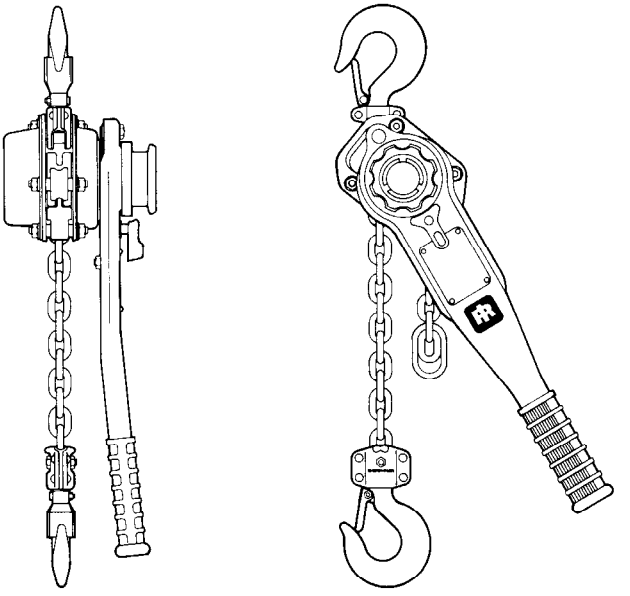
OPERATION AND MAINTENANCE MANUAL
for
MANUAL LEVER CHAIN HOIST MODELS

L4H150 3/4 TON (metric)
L4H200 1 TON (US)
L4H300 1-1/2 TON (metric)
L4H400 2 TON (US)
L4H600 3 TON (metric)
L4H1200 6 TON (metric)
L4H1800 9 TON (metric)



(1 US ton = 2000 lb)
(1 metric ton = 2200 lb)

READ THIS MANUAL BEFORE USING THESE PRODUCTS. The manual contains important safety, installation, operation and maintenance information. Make this manual available to all persons responsible for the operation, installation and maintenance of these products.

⚠WARNING

Do not use this hoist for lifting, supporting, or transporting people or lifting or supporting loads over people.

Always operate, inspect and maintain this Hoist in accordance with American National Standards Institute Safety Code (ASME B30.21) and any other applicable safety codes and regulations.

Refer all communications to the nearest Ingersoll-Rand Material Handling Products Office or Distributor.

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INGERSOLL-RAND®
MATERIAL HANDLING

SAFETY INFORMATION

This manual provides important information for all personnel involved with the safe installation, operation and proper maintenance of this product. Even if you feel you are familiar with this or similar equipment, you must read and understand this manual before operating the product.

Danger, Warning, Caution and Notice

Throughout this manual there are steps and procedures which, if not followed, may result in a hazard. The following signal words are used to identify the level of potential hazard.

⚠ DANGER Danger is used to indicate the presence of a hazard which ***will*** cause ***severe*** personal injury, death, or substantial property damage if the warning is ignored.

⚠WARNING Warning is used to indicate the presence of a hazard which ***can*** cause ***severe*** personal injury, death, or substantial property damage if the warning is ignored.

⚠ CAUTION Caution is used to indicate the presence of a hazard which ***will*** or ***can*** cause ***minor*** personal injury or property damage if the warning is ignored.

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

Safety Summary

⚠WARNING

• Do not use this hoist for lifting, supporting, or transporting people or lifting or supporting loads over people.

• The supporting structures and load-attaching devices used in conjunction with this hoist must provide an adequate safety factor to handle the rated load, plus the weight of the hoist and attached equipment. This is the customer's responsibility. If in doubt, consult a qualified structural engineer.

The National Safety Council, Accident Prevention Manual for Industrial Operations, Eighth Edition and other recognized safety sources make a common point: Employees who work near cranes or assist in hooking on or arranging a load should be instructed to keep out from under the load. From a safety standpoint, one factor is paramount: conduct all lifting operations in such a manner that if there were an equipment failure, no personnel would be injured. This means keep out from under a raised load and keep out of the line of force of any load.

To the best of our knowledge, INGERSOLL-RAND Material Handling hoists are manufactured in accordance with the latest standards in effect at time of manufacture.

However, contrary to common belief, the Occupational Safety and Health Act of 1970, as we understand it, generally places the burden of compliance with the user, not the manufacturer. Many OSHA requirements are not concerned or connected with the manufactured product but are, rather, connected with the final installation: "It is the owner's responsibility and user's responsibility to determine the suitability of a product for any particular use. Check all applicable industry, trade association, federal, state and local regulations. Read all operating instructions and warnings before operation."

Rigging: It is the responsibility of the operator to exercise caution, use common sense and be familiar with proper rigging techniques. See ANSI/ASME B30.9 for rigging information, American National Standards Institute, 1430 Broadway, New York, NY 10018.

NOTICE

• Using other than genuine INGERSOLL-RAND Material Handling parts will result in the void of warranty.

SAFE OPERATING INSTRUCTIONS

The following warnings and operating instructions have been adapted in part from American National (Safety) Standard ASME B30.21 and are intended to avoid unsafe operating practices which might lead to personal injury or property damage.
These recommendations apply to hoists used for material handling of freely suspended unguided loads.

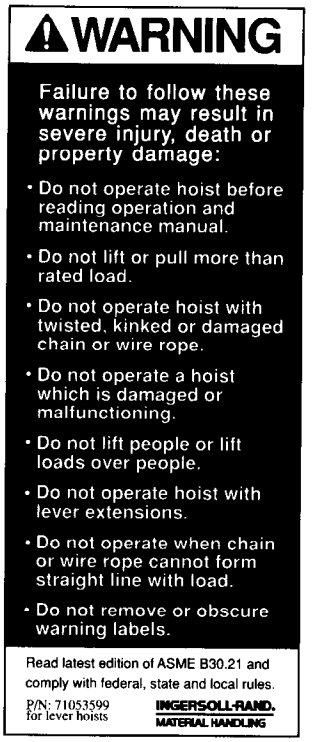
INGERSOLL-RAND recognizes that most companies who use hoists have a safety program in force in their plants. In the event that some conflict exists between a rule set forth in this publication and a similar rule already set by an individual company, the more stringent of the two should take precedence.

Safe Operating Instructions are provided to make an operator aware of dangerous practices to avoid and are not necessarily limited to the following list. Refer to specific sections in the manual for additional safety information.

1. Only allow qualified people (trained in safety and operation) to operate the hoist.
2. Only operate a hoist if you are physically fit to do so.
3. When a "DO NOT OPERATE" sign is placed on the hoist, do not operate the hoist until the sign has been removed by designated personnel.
4. Before each shift, the operator should inspect the hoist for wear or damage.
5. Never use a hoist which inspection indicates is defective.
6. Periodically, inspect the hoist thoroughly and replace worn or damaged parts. (See "INSPECTION" Section)
7. Lubricate the hoist regularly. (See "LUBRICATION" Section)
8. Do not use hoist if hook latch on a hook has been sprung or broken.
9. Check that the hook latches are engaged before using.
10. Never splice a hoist chain by inserting a bolt between links.
11. Only lift loads less than or equal to the rated capacity of the hoist. See warning labels attached to the hoist.
12. Never use the hoist chain as a sling.
13. Never operate a hoist when the load chain is not centered under the hook. Do not "side pull" or "yard."
14. Never operate a hoist with twisted, kinked, "capsized" or damaged load chain.
15. Do not force a chain or hook into place by hammering.
16. Never insert the point of the hook into a chain link.
17. Be certain the load is properly seated in the saddle of the hook.
18. Do not support the load on the tip of the hook.
19. Never run the load chain over a sharp edge. Use a sheave.
20. When using two hoists to suspend one load, select two hoists both having rated capacities equal to or more than the load to be lifted. This provides adequate safety in the event of a sudden load shift or failure of one hoist.
21. Pay attention to the load at all times when operating the hoist.
22. Always ensure that you, and all other people, are clear of the path of the load. Do not lift a load over people.
23. Never use the hoist for lifting or lowering people, and never allow anyone to stand on a suspended load.
24. Ease the slack out of the chain and sling when starting a lift. Do not jerk the load.
25. Do not swing a suspended load.
26. Never suspend a load for an extended period of time.
27. Never leave a suspended load unattended.
28. Never weld or cut a load suspended by the hoist.
29. Never use the hoist chain as a welding electrode.
30. Do not operate hoist if chain jumping, excessive noise, jamming, overloading, or binding occurs.
31. Keep the load from hitting the load chain.
32. Do not use a cheater bar or extended handle.
33. After use, properly secure hoist and loads.

WARNING TAG

Each hoist is supplied from the factory with the warning tag shown. If the tag is not attached to your unit, order a new tag and install it. See the parts list for the part number. Read and obey all warnings and other safety information attached to this hoist. Tag may not be shown actual size.



SPECIFICATIONS

General

The L4H Lever Chain Hoist can be mounted to the suspension shaft of a trolley or a permanent mounting structure. The hoist is designed to lift and lower loads with minimal lever effort.

To determine correct hoist configuration see serial and model number label. Refer to "PARTS ORDERING INFORMATION" section for location of serial and model number label.

Model No.	Capacity metric tons (* US tons)	Pull to lift rated load lb.	kg.	Min distance between hooks in.	mm	Chain size (mm)
L4H-150	3/4	64	29	11	280	5.6
L4H-200	1*	75	34	11	280	5.6
L4H-300	1-1/2	64	29	13-3/4	350	7.1
L4H-400	2*	75	34	13-3/4	350	7.1
L4H-600	3	77	35	16-1/2	420	9.0
L4H-1200	6	79	36	22-1/2	570	9.0
L4H-1800	9	81	37	27-3/4	705	9.0

Model No.	Wt. of chain per ft. of lift lb.	kg.	No. of chain falls	Net Wt. 5 ft. (1.52 m) of lift lb.	kg.
L4H-150	0.57	0.26	1	14	6.2
L4H-200	0.57	0.26	1	14	6.2
L4H-300	0.74	0.34	1	21	9.6
L4H-400	0.74	0.34	1	21	9.6
L4H-600	1.20	0.54	1	34	15.5
L4H-1200	2.38	1.08	2	59	27
L4H-1800	3.57	1.62	3	92	42

Model Code L4H - 300 - 5V

Series L4H

Hoist Capacity
150, 200, **300**, 400, 600, 1200 and 1800
F = Hoist without chain

Lift
(Available lengths **5 std**, 10, 15 and 20 ft.)

Options
V = Overload Signal Handle
N = Nickel Diffused Chain

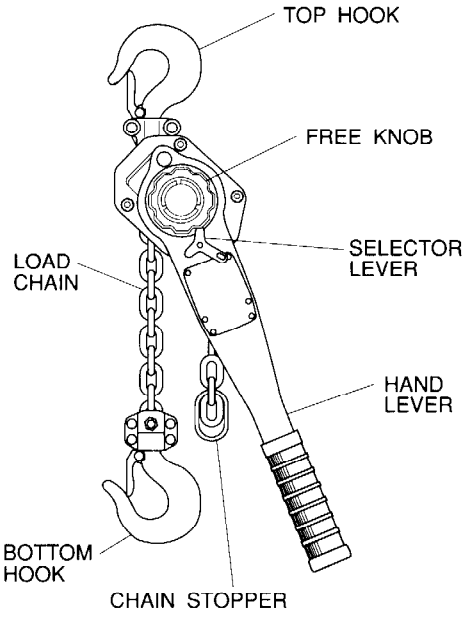
Installation

The L4H hoist can be used in any position provided it is rigged to pull in a straight line from hook to hook. The frame must be positioned so that it does not contact the load or support members when in use. When operating in limited areas suitable lifting attachments or slings must be used to prevent frame and lever from being obstructed.

Operation

Positioning Unloaded Hook (Free-Chain)

1. Set the selector lever to neutral (center position). The selector lever is located under the free knob on the hand lever.
2. Pull the free knob. The free knob turns counterclockwise and "snaps" out.
3. Exert a firm pull on the load chain to move the hook to the desired location.



(Dwg. MHTPA0250)

NOTICE

• Jerking or pulling too fast on the hook fall of the load chain will cause the brake to reset and prevent free-chaining.

4. Hold the hook side of the chain and rotate the free knob clockwise. Once slack is removed, the free knob "snaps" in. This resets the brake and allows the hoist to be operated with the hand lever.

⚠WARNING

• Always lower the load into position until the load chain becomes slack. Otherwise, when free-chaining, it may be impossible to apply enough force with the free knob to release the brake. If the brake does become stuck, switch the selector lever to DOWN and ratchet the hand lever while pulling on the hook fall of the load chain.

Lifting or Lowering the Load

Select direction of movement and ratchet hand lever back and forth, see below:

Chain Movement:	Selector Lever:	Hand Lever Rotation:
Raise (Haul in)	UP	Clockwise
Lower (Pay out)	DOWN	Counterclockwise

NOTICE

• If hand lever movement does not produce lifting, pull down on the load chain while ratcheting until slack is removed and the hoist begins lifting the load.
• The brake is engaged whether lowering or raising the load.

Overload Signal Handle (Optional)

When lifting more than rated capacity, the grip will bend for overload detection. When this occurs, an overload sign (color: green...normal, red....overload) appears on the signal plate in the lever window. The bent grip returns to normal when lowering operation is resumed.

Storing the Hoist

1. Always store the hoist in a no load condition.
2. Switch the selector lever to neutral (center position).
3. Wipe off all dirt and water.
4. Oil the chain, hook pins and hook latch pins.
5. Hang in a dry place.
6. Before returning hoist to service follow instructions for Hoists not in Regular Service in the "INSPECTION" section.

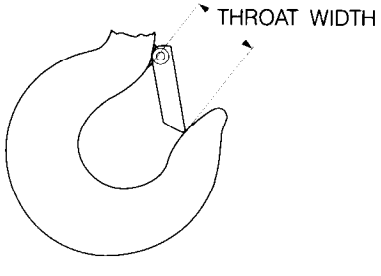
INSPECTION

There are two types of inspection, the frequent inspection performed by the operator and more thorough periodic inspections performed by qualified personnel.
Careful inspection on a regular basis will reveal potentially dangerous conditions while still in the early stages, allowing corrective action to be taken before the condition becomes dangerous.
Any deficiency revealed through inspection must be reported to an appointed person. A determination must be made as to whether a deficiency constitutes a safety hazard before resuming operation of the hoist.

Records and Reports
Some form of inspection record should be maintained for each hoist, listing all points requiring periodic inspection. A written report should be made monthly on the condition of the critical parts of each hoist. These reports should be dated, signed by the person who performed the inspection, and kept on file where they are readily available to authorized personnel.

Frequent Inspection
The lever chain hoist should be inspected at the beginning of each shift. Visual inspections should also be conducted during regular service for any damage or evidence of malfunction which appears between regular inspections.

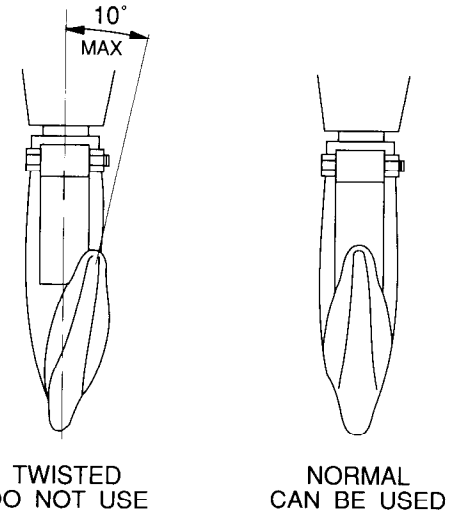
1. OPERATION. Check for visual signs or abnormal noises which could indicate a defect. Make sure all controls function properly. Check chain feed through hoist and hook idler sheaves. If chain binds, jumps, or is excessively noisy or "clicks," clean and lubricate the chain. If problem persists, the chain and load sheave may have to be replaced. Do not operate the hoist until all defects have been determined and corrected.
2. HOOKS. Check for wear or damage, increased throat width, bent shank or twisting of hook. Replace hooks with 15% increase in throat opening (ref Dwg. MHTPA0040) or 10° twist (ref Dwg MHTPA0111). If the hook latch snaps past the tip of the hook, the hook is sprung and must be replaced.



(Dwg. MHTPA0040)

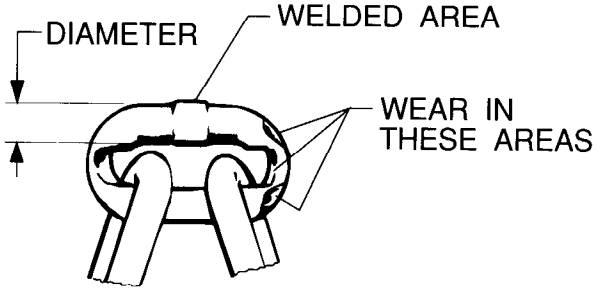
3. HOOK LATCHES. Check the operation of the hook latch. Replace if broken or missing.

Model No.	Throat Width in.	(mm)	Discard Width in.	(mm)
L4H-150	1.10	28.0	1.26	32.2
L4H-200	1.10	28.0	1.26	32.2
L4H-300	1.38	35.0	1.59	40.2
L4H-400	1.38	35.0	1.59	40.2
L4H-600	1.69	43.0	1.94	49.4
L4H-1200	2.11	53.5	2.43	61.5
L4H-1800	3.13	79.5	3.60	91.4



(Dwg. MHTPA0111)

4. CHAIN. Examine each of the links for bending, in weld areas or shoulders, transverse nicks and gouges, weld splatter, corrosion pits, striation — minute parallel lines and chain wear, including bearing surfaces between chain links. Replace a chain that fails any of the inspections. Check lubrication and lubricate if necessary. See "Load Chain" under "LUBRICATION."



(Dwg. MHTPA0102)

NOTICE

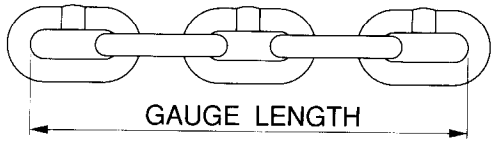
• Excessive wear or stretching may not be apparent from visual observation. Also inspect chain by measuring five links in accordance with instructions in "Periodic Inspection."
• A worn load chain may cause damage to the load sheave. Inspect the load sheave and replace if damaged or worn.

5. LOAD CHAIN REEVING. Make sure welds on standing links are away from load sheave. Re-install chain if necessary. Make sure chain is not capsized, twisted or kinked. Check that the chain stopper is attached to the second link of the slack end of the load chain. Adjust length of chain to ensure chain stopper is installed in a chain link which is parallel to the hoist side plates. Refer to Dwg. MHTPA0250 in the "INSTALLATION AND OPERATION" section.
6. HAND LEVER. Check for cracks, bending and other damage. Replace if necessary.

Periodic Inspection

According to ANSI/ASME B30.21, frequency of periodic inspection depends on the severity of usage: NORMAL, yearly; HEAVY, semi-annually; SEVERE, quarterly. Disassembly may be required for HEAVY or SEVERE usage. Keep accumulative records of periodic inspections to provide a basis for continuing evaluation. Inspect all items in frequent inspection plus the following:

1. FASTENERS. Check rivets, capscrews, nuts, cotter pins and other fasteners on hooks and hoist body. Replace if missing and tighten or secure if loose.
2. ALL COMPONENTS. Inspect for wear, damage, distortion, deformation and cleanliness. If external evidence indicates the need, disassemble. Check gears, shafts, bearings, sheaves, chain guides, springs and covers. Replace worn or damaged parts. Clean, lubricate and reassemble.
3. HOOKS. Inspect hook retaining parts. Use magnetic particle or dye penetrant to check for cracks. Replace damaged parts. Refer to ASME B30.10 for additional inspection information.
4. SHEAVES. Check for excessive wear or damage. Replace if necessary.
5. BRAKES. Ensure proper operation. Brake should not slip with test load (10% of capacity). If external inspection indicates the need, disassemble. Brake discs must be unglazed, uniform and at least 5/64 in. (2 mm) thick. Check all other brake surfaces for wear, deformation or foreign deposits. Inspect for damaged gear teeth, pawl and pawl spring. Check that pawl brake stops counterclockwise rotation of ratchet gear. Clean and replace damaged components as necessary.
6. SUPPORTING STRUCTURE. If a permanent structure is used, inspect for continued ability to support load.
7. LABELS AND TAGS. Check for presence and legibility. Replace if necessary.
8. LOAD CHAIN. Measure the chain for stretching by measuring across five link sections all along the chain. When any five links in the working length reaches or exceeds the discard length, replace the entire chain. Always use a genuine INGERSOLL-RAND Material Handling Products replacement chain. For regular and nickel-diffused load chains:



(Dwg. MHTPA0041)

Model No.	Part No.	Size (mm)	Normal Length in.	Normal Length (mm)	Discard Length in.	Discard Length (mm)
L4H-150	LCCF008	5.6	3.37	85.5	3.47	97.9
L4H-200	LCCF008	5.6	3.37	85.5	3.47	97.9
L4H-300	LCCF015	7.1	4.17	106.0	4.28	108.7
L4H-400	LCCF015	7.1	4.17	106.0	4.28	108.7
L4H-600	LCCF025	9.0	5.35	136.0	5.49	139.4
L4H-1200	LCCF025	9.0	5.35	136.0	5.49	139.4
L4H-1800	LCCF025	9.0	5.35	136.0	5.49	139.4

Note: Zinc plated load chain for the L4H Hoist is designated by "ZP" at the end of the part number.

Hoists not in Regular Service

A hoist that has been idle for a period of one month or more, but less than one year shall be given an inspection conforming with the requirements of "Frequent Inspection."

A hoist that has been idle for a period of one year shall be given an inspection conforming with the requirements of "Periodic Inspection."

LUBRICATION

Gears (27)
Unscrew nuts (43) on side of hoist opposite hand lever and remove gear cover (26). Remove old grease and replace with new. For temperatures -20° to 50° F (-29° to 10° C) use EP 1 grease or equivalent. For temperatures 30° to 120° F (-1° to 49° C) use EP 2 grease or equivalent.

Load Chain

NOTICE

• Failure to maintain clean and well-lubricated load chain will void the manufacturer's warranty.

1. In a corrosive environment, lubricate more frequently than normal.
2. Lubricate each link of the chain and apply new lubricant over existing layer.
3. Lubricate hook and hook latch pivot points.
4. Use a SAE 50-90W EP oil.
5. Clean chain with an acid free solvent to remove rust or abrasive dust build-up. After cleaning, lubricate the chain.
6. Lubricate load chain weekly, or more frequently, depending on severity of service.

MAINTENANCE

⚠WARNING

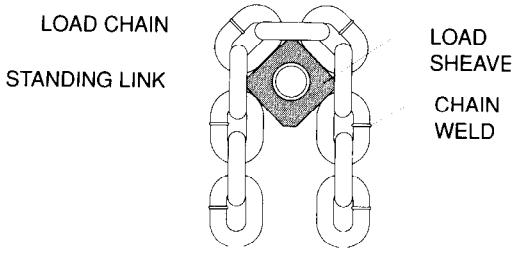
• Never perform maintenance on the hoist while it is supporting a load.
• Before performing maintenance, tag controls: DANGER - DO NOT OPERATE - EQUIPMENT BEING REPAIRED.
• Only allow qualified service personnel to perform maintenance.
• After performing any maintenance on the hoist, test to 125% of its rated capacity before returning to service.

Installing a New Chain

1. Ensure welds of "standing" links on the new chain are facing away from the load sheave (30).
2. Ensure load chain (66) is reeved between load sheave (30) and chain guides (39).
3. Bottom hook (10) must be on left fall of load chain (66) and right fall must have chain stopper (20) attached to second link.

NOTICE

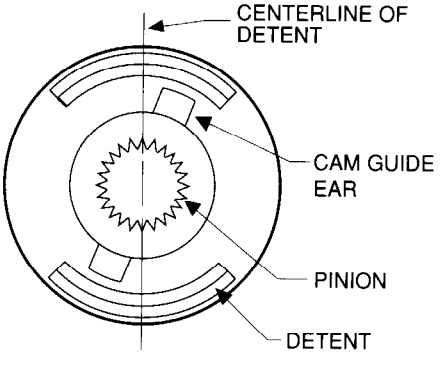
• Right and left are designated when viewed from the hand lever side of the hoist.



(Dwg. MHTPA0042)

Brake Adjustment

1. Disassemble and remove brake spring (54).
2. Switch selector lever to UP. Rotate pinion (28) counterclockwise until brake locks.
3. Slide cam guide (52) onto pinion (28) with cam guide ears just clockwise of the middle of the two raised detents on wheel (38).



(Dwg. MHTPA0073)

4. To move selector lever out of the way of the free knob (50), switch to neutral.
5. Insert tab of brake spring (54) into bottom of free knob (50).
6. Insert free knob (50) and spring (54) part way into the changeover wheel (38). Rotate free knob (50) clockwise until the tab on spring (54) hits the raised detent on wheel (38).
7. Additionally, rotate the free knob (50) clockwise approximately 120 degrees. Slide the free knob (50) down over the ears on the cam guide (52). Hold free knob (50) in place. To aid in holding the free knob in place, switch the selector lever to the UP position. The tab of the selector lever will locate over the flange of the free knob.

8. Insert outer tab on idle spring (53) into notch of spring holder (55).
9. Insert inner tab on spring (53) into one of the three notches on free knob (50). Rotate spring holder (55) counterclockwise approximately 120 degrees and press over pinion (28).
10. Secure assembly with nut (45) and split pin (48).

NOTICE

• If the free knob and brake do not operate properly, the brake spring (54) may not be seated correctly.

Disassembly

To remove brake discs (32), disassemble the hoist with the following procedure:

1. Switch selector lever to neutral.
2. Remove split pin (48). While pressing on spring holder (55), remove slotted nut (45). Remove spring holder (55), idle spring (53), free knob (50) and brake spring (53).
3. Slide cam guide (52) off pinion (28).
4. Remove nuts (46) and lockwashers (47) attaching brake cover (42).
5. Remove hand lever (56) and brake cover (42) by pulling hand lever (56) away from hoist body. While holding load chain (66), unscrew hand lever (56) counterclockwise until entire assembly comes free. Remove disc (32). Switching the selector lever to neutral and rotating the changeover wheel (38) counterclockwise will also remove hand lever (56).
6. Remove ratchet disc (33), bushing (35) and second brake disc (32).

Assembly

⚠WARNING

• Keep brake discs (32) clean, dry and free from oil and grease.

1. Place brake disc (32) over friction disc (34) and slide on bushing (33).
2. Slide ratchet gear (33) over bushing (35). Pawl springs (37) must hold pawls (36) engaged with teeth of ratchet gear (33). Ratchet gear (33) should not rotate counterclockwise and should "click" when rotating clockwise.
3. Place second brake disc (32) over ratchet gear (33).

⚠CAUTION

• The brake cover (42) can be installed improperly. The outer edges of brake cover (42) and side plate A (24) must match.

4. Place hand lever assembly (56) over pinion (28). Position holes in brake cover (42) over side plate A (24) studs.
5. Rotate pinion (28) counterclockwise until hand lever assembly (56) and hoist body are snug.

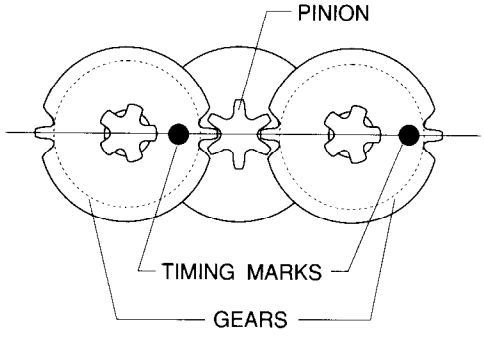
NOTICE

• Switching the selector lever to neutral and rotating the changeover wheel (38) clockwise will also install hand lever assembly (56).

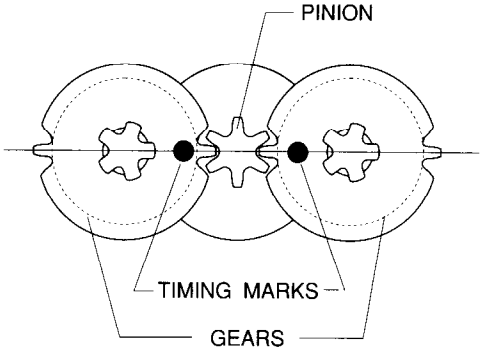
6. Secure hand lever assembly (56) with washers (47) and nuts (46).
7. Install free knob (50), see "Brake Adjustment."

Gear Timing

For proper operation, timing marks on two gears (27) must be in the correct positions.



Models L4H150 and L4H200



Models L4H300, L4H400, L4H600, L4H1200 and L4H1800

(Dwg. MHTPA0072)

Load Signal Handle (Optional)

⚠WARNING

• Rough handling of the lever hoist may damage mechanical parts or change the detection rating. This may cause a false overload indication or a false normal condition.
• Do not use the lever hoist if there is an indication of dust or other foreign matter having entered the load signal assembly.
• Do not disassemble or attempt to adjust the load signal assembly. Any attempt to do so will void the warranty. Contact your closest INGERSOLL-RAND Material Handling Products Distributor.

Overload Signal

The signal plate window on the lever handle will indicate one of the following:

Condition	Indicator Colors	Comment
Normal	Green	Continue Operation
Overload	Red	Stop Operation

An overload condition exists when the operator exceeds the hand pull required to lift the rated capacity of the hoist.

Operation of the Load Signal Handle

1. Hold the central part of the grip when lifting or lowering.

⚠WARNING

• Immediately stop lifting a load if the signal handle indicates an overload. Continued operation could lead to injury of personnel or equipment.

2. An overload is indicated by one or more of the following:
   a. Bending of the grip.
   b. A "clicking" sound.
   c. RED will appear in the signal plate window.
3. If an overload occurs, lower the load. The grip and signal plate will return to normal when the overload condition has ended.

PARTS ORDERING INFORMATION

The use of replacement parts other than INGERSOLL-RAND Material Handling Products will invalidate the Company's warranty. For prompt service and genuine INGERSOLL-RAND Material Handling Products parts, provide your nearest Distributor with the following:

1. Complete model number and serial number, if available, as it appears on the nameplate: L4H plus capacity.
2. Part number and part description as shown in this manual.
3. Quantity required.

The model and serial number label is located on the hand lever under the selector lever.

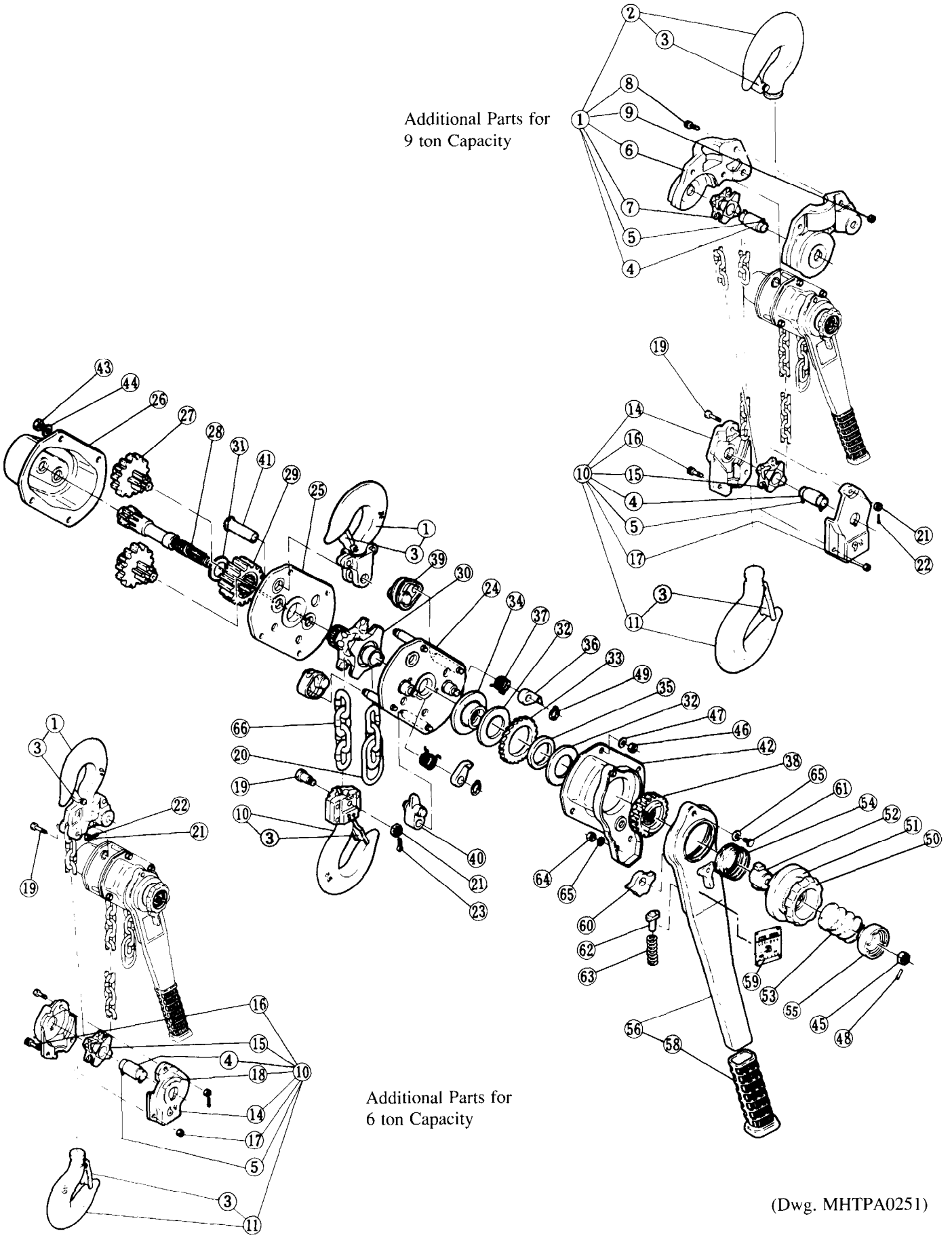
Return Goods Policy

Ingersoll-Rand will not accept any returned goods for warranty or service work unless prior arrangements have been made and written authorization has been provided from the location where the goods were purchased. Hoists returned with opened, bent or twisted hooks, or without chain and hooks, will not be repaired or replaced under warranty.

NOTICE

• Continuing improvement and advancement of design may cause changes to this hoist which are not included in this manual. Manuals are periodically revised to incorporate changes. Always check the manual edition number on the front cover for the latest issue.

L4H LEVER CHAIN HOIST ASSEMBLY DRAWING



(Dwg. MHTPA0251)

L4H LEVER CHAIN HOIST ASSEMBLY PARTS LIST

ITEM NO.	DESCRIPTION OF PART	TOTAL QTY.	PART NO.						
			3/4 ton	1 ton	1-1/2 ton	2 ton	3 ton	6 ton	9 ton
1	Top Hook Assembly	1	3472445	3473208	3472446	3473210	3472447	3472448	3472449
2	Top Hook	1	---						3472450
• 3	**Hook Latch**	2	3472451		3472452		3472453	3472454	3472455
4	Shaft	1	---						3472456
5	Stopper Pin	4	---					3472457	
6	Top Yoke Set	1	---						3472458
7	Idle Sheave	1	---						3472459
8	Socket Bolt	3	---						3472460
9	Lever Nut	3	---						3472461
• 10	**Bottom Hook Kit**	1	71047310	71047328	71047351	71063325	71047369	3472465	3472466
11	Bottom Hook	1	---					3472467	3472450
13	Shaft	1	---					3472456	
14	Bottom Yoke Set	1	---					3472469	3472470
15	Idle Sheave	2	---					3472459	
16	Socket Bolt	See ( )	---					3472471(3)	3472460(2)
17	Lever Nut	See ( )	---					3472472(3)	3472461(2)
18	Nameplate	1	---					3472473	3472587
19	Chain Pin	1	Order Item 10						
20	Chain Stopper	1	3472479		3472480		3472481		
21	Slotted Nut	1	Order Item 10						
22	Split Pin	1	---					3472486	
23	Split pin	1	Order Item 10						
24	Side Plate A	1	3472490		3472491		3472492		
25	Side Plate B	1	3472493		3472494		3472495		
26	Gear Cover	1	3472496		3472497		3472498		
27	Gear No.2	2	3472499		3472500		3472501		
28	Pinion	1	3472502		3472503		3472504		
29	Load Gear	1	3472505		3472506		3472507		
30	Load Sheave	1	3472508		3472509		3472510		
31	Washer	1	3472511		3472512		3472513		
• 32	**Brake Disc**	2	3472514		3472515				
33	Ratchet Gear	1	3472516		3472517				
34	Friction Disc	1	3472518		3472519				
35	Bushing	1	3472520		3472521				
36	Pawl	2	3472522		3472523		3472524		
37	Pawl Spring	2	3472525		3472526				
38	Changeover Wheel	1	3472527		3472528				
39	Chain Guide	2	3472529		3472530		3472531		
40	Chain Stripper	1	3472532		3472533		3472534		
41	Top Pin	1	3472535		3472536		3472537		
42	Brake Cover	1	3472538		3472539		3472540		
43	Nut	4	3472541				3472542		
44	Lockwasher	4	3472543				3472544		
45	Slotted Nut	1	3472545				3472546		
46	Nut	4	3472547				3472548		
47	Lockwasher	4	3472549				3472550		
48	Split Pin	1	3472551				3472552		
49	Retainer Ring	2	3472553				3472554		
50	Free Knob	1	3472555				3472556		

L4H LEVER CHAIN HOIST ASSEMBLY PARTS LIST

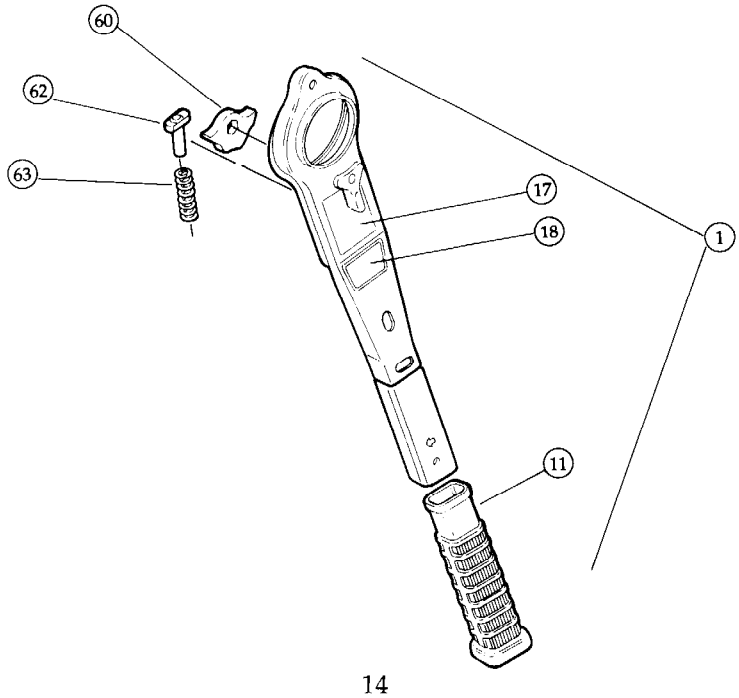
ITEM NO.	DESCRIPTION OF PART	TOTAL QTY.	PART NO.						
			3/4 ton	1 ton	1-1/2 ton	2 ton	3 ton	6 ton	9 ton
51	Nameplate	1	3472557						
52	Cam Guide	1	3472558		3472559				
53	Idle Spring	1	3472560		3472561				
54	Brake Spring	1	3472562		3472563				
55	Spring Holder	1	3472564		3472565				
56	Hand Lever Assembly	1	3472566		3472567				
58	Grip	1	3472568		3472569				
59	Nameplate	1	3470406	3470404	3470407	3470405	3470408	3470409	3470410
60	Changeover Pawl	1	3472575		3472576				
61	Screw	1	3472577		3472578				
62	Shaft Spring	1	3472579		3472580				
63	Changeover Spring	1	3472581		3472582				
64	Nut	2	3472583		3472584				
65	Lockwasher	See ( )	3472584 (3)		3472586 (2)				
66	Load Chain	---	LCCF008		LCCF015		LCCF025		
	Load Chain (Zinc Plated)		LCCF008ZP		LCCF015ZP		LCCF025ZP		

▪ Recommended Spare

NOTE: Replace Hook Pins, Nuts and Split Pins when ordering Hooks.

LOAD SIGNAL ASSEMBLY AND PARTS LIST (OPTIONAL)

ITEM NO.	DESCRIPTION OF PART	TOTAL QTY.	PART NO.						
			3/4 ton	1 ton	1-1/2 ton	2 ton	3 ton	6 ton	9 ton
1	Hand Lever Assembly	1	3471401		3471402				
11	Grip	1	3472570						
17	Nameplate	1	3470406	71002778	3470407	71002786	3470408	3470409	3470410
18	Nameplate	1	3471902						



(Dwg. MHTPA0252)

HOIST AND WINCH LIMITED WARRANTY

Ingersoll-Rand Company (I-R) warrants to the original user its Hoists and Winches (Products) to be free of defects in material and workmanship for a period of one year from the date of purchase. I-R will repair, without cost, any Product found to be defective, including parts and labor charges, or at its option, will replace such Products or refund the purchase price less a reasonable allowance for depreciation, in exchange for the Product. Repairs or replacements are warranted for the remainder of the original warranty period.

If any Product proves defective within its original one year warranty period, it should be returned to any Authorized Hoist and Winch Service Distributor, transportation prepaid with proof of purchase or warranty card.

This warranty does not apply to Products which I-R has determined to have been misused or abused, improperly maintained by the user, or where the malfunction or defect can be attributed to the use of non-genuine I-R parts.

I-R makes no other warranty, and all implied warranties including any warranty of merchantability or fitness for a particular purpose are limited to the duration of the expressed warranty period as set forth above. I-R's maximum liability is limited to the purchase price of the Product and in no event shall I-R be liable for any consequential, indirect, incidental, or special damages of any nature rising from the sale or use of the Product, whether based on contract, tort, or otherwise.

Note: Some states do not allow limitations on incidental or consequential damages or how long an implied warranty lasts so that the above limitations may not apply to you.

This warranty gives you specific legal rights and you may also have other rights which may vary from state to state.

IMPORTANT NOTICE

It is our policy to promote safe delivery of all orders.
This shipment has been thoroughly checked, packed and inspected before leaving our plant and receipt for it in good condition has been received from the carrier. Any loss or damage which occurs to this shipment while enroute is not due to any action or conduct of the manufacturer.

VISIBLE LOSS OR DAMAGE
If any of the goods called for on the bill of lading or express receipt are damaged or the quantity is short, do not accept them until the freight or express agent makes an appropriate notation on your freight bill or express receipt.

CONCEALED LOSS OR DAMAGE
When a shipment has been delivered to you in apparent good condition, but upon opening the crate or container, loss or damage has taken place while in transit, notify the carrier's agent immediately.

DAMAGE CLAIMS
You must file claims for damage with the carrier. It is the transportation company's responsibility to reimburse you for repair or replacement of goods damaged in shipment. Claims for loss or damage in shipment must not be deducted from the Ingersoll-Rand invoice, nor should payment of Ingersoll-Rand invoice be withheld awaiting adjustment of such claims as the carrier guarantees safe delivery.
You may return products damaged in shipment to us for repair, which services will be for your account and form your basis for claim against the carrier.

United States Office Locations

For Order Entry and Order Status:

INGERSOLL-RAND Distribution Center
510 Hester Drive
P.O. Box 618
White House, TN 37188
Phone (615) 672-0321,
Telex: 786573
Fax: (615) 672-0601

For Technical Support:

INGERSOLL-RAND Material Handling
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Seattle, WA 98124-0046
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Fax: (206) 623-0464

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888 Industrial Drive
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Southfield, MI 48037
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Houston, TX 77008
(713) 864-3700

Los Angeles, CA
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Los Angeles, CA 90022
(213) 725-2826

Philadelphia, PA
900 E. 8th Ave., Suite 103
King of Prussia, PA 19406
(215) 337-5930

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WA 98124-0046 USA

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North Vancouver, British Columbia V7P 3H1
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Fax: (604) 985-0160

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