

Effective: February 1, 1996

# OWNER'S (OPERATOR'S) MANUAL AND SAFETY INSTRUCTIONS

FOR

## HARRINGTON PEERLESS CF CHAIN HOIST

1/2 to 5 Ton Capacity

Model CF4

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.



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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 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.

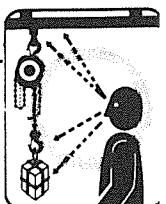
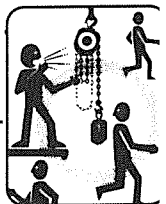
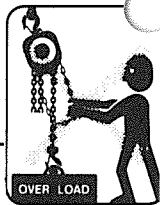
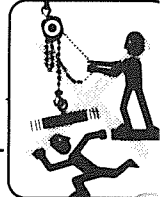
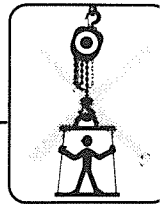
**ALWAYS** let people around you know when a lift is about to begin.

**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 the hoist. Check all applicable safety codes, regulations and other applicable laws for 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.

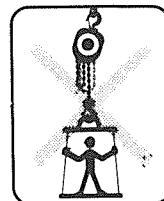
**⚠ WARNING :** **IMPROPER chain hoist use could result in death or serious injury. To avoid these hazards:**

- 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.



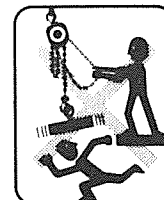
**⚠ WARNING** : IMPROPER chain hoist use could result in death or serious injury.  
TO avoid these hazards:

**NEVER** use the hoist to transport people.



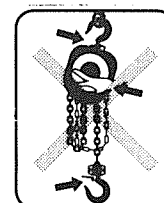
**NEVER** lift a load over people.

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



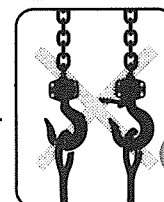
**NEVER** operate a hoist if damaged or malfunctioning.

**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.

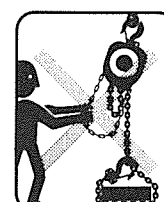
**NEVER** lift a load unless it is directly under the hook.



**NEVER** splice a hoist chain.

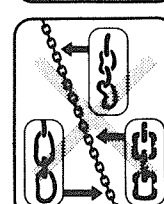
**NEVER** use non-authentic Harrington chains on the hoist.

**NEVER** use the hoist chain as a sling.



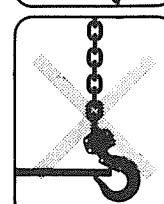
**NEVER** force a chain or hook into place by hammering.

**NEVER** jerk a load and cause sudden loading.



**NEVER** use a twisted, kinked, damaged or stretched load chain.

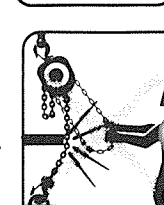
**NEVER** swing a suspended load.



**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.

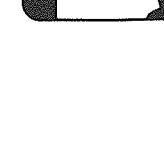


**NEVER** run the load chain over a sharp edge.

**NEVER** weld or cut a load suspended by a hoist.

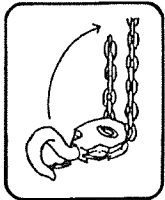
**NEVER** use the hoist chain as a welding electrode.

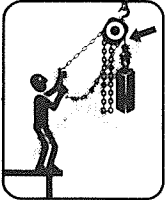
**NEVER** use the hoist with rusty chain.

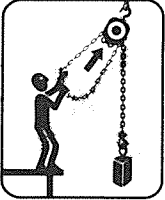






- NEVER** use a multiple fall hoist with a capsized bottom block.

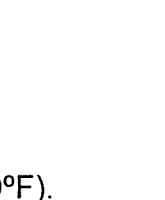

- NEVER** lift so far that the hook touches the block.

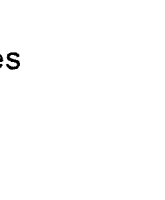

- NEVER** lower so far that no unloaded chain is left.



- NEVER** operate so far that the hook or chain stopper link touches the hoist body.



- NEVER** 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 of warning label or with illegible nameplate of warning label.


- NEVER** remove or obscure the warning tag.

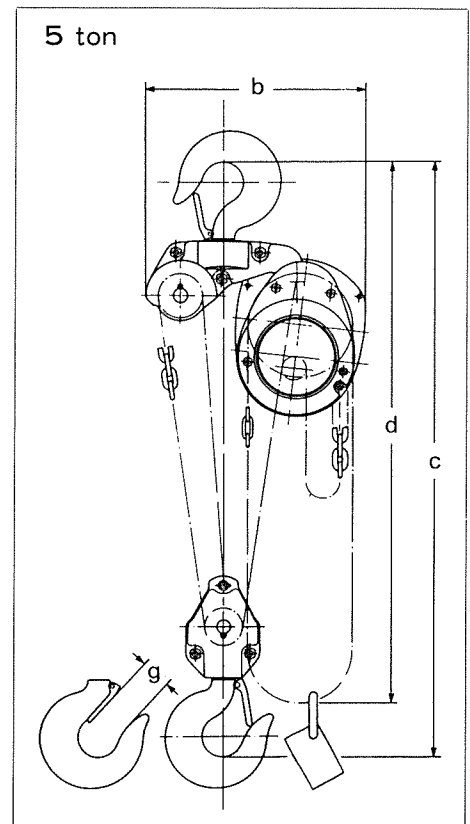
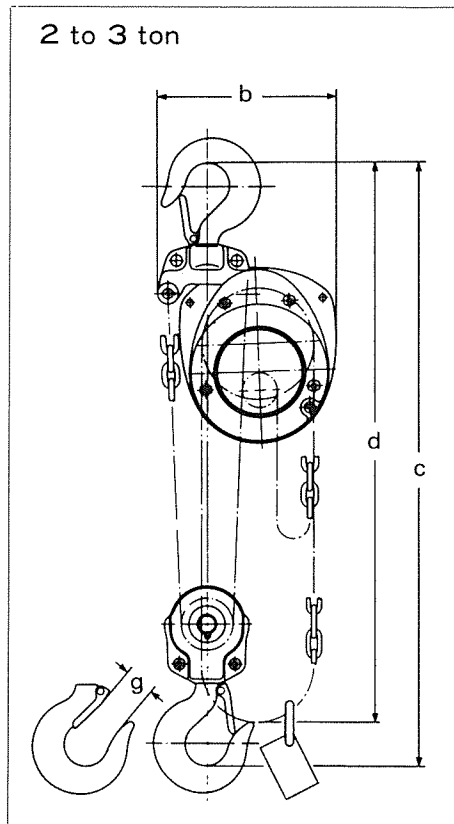
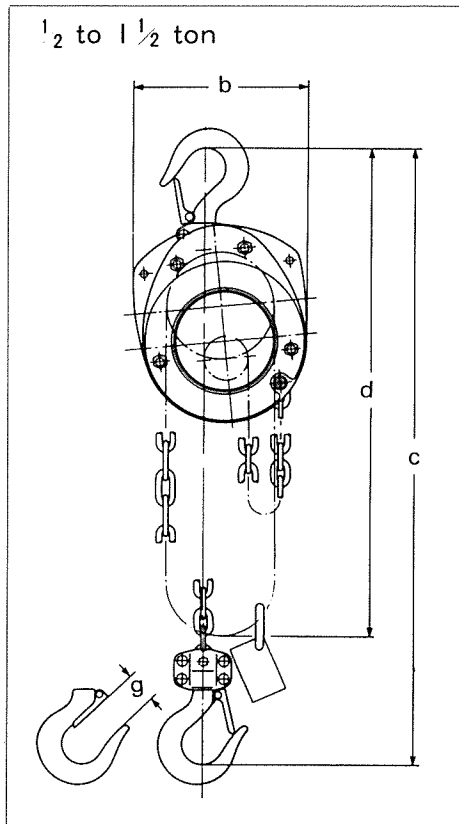

- NEVER** use modified or deformed hooks.


- 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°C (-4°F) or above +60°C (+140°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.



## 2. Main Specifications



Model	Code	Cap. (U.S. ton)	Std. Lift m (ft.)	Min. Distance Between Hooks: C mm (in)	Chain Pull to Lift Full Load kg (lb)	Over- haul Ratio	Test Load (U.S. ton)	Net Wt. kg (lb)	Shipping Wt. (approx.) kg (lb)	Load Chain Fall (Lines)	Wt. for Add. One Foot of Lift kg (lb)	b mm (in)	d m (ft)	g mm (in)
CF4	CF005	1/2	3.0(10)	325(12.8)	30(66)	19	.625	10(22)	11(24)	1	1.5(3.3)	150(5.9)	3.0(9.8)	27(1.06)
CF4	CF010	1	3.0(10)	370(14.6)	36(79)	31	1.25	12(26)	13(28)	1	1.8(4.0)	174(6.9)	3.0(9.8)	29(1.14)
CF4	CF015	1 1/2	3.0(10)	440(17.3)	42(92)	41	1.88	17(37)	18(39)	1	2.1(4.6)	203(8.0)	3.0(9.8)	34(1.34)
CF4	CF020	2	3.0(10)	510(20.1)	40(88)	63	2.50	21(46)	22(48)	2	2.7(6.0)	204(8.0)	3.0(9.8)	36(1.42)
CF4	CF030	3	3.0(10)	590(23.2)	46(101)	81	3.75	28(61)	30(66)	2	3.2(7.1)	240(9.4)	3.0(9.8)	42.5(1.67)
CF4	CF050	5	3.0(10)	620(24.4)	46(101)	134	6.25	37(81)	39(85)	3	4.3(9.5)	342(13.5)	3.0(9.8)	46.5(1.83)

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 your chain by attaching additional chain links with any other means. Harrington can supply almost any length of chain desired. Simply specify the length of chain desired when ordering.



## 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).



## 4. INSPECTION

### 4.1 Outline

There are two types of inspection: daily inspection performed by the operator before 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

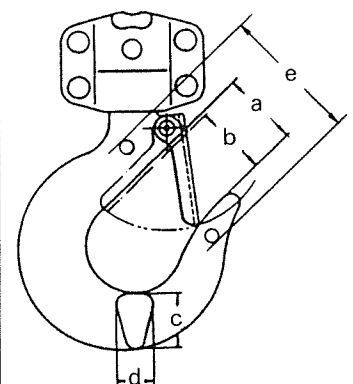
Figures in parentheses are Figure Nos. in Parts List.

Item	Inspection Method	Discard Limit/Criteria	Measures
Name Plates	Check visually	Capacity indication is not clear.	Attach new name plate.
<b>Hook (1,4,44,56,66,75)</b> (Upper & Lower) 1. Deformation/ twist of hook, opening of hook. 	Measure dimension "e" between two embossed marks at time of purchase with slide calipers.  Check visually.	Dimensions are greater than those in the following table.  Twist is large enough to be detected visually.	Replace the hook.  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

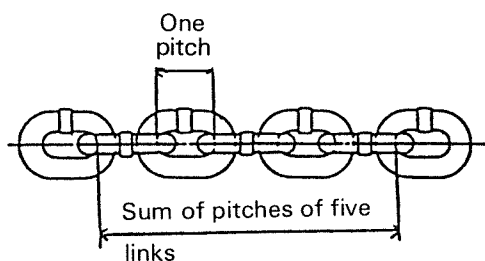
Cap. (U.S. ton)	a	b	c mm(in)		d mm(in)	
	Normal mm(in)	Normal mm(in)	Normal	Discard	Normal	Discard
1/2	31.0(1.220)	27.0(1.063)	17.0(0.669)	15.3(0.602)	12.1(0.476)	10.9(0.429)
1	34.0(1.338)	29.0(1.142)	21.8(0.858)	19.6(0.772)	16.0(0.630)	14.4(0.567)
1 1/2	37.5(1.476)	34.0(1.339)	26.5(1.043)	23.8(0.937)	19.5(0.768)	17.5(0.689)
2	40.0(1.575)	36.0(1.417)	30.0(1.181)	27.0(1.063)	21.8(0.858)	19.6(0.772)
3	46.0(1.811)	42.5(1.673)	37.5(1.476)	33.7(1.327)	27.2(1.071)	24.4(0.961)
5	50.0(1.968)	46.5(1.831)	47.5(1.870)	42.7(1.681)	34.5(1.358)	31.0(1.220)





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, 4 44, 56, 66, 75)	Check visually.	Loose or missing rivets, nuts or bolts.	Replace the hook.
6. Idle sheave rotation (55, 61, 70)	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, 6, 45, 57, 67, 76)	Check visually.	Improper positioning and does not work smoothly.	Replace the latch or hook.
<b>LOAD CHAIN</b> (42)			
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

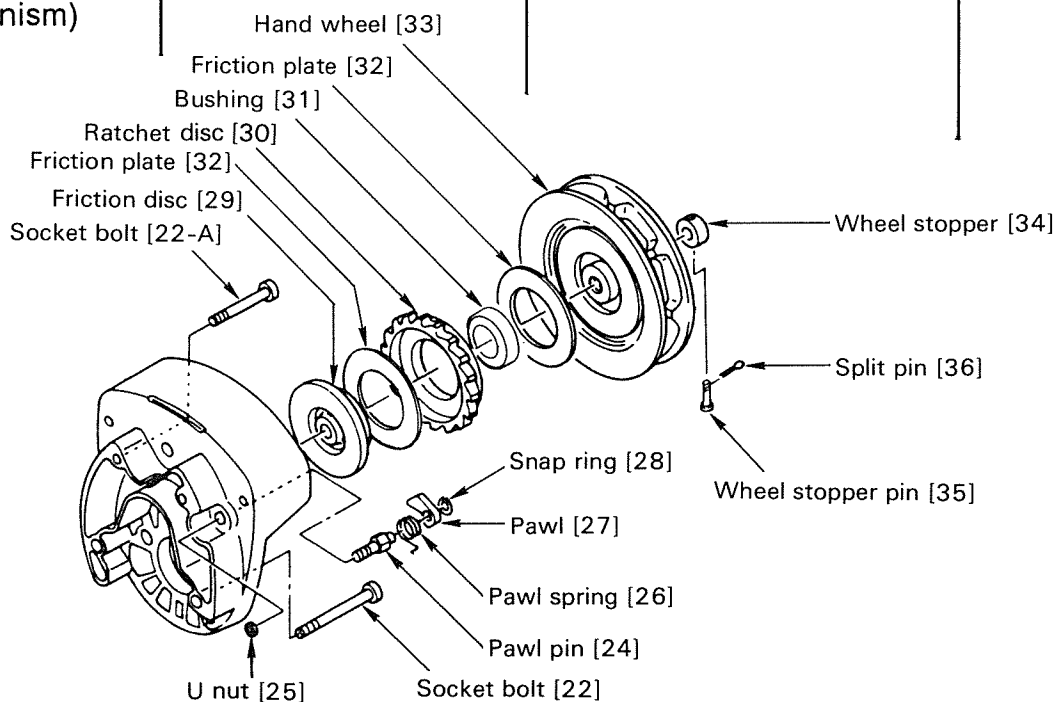


Capacity (ton)	Sum of pitches of five links mm (in)	Discard Limit mm (in)
1/2	75.5 (2.972)	77.7 (3.059)
1, 2	95.5 (3.760)	98.3 (3.870)
1 1/2, 3, 5	106.0 (4.173)	109.1 (4.295)

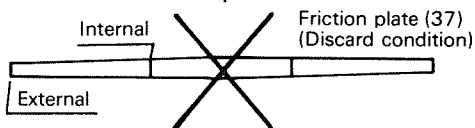
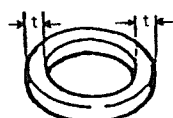
2. Rust, damage, deformation	Check visually.	Obvious rust (apply oil as necessary). Twists or cracks, nicks, dents or gouges.	Remove rust.  Replace load chain. Destroy old load chain.
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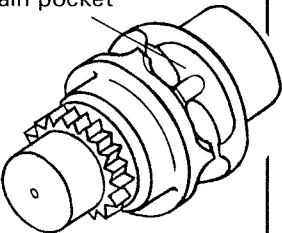
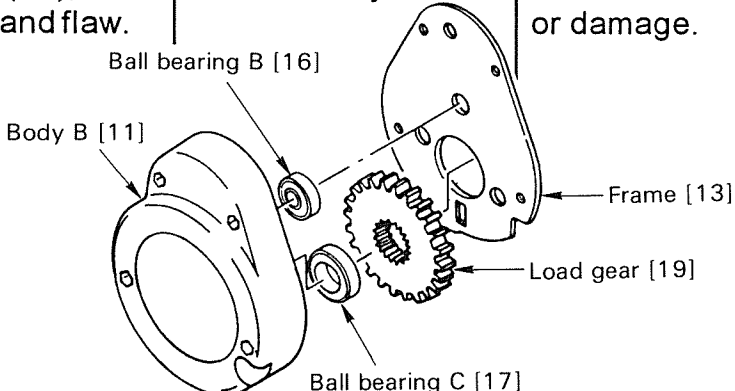
Item	Inspection Method	Discard Limit/Criteria	Measures
<b>HOOK YOKE</b> Top set (1,44,66) Bottom set (4,56,75) Joint of upper/lower fixtures with top pin (3) and chain pin (7,46).	Measure hole diameter of joint area in two directions at right angle.	Deformation not permitted (if each measured value differs more than pin (3) 0.5mm (.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.
<b>BRAKE</b> (Inside mechanism)	Disassemble and check.		





Item	Inspection Method	Discard Limit/Criteria	Measures									
1. Damage to brake surface (31,31-A,32)	Check visually.	Damage due to scratching or gouging by foreign matter.	Replace the part.									
2. Damage on friction disc (29)	Check visually.	Damage due to scratching or gouging by foreign matter.	Replace the part.									
3. Wear on friction plate (32)	Measure with slide calipers.	Thickness not uniform and friction plate worn more than 0.5mm(.020 in). For all types- Normal thickness:3.0mm (.118in) Discard limit:2.5mm(.098in)	Replace the part.									
4. Flatness of friction plate (32)	Check clearance with straight edge.	Clearance is not uniform. Internal parts are thicker than external part.	Replace the part.									
<div></div> <p>Internal External Friction plate (37) (Discard condition)</p>												
5. Bushing (31); 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.									
<div></div> <p>Bushing [31] t: Radial thickness</p>												
<p style="text-align: center;">Table 3</p> <table><tr><th>Type (ton)</th><th>Normal Thickness (t) mm (in)</th><th>Discard limit mm (in)</th></tr><tr><td>1/2</td><td>3.0 (.118)</td><td>2.0 (.079)</td></tr><tr><td>1, 1 1/2, 2, 3, 5</td><td>4.0 (.157)</td><td>3.0 (.118)</td></tr></table>				Type (ton)	Normal Thickness (t) mm (in)	Discard limit mm (in)	1/2	3.0 (.118)	2.0 (.079)	1, 1 1/2, 2, 3, 5	4.0 (.157)	3.0 (.118)
Type (ton)	Normal Thickness (t) mm (in)	Discard limit mm (in)										
1/2	3.0 (.118)	2.0 (.079)										
1, 1 1/2, 2, 3, 5	4.0 (.157)	3.0 (.118)										
6. Ratchet disc (30); 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 (18); 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.
2. Gear (19); wear and flaw.	Check visually. 	Teeth have excessive wear or damage.	Replace the part.
3. Hand wheel (33); wear and deformation.	Check visually.	Large wear or deformation on the surface of hand wheel. The hand wheel touches the cover.	Replace the part. Replace the part.
<b>FRAME (13)</b>			
1. Flaw on frame	Check visually.	Flaws or cracks.	Replace the frame.
<b>MISCELLANEOUS</b>			
1. Wear on chain guide (20)	Check visually.	Excessive wear or press mark.	Replace the part.
2. Flaw on guide roller (20-A)	Check visually.	Does not turn freely.	Replace the part.
3. Deformation of stripper (21)	Check visually.	Stripper is crushed or the tip is damaged.	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.



## 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

Remove body B as instructed in Section 5.2.

Remove old grease and replace with 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.

\*Calcium soap grease equivalent of NLGI (National Lubricating Grease Institute)#2

Parts To Be Lubricated	Name of Oil	Amount of Lubrication and Lubricating Method	Frequency of Lubrication
Mechanical Brake Parts: *Friction Plate A & B, Ratchet Disc, Pawl Pin, Screw parts of pinion	Machine or Gear oil	Wipe off oil with waste cloth after applying proper amount of oil.	When the hand pull becomes extremely heavy in lowering operations.

\* CF1, CF2, CF3 models only. CF4 Friction Plates are dry.



### 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 brackets are Figure Numbers in Parts List.

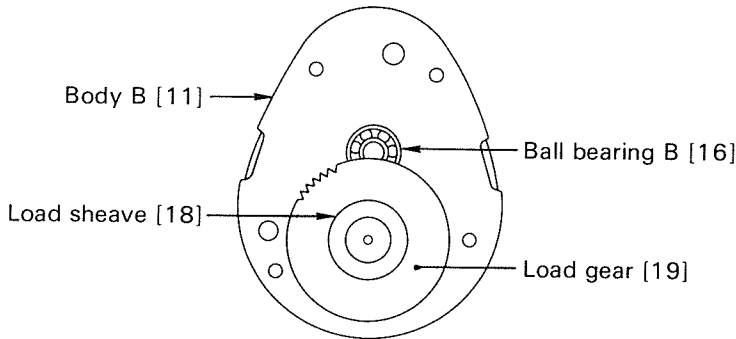
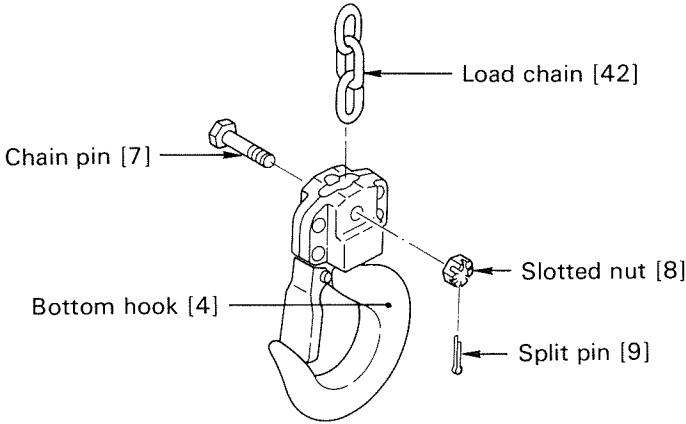
Disassembly Procedures	Remarks
1. Orient a hoist with wheel cover side up.	
2. Unscrew three screws [38] (with spring washers [39]) that attach the wheel cover [37].	
3. Remove the wheel cover [37] from the body A [10].	
4. Insert a vertical link of the hand chain [43] into the notch of the hand wheel [33] and remove the hand chain by turning the hand wheel counterclockwise.	Bring the notch of the hand wheel to the right hand side.
5. Pull out split pin [36] from the wheel stopper pin [35] and remove the wheel stopper pin and wheel stopper [34] from the pinion [14].	
6. Remove the hand wheel [33] from the pinion [14] by turning the hand wheel counterclockwise.	If the hand wheel is too tight to turn by hand, put hand chain on the hand wheel back again and pull it down hard. It will release the brake.
7. Remove two friction plates [32], ratchet disc [30] and bushing [31] from the friction disc [29].	
8. Remove the friction disc [29] from the pinion [14] by turning counterclockwise holding the end of the pinion with your fingers.	
9. Remove snap ring [28] from the pawl pin [24] (on the body A [10]) and then remove pawl [27] and pawl spring [26].	
10. Unscrew the pawl pin [24].	The pawl pin is fixed with the U nut [25].



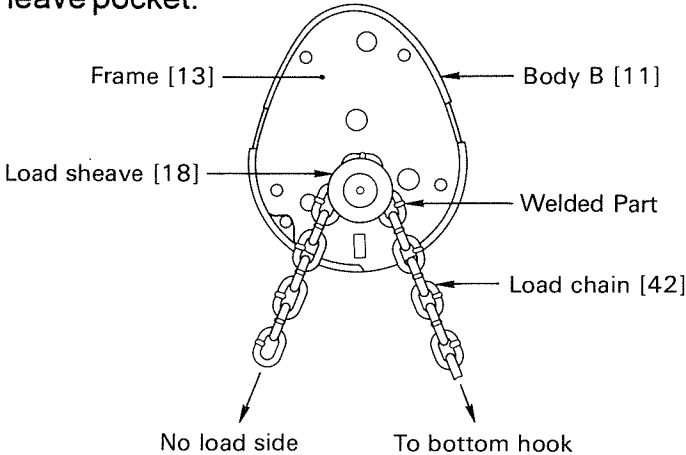
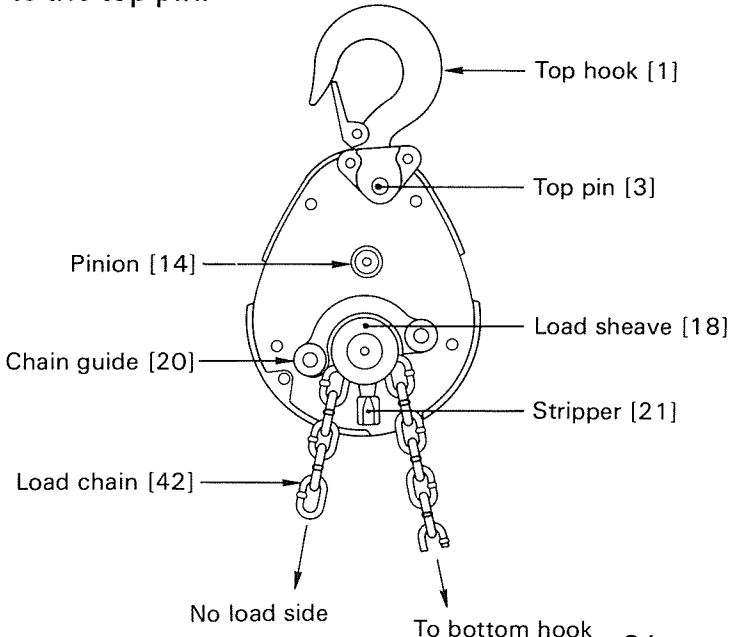
Disassembly Procedures	Remarks
<p>11. Unscrew four socket bolts [22,22-A] connecting body A [10] and B [11].</p> <p>12. Separate the body A [10] and B [11].</p> <p>13. Take ball bearing A [15] and C [17-A] out of the body A [10] (only if bearing needs replaced).</p> <p>14. Remove the top hook [1] and top pin [3] from the body B [11].</p> <p>15. Remove pinion [14], chain guide [20] (or guide rollers [20-A]), stripper [21], tail pin [40], and load chain [42].</p> <p>16. Remove the frame [13].</p> <p>17. Take load sheave [18] out of the load gear [19].</p> <p>18. Remove the load gear [19]</p> <p>19. Unscrew tap socket bolt [41] from the body B [11].</p> <p>20. Pull split pin [9] out of the slotted nut [8] and remove the slotted nut and chain pin [7] from the bottom hook [4].</p>	<p>Four socket bolts are fixed with U nuts [23] on the body B side.</p>



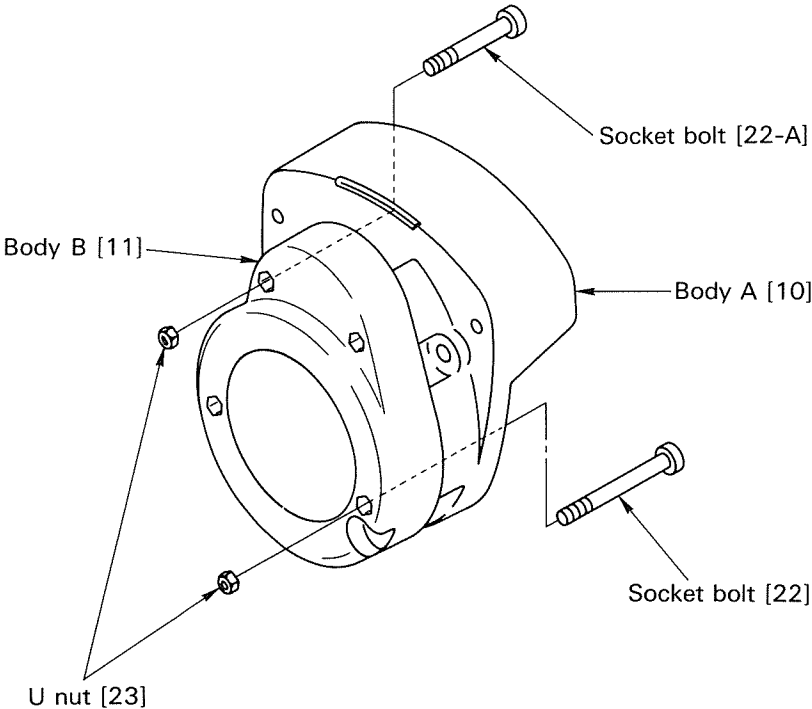
## 5.2.2 Assembly and Adjustment

Assembly Procedures	Remarks
<ol style="list-style-type: none"> <li>1. Wipe off old grease from the body B [11] and frame [13].</li> <li>2. Apply new grease to the ball bearing B [16] and C [17] on the body B [11].</li> <li>3. Insert load sheave [18] into the load gear [19] and put them together on the ball bearing C [17].</li> </ol> 	
<ol style="list-style-type: none"> <li>4. Apply new grease to the load gear [19].</li> <li>5. Put frame [13] on the body B [11] according to pattern.</li> <li>6. Insert the end of the load chain [42] to the bottom hook [4] and fix them with the chain pin [7], slotted nut [8] and split pin [9].</li> </ol> 	<p><b>⚠ WARNING</b> Always bend the split pin securely.</p>



Assembly Procedures	Remarks
<p>7. Wind load chain [42] around the load sheave [18] so that the bottom hook side comes to right hand and the end link of the other side becomes vertical to the load sheave pocket.</p> 	<p><b>⚠ WARNING</b> Put the welded part of the vertical chain link outward.</p>
<p>8. Put chain guide [20] (or guide rollers for 1/2 ton [20-A]) on the frame [13].</p> <p>9. Put stripper [21] on the frame [13].</p> <p>10. Insert pinion [14] shaft from its gear side through the frame [13] and into ball bearing B [16].</p> <p>11. Insert top pin [3] into the frame [13] and put top hook [1] to the top pin.</p>	<p><b>⚠ WARNING</b> Fit the larger boss of chain guide [20] into holes on frame [13].</p>
	

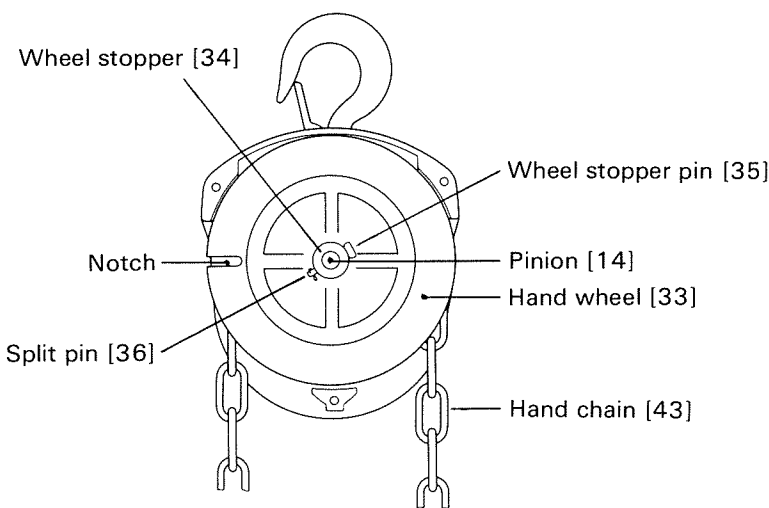
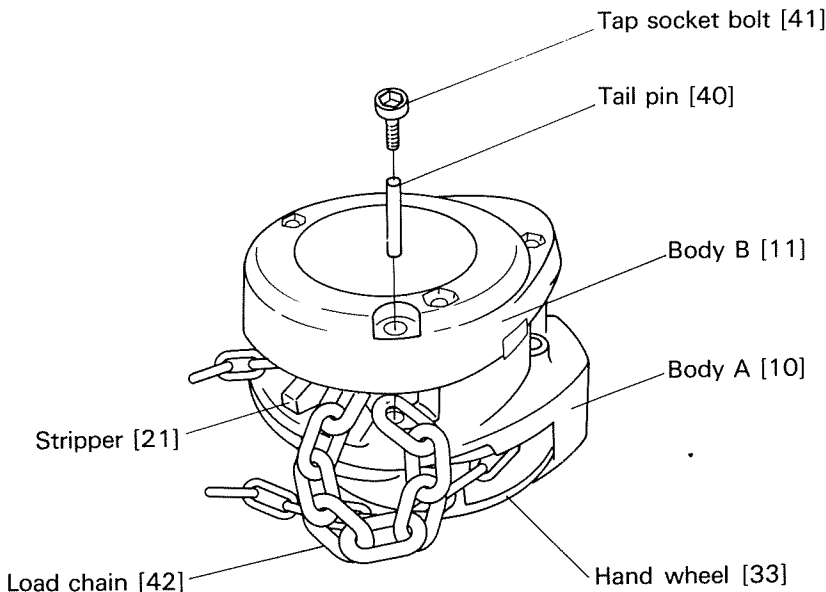


Assembly Procedures	Remarks
<p>12. Clean and grease ball bearing A [15] and D [17-A] and insert into body A [10] (if being replaced).</p> <p>13. Put the body A [10] with the ball bearings [15, 17-A] side down on the body B [11].</p> <p>14. Insert four socket bolts [22, 22-A] into the body A [10] and turn the whole body sideways. Then fix the bolts with the U nuts [23] holding the U nuts with fingers.</p>	<p><b>⚠ WARNING</b> Make sure each part is completely set between body A [10] and frame [13].</p> <p><b>⚠ WARNING</b> Insert short socket bolts [22-A] to the upper holes and long socket bolts [22] to the lower holes.</p>
	
<p>15. Insert pawl pin [24] into the body A [10] and fix it with the U nut [25].</p> <p>16. Apply machine oil to the pawl pin [24] and join pawl spring [26] and the pawl [27] respectively to it. Fix the pawl with snap ring [28].</p>	<p><b>⚠ WARNING</b> Make sure the pawl spring is fixed to the pawl and the snap ring is securely set at the groove of the pawl pin.</p>



Assembly Procedures	Remarks
<p>17. Thread friction disc [29] on the pinion [14].</p> <p>18. Wipe out any dirt on the friction disc [29], friction plates [32] and both sides of the ratchet disc [30] and make sure that bushing [31] is properly soaked with oil. Then place the friction plate, bushing, ratchet disc (while the pawl [27] is rotated counterclockwise) and friction plate respectively on the friction disc. (Make sure that the pawl meshes with the ratchet disc properly.)</p> <p>Diagram labels: Pawl [27], Snap ring [28], Pawl spring [26], Pawl pin [24], Friction disc [29], Friction plate [32], Socket bolt [22-A], Ratchet disc [30], Pinion [14], Body A [10], Socket bolt [22].</p> <p>19. Remove the dirt from the hand wheel [33] and apply machine oil to the threaded part. Assemble onto the pinion shaft [14] by turning it clockwise as far as possible.</p> <p>20. Place wheel stopper [34] on the head of the pinion [14], insert wheel stopper pin [35] and fix it with a split pin [36].</p>	<p><b>⚠ WARNING</b>  <b>NEVER</b> apply oil since the brake is a “dry system”. Wipe out thoroughly any oil and dirt on the brake. The gear of the ratchet should point at the pawl. Otherwise, the hand wheel cannot be assembled later.</p> <p>In case the bushing does not have oil inside, soak it in turbin oil for a day. Install it in without wiping the oil. Make sure that the pawl meshes with the ratchet disc properly.</p> <p><b>⚠ WARNING</b>  <b>NEVER</b> forget to bend the split pin after inserting into the wheel stopper pin.</p>



Assembly Procedures	Remarks
<p>21. Set the notch of the hand wheel to the left hand side. Insert the vertical link of the hand chain [43] into the notch of the hand wheel [33] and reeve the hand chain by turning the hand wheel clockwise.</p> 	<p>Make sure welds on hand chain are to the outside of the hand wheel.</p>
<p>22. Put wheel cover [37] on the body A [10] and fix them with the spring washers [39] and screws [38].</p> <p>23. Put a hoist with Body B [11] side up. Place the slack end of the load chain between body A [10] and body B [11]. Then insert tail pin [40], and screw tap socket bolt [41] into the body B.</p> 	<p><b>▲ WARNING</b></p> <p>Make sure the load chain is not twisted.</p> <p>Be careful not to cross thread or over torque tap socket bolt [41].</p>



## 6. WARRANTY

Harrington Hoists, Inc. extends the following warranty to the original purchaser of new products.

(1) Harrington warrants that Harrington's products, when shipped, shall be free from defects in workmanship and/or materials under normal use and service. Harrington shall, at the election of Harrington, repair or replace, free of charge, any parts or items which are proven to have said defects. All claims for defects under this warranty shall be made in writing immediately upon discovery and, in any event, within one (1) year from the date of purchase of Harrington's products by purchaser. Defective parts or items shall be kept for examination by Harrington or its authorized agents or returned to Harrington's factory or authorized service center upon request by Harrington.

(2) Harrington does not warrant components of products provided by other manufacturers. However to the extent possible, Harrington will assign to purchaser applicable warranties of such other manufacturers.

(3) The repair or replacement mentioned in (1) above is Harrington's sole liability and purchaser's exclusive remedy under this warranty. Harrington shall not be responsible for any other claims arising out of the purchase and use of Harrington's products, regardless of whether purchaser's claims are based on breach of contract, tort, or other theories. This includes all claims for any damages whether direct, indirect, incidental or consequential.

(4) This warranty is conditional upon the installation, maintenance and use of Harrington's products pursuant to the product manuals prepared in accordance with content instructions by Harrington. This warranty shall not apply to Harrington's products which have been subject to negligence, misuse, abuse, misapplication or any improper use or combination or improper fittings, alignment or maintenance.

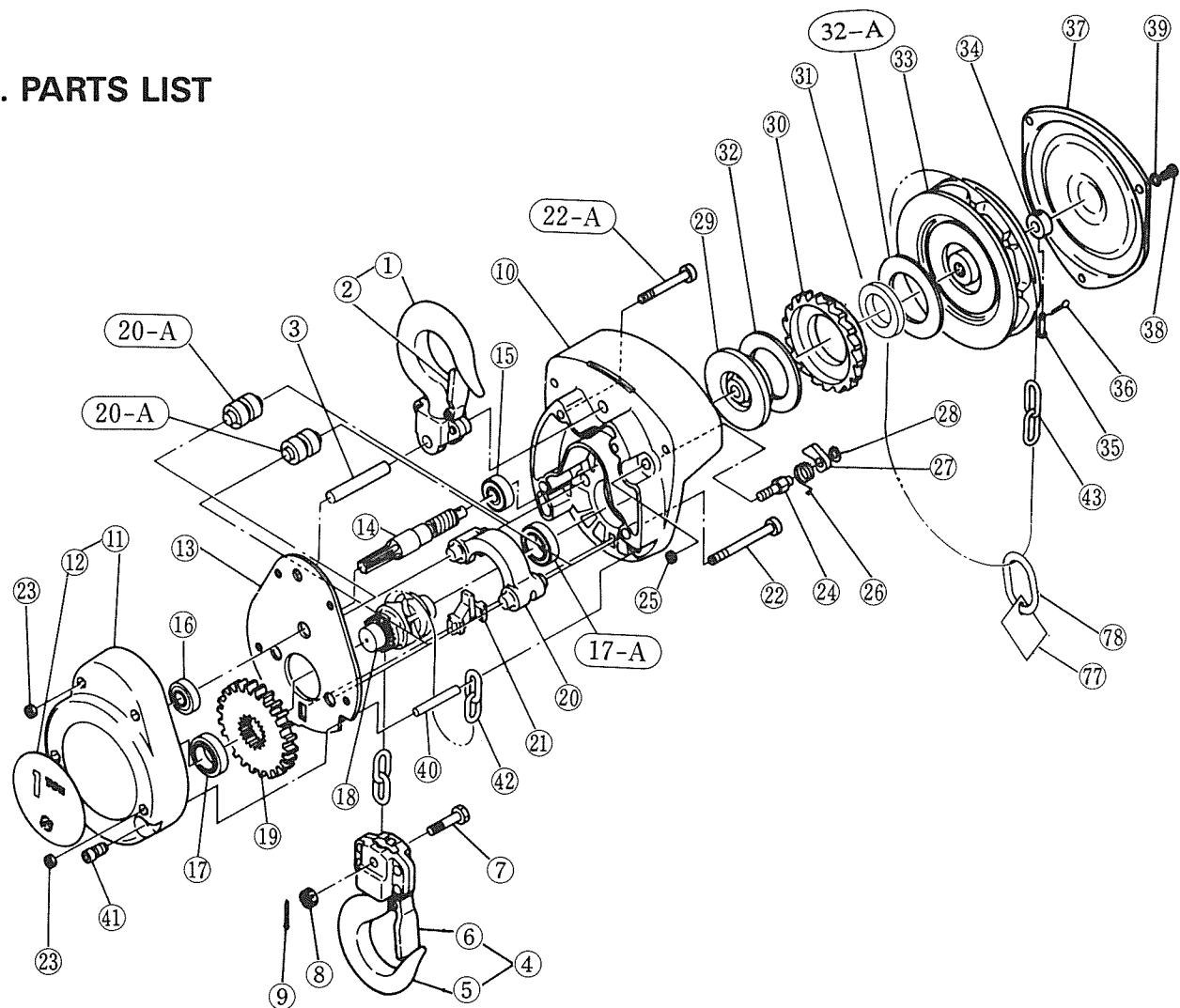
(5) Harrington shall not be responsible for any loss or damage caused by transportation, prolonged or improper storage or normal wear and tear of Harrington's products or loss of operating time.

(6) This warranty shall not apply to Harrington's products which have been fitted with or repaired with parts, components or items not supplied or approved by Harrington or which have been modified or altered.

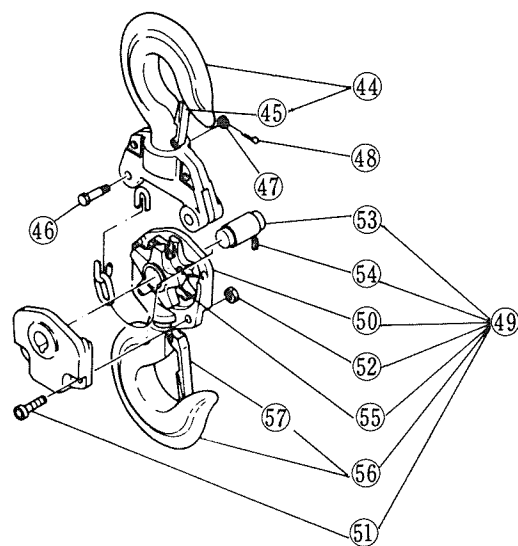
THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE.



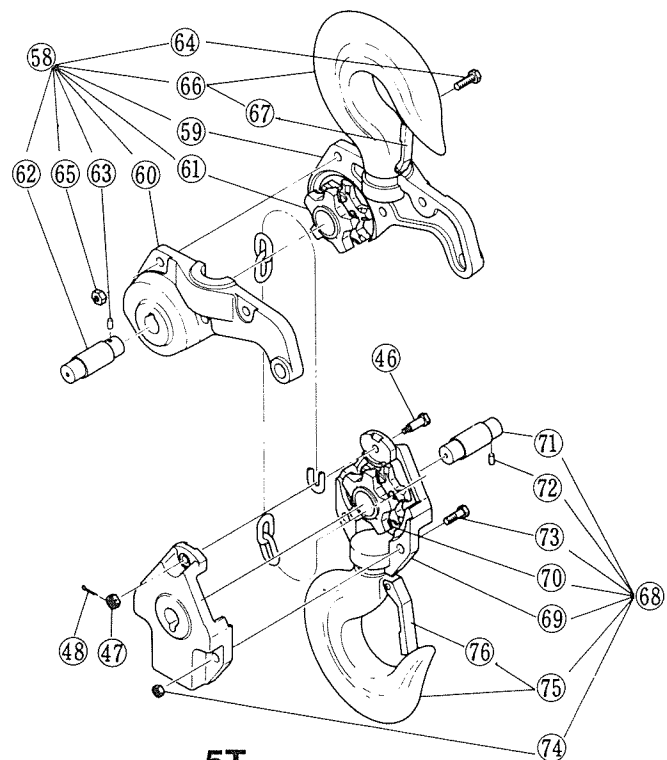
# 7. PARTS LIST



## ADDITIONAL PARTS FOR 2, 3 AND 5 TON CAPACITY



**2T, 3T**



**5T**



Fig. No.	Part Name	No. per Hoist	1/2	1	2	1 1/2	3	5
1	Top Hook Assembly	1	CF001005	CF001010		CF001015		
2	Latch Assembly	1	CF071005	CF071010		CF071015		
3	Top Pin	1	CF163005	CF163010		CF163015		
4	Bottom Hook Complete Set	1	M3021A005	M3021A010		M3021A015		
6	Latch Assembly	1	CF071005	CF071010		CF071015		
7	Chain Pin	1	M3041005	M3041010		M3041015		
8	Slotted Nut	1	M3049005	M2049010		M2049010		
9	Split Pin	1	9009402	9009411		9009411		
10	Body A	1	CF101005	CF101010		CF101015		
11	Body B	1	CF102005	CF102010		CF102015		
12	Name Plate - Blank	1	CF800005B	CF800010B	CF800020B	CF800015B	CF800030B	CF800050B
13	Frame	1	CF105005	CF105010		CF105015		
14	Pinion	1	CF111005**	CF111010**		CF111015**		CF111050**
			CF4111005*	CF4111010*		CF4111015*		CF4111050*
15	Ball Bearing A (Fig. 14)	1	9000102	9000103				
16	Ball Bearing B (Fig. 14)	1	9000201			9000202		9000300
17	Ball Bearing C (Fig. 14)	1	9000104	9000105		9000106		
17A	Ball Bearing D (Fig. 14)	1	9000104	9000105		9000106		
18	Load Sheave	1	CF116005	CF116010		CF116015		CF116A050
19	Load Gear	1	CF114005	CF114010		CF114015		
20	Chain Guide	1		CF178010		CF178015		
20A	Guide Roller	2	CF161005					
21	Stripper	1	CF162005	CF162010		CF162015		
22	Socket Bolt for Body	2	9091282	9091284		9091285		
22A	Socket Bolt for Body	2	9091280	9091282		9091283		
23	U Nut for Body	4	9098506					
24	Pawl Pin	1	CF156005					
25	U Nut for Fig. 24	1	9098506					

\* CF4 model only

\*\* Parts discontinued



Fig. No.	Part Name	No. per Hoist	1/2	1	2	1 1/2	3	5
26	Pawl Spring	1	CF158005					
27	Pawl	1	CF155005					
28	Snap Ring for Fig. 24	1	9047108					
29	Friction Disc	1	CF153005**	CF153010**				
			M3153005*	M3153020*				
30	Ratchet Disc	1	CF152005**	CF152010**				
			CF4152005*	CF4152010*				
31	Bushing for Ratchet Disc	1	M3154005*	M3154020*				
32-A	Friction Plate A	1	CF150005**	CF150010**				
		1	M3151005*	M3151020*				
32	Friction Plate B	1	CF151005	CF151010				
		1	M3151005*	M3151020*				
33	Hand Wheel	1	CF115005**	CF115010**	CF115015**			
			CF4115005*	CF4115010*	CF4115015*			
34	Wheel Stopper	1	CF159005	CF159010				
35	Wheel Stopper Pin	1	M2167005					
36	Split Pin for Fig. 35	1	9009401					
37	Wheel Cover	1	CF171005	CF171010	CF171015			
38	Screw for Fig. 37	3	CF187005					
39	Spring Washer for Fig. 37	3	9012709					
40	Tail Pin	1	CF164005	CF164010	CF164015			
41	Socket Bolt for Fig. 40	1	CF181005	CF181010				
42	Load Chain	FT	LCCF005	LCCF010	LCCF015			
43	Hand Chain	FT	HCCF005					
44	Top Hook Assembly	1		CF001020		CF001030		
45	Latch Assembly	1		CF071020		CF071030		
46	Chain Pin	1		CF041020		M3041030		
47	Slotted Nut for Fig. 46	1		M2049010		M2049010		
48	Split Pin for Fig. 46	1		9009411		9009411		

\* CF4 model only

\*\* Parts discontinued



Fig. No.	Part Name	No. per Hoist	1/2	1	2	1 1/2	3	5
49	Bottom Hook Complete Set	1			CF021A020		M3021A030	
50	Bottom Yoke	2			CF031020		M3031030	
51	Bolt	2			9091274		9091296	
52	U Nut	2			9098506		9098508	
53	Shaft	1			CF053020		CF053030	
54	Spring Pin	1			CF083020		CF083020	
55	Idle Sheave	1			CF051020		CF051030	
56	Bottom Hook Assy.	1			CF021020		M3021030	
57	Latch Assy.	1			CF071020		CF071030	
58	Top Hook Complete Set	1						CF001A050
59	Top Yoke A	1						CF011050
60	Top Yoke B	1						CF012050
61	Idle Sheave	1						CF051030
62	Shaft	1						CF053050
63	Spring Pin	1						CF083020
64	Socket Bolt	3						9091296
65	U-Nut	3						9098508
66	Top Hook Assy.	1						M3021050
67	Latch Assembly	1						CF071050
68	Bottom Hook Complete	1						CF021A050
69	Bottom Yoke	2						CF031050
70	Idle Sheave	1						CF051030
71	Shaft	1						CF053050
72	Spring Pin	1						CF083020
73	Socket Bolt	2						9091296
74	U-Nut	2						9098508
75	Bottom Hook Assy.	1						M3021050
76	Latch Assembly	1						CF071050
77	Warning Tag	1			WTAG4			
78	Chain Stopper Link	1			L4045030			

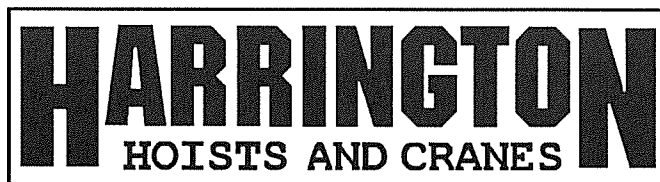












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CFOM