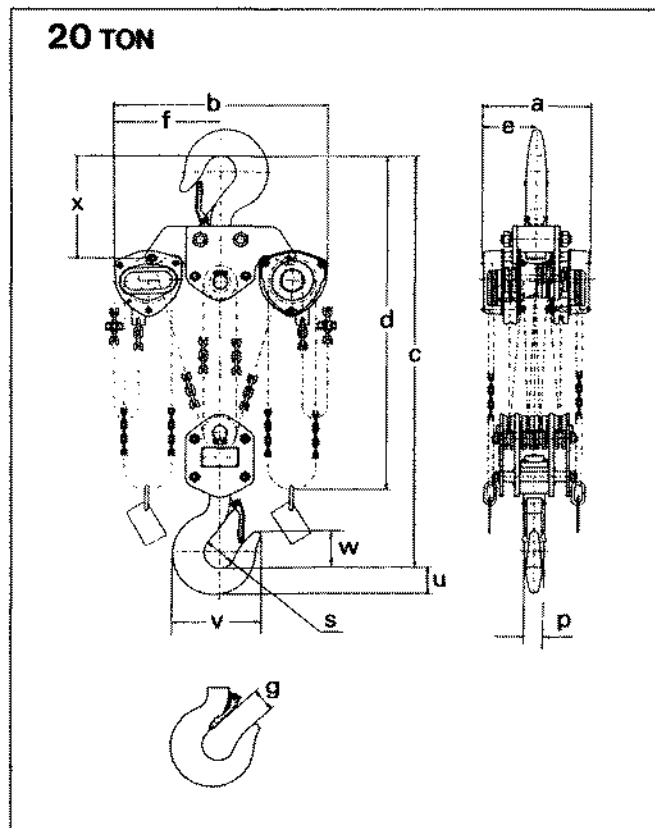
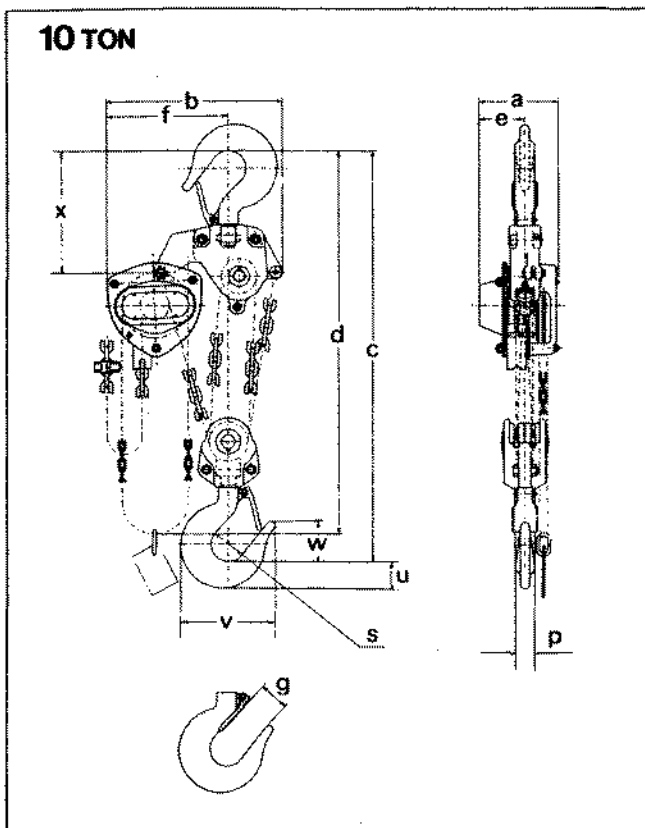
### Specifications

Model	Code	Cap. (U.S. ton)	Std. Lift m (ft.)	Chain Pull to Lift Full Load kg (lb)	Overhaul Ratio (ft.)	Test Load (U.S. ton)	Net Weight kg (lb)	Shipping Weight (approx) kg (lb)	Load chain Fall (Lines)	Weight for Additional One Foot of Lift kg (lbs)
M3	CB005	1/2	2.5 (8)	22 (48)	25	.63	10.0 (22)	10.5 (23)	1	1.5 (3.3)
M3	CB010	1	2.5 (8)	26 (58)	43	1.25	11.5 (25)	12.0 (26)	1	1.8 (4.0)
M3	CB015	1 1/2	2.5 (8)	32 (70)	57	1.88	14.5 (32)	15.0 (33)	1	2.1 (4.6)
M3	CB020	2	2.5 (8)	33 (72)	70	2.50	20.0 (44)	21.0 (46)	1	2.3 (5.1)
M3	CB025	2 1/2	2.5 (8)	30 (66)	99	3.12	27.0 (60)	28.0 (62)	1	2.7 (5.9)
M3	CB030	3	2.5 (8)	33 (72)	114	3.75	24.0 (53)	26.0 (57)	2	3.2 (7.1)
M3	CB050	5	2.5 (8)	31 (68)	198	6.25	41.0 (90)	43.0 (95)	2	4.4 (9.7)
M3	CB080	8	2.5 (8)	34 (75)	297	10.00	63 (139)	66.0 (145)	3	6.2 (13.7)

Any lift of chain is available on request. Because Harrington chains are specially heat treated, only authentic Harrington chains should be used on your hoist. **NEVER** attempt to lengthen the chain by attaching additional chain links to it or by any other means. Harrington can supply almost any length of chain desired. Simply specify the length of chain desired when ordering.

### Dimensions

Model	Cap (ton)	Min. Distance Between Hooks: C mm(in)	a mm(in)	b mm(in.)	d m(ft)	e mm(in)	f mm(in)	g mm(in)	s mm(in)	p mm(in)	u mm(in)	v mm(in)	w mm(in)	x mm(in)
M3	1/2	285(11.2)	158(6.2)	161(6.3)	2.5(8.2)	69(2.7)	99(3.9)	27.0(1.1)	35.5(1.4)	12.1(0.5)	17.0(0.7)	77(3.0)	35.0(1.4)	89(3.5)
M3	1	295(11.6)	162(6.4)	161(6.3)	2.5(8.2)	71(2.8)	99(3.9)	29.0(1.1)	42.5(1.7)	16.0(0.6)	21.8(0.9)	93(3.7)	41.0(1.6)	101(4.0)
M3	1 1/2	350(13.8)	171(6.7)	182(7.2)	2.5(8.2)	78(3.1)	112(4.4)	34.0(1.3)	47.5(1.9)	19.5(0.8)	26.5(1.0)	106(4.2)	47.0(1.9)	119(4.7)
M3	2	375(14.8)	182(7.2)	202(8.0)	2.5(8.2)	87(3.4)	125(4.9)	36.0(1.4)	50.0(2.0)	21.8(0.9)	30.0(1.2)	116(4.6)	49.0(1.9)	124(4.9)
M3	2 1/2	420(16.5)	192(7.6)	233(9.2)	2.5(8.2)	91(3.6)	143(5.6)	40.0(1.6)	53.0(2.1)	24.3(1.0)	33.5(1.3)	127(5.0)	53.0(2.1)	136(5.4)
M3	3	510(20.1)	171(6.7)	235(9.3)	2.6(8.5)	78(3.1)	162(6.4)	42.5(1.7)	56.0(2.2)	27.2(1.1)	37.5(1.5)	138(5.4)	57.0(2.2)	148(5.8)
M3	5	600(23.6)	192(7.6)	282(11.1)	3.0(9.8)	91(3.6)	194(7.6)	46.5(1.8)	63.0(2.5)	34.5(1.4)	47.5(1.9)	161(6.3)	67.5(2.7)	172(6.8)
M3	8	770(30.3)	192(7.6)	373(14.7)	3.0(9.8)	91(3.6)	253(10.0)	72.5(2.9)	85.0(3.3)	47.5(1.9)	63.0(2.5)	231(9.1)	97.5(3.8)	275(10.8)



#### Specifications

Model	Code	Cap. (metric ton)	Std. Lift m (ft.)	Chain Pull to Lift Full Load kg (lb)	Overhaul Ratio (ft.)	Test Load (U.S. ton)	Net Weight kg (lb)	Shipping Weight (approx) kg (lb)	Load chain Fall (Lines)	Weight for Additional One Foot of Lift kg (lbs)
M3	CB100	10	3.5 (11.5)	33 (72)	396	12.5	83(182.6)	91 (201)	4	7.9 (17.4)
M3	CB150	15	3.5 (11.5)	34 (74)	594	18.75	155(341)	165 (364)	6	11.4 (25.1)
M3	CB200	20	3.5 (11.5)	33 (72)X2	396X2	25	235(518)	305 (672)	8	15.8 (34.8)

Any lift of chain is available on request. Because Harrington chains are specially heat treated, only authentic Harrington chains should be used on your hoist. **NEVER** attempt to lengthen the chain by attaching additional chain links to it or by any other means. Harrington can supply almost any length of chain desired. Simply specify the length of chain desired when ordering.

#### Dimensions

Model	Cap (ton)	Min. Distance Between Hooks: C mm(in)	a mm(in)	b mm(in)	d m(ft)	e mm(in)	f m(in)	g mm(in)	s mm(in)	p mm(in)	u mm(in)	v mm(in)	w mm(in)	x mm(in)
M3	10	760(29.9)	192(7.6)	438(17.2)	4.2(13.8)	111(4.4)	308(12.1)	72.5(2.9)	85(3.3)	47.5(1.9)	63(2.5)	231(9.1)	97.5(3.8)	295(11.6)
M3	15	1020(40.2)	268(10.6)	492(19.4)	4.7(15.4)	119(4.7)	337(13.3)	80(3.1)	100(3.9)	60(2.4)	80(3.1)	275(10.8)	110(4.3)	320(12.6)
M3	20	1180(46.5)	374(14.7)	746(29.4)	4.8(15.7)	187(7.4)	373(14.7)	81(3.2)	110(4.3)	67(2.6)	90(3.5)	301(11.9)	125(4.9)	351(13.8)

## 3. OPERATION

### 3.1 Safety Consideration

**⚠ WARNING** : IMPROPER operation could result in death or serious injury. To avoid these hazards, only operate the chain hoist by hand. Power operation may result in structural damage or premature wear. This damage or wear may cause a part to break and cause the load to fall.

### 3.2 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.

### 3.3 Hoist Storage

**⚠ WARNING** : IMPROPER chain hoist use could result in death or serious injury. To avoid these hazards:

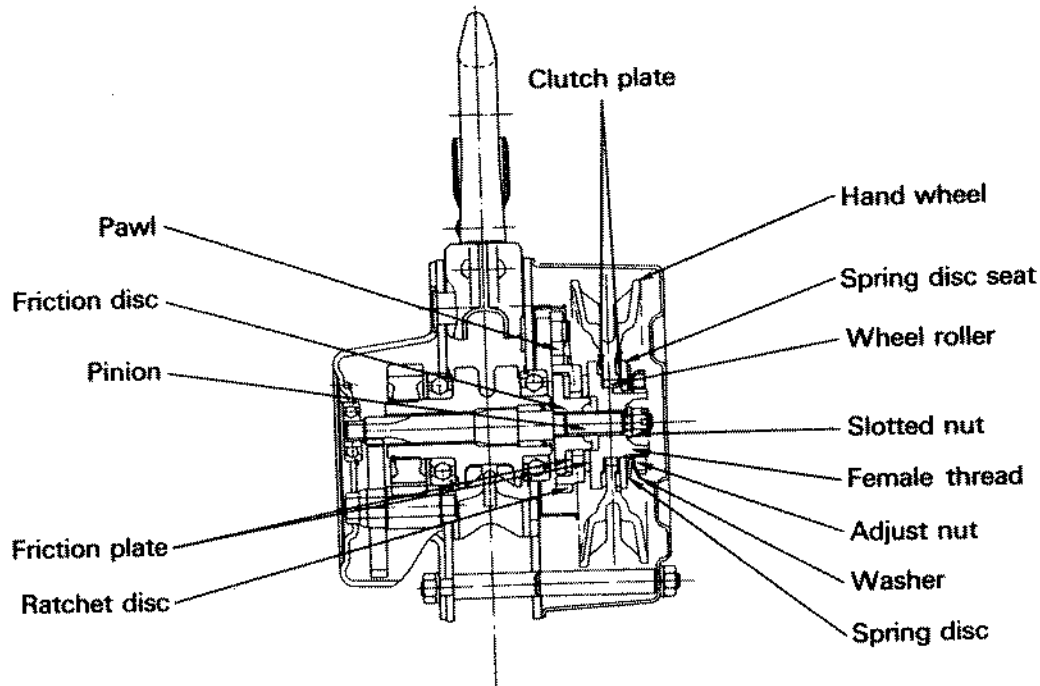
- ALWAYS** store the hoist in a no load condition.
- ALWAYS** wipe off all dirt and water.
- ALWAYS** oil the chain, hook pins and hook latches.
- ALWAYS** hang in a dry place.
- ALWAYS** check the hoist for abnormalities (according to the regular inspection procedures) when using the hoist after a period of non-use (Refer to section 4.3).

### 3.4 Principle and Operation of the Overload Limiter (OPTIONAL)

**⚠ WARNING** : IMPROPER chain hoist use could result in death or serious injury. To avoid these hazards:

**⚠ WARNING** : NEVER disassemble or attempt to adjust the overload limiter assembly. Any attempt to do so will void the warranty. Contact your closest Harrington Distributor if service is required.

The overload limiter has been developed to avoid overloading the manual chain hoist. When an applied load exceeds the preset value, the hand chain wheel rotates idly. The mechanism is a friction clutch system located between the hand chain wheel and the mechanical brake.



## 4. INSPECTION

### 4.1 Outline

There are two types of inspection, the daily inspection performed by the operator while using the hoist, and the more thorough periodic inspections performed by qualified personnel who have the authority to remove the unit from service.

### 4.2 Daily Inspection

Before each work shift, check the following points:

- (1) Check that the nameplate showing the hoist capacity is attached and clearly legible.
- (2) Check that the warning tag and label are attached and clearly legible.
- (3) Check for visual defects or abnormal noises which could indicate a defect.
- (4) Check that the upper and lower hook latches are in place and in proper condition.
- (5) Make sure the openings of the upper and lower hooks are not too wide, that the swivel rotates freely and that the hook latch is in position and works normally.
- (6) Check for wear or damage, increased throat width, bent shank or bending of hook.
- (7) Check that the chain does not have excessive rust or corrosion and that it is properly lubricated.
- (8) When facing the hand chain side of the hoist with no load:  
The brake is operating normally if the pawl "clicks" when the hand chain is wound in a clockwise direction and does not "click" when operated in the counterclockwise direction.
- (9) Check lubrication and lubricate if necessary. (Refer to Section 5.1)
- (10) Check that the chain is assembled correctly and that there is no twisting.
- (11) Check for loose or missing nuts and split pins.

### 4.3 Periodic Inspection

Periodic inspections should be made at the interval shown below and should follow the given procedures.

<sup>1</sup> NORMAL (Normal use):	Semiannual inspection
<sup>2</sup> HEAVY (Frequent use):	Quarterly inspection
<sup>3</sup> SEVERE (Excessively frequent use):	Monthly inspection

#### Regular Inspection Procedure

Figures in parentheses are Figure Nos. in Parts List.

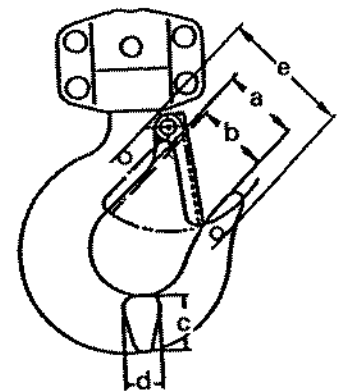
Item	Inspection Method	Discard Limit/Criteria	Measures
Name Plates	Check visually	Capacity indication is not clear.	Attach new name plate.
Hook (1, 6, 54, 55, 78) (Upper & Lower)	Measure dimension "e" between two embossed marks at time of purchase with slide calipers.	Dimensions are greater than those in the following table.	Replace the hook.
1. Deformation/ twist of hook, opening of hook.	Check visually.	Twist is large enough to be detected visually.	Replace the hook.
2. Wear	Measure "c" and "d" with slide calipers.	The dimensions are more than 5% greater than those just after purchase.	Replace the hook.



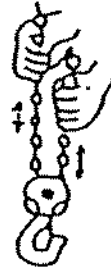
(Reference values)

Table 1

Cap. (U.S. ton)	a		b		c mm(in)		d mm(in)	
	Normal mm(in)	Normal mm(in)	Normal	Discard	Normal	Discard	Normal	Discard
1/2	31.0(1.220)	27.0(1.063)	17.0(0.669)	15.3(.602)	12.1(0.476)	10.9(.429)		
1	34.0(1.338)	29.0(1.142)	21.8(0.858)	19.6(.772)	16.0(0.630)	14.4(.567)		
1 1/2	37.5(1.476)	34.0(1.339)	26.5(1.043)	23.9(.939)	19.5(0.768)	17.6(.691)		
2	40.0(1.575)	36.0(1.417)	30.0(1.181)	27.0(1.063)	21.8(0.858)	19.6(.772)		
2 1/2	42.5(1.673)	40.0(1.575)	33.5(1.319)	30.2(1.187)	24.3(0.957)	21.9(.861)		
3	46.0(1.811)	42.5(1.673)	37.5(1.476)	33.8(1.329)	27.2(1.071)	24.5(.964)		
5	50.0(1.968)	46.5(1.831)	47.5(1.870)	42.8(1.683)	34.5(1.358)	31.1(1.222)		
8	79.5(3.130)	72.5(2.854)	63.0(2.480)	56.7(2.232)	47.5(1.870)	42.8(1.683)		
10	79.5(3.130)	72.5(2.854)	63.0(2.480)	56.7(2.232)	47.5(1.870)	42.8(1.683)		
15	95.0(3.740)	80.0(3.150)	80.0(3.150)	72.0(2.835)	50.0(1.969)	45.0(1.772)		
20	95.0(3.740)	81.0(3.189)	90.0(3.543)	81.0(3.189)	56.0(2.205)	50.4(1.984)		



Item	Inspection Method	Discard Limit/Criteria	Measures
3. Hook flaws	Check visually.	Deep flaws.	Replace the hook.
4. Hook movement.	Turn hook.	Hook does not turn smoothly.	Replace the hook.
5. Upper/lower fixture damage (Fittings of 1, 54,55,78)	Check visually.	Loose or missing rivets, nuts or bolts.	Replace the hook.
6. Idle sheave rotation (57,81)	Hold the load chain with both hands and turn the idle sheave by moving the chain up and down.	Rotation is not smooth.	Repair
7. Hook Latch (2,7,56,80)	Check visually.	Improper positioning and does not work smoothly.	Replace the latch or hook.



**LOAD CHAIN**  
(47,110)

1. Wear

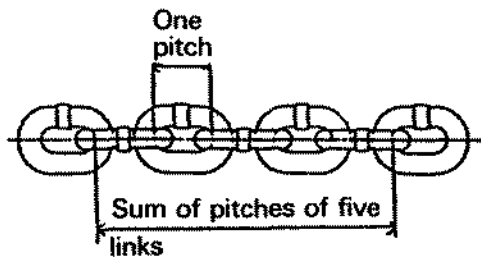
Measure with slide calipers.

Measure the sum of pitches of five chain links and check that the maximum length is not exceeding the values shown below in Table 2.

Replace the chain.

Table 2

Capacity (U.S. ton)	Sum of Pitches of Five Links mm(in)	Discard Limit mm(in)
1/2	75.5(2.972)	77.7(3.059)
1	95.5(3.760)	98.3(3.870)
1 1/2,3	106.0(4.173)	109.1(4.295)
2	121.0(4.764)	124.6(4.906)
2 1/2, 5, 8, 10, 15, 20	136.0(5.354)	140.0(5.512)



2. Rust, damage, deformation

Check visually.

Obvious rust (apply oil as necessary).  
Twists or cracks, nicks, dents or gouges.

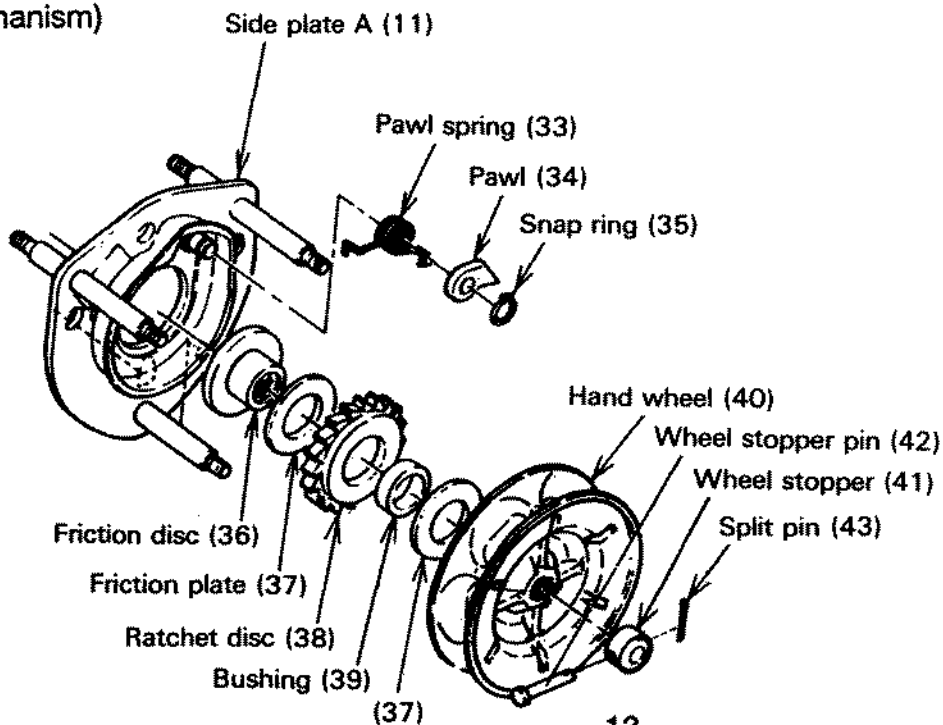
Remove rust.

Replace load chain.  
Destroy old load chain.

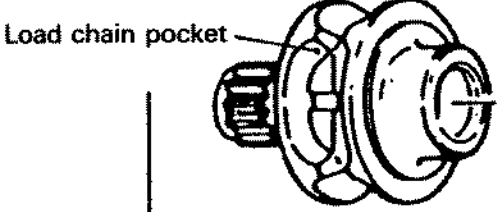
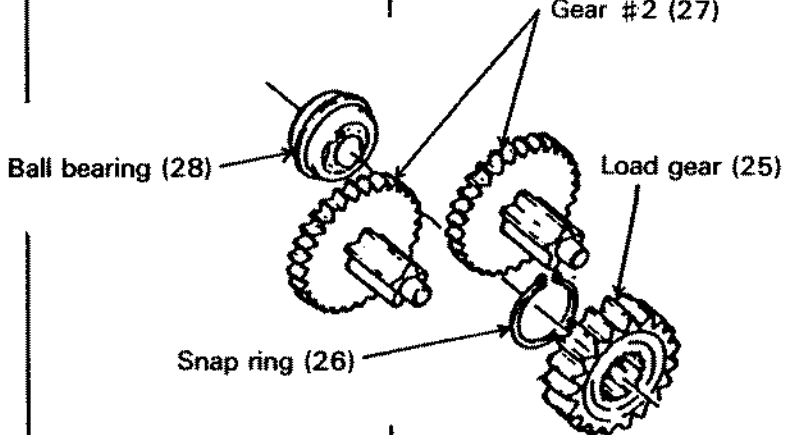
Item	Inspection Method	Discard Limit/Criteria	Measures
<b>HOOK YOKE</b> Top set (1,54) Bottom set (6,77) Joint of upper/ lower fixtures with top pin (4) and chain pin (8,106).	Measure hole diameter of joint area in two directions at right angle.	Deformation not permitted (if each measured value differs more than 0.5 mm (.020 in.), it is not a circle).	Replace the part.
<b>FUNCTION</b> 1. Lifting and lowering  2. Brake	Lift and lower a light load.	Abnormal difficulties in lifting or lowering.  Confirm that none of the problems listed below occur during lifting and lowering: -Lifting impossible. -Load falls when the operator removes his hands. -Load fall during unwinding. -Load slips down slowly.	Disassemble and service.  Disassemble and service.

**BRAKE**  
(Inside mechanism)

Disassemble and check.



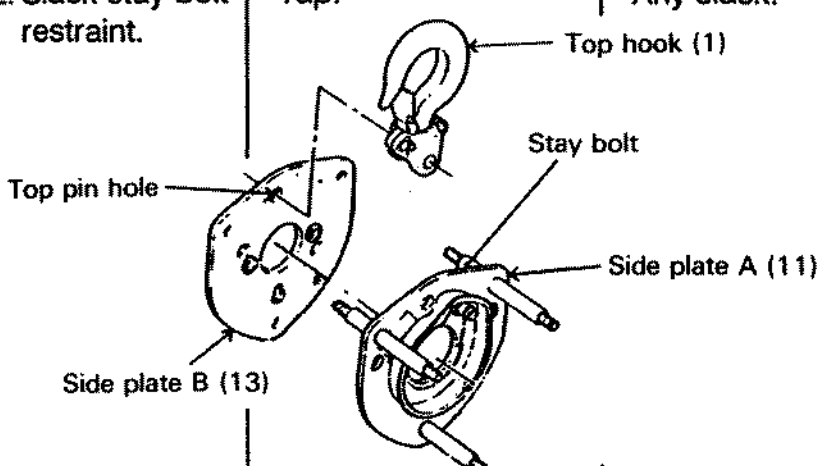
Item	Inspection Method	Discard Limit/Criteria	Measures									
1. Damage to brake surface (37,38,39)	Check visually.	Damage due to scratching or gouging by foreign matter.	Replace the part.									
2. Damage on friction disc (36)	Check visually.	Damage due to scratching or gouging by foreign matter.	Replace the part.									
3. Wear on friction plate (37)	Measure with slide calipers.	Thickness not uniform and friction plate worn more than 0.5mm(.020 in). For all types- Normal thickness: 3.0mm (.118 in) Discard limit: 2.5mm(.098 in)	Replace the part.									
4. Flatness of friction plate (37)	Check clearance with straight gauge.	Clearance is not uniform. Internal parts are thicker than external part.	Replace the part.									
5. Bushing (39); wear and oil. Type of oil to be used: ISO VG68 or equivalent.	Check radial thickness (t) with caliper and oil existence.	Radial thickness (t) should be uniform. Oil should be contained. Refer to Table 3.	Replace the part.									
 <table border="1" data-bbox="802 1360 1385 1682"> <caption>Table 3</caption> <thead> <tr> <th>Cap. (U.S. ton)</th> <th>Normal Thickness: t mm(in)</th> <th>Discard Limit mm(in)</th> </tr> </thead> <tbody> <tr> <td>1/2, 1, 1 1/2, 3</td> <td>3.0 (.118)</td> <td>2.0 (.079)</td> </tr> <tr> <td>2, 2 1/2, 5, 8, 10, 15, 20</td> <td>4.0 (.157)</td> <td>3.0 (.118)</td> </tr> </tbody> </table>				Cap. (U.S. ton)	Normal Thickness: t mm(in)	Discard Limit mm(in)	1/2, 1, 1 1/2, 3	3.0 (.118)	2.0 (.079)	2, 2 1/2, 5, 8, 10, 15, 20	4.0 (.157)	3.0 (.118)
Cap. (U.S. ton)	Normal Thickness: t mm(in)	Discard Limit mm(in)										
1/2, 1, 1 1/2, 3	3.0 (.118)	2.0 (.079)										
2, 2 1/2, 5, 8, 10, 15, 20	4.0 (.157)	3.0 (.118)										
6. Ratchet disc (38); wear and rust	Check visually.	The tooth wear exceeds 1.5mm(.059 in). Any rust.	Replace the part.									

Item	Inspection Method	Discard Limit/Criteria	Measures
<b>LIFTING SYSTEM</b> 1. Load sheave (14); wear and deformation	Check visually.	Large amount of wear or deformation on the surface of load wheel pocket or burr due to load chain contact.	Replace the part.
 Load sheave (14)	Check visually.	Teeth have excessive wear or damage.	Replace the part.
2. Gears (25,27); wear and flaw.	Check visually.	Teeth have excessive wear or damage.	Replace the part.
	Check visually.	Large wear or deformation on the surface of hand wheel. The hand wheel touches the cover.	Replace the part.
3. Hand wheel (40); wear and deformation.	Check visually.	Large wear or deformation on the surface of hand wheel. The hand wheel touches the cover.	Replace the part.

<sup>1</sup>Normal Service is defined as operation with random loading at or below rated capacity or uniform loading not exceeding 65% of rated capacity for not more than 15% of the time.

<sup>2</sup> Heavy Service is defined as operation with loads less than or equal to rated capacity which exceed normal service limits.

<sup>3</sup> Severe Service is defined as operation with loads less than or equal to rated capacity involving normal or heavy service with abnormal conditions.

Item	Inspection Method	Discard Limit/Criteria	Measures
<p><b>FRAME</b> (11,13)</p> <p>1. Deformation of top pin hole.</p> <p>2. Slack stay bolt restraint.</p>	<p>Check visually.</p> <p>Tap.</p> 	<p>Hole is oval.</p> <p>Any slack.</p>	<p>Replace part.</p> <p>Replace part.</p>
<p><b>MISCELLANEOUS</b></p> <p>1. Deformation of stripper(21)</p> <p>2. Flaw on guide roller (20)</p>	<p>Check visually.</p> <p>Check visually.</p>	<p>Large dents or damage on stripper tip.</p> <p>Turning more than slightly. Large deformation.</p>	<p>Replace part.</p> <p>Replace part.</p>

## 5. Maintenance

- ⚠ WARNING** : IMPROPER chain hoist use could result in death or serious injury. To avoid these hazards:
- : NEVER perform maintenance on the hoist while it is supporting a load.
  - : Before performing maintenance, attach the tag: “DANGER: EQUIPMENT BEING REPAIRED, DO NOT OPERATE”.
  - : Only allow qualified service personnel to perform maintenance.
  - : After performing any maintenance on the hoist, check operation and load test to 125% of rated capacity before returning to service.

### 5.1 Lubrication

#### 5.1.1 Applying Grease to Gears

Unscrew nuts (31) on the opposite side of hand chain wheel, and remove spring washers (32) and gear case (29). Remove old grease and replace the new grease (standard grease\*), at annual inspection.

Temperature range of standard grease is -20°C (-4°F) to +60°C (140°F). If the hoist is used at temperatures below -20°C (-4°F) or above 60°C (140°F), consult the manufacturer or dealer since some parts should be changed.

\*Recommended brand: Shell Albania #3 or Calcium soap grease equivalent of NLGI (National Lubricating Grease Institute)#3

#### 5.1.2 Load Chain

- ⚠ WARNING** : Failure to maintain clean and well lubricated load chain will void the manufacturer's warranty.
- : IMPROPER chain hoist use could result in death or serious injury. TO avoid these hazards:

**ALWAYS:** lubricate load chain weekly, or more frequently, depending on severity of service.

**ALWAYS:** lubricate more frequently than normal in a corrosive environment.\*\*

**ALWAYS:** use machine oil equivalent to ISO VG46 or 68.

**ALWAYS:** clean chain with an acid free solvent only to remove rust or abrasive dust build-up. After cleaning, lubricate the chain.

**ALWAYS:** lubricate each link of the chain and apply new lubricant over existing layer.

\*\*Harrington has available as an option a corrosive-resistant chain. For information on the capabilities and limitations of Harrington's regular and corrosion-resistant chain, please ask your Harrington Hoists, Inc. Distributor.

## 5.2 Disassembly, Assembly and Adjustment

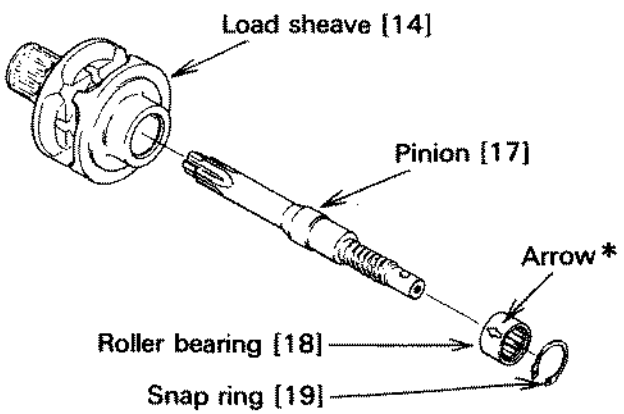
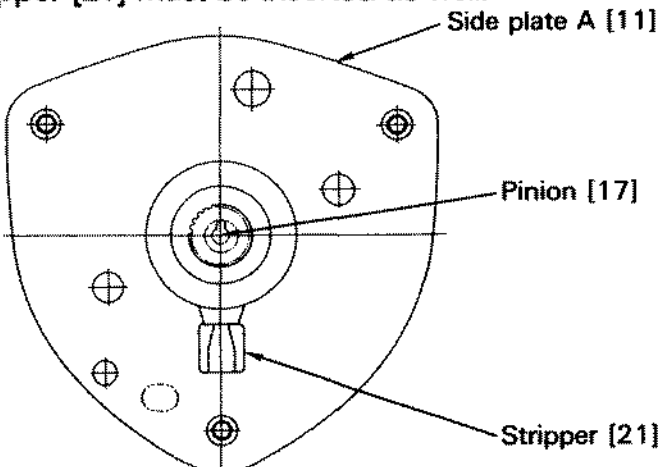
### 5.2.1 Disassembly

Figures in parentheses are Figure Numbers in Parts List.

Disassembly Procedures	Remarks
<ol style="list-style-type: none"><li>1. Orient a hoist with wheel cover side up.</li><li>2. Unscrew three nuts [45] (with the spring washers [46]) fixing the wheel cover [44] and remove the wheel cover from the side plate A [11].</li><li>3. Remove the hand chain [48] from the hand wheel [40].</li><li>4. Pull out the split pin [43] from the wheel stopper pin [42] and remove the wheel stopper pin and the wheel stopper [41] from the pinion [17].</li><li>5. Remove the hand wheel [40] from the pinion [17] by turning the hand wheel counterclockwise.</li><li>6. Remove two friction plates [37], the ratchet disc [38] and the bushing [39] from the friction disc [36].</li><li>7. Unscrew the friction disc [36] from the pinion [17] by turning counterclockwise holding the end of the pinion with your fingers.</li><li>8. Remove the snap ring [35] from the pawl pin (on the side plate A) and then remove the pawl [34] and pawl spring A [33] and B [33].</li><li>9. For 8 ton capacity and under: Pull the split pin [24] out from the stopper pin [23] and remove the load chain [47] and the stopper pin from the stopper [22]. For 10 ton capacity and above: Pull the split pin [52] out from the end pin [51] and remove the load chain [47] and the end pin. Unscrew two socket bolts (with the spring washers) fixing the stoppers [114] and remove the stoppers.</li></ol>	<p>If the hand wheel is too tight to turn by hand, put the hand chain back on the hand wheel and pull it down hard. It will release the brake.</p>

Disassembly Procedures	Remarks
<p>10. Remove the load chain [47] from the load sheave [14] by pulling the load chain toward the bottom hook.</p> <p>11. Remove the split pin [5] from the top pin [4], then remove the top pin and the top hook [1] from the side plate A [11] and B [13].</p> <p>12. Place hoist with gear case side (or nameplate side) up.</p> <p>13. Unscrew three nuts [31] (with the spring washers 32) fixing the gear case [29], remove the gear case from the side plate B [13], and remove the ball bearing [28] from the gear case.</p> <p>14. Remove two pairs of the gear #2 [27] (1/2T has one pair) from the side plate B [13].</p> <p>15. Remove the snap ring [26] from the load sheave [14], then the load gear [25] from the load sheave.</p> <p>16. Remove the side plate B [13] from the side plate A [11] and then take the ball bearing [16] out from the side plate B.</p> <p>17. Remove the guide rollers [20], load sheave (attached to the pinion [17]), stripper [21] and stopper [22] (for 10 capacity and above: cross guide [53]) from the side plate A [11], then remove the ball bearing [15] from the side plate A.</p> <p>18. Remove the snap ring [19] in the load sheave [14].</p> <p>19. Remove the pinion [17] and the roller bearing [18] from the load sheave [14].</p> <p>20. Pull the split pin [10] out from the slotted nut [9] and remove the slotted nut and chain pin from the bottom hook [6].</p>	<p>Hold the load sheave by hand and remove the bearing by tapping the pinion with a rubber mallet.</p>

## 5.2.2 Assembly and Adjustment

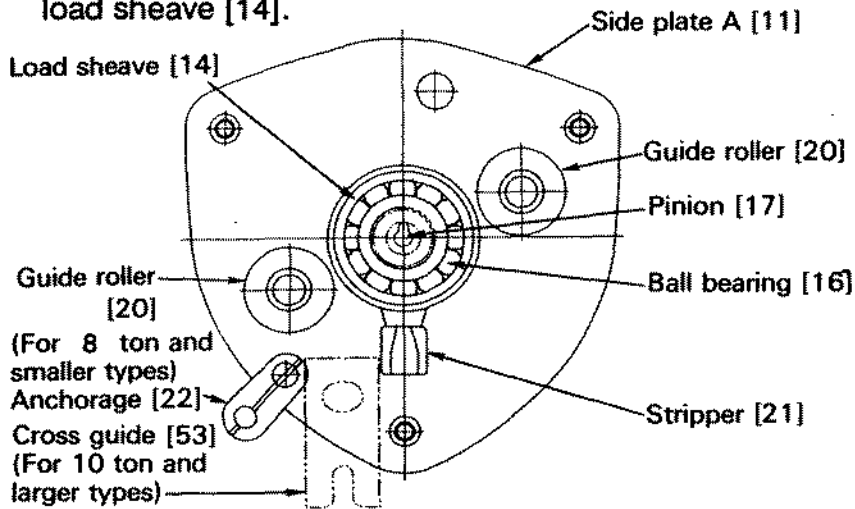
Assembly Procedures	Remarks
<p>1. Apply grease to the rollers of the roller bearing [18] and insert the pinion [17] (from the side of the brake screw) into the roller bearing and insert them together into the load sheave [14]. Fix them with a snap ring [19].</p>  <p>2. Grease the balls of the ball bearing [15]. Orient the side plate A [11] with brake cover side down and insert the ball bearing [15] (with a snap ring side up) into the side A.</p> <p>3. Insert the load sheave [14] with a part of spline side (pinion gear side) up into the ball bearing [15]. The stripper [21] must be inserted as well.</p>  <p>4. For 8 ton capacity and below: Put the guide rollers [20] and the stopper [22] in the side plate A [11]. For 10 ton and larger capacities: Put the guide rollers [20] and the cross guide [53] in the side plate A [11].</p>	<p>The arrow* on the outer side of the roller bearing should face the gear side. When inserting, use a screwdriver on the bearing and tap it with a rubber mallet.</p> <p><b>⚠ WARNING</b> Always make sure that the snap ring is correctly seated.</p> <p>Put the cross guide so that the longer arm fits to the side plate A.</p>

## Assembly Procedures

## Remarks

5. Grease the balls of the ball bearing [16].  
Insert it with the snap ring side down to the shaft of the load sheave [14].

Make sure the snap ring side of the ball bearing is oriented toward the load sheave.



6. Join the side plate B [13] to the side plate A [11].

In case it is difficult to join the two tap it with a rubber mallet. Be careful not to let the stripper, guide roller or stopper fall down.

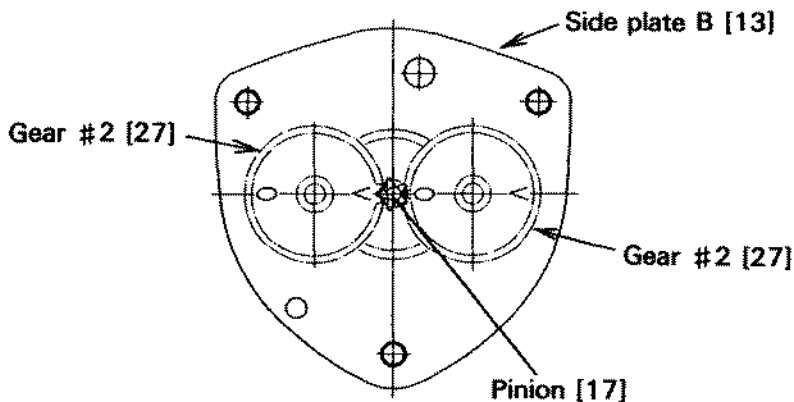
7. Mesh the load gear [25] with the splines of the load sheave [14] and fix it with a snap ring [26].

### **⚠ WARNING**

Always make sure the snap ring is completely seated at the bottom of the groove.

8. Grease the two pairs of the gear #2 [27], the load gear [25] and the gear of the pinion [17]. Put them in the gear plain bearing (bearing A) of the side plate B [13]. Letters O and V on the gears must face each other as shown in the picture below. Do not forget to apply grease to the boss on the both sides of the gear #2.

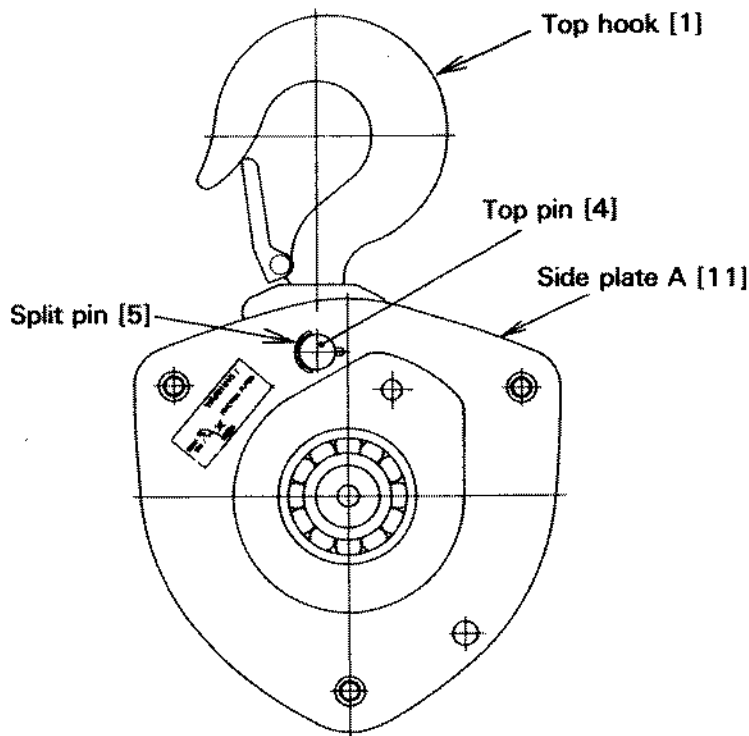
It is not necessary to adjust the letters in case of the 1/2T model, for it has only one pair of the gear #2.



## Assembly Procedures

## Remarks

9. Grease the balls of the ball bearing [28] and insert it with the snap ring down into the end of the pinion [17] shaft.
10. Join the gear case [29] to the side plate A [11] and fix them with the three spring washers [32] and nuts [31].
11. Place the top hook [1] between the side plate A [11] and B [13]. Then insert top pin [4] and fix it with the split pin [5].



12. Place the hand wheel [40] side upward.
13. Reeve the load chain [47] turning the pinion clockwise through the space between the left (bottom hook side) guide roller [20] and the load sheave [14].

### **⚠ WARNING**

Always bend the split pin securely after inserting it into the top pin.

### **⚠ WARNING**

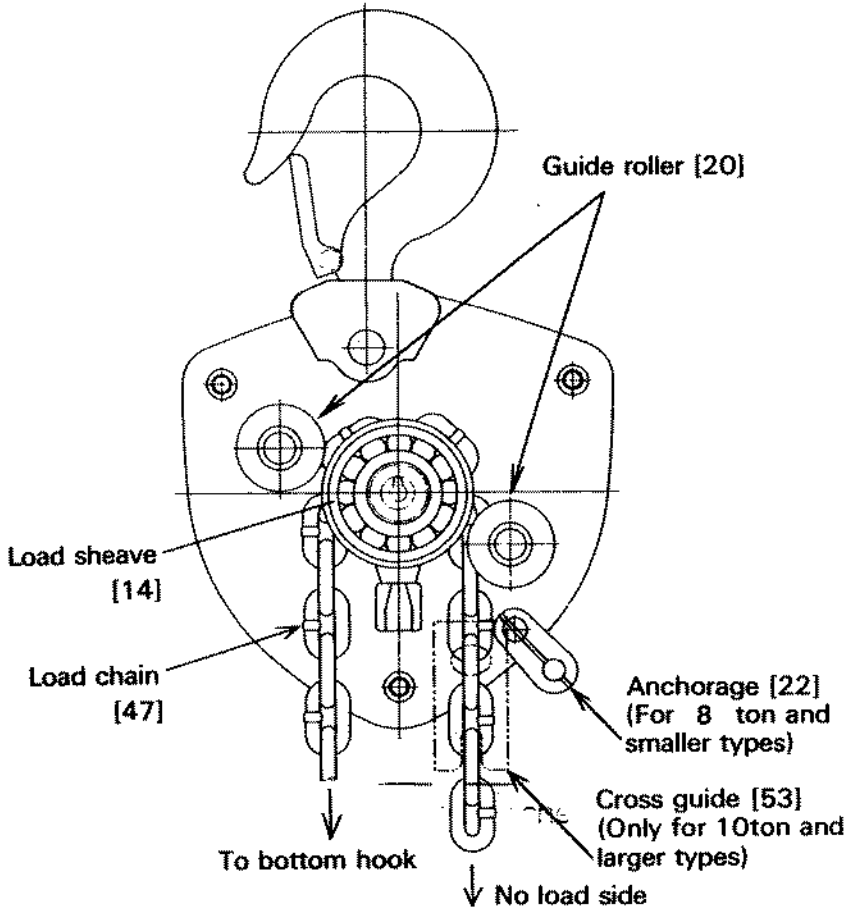
Put the welded part of the vertical chain link outward and reeve it through the load sheave. Pull it out between the right guide roller (no load side) and the load sheave.

Assembly Procedures

Remarks

For 10 ton capacities and above, pass the no load end of the chain through the cross guide [53].

It is recommended for this process to position the unit so that the side plate A [11] faces left and the side plate B [13] faces right.

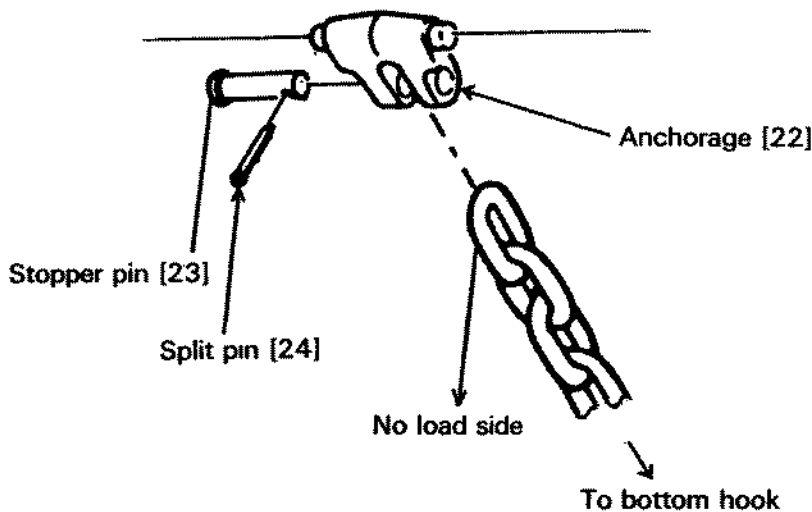


14. For 8 ton capacity and below:

Pull the end of the load chain [47] out between the right guide roller [20] and the load sheave [14] (no load side) and insert it to the stopper [22]. Insert the stopper pin [23] and fix it with a split pin [24].

**⚠ WARNING**

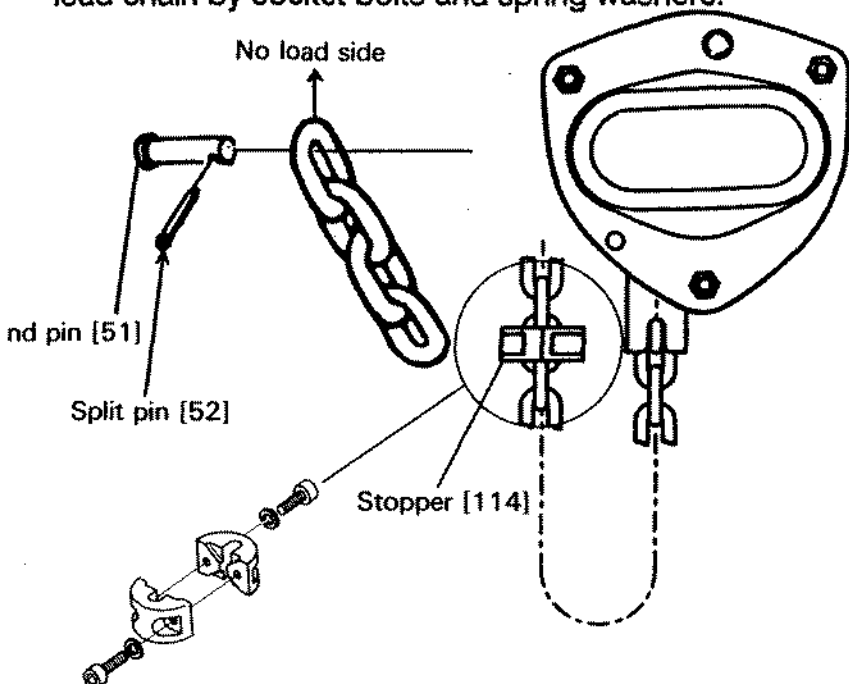
Make sure the load chain is not twisted and the split pin in the stopper pin is bent securely.



## Assembly Procedures

## Remarks

For 10 ton capacity and above:  
 Connect the no load end of the load chain [47] to the end pin [51] which is to be inserted from gear case [29] side. Use a split pin [52] to secure the end pin. Assemble stoppers [114] to the ninth link from the no load end of the load chain by socket bolts and spring washers.



15. Apply machine oil to the pawl pin (in side plate A [11]) and join the pawl spring A [33], B [33] and the pawl [34] respectively to it. Fix them with a snap ring [35].
16. Attach the friction disc [36] to the pinion [17] shaft (while turning the pawl [34] counterclockwise).
17. Wipe out any dirt on the friction disc [36], friction plates [37] and both sides of the ratchet disc [38] and check if the oil of the bushing [39] (bushing with oil in it) is adequate. Then place the friction plate, bushing, ratchet disc and friction plate respectively on the friction disc. (Make sure that the ratchet disc and the pawl mesh properly).

Threaded hole of one stopper shall face to non-threaded hole of the other stopper. Socket bolt shall be inserted from the non-threaded side.

### **⚠ WARNING**

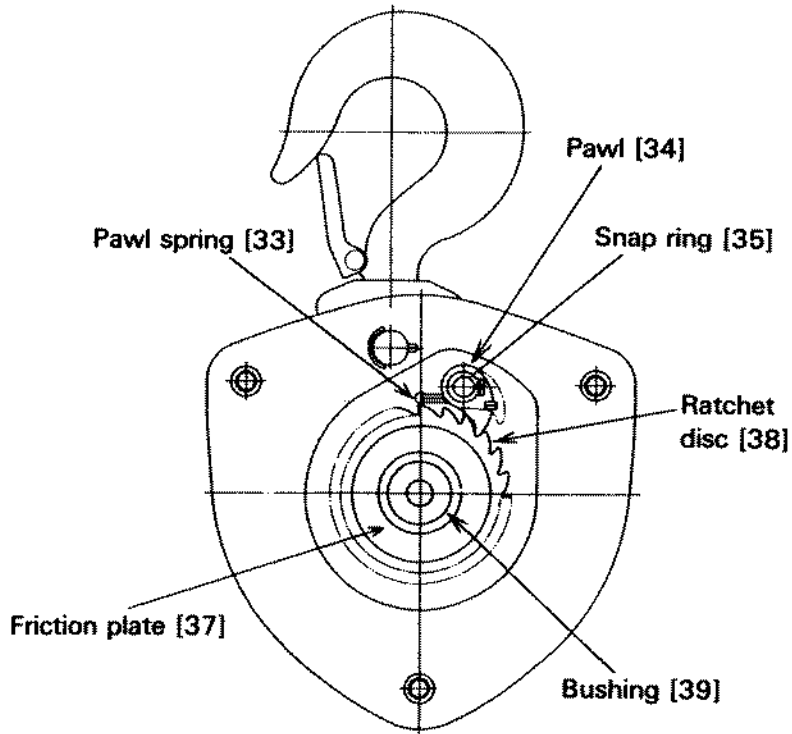
Make sure the pawl spring is touching the pawl and the snap ring is completely seated at the bottom of the groove.

### **⚠ WARNING**

Since the brake is a "dry system", **NEVER** apply oil. Wipe out thoroughly any oil and dirt on the brake. The gear of the ratchet disc should point at the pawl. Otherwise, the hand wheel cannot be assembled later. In case the bushing does not have oil inside, soak it in turbine oil for a day. Install it without wiping the oil.

## Assembly Procedures

## Remarks



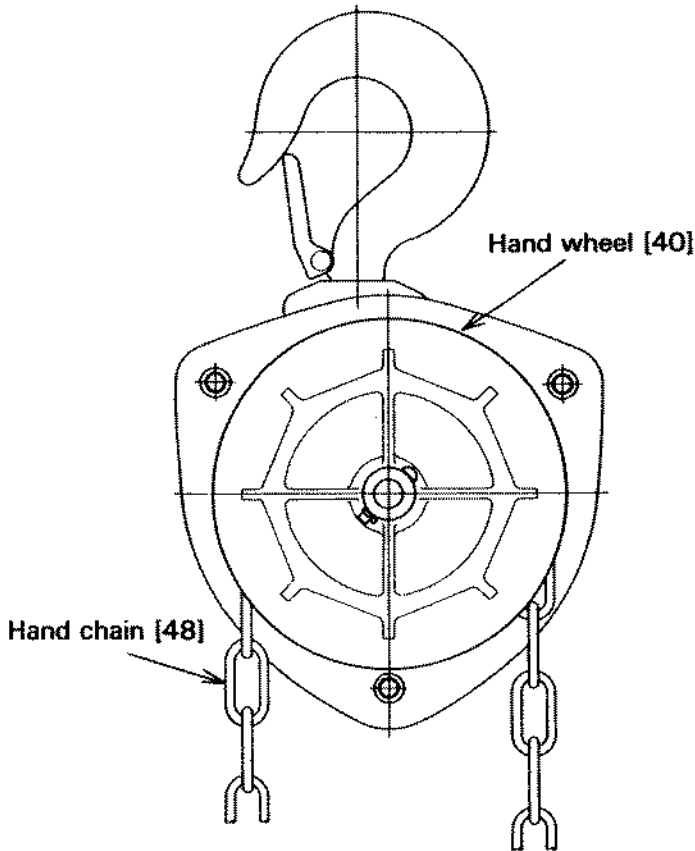
18. Wipe out any dirt on the brake surface of the hand wheel [40] and apply machine oil to the threaded part of it. Screw it on the pinion [17] shaft all the way down.
19. Place the wheel stopper [41] on the head of the pinion [17], insert the wheel stopper pin [42] and fix it with a split pin [43].
20. Put the hand chain [48] around the hand wheel [40].

### **⚠ WARNING**

Never forget to bend the split pin after inserting into the wheel stopper pin.

Assembly Procedures

Remarks

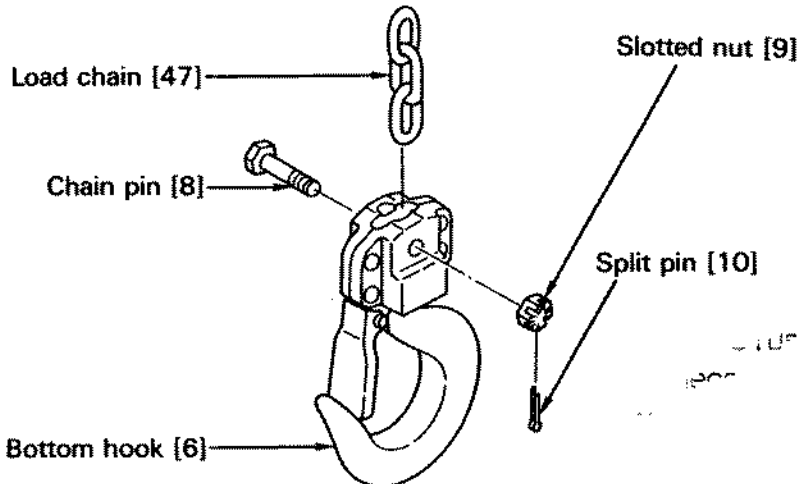


21. Assemble the wheel cover [44] to the side plate A [11] and fix them with the spring washer [45] and the nut [46].

22. Insert the other end of the load chain [47] to the bottom hook [6] and fix them with the chain pin [8], slotted nut [9] and split pin [10].

**⚠ WARNING**

Always bend the split pin securely.



## 6. WARRANTY

All products sold by Harrington Hoists, Inc. are warranted to be free from defect in material and workmanship from date of shipment by Harrington for the following periods:

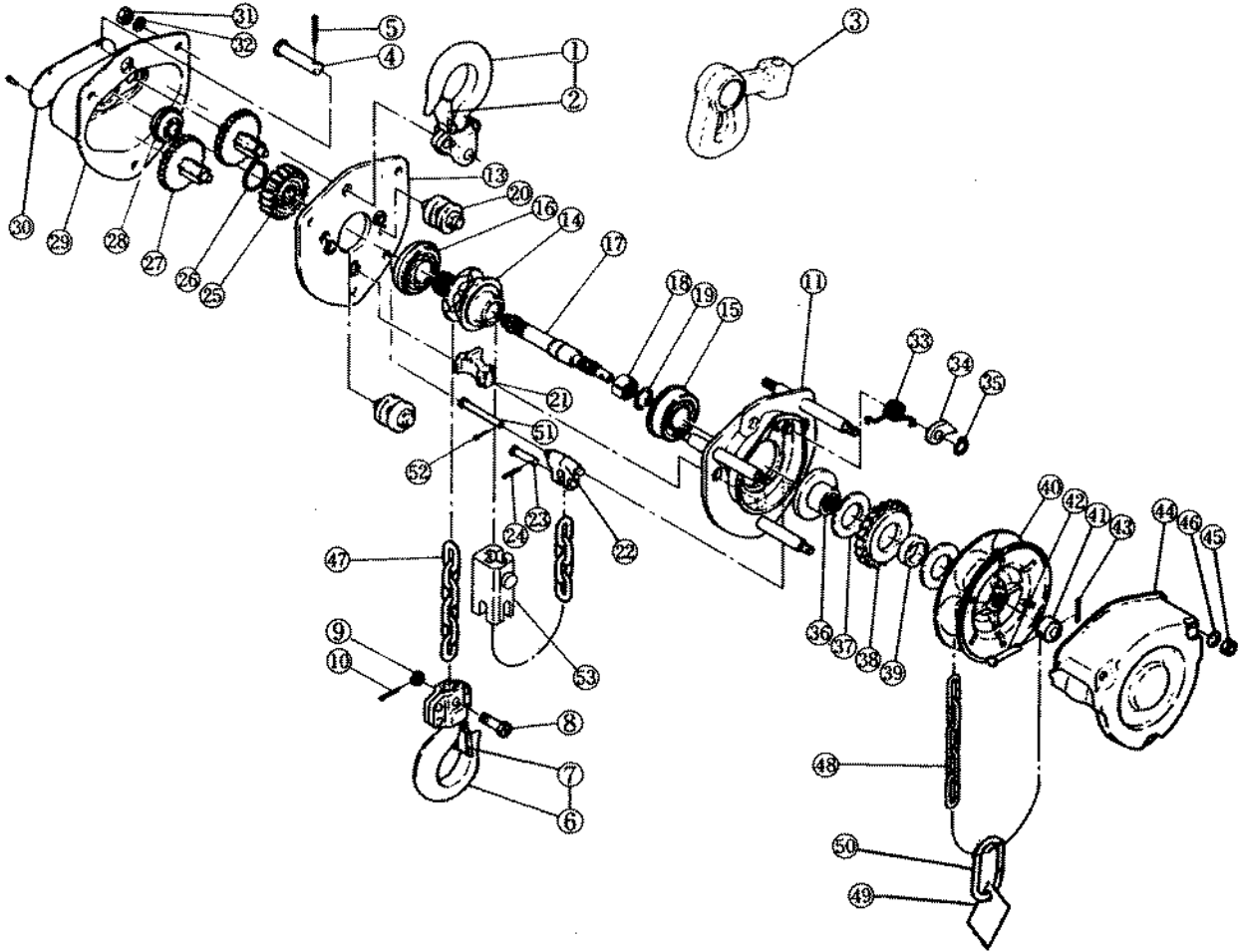
Manual Hoists & Trolleys - 2 years  
Electric Hoist & Trolleys, Crane Components - 1 year  
Spare/Replacement Parts - 1 year

The product must be used in accordance with manufacturer's recommendations and must not have been subject to abuse, lack of maintenance, misuse, negligence, or unauthorized repairs or alterations.

Should any defect in material or workmanship occur during the above time period in any product, as determined by Harrington Hoist's inspection of the product, Harrington Hoists, Inc. agrees, at its discretion, either to replace (not including installation) or repair the part of product free of charge and deliver said item F.O.B. Harrington Hoists, Inc. place of business to customer. Customer must obtain a Return Goods Authorization as directed by Harrington or Harrington's published repair center prior to shipping product for warranty evaluation. An explanation of the complaint must accompany the product. Product must be returned freight prepaid. Upon repair, the product will be covered for the remainder of the original warranty period. If it is determined there is no defect, or that the defect resulted from causes not within the scope of Harrington's warranty, the customer will be responsible for the costs of returning the product.

Harrington Hoists, Inc. disclaims any and all other warranties of any kind expressed or implied as to the product's merchantability or fitness for a particular application. Harrington will not be liable for death, injuries to persons or property or for incidental, contingent, special or consequential damages, loss or expense arising in connection with the use or inability whatever, regardless of whether damage, loss or expense results from any act or failure to act by Harrington, whether negligent or wilful, or from any other reason.

# 7. PARTS LIST



## ADDITIONAL PARTS FOR 3 TON AND LARGER TYPES

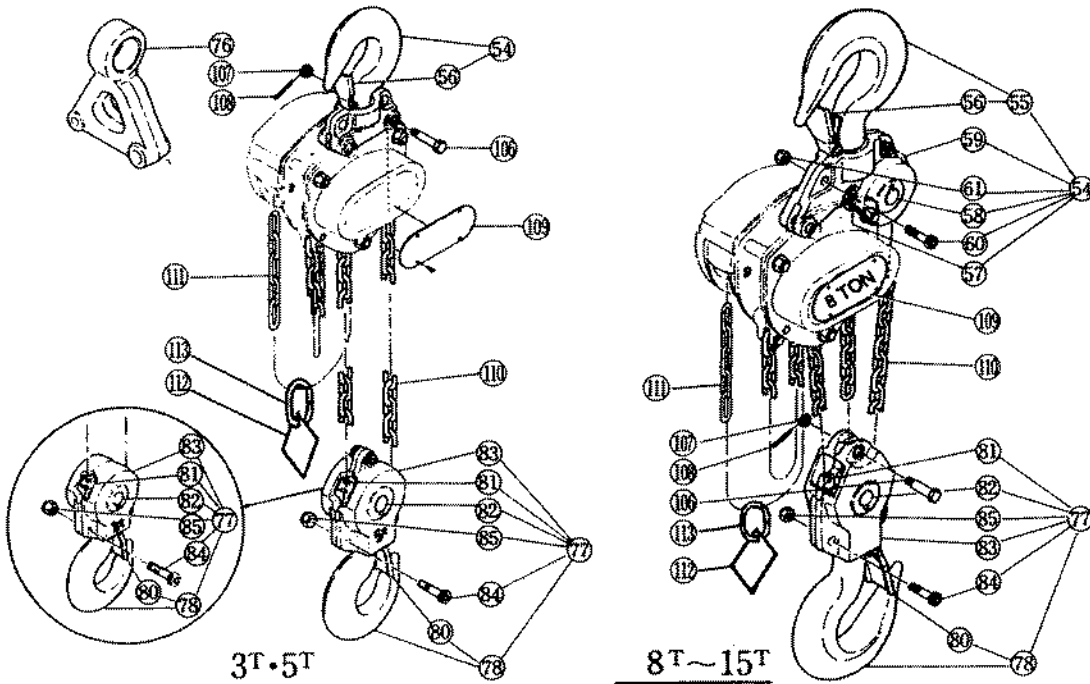


Fig. No.	Part Name	Nos. per Hoist	Capacity						
			1/2T	1T	1 1/2 & 3T	2T	2 1/2-5-8T	10-15-20T	
*1	Top Hook Set	1	M3001A005	M3001A010	*M3001A015	M3001A020	*M3001A025		
*2	Latch Assembly	1	CF071005	CF071010	*CF071015	CF071020	*CF071050		
*3	Suspender G	1	M3003010						
	Suspender	1				M3004015	M3004020	M3004025	
4	Top Pin	1	M3163005	M3163010	M3163015	M3163020	M3163025		
5	Split Pin	1	9009423			9009424			
*6	Bottom Hook Set	1	M3021A005	M3021A010	*M3021A015	M3021A020	*M3021A025		
*7	Latch Assembly	1	CF071005	CF071010	*CF071015	CF071020	*CF071030		
*8	Chain Pin	1	M3041005	M3041010	*M3041015	M3041020	*M3041025		
*9	Slotted Nut	1	M3049005	M2049010	*M2049010	*M2049020			
*10	Split Pin	1	9009402	*9009411		*9009412			
11	Side Plate A Assy.	1	M3101005	M3101010	M3101015	M3101020	M3101025		
	Side Plate A Assy. (M3B Model)	1						M3B101025	
13	Side Plate B Assy.	1	M3102005	M3102010	M3102015	M3102020	M3102025		
	Side Plate B Assy. (M3B Model)							M3B102025	
14	Load Sheave	1	M3116005	M3116010	M3116015	M3116020	M3116025		
15	Ball Bearing	1	M3140005			M3140020			
16	Ball Bearing	1	M3145005		M3140005		M3140020		
17	Pinion	1	M3111005	M3111010	M3111015	M3111020	M3111025		
	Pinion (M3B Model)	1						M3B111025	
18	Roller Bearing	1	M3130005			M3130020			
19	Snap Ring	1	M3118005			M3118020			
20	Guide Roller	2	M3161005	M3161010	M3161015	M3161020	M3161025		
21	Stripper	1	M3162005	M3162010	M3162015	M3162020	M3162025		
22	Anchorage	1	M3176005	M3176010	M3176015	M3176020	M3176025		
23	Stopper Pin	1	M3177005	M3177010	M3177015	M3177020	M3177025		
24	Split Pin	1	9009412	9009415-5					
25	Load Gear	1	M3114005	M3114010	M3114015	M3114020	M3114025		
26	Snap Ring	1	9047123		9047128		9047134		

\*Part number applies to 1 1/2 or 2 1/2 Ton capacities only. See additional parts list for 3, 5 and 8 ton capacities.

Fig. No.	Part Name	Nos. per Hoist	Capacity					
			1/2T	1T	1 1/2 & 3T	2T	2 1/2-5-8T	10-15-20T
27	Gear No. 2 Assy.	1	M3112005					
	Gear No. 2 Assy. (M3B Model)	2		M3112010	M3112015	M3112020	M3112025	
28	Ball Bearing	1	M3135005			M3135020		
29	Gear Case Assy.	1	M3103005	M3103010	M3103015	M3103020	M3103025	
30	Name Plate B w/ Rivets	1	M3800005	M3800010	*M3800015	M3800020	*M3800025	
	Name Plate B w/ Rivets (M3B Model)							*M3800025
31	Nut	3	9093424			9093427	9093433	
32	Spring Washer	3	9012711			9012712	9012713	
33A	Pawl Spring A**	1	M3179005					
33B	Pawl Spring B**	1	M3180005					
34	Pawl	1	M3155005					
35	Snap Ring	1	9047110					
36	Friction Disc	1	M3153005			M3153020		
	Friction Disc (M3B Model)							M3B153025
37	Friction Plate	2	M3151005			M3151020		
	Friction Plate (M3B Model)							M3B151025
38	Ratchet Disc	1	M3152005			M3152020		
	Ratchet Disc (M3B Model)							M3B152025
39	Bushing	1	M3154005			M3154020		
	Bushing (M3B Model)							M3B154025
40	Hand Wheel	1	M3115005		M3115015	M3115020	M3115025	
	Hand Wheel (M3B Model)							M3B115025
41	Wheel Stopper	1	CF159005			CF159010		
42	Wheel Stopper Pin	1	M2167005					
43	Split Pin	1	9009410					
44	Wheel Cover Assy.	1	M3171005		M3171015	M3171020	M3171025	
45	Nut	3	9093424					
46	Spring Washer	3	9012711					

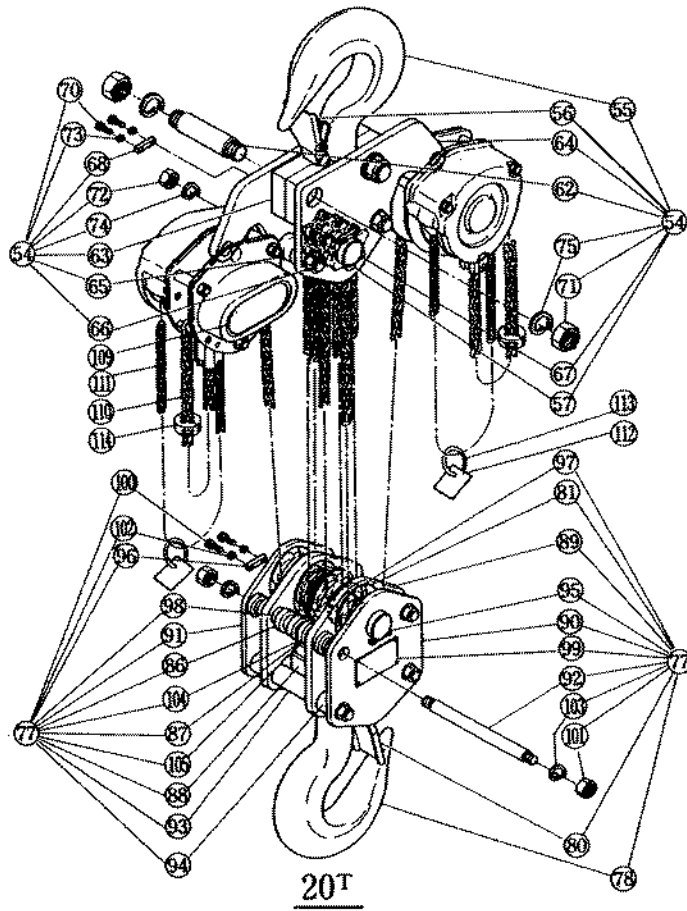
\*Part number applies to 1 1/2 or 2 1/2 ton capacities only. See additional parts list for 3, 5 and 8 ton capacities.

\*\*Pawl springs A and B must be used as a set.

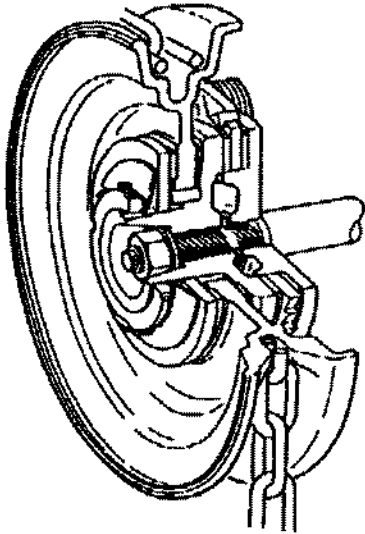
Fig. No.	Part Name	No. per Hoist	Capacity					
			1/2T	1T	1 1/2 & 3T	2T	2 1/2-5-8T	10-15-20T
47	Load Chain	1	LCCF005	LCCF010	LCCF015	LCC3020	LCC3025	
48	Hand Chain	1	HCCF005					
49	Warning Tag	1	WTAG4					
50	Chain Stopper Link	1	L4045030					
Fig. No.	Part Name	No. per Hoist	Capacity					
			3	5	8	10	15	20
51	End Pin	1				M3B164100		
52	Split Pin	1				9009415-5		
53	Cross Guide	1				M3B176100		
54	Top Hook Set	1	M3001A030	M3001A050	M3001A075	M3001A100	M3001A150	
		2						
55	Top Hook	1				M3001150		M3001200
	Top Hook Assembly	1				L42001090		
56	Latch Assy.	1	CF071030	M3072050	L41071090		M3072150	M3072200
57	Idle Sheave Assy.	1				M3051050		
		2				M31051150		
		3						M31051150
58	Shaft Assembly	1				M3053050		
59A	Top Yoke A	1				M3011075	M3011100	
	Top Yoke A	1				M3016150		
59B	Top Yoke B					M3012075	M3012100	
	Top Yoke B	1				M3017150		
60	Socket Bolt	3				90912116		
		1				90912116		
61	Lever Nut	3				L4082090		
		1				L4082090		
-	Socket Bolt	2				M3086100		
-	U Nut	2				9098516		
62	Top Suspension Shaft	2				M3010150		M3010200
63	Top Yoke	2						M3011200
64	Top Plate A Assy.	1				M35012150		
		2						M35012200
-	Top Plate B	1				M3014150		

Fig. No.	Part Name	No. per Hoist	Capacity					
			3	5	8	10	15	20
65	Guide	4					M3018150	
		6						M3018150
66	Stay Bolt	2					M3019150	M3019200
-	Top Plate	1					M3043150	
67	Top Shaft	1					M3053150	M3053200
68	Key Plate	2					M2056150	
-	Collar	2					M3066150	
70	Socket Bolt	4					9091270	
71	Nut	4					9093458	
72	Nut	4					9093445	
73	Spring Washer	4					9012711	
74	Spring Washer	4					9012717	
75	Spring Washer	4					9012721	
76	Suspender for TSP & TSG	1	M3004030	M3004050				
77	Bottom Hook Set	1	M3021A030	M3021A050	M3021A075	M3021A100	M3021A150	M3021A200
78	Bottom Hook						M3021150	M3021200
	Bottom Hook Assy.		M3021030	M3021050	L42001090			
80	Latch Assy.	1	CF071030	M3072050	L41071090		M3072150	M3072200
81	Idle Sheave Assy.	1	CF051030	M3051050				
		2					M3051100	
		3					M31051150	
		4						
82	Shaft Assembly	1	M3053030	M3053050				
	Bottom Shaft Assy.						M3054100	
83	Bottom Yoke Assembly	1	M3031030	M3031050	M3031075	M3031100		
84	Socket Bolt	2	9091296		90912116	M3088100		
		3		9091296				
85	Lever Nut	2	L4082060		L4082090			
		3		L4082060				
	U Nut	2					9098516	
86	Guide	6					M3018150	
		8						
87	Hook support	2					M3026150	M3026200
88	Bottom Yoke	1					M3030150	M3030200

Fig. No.	Part Name	No. per Hoist	Capacity					
			3	5	8	10	15	20
89	Bottom Plate A	1					M3034150	
		2						M3034200
90	Bottom Plate B	1					M3035150	M3035200
91	Bottom Plate C	1						M3036200
92	Stay Bolt	4					M3038150	M3038200
93	Collar A	2						M3039200
94	Collar B	4						M3040200
95	Bottom Shaft	1					M3054150	M3054200
96	Key Plate	2					M2056150	
97	Washer A	2						M3058200
98	Collar	4						M3066200
99	Name Plate A with Rivets	1					M3069150	M3069200
100	Socket Bolt	4					9091270	
101	Nut	8					9093445	
102	Spring Washer	4					9012711	
103	Spring Washer	8					9012717	
104	Tongued Washer	4					M3091150	
105	Bolt	4					9093350	
106	Chain Pin	1	M3041030	M3041075				
107	Slotted Nut	1	M2049010	M2049020				
108	Split Pin	1	9009411	9009412				
109	Name Plate B w/ Rivets	1	M3800030	M3800050	M3800075			
	Name Plate B w/ Rivets (M3B Model)	1		M3B800050	M3B800075	M3B800100	M3B800150	
		2						M3B800200
110	Load Chain	1	LCCF015	LCC3025				
111	Hand Chain	1	HCCF005					
		2					HCCF005	
112	Warning Tag	1	WTAG4					
		2					WTAG4	
113	Chain Stopper Link	1	L4045030					
		2					L4045030	
114	Stopper Assembly	1				M3045100		
		2						M3045100



## CB Slip Clutch Device



Part No.*	Capacity (ton)
M3CB005OD	1/2
M3CB010OD	1
M3CB015OD	1 1/2, 3
M3CB020OD	2
M3CB025OD	2 1/2, 5, 8
M3B025OD (M3B Model)	2 1/2, 5, 8, 10, 15**, 20**

\*Includes: Pinion  
Hand Wheel  
Washer  
Pinion Nut  
Split Pin

\*\*2 devices required per hoist.



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**HARRINGTON HOISTS, INC. • 401 WEST END AVENUE • MANHEIM, PA 17545**  
**PHONE: 717-665-2000 • TOLL FREE: 800-233-3010 • FAX: 717-665-2861**

**WESTERN FACTORY WAREHOUSE • 2341 POMONA RINCON RD. #103 • CORONA, CA 92880**  
**PHONE: 951-279-7100 • TOLL FREE: 800-317-7111 • FAX: 951-279-7500**

M3CBOM