MAGNA®
LIFTING PRODUCTS

LEVER HOIST
0.25 – 9 TONS
MANUAL

NOTICE

It is the responsibility of the owner/user to install, inspect, test, maintain, and operate these lever hoists in accordance with ASME B30.21, Safety Standard for Lever Hoists.

These general instructions deal with the normal installation, operation and maintenance situations encountered with the lever hoists described herein. The instructions should not be interpreted to anticipate every possible contingency or to anticipate the final system or configuration that uses these lever hoists. Read and observe the instructions stated in the manual furnished with equipment to be used with these lever hoists.

These instructions include information for a variety of lever hoists. Therefore, all instructions and information may not apply to one specific lever hoist. Disregard those portions of the instructions that do not apply.

If the lever hoist owner/user requires additional information, or if any information in these instructions is not clear, contact MAGNA Lifting Products, Inc. or the distributor of the lever hoist. Do not install, inspect, test, maintain, or operate this lever hoist unless this information is fully understood.

⚠ WARNING

This lever hoist should not be installed, operated, or maintained by any person who has not read all the contents of these instructions, and ASME B30.21, Safety Standard for Lever Hoists. Failure to read and comply with these instructions or any of the warnings or limitations noted herein can result in serious bodily injury or death, and/or property damage.

Only trained and qualified personnel shall operate and maintain this equipment.

Equipment described herein is not designed for, and should not be used for lifting, supporting, or transporting humans.

User should not use this lever hoist in conjunction with other equipment unless necessary and/or required safety devices applicable to the system are installed the user.

Modifications to upgrade, rerate or otherwise alter these lever hoists shall be authorized only by the original equipment manufacturer or qualified professional engineer.

PRIOR TO INSTALLATION

Check for damage during shipment. Place claim with carrier if any damage is discovered. DO NOT install or use a damaged lever hoist.

Check and verify that structure or other equipment that will support the lever hoist has a rated load capacity equal to or greater than the rated load capacity of the lever hoist to be used.

OPERATION

Before initial operation of hoist:

1. Read and comply with all instructions and warnings furnished with or attached to hoist.
2. Check lubricant.
3. Check operation of brake.
4. Check that chain is properly seated in sheaves and that chain is not twisted, kinked, or damaged.

Before each shift:

1. Inspect hooks for nicks, gouges, cracks, and signs of pulling apart or twist.
2. Inspect hook latch for proper operation.
3. Check chain for kinks or twists.
4. Check operation of brake.
5. Replace warning label if missing or illegible.

Before operating:

1. Be certain all personnel are clear of the load to be lifted and moved.
2. Make sure load will clear stock piles, machinery, or other obstructions when hoisting and traveling the load.
3. Eliminate any twists or kinks in the load chain.
4. Do not use the hoist if bottom hook is capsized (multiple fall hoists). Correct all chain irregularities before conducting the first operation.

⚠ WARNING

SAFETY PRECAUTIONS

1. READ these instructions and ASME B30.21, Safety Standard for Lever Hoists before installing, operating, or maintaining this equipment.
2. DO NOT lift more than rated load.
3. DO NOT operate hoist when it is restricted from forming a straight line with the direction of the load (Refer to Figure 1)
4. DO NOT operate with twisted, kinked, or damaged chain.
5. DO NOT operate if chain is not seated in sheaves or sprockets.
6. DO NOT wrap chain around load or use chain as a sling.
7. DO NOT operate unless load is properly applied to the saddle or bowl of the hook. (Refer to Figure 1)
8. DO NOT operate if load is applied to the tip of the hook. (Refer to Figure 1)
9. DO NOT operate with damaged or missing hook latches.
10. DO NOT operate hoist when it is in free-wheeling position.
11. DO NOT lift people.
12. DO NOT lift or move loads over people.
13. DO NOT operate hoist with lever extensions.
14. DO NOT operate with side-pulling or side-loading of load to hois
15. DO NOT operate a damaged or malfunctioning hoist
16. DO NOT lift or suspend loads with multiple hoists. (Refer to Figu
17. DO NOT remove, deface, or obscure warning label or labels on hc
18. DO NOT leave load suspended when hoist is unattended unless specific precautions have been instituted and are in place.
19. WARN personnel of approaching loads.

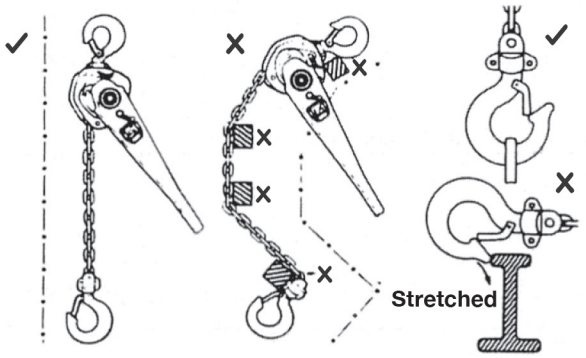


Figure 1

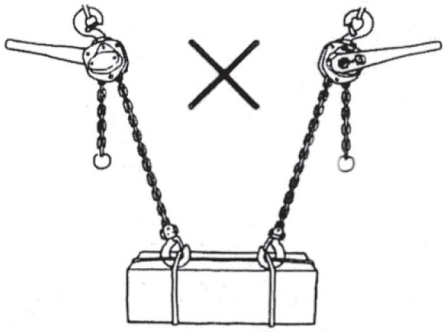


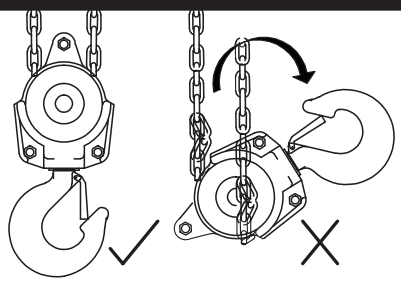
Figure 2

NOTICE

Check load chain for capsized hooks on hoists with multiple falls. If bottom hook is capsized, do not use hoist until capsized hook is corrected.

If capsized, rotate the bottom hook assembly through the chain falls until no kinks remain.

Using a capsized load chain can cause injury and serious damage to the hoist.



To Operate Lever Hoist

Set change lever in desired direction. UP or DOWN, and operate handle back and forth to move load in desired direction.
DO NOT move chain to the extreme end in either direction.
Brake is always active, regardless of direction of movement. However, DO NOT attach a load to the hoist when hoist is in free-wheeling mode.

Before removing or relieving load from hoist, ALWAYS release hoist brake by moving change lever to "lower" and ratcheting lever handle.

Failure to do so will result in hoist locked in "raise" mode.
If pivoting or tilting a load fixed to a surface from a horizontal position to a vertical position, do not reverse change lever to "lower" mode and attempt to lower load before reaching vertical position if angle of load to vertical decreases load to less than minimum load for hoist.

Minimum working load limit:

a) 66lbs for a machine having a working load limit (WLL) up to and including 1-ton (2200lbs).
b) 3% of WLL for lever hoists having a working load limit greater than 1-ton.

To Test Brake

Lift a light load and set it down a few times to test for brake slippage. It the rotational play of the grip ring is excessive, adjust brake.

DISASSEMBLY, INSPECTION, MAINTENANCE, AND REASSEMBLY

DISASSEMBLY

During disassembly, any parts found to be damaged or having excessive wear must be replaced with new parts during reassembly.

Remove the chain:

1. Disconnect end ring (ltem 42) and Warning label (Item 45).
2. Remove chain with hoist in free-wheeling mode.
3. Inspect chain, end ring, warning label, and load hook.

CHAIN

Inspect chain at least once a month. Between regular inspections, check visually daily for nicks, gouges, weld splatter, corrosion, or distorted links. Inspect chain thoroughly if it does not feed smoothly over load sheaves. Inspect as follows:

1. Clean chain with solvent before inspection.
2. Test hoist with load and observe operation of chain over load sheaves.
3. Slacken chain and inspect contact points for excessive wear. Refer to Figure 3.

Figure 3

4. Using caliper—type gauge, with chain under light tension, measure the nominal pitch (inside length dimension) of several links. Replace chain if nominal pitch exceeds maximum allowable tolerance shown in chart by more than 2.5%.

CAPACITY TONS	CHAIN WIRE DIAMETER	MAXIMUM ALLOWABLE GAUGE LENGTH
0.25	4.0mm	12.0mm+0.2/-0.1
3/4	6.3mm	19.1mm+0.3/-0.1
1	6.3mm	19.1mm+0.3/-0.1
1 1/2	7.1mm	21.0mm+0.3/-0.1
3-9	9.0mm	27.0mm+0.4/-0.1

HOOKS

Refer to ASME B30.10, Safety Standard for Hooks. Inspect hooks and measure hook throat opening at least once-a month. Between regular inspections check visually daily for deformation, distortion, twisting, damage, and missing or damaged hook latches. Inspect as follows:

1. Measure hook throat opening from metal to metal of the hook as shown by dimension g in Figure 4. DO NOT measure from latch to metal. Hook must be replaced when throat opening measurement has increased 5% over the over the original throat opening dimension of a new hook, as follows:

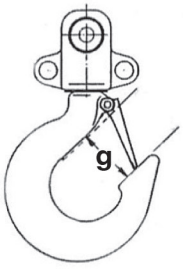


Figure 4

2. Measure hook depth at load bearing point (base, bowl, or saddle) of the hook. Hook must be replaced when wear at load bearing point is 10% of the original depth of the hook load bearing point.
3. A bend or twist of the hook requires replacement of the hook.
4. A hook safety latch that is missing, inoperative, or does not close the throat opening of the hook must be replaced.
5. Hooks having damage from chemicals, corrosion, or deformation must be replaced.

CAPACITY TONS	DIMENSION g NEW HOOK	DIMENSION g REPLACE HOOK
0.25	23mm	24.15mm
3/4	32mm	33.60mm
1	34mm	35.70mm
1 1/2	37mm	38.85mm
2	42mm	44.10mm
3	45.5mm	47.78mm
6	49.5mm	51.98mm
7.5	48.5mm	50.93mm
9	62mm	65.10mm

Dimensions apply to current hooks that are labeled with a small t.

NOTICE

ANY HOOK THAT REQUIRES REPLACEMENT BECAUSE OF EXCESSIVE BENDS, TWISTS, OR THROAT OPENING INDICATES ABUSE OR OVERLOADING OF THE HOIST. THEREFORE, OTHER LOAD-SUPPORTING COMPONENTS OF THE HOIST SHOULD BE INSPECTED FOR POSSIBLE DAMAGE WHEN SUCH CONDITIONS ARE FOUND.

⚠ CAUTION

NEVER REPAIR HOOKS BY WELDING OR RESHAPING. HEAT APPLIED TO THE HOOK WILL ALTER THE ORIGINAL HEAT TREATMENT OF THE HOOK MATERIAL AND REDUCE THE STRENGTH OF THE HOOK.

NEVER WELD HANDLES OR OTHER ATTACHMENTS TO THE HOOK. HEAT APPLIED TO THE HOOK WILL ALTER THE ORIGINAL HEAT TREATMENT OF THE HOOK MATERIAL AND REDUCE THE STRENGTH OF THE HOOK.

DISASSEMBLY OF HANDLE AND BRAKE

Refer to illustrated parts list, Figure 9. Following the order of parts in the figure, disassemble from right to left. Check handle, grip ring, push pin for deformation or damage. Replace as required.

DISASSEMBLY OF GEAR AND BODY

Refer to illustrated parts list, Figure 9. Following the order of parts in the figure, disassemble from left to right. Check gear cover, gears, side plate I, top hook, hook pin, chain guides, chain stripper, load sheave, pinion shaft, and side plate II for deformation or damage. Replace as required.

REASSEMBLY

Refer to illustrated parts list, Figure 9. Reassemble following the order of parts in the figure.

1. Prior to reassembly, wash or clean all parts as required.
2. Assemble gears. Refer to Figure 5, 6 and 7.
   a. 3/4 – 1 ton: Teeth between two marks on the gear spline must be on horizontal centerline, facing toward center as shown in Figure 5.
   b. 1 1/2 ton: No precise alignment is required.
   c. 3 - 9 ton: Teeth between two marks on the gear spline must be on horizontal centerline, facing toward center as shown in Figure 7.
3. DO NOT lubricate the two brake discs (Part 16) or the friction surfaces contacting them.
4. To adjust brake (Figure 8):
   a. With change lever in “free”, or central position, remove grip ring and pinion nut (Part 32).
   b. Pull hook end of load chain in lowering direction. This sets brake in engaged position.
   c. Referring to Figure 8, position stopper (Part 31) angled on pinion shaft to dimension show in Figure 8.

LUBRICATION

Apply NLGI No. 2 grease to gears as required. Lubricate load chain with AGMA No. 2 oil.

Figure 5

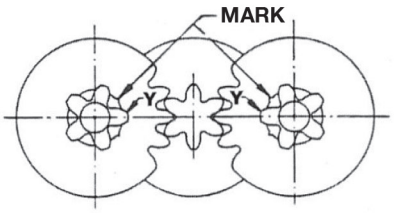


Figure 6

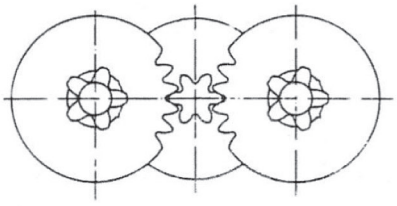


Figure 7

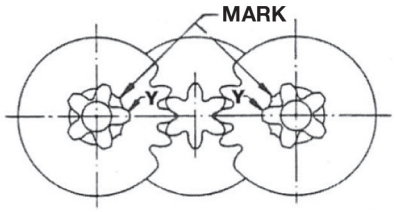
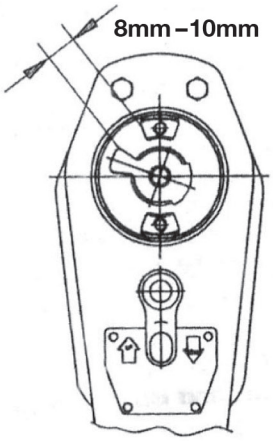


Figure 8



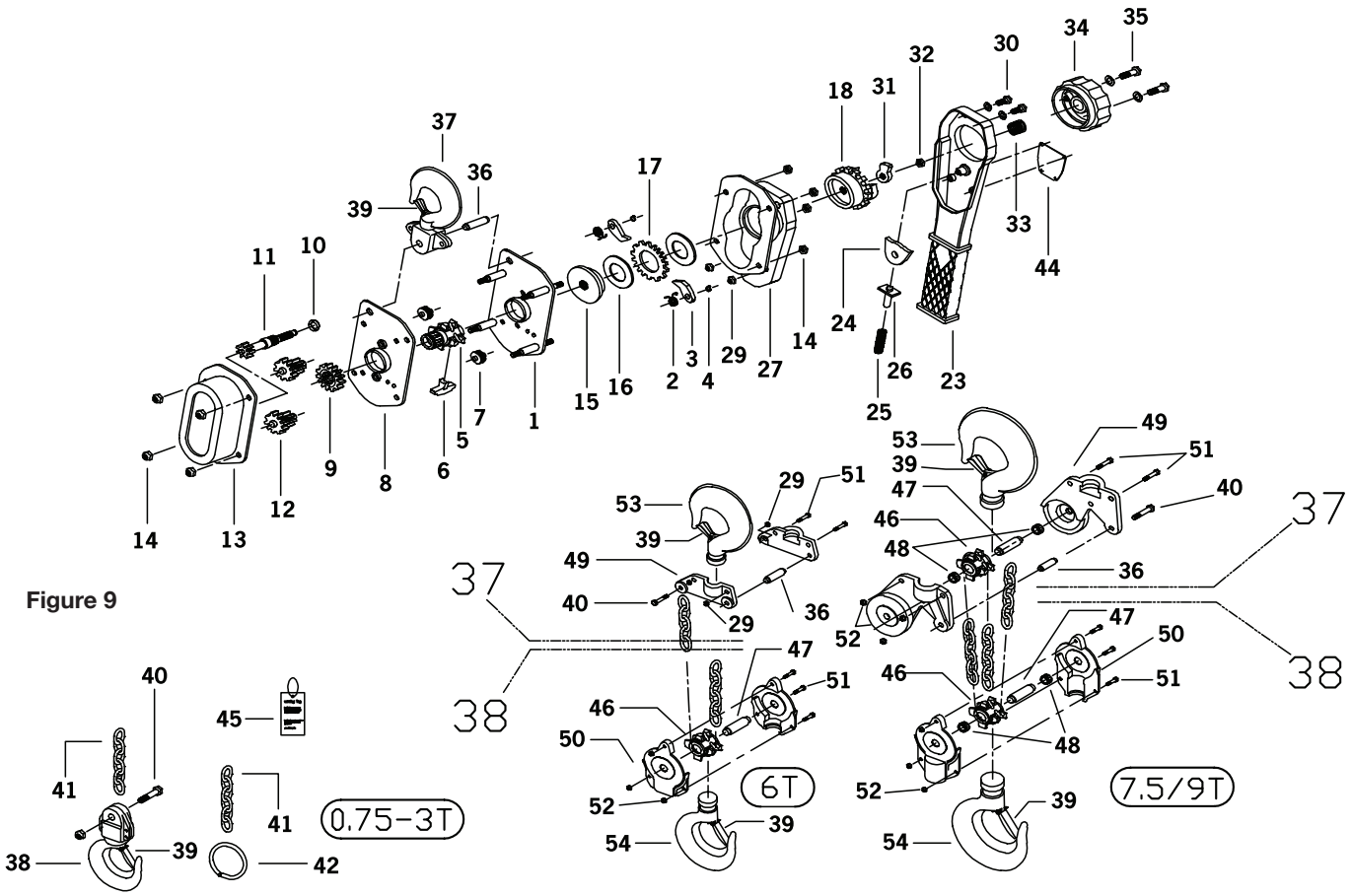


Figure 9

No	Description	Qty
01	Side Plate I Assembly	1
02	Pawl Spring	2
03	Pawl	2
04	Snap Ring	2
05	Load Sheave	1
06	Stripper	1
07	Chain Guide	2
08	Side Plate II Assembly	1
09	1st Gear	1
10	Pinion Washer	1
11	Pinion Shaft	1
12	2nd 3rd Assembly	2
13	Gear Cover Assembly	1
14	U-Nut	6
15	Hub	1
16	Brake Disc	2
17	Rachet Gear	1
18	B-Washer Assembly	1
23	Lever Assembly	1
24	Change Pawl	1
25	Push Spring	1
26	Push Pin	1
27 / 28	Lever & Brake Cover Assembly	1
29	U-Nut	2
30	Lever Bolt & Washer	2
31	Stopper	1

No	Description	Qty
32	Pinion Snap Ring or Nut	1
33	Grip Ring Spring	1
34	Grip Ring	1
35	Grip Ring Bolt & Washer	2
36	Top Hook Pin	1
37	Top Hook Assembly	1
38	Bottom Hook Assembly	1
39	Safety Latch	1
40	Bottom Hook Bolt & Nut	1
41	Load Chain	1
42	End Ring	1
43	Snap Ring	1
44	Capacity Label	1
45	Warning Tag (a)	2

No	Description	Capacity / Qty		
46	Top/Bottom Hook Sleave	6t : 1	7.5t : 2	9t : 2
47	Axle	6t : 1	7.5t : 2	9t : 2
48	Bearing HK3020		7.5t : 4	9t : 4
49	Top Hook Holder	6t : 2	7.5t : 2	9t : 2
50	Bottom Hook Holder	6t : 2	7.5t : 2	9t : 2
51	Holder Bolt	6t : 5	7.5t : 4	9t : 5
52	Holder Nut & Washer		7.5t : 4	9t : 5
53	Top Hook	6t : 1	7.5t : 1	9t : 1
54	Bottom Hook	6t : 1	7.5t : 1	9t : 1

Note: *(a) Not Shown. Attached to end ring (42) on dead side of load chain. Replace if missing or illegible.*

TO ORDER PARTS: Provide capacity, serial number, part number, part description, and quantity required. Use only MAGNA® replacement parts.

GENERAL CONDITIONS OF WARRANTY

WARRANTIES:

The seller warrants to the original using Buyer thereof that the goods sold under this Agreement are free from defects in workmanship and materials for a period of one year from the date of shipment to the original using Buyer. No other express warranties are given and no affirmation of Seller or Seller's agents, by word or action, shall constitute a warranty. No warranty is made for components and accessories made by others when such items are warranted by their respective manufacturers.

Installation or operation of the equipment in any manner other than as recommended by Seller, shall void the warranty.

Any variations in details between the goods furnished herein and those covered in Buyer's specifications are due to standards of manufacture not to be construed as exceptions to the specifications.

DISCLAIMER OF IMPLIED WARRANTIES:

(a) Seller makes no warranty of merchantability in respect to the goods sold under this agreement.
(b) This sale is made without any warranty by seller that the goods are suitable for any particular purpose.
(c) Buyer hereby waives all other warranties, guarantees, obligations, liabilities, rights, and remedies arising by law or otherwise including any obligation or liability of the Seller arising from tort, and Buyer shall indemnify Seller from any liability, loss, damage, or claim arising from Buyer's tortious use of the goods sold hereby.

REMEDIES:

(a) Under no conditions shall any goods be returned to Seller without its prior written consent.
(b) The Buyer's sole and exclusive remedy for breach of any warranty is limited to Seller furnishing, at its expense, duplicate or repaired parts F.O.B. Seller's plant with installation at Buyer's expense if discovery of a claimed defect occurs during the allowable warranty period, and if Seller's inspection determines a defect exists.
(c) The quantity of material shown by invoice shall in all cases govern settlement for shortages, unless notice of shortage, appropriately documented, is given to the carrier and the Seller upon delivery by the Carrier.
(d) Claims for errors, deficiencies or imperfections shall be deemed waived by the Buyer unless Seller is notified in writing of the basis of such claims within 10 days after discovery of claimed defect and such discovery occurs within the warranted period.
(e) Neither Buyer nor User shall be entitled under this Agreement to recover from Seller any incidental or consequential damages of any nature including but not limited to the cost of any labor expended by others in connection with the goods sold hereb by reason of any alleged nonconformity or breach of warranty on the part of the Seller, nor costs of material or account thereof, nor any lost profits whether determinable or speculative.