

	<b>Industrial Site Services Co. Ltd</b>	Issue Date: February 2017
	<b>Safe Operating Procedures – Lever Hoist</b>	Authorised By: HSE Manager
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**DO NOT use this machine unless you are trained in its safe operation and have been given permission by a supervisor**



Safety glasses must be worn at all times



Long and loose hair must be contained



Sturdy footwear must be worn at all times



Close fitting/protective clothing must be worn at all times



Rings and jewellery must not be worn

### Pre-Operational Safety Checks

1. Ensure you are aware of the maximum rated load, you cannot surpass this
  2. When operating the Lever hoist, always maintain a firm footing and when necessary be secured.
  3. Operate the lever hoist from a location that will be clear of the load at all times
  4. People must stay clear of the suspended load
  5. Before lifting a load, confirm that the lever hoist is in good condition and functioning properly
  6. Always keep the load chain well lubricated and protect it from weld splatter and other damaging contaminants
  7. Always use proper slings and attachments in the correct manner and ensure that they are seated correctly in the hook
  8. Ensure the safety latch assembly has closed completely and is not supporting any part of the load
  9. Never run the load chain out beyond the range of lift.
  10. Never let your attention be diverted when operating the lever hoist.
  11. Inspect the lever hoist regularly, if malfunction, unusual performance, damage, or extensive wear is found, always report it to a relevant ISS supervisor and do not use it. – tag it so other's know.
  12. Confirm that the supporting structure is strong enough to support the full rated capacity of the Lever Hoist with a generous factor of safety.
- If the hook opening is elongated beyond the permissible dimension, the hook is dangerously deformed and must be replaced at once. Measurements can be seen below in Fig. 11

#### Hook Dimensions (Opening)

Capacity ton	A Standard $^{+3}_{-0}$ Size (mm)	LIMIT ※A (mm)
0.5	30	33
0.75	30	33
1.5	39	43
3	42	46
6	52	57

NOTE: Limit ※A(mm) are the maximum permissible dimensions of the Hooks, which are about 10% wider than the standard hook openings.

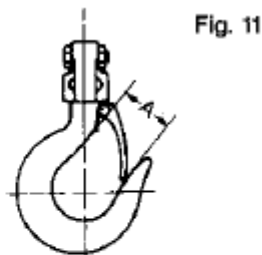
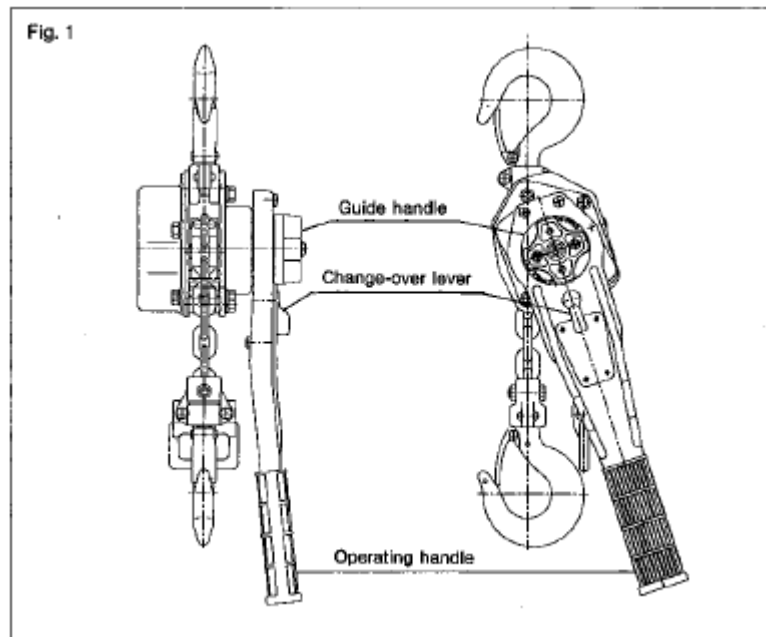


Fig. 11



Rated Capacity ton	Standard lift M	Chain dia. X falls	Minimum Distance between hooks (mm)	Pull on lever to lift full load (kg)	Length of operating handle (mm)	Net Weight (kg)	Test Load (ton)
0.5	1.0	Ø 4mmx1	290	38	235	3.5	0.75
0.75	1.5	Ø5.6mmx1	295	21	235	5.7	1.125
1.5	1.5	Ø7.1mmx1	380	25	350	9.3	2.25
3	1.5	Ø 9mmx1	420	35	350	14.9	4.5
6	1.5	Ø 9mmx2	570	38	350	28.5	9.0

### Trouble Shooting

<u>Condition</u>	<u>Cause</u>	<u>How to Repair</u>
Slip caused by ineffective braking.	<ol style="list-style-type: none"> <li>1. Worn-out friction discs</li> <li>2. Excessive oil on the braking surface</li> <li>3. Incorrect assembly of the brake system</li> </ol>	Replace with new ones. Disassemble and clean. Assemble correctly.
Load dropped while lowering.	<ol style="list-style-type: none"> <li>1. Damaged friction discs</li> <li>2. Foreign matters in the braking system</li> </ol>	Replace with new ones. Disassemble and clean.
Jammed operating handle	<ol style="list-style-type: none"> <li>1. Over-tightening of the brake</li> </ol>	Operate the lever hoist as if lowering a load.
Noises during hoisting and lowering operation	<ol style="list-style-type: none"> <li>1. Wear or deformation of the load chain and load sheave.</li> </ol>	Replace with new parts
Operating handle becomes difficult to operate during lifting or lowering operation.	<ol style="list-style-type: none"> <li>1. Over-hoisting or over-lowering.</li> <li>2. Twist in the load chain causing it to get caught between load sheave and load chain guide.</li> </ol>	Operate the hoist in opposite direction. Operate the hoist in opposite direction and remove the twist from the load chain.

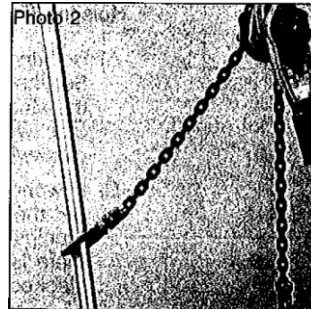
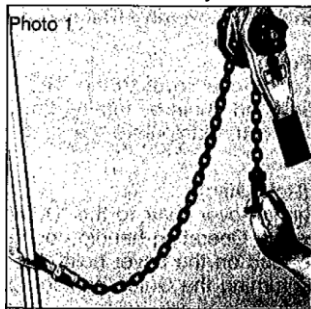
### Operational Safety Checks

1. Slacked load chain must be taken up carefully.
2. While testing the balance of the load, lift and lower the load about 10cm to test the brake system before lifting further.

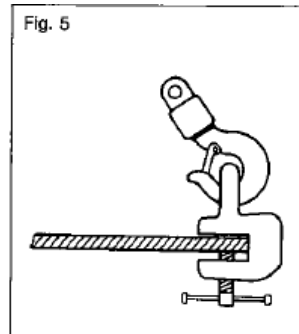
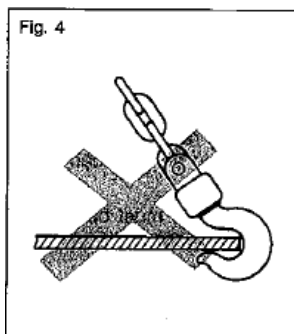
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3. Loads must be lifted quietly as possible.
4. **When Hoisting (Pulling):** set the Change-over lever to the “UP” position. Take up the slacked Load chain by turning the guide handle clockwise. Next, manipulate the Operating handle clockwise.
5. **When Lowering (Releasing):** Set the Change-over lever to the “DOWN” position. Manipulate the Operating handle counter clockwise. When there is no load on the Lever Hoist, the Load chain can be slackened by turning the Guide handle counter-clockwise
6. **Free-Wheeling:** Setting the Change-over lever to “N” position and pulling the load chain out in the desired direction in order to make quick and large adjustments to the load chain length. This is NOT possible during the following conditions:
  - When the lever hoist is under a load
  - When the guide handle is in contact with something and not rotating freely
  - When the brake has locked from a large or abrupt load: Turn the Guide handle 45 degrees counter-clockwise to unlock the brake
  - When the brake is locked: The brake can be unlocked by setting the Change-over lever to the “DOWN” position and manipulating the Operating handle counter-clockwise
7. **Resetting:** The Lever hoist will automatically change from the *Free-wheeling* condition to the Brake locked condition when a load is applied. Apply the load with one of the following methods:
  - Turn the Guide handle clockwise till the brake locks from the force of the load.
  - Pull firmly on the Stop grip till the brake locks from the force of the load – see below photos.



8. Extreme temperatures will affect the toughness of the Lever hoist. In sub-zero temperatures, loads must be lifted and lowered very slowly and carefully.
9. **Hooking:** The load must be applied squarely to the centre of the Hook, and the Hook must not come loose during operation. Never use the Hook directly on a load as shown in Fig. 4 – use the correct attachments as shown in Fig. 5



### Improper Hooking Methods

Fig. 6 through 9 show improper hooking methods, which may cause the Hook to elongate or bend. These hooking methods may also obstruct the Load Chain flow to the Load Sheave and prevent the Lever hoist from operating properly. In applications similar to Figures 6-9, be sure to use the correct slings and attachments to ensure safe operation and long life of the Lever Hoist.

Fig. 6

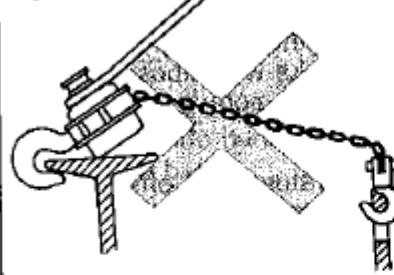


Fig. 7

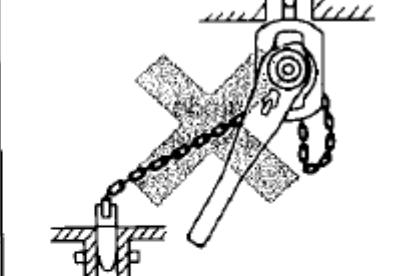


Fig. 8

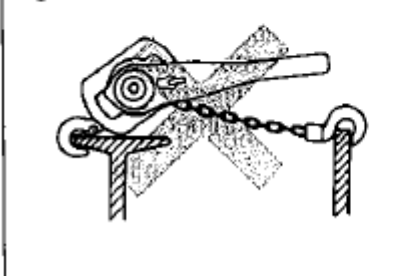


Fig. 9



### Forbidden

- |   |  |
|---|--|
| <b>Do not</b> Lift more than the rated load   | <b>Do not</b> Lift loads over or near people   |
| <b>Do not</b> Use the Lever Hoist to lift, support or transport people  | <b>Do not</b> Use the load chain or hooks as a ground for welding  |
| <b>Do not</b> Touch load chain or hook with live welding electrodes   | <b>Do not</b> Use the lever hoist with twisted, kinked, damaged or worn lead chains  |
| <b>Do not</b> Attempt to lengthen the load chain  | <b>Do not</b> Leave a suspended load unattended  |
| <b>Do not</b> Adjust/repair lever hoist unless qualified to perform hoist maintenance                             | <b>Do not</b> Modify the lever hoist   |
| <b>Do not</b> Throw or drop the lever hoist from high places, also do not drag the Lever hoist in transportation. | <b>Do not</b> Change the position of the Change-over lever from the "UP" position when the Lever hoist is under load during hoisting or pulling. |
| <b>Do not</b> Run the chain out too far.  | <b>Do not</b> Leave/Store the Lever Hoist with the brake system locked   |

### Housekeeping

1. Loosen the Brake system when finished with use by operating the Lever hoist as if lowering a load.
2. Always service and repair the Lever hoist after use.
3. Thoroughly clean the dust or if used in the rain, wipe off the dirt and moisture and lubricate the Lever Hoist to prevent rust. Especially do not forget to lubricate the Load chain, rotating section of the bottom hook, and the chain guides.
4. Inspect the Hooks and Load chain for bends and any other type of defects, also check if hooks rotate.

### Potential Hazards

- Falling objects
- Pinch points
- Breaking chains