

	AI TAKAMUL COMPANY FOR ENGINEERING TESTS AND PROFESSIONAL SAFETY LIMITED Lifting Inspection	Doc No: QC-LIF-P-002
		Level: 3
		Page 1 of 6
Title: Inspection Procedure of Hand Operated Lever Hoists		Rev: 2
Established By: Ashraf Elsaid	Position: Lifting Supervisor	Date: JULY-2022
Approved By: Ahmed Mohamed	Position: Operation Manager	

Inspection Procedure of Hand Operated Lever Hoists

	AI TAKAMUL COMPANY FOR ENGINEERING TESTS AND PROFESSIONAL SAFETY LIMITED Lifting Inspection	Doc No: QC-LIF-P-002
		Level: 3
		Page 2 of 6
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Contents	Page
1 YOUR SAFETY IS FIRST	3
2 SCOPE	3
3 REFERENCE STANDARDS	3
4 HAND OPERATED LEVER HOISTS.....	3
5 PERIODIC VERIFICATION AND TESTING	4
6 THOROUGH EXAMINATION.....	4
7 PROOF LOAD TEST	5
8 MARKING	6
9 REPORTING AND CERTIFICATION	6
10 Inspector Competency and Qualification.....	6

	AI TAKAMUL COMPANY FOR ENGINEERING TESTS AND PROFESSIONAL SAFETY LIMITED Lifting Inspection	Doc No: QC-LIF-P-002
		Level: 3
		Page 3 of 6
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1. YOUR SAFETY IS FIRST:

Your safety wear is mandatory at job sites including in general: suit, shoes, helmet, gloves, ear plugs, glasses, and mask.

2. SCOPE:

This procedure covers the inspection and testing of hand operated lever hoists.

3. PRODUCT/ MANUFACTURE STANDARDS:

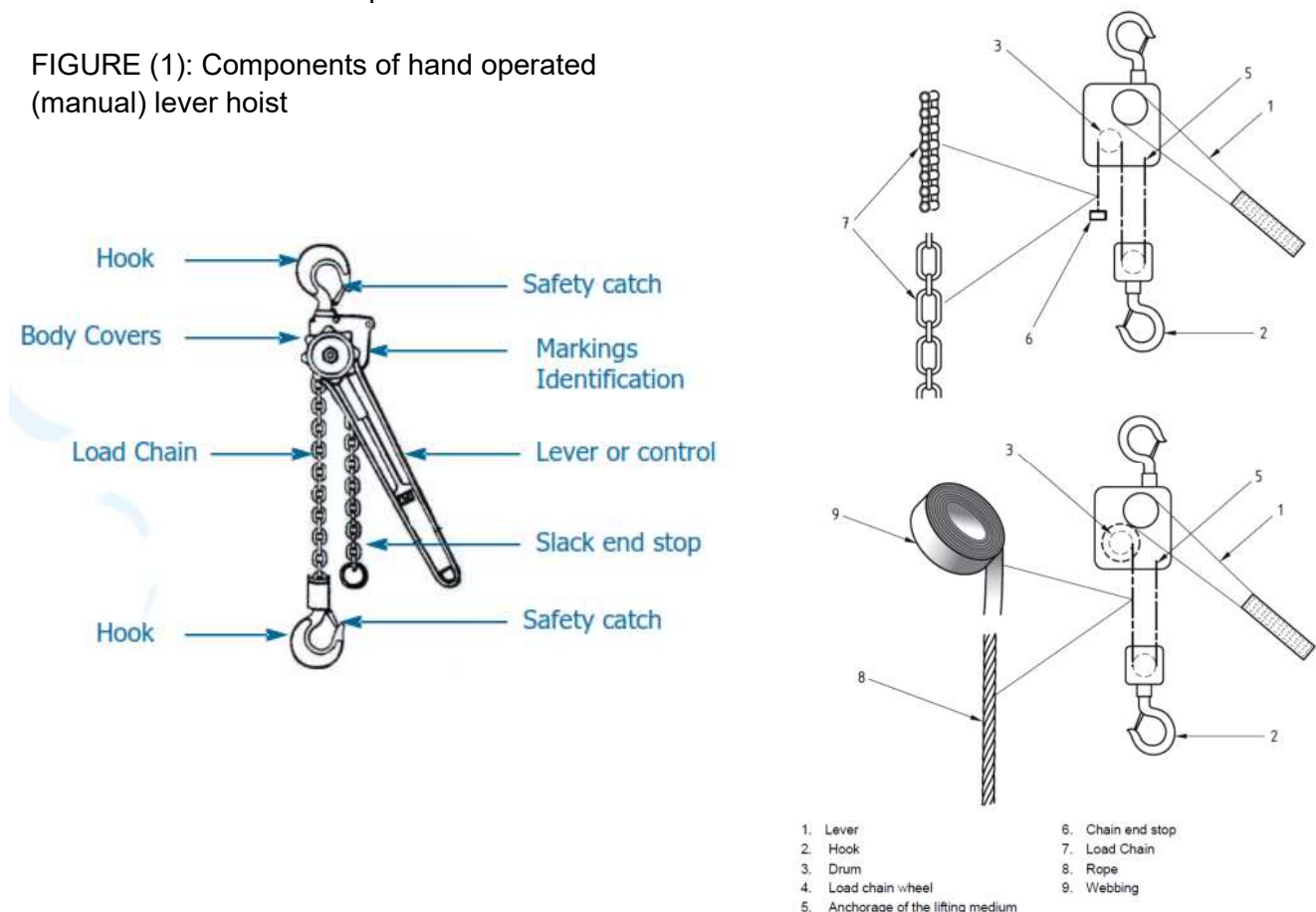
BS EN 13157: 2004 + A1: 2009	<i>Cranes – Safety – Hand Powered Lifting Equipment</i>
AS 2550.1-2011	<i>Cranes, hoists and winches - Safe use General requirements</i>
AS 1418.1-2002 AMDT 1	<i>Cranes, hoists and winches - Safe use General requirements</i>
B30.21 - 2014	<i>Lever Hoists</i>

4. HAND OPERATED LEVER HOISTS:

Lever hoist is a device for lifting and lowering a load suspended from a lifting medium by means of human effort applied to a lever and to hold it by means of a braking device.

FIGURE 1 shows the components of a manual lever hoist.

FIGURE (1): Components of hand operated (manual) lever hoist



	AI TAKAMUL COMPANY FOR ENGINEERING TESTS AND PROFESSIONAL SAFETY LIMITED Lifting Inspection	Doc No: QC-LIF-P-002
		Level: 3
		Page 4 of 6
Title: Inspection Procedure of Hand Operated Lever Hoists		Rev: 2
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5. PERIODIC VERIFICATION AND TESTING:

Hand operated chain blocks fall under the heading of '*lifting equipment*', and therefore should be examined by a competent person at periods not exceeding 12 months.

6. THOROUGH EXAMINATION:

During the examination the following should be checked:

Body, fitting, and general appearance:

The body condition shall be checked for cracks, distortion.

Marking shall be clear and legible (name of manufacturer, ID mark, Class of use, load chain information, WLL)

Covers (casing) shall be checked for damage.

Top and bottom hooks and cross heads/retaining collars shall be checked for: distortion of hooks, wear (maximum 8% loss of material section), nicks, gouges, cracks, the free rotational movement of hooks, bearing surfaces in case of excessive movement.

In the case of roller chain, the retaining collar and swivel band should be undamaged and secure. the operating lever/handle shall be checked to check condition.

The chain and slack end chain stop shall be checked for: twisting, stretching or distortion of links, for roller chains: bending or cracks of link plates, rivets distortion.

The connection links shall be checked for wear, spacer rollers and side plates shall be checked for wear and cracks. For link chain: The maximum allowable reduction in material diameter is 8%, and the maximum allowable elongation is 3%. For roller chain: The Maximum allowable elongation of the pitch is 2%.

All safety devices shall be checked.

Wire ropes, fiber ropes, or webbings shall be checked.

Rope end terminations and sheaves shall be checked.

Operation:

No slippage of the load, chain jumping, or cracking noises are acceptable during lifting or lowering, the operation of gears shall be smooth. If any of the previously mentioned points are observed during operation testing, remove the cover and perform the examination.

The braking system shall be checked by a light load test: Hand chain blocks shall be subjected a test load of between 2% and 10% of the WLL which shall be raised and lowered through a height of between 250 mm and 500 mm.

When the hand chain is released at any point during raising and lowering cycle, the brake shall hold the load.

	AI TAKAMUL COMPANY FOR ENGINEERING TESTS AND PROFESSIONAL SAFETY LIMITED Lifting Inspection	Doc No: QC-LIF-P-002
		Level: 3
		Page 5 of 6
Title: Inspection Procedure of Hand Operated Lever Hoists		Rev: 2
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The following figure shows an example of possible defects:

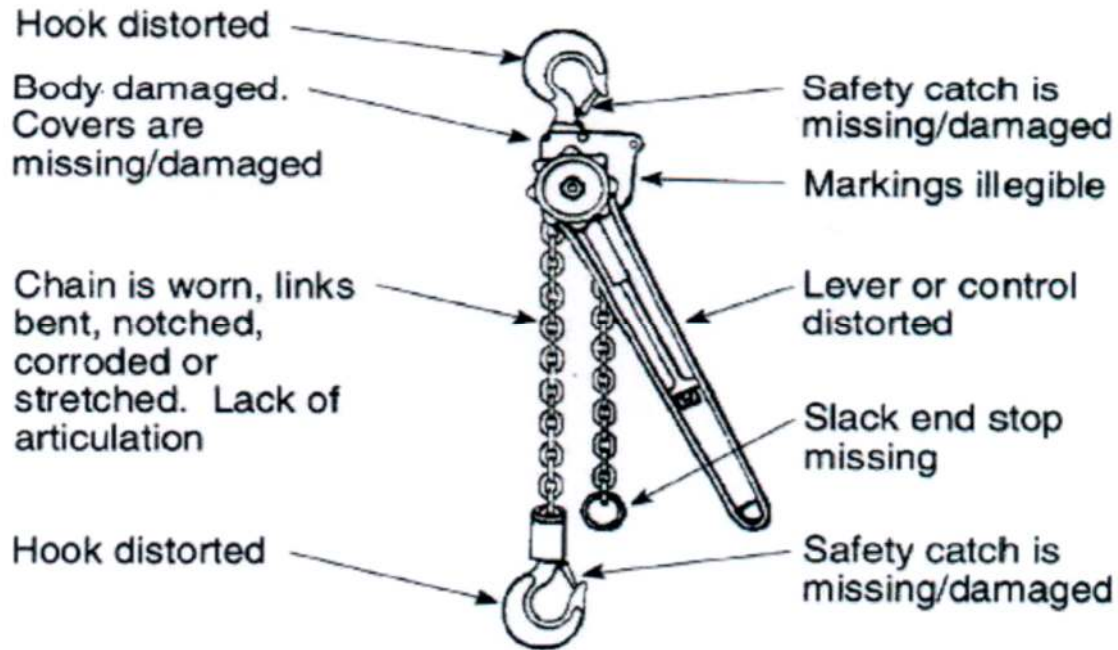


FIGURE (2): Inspection points and possible defects of hand operated lever hoists

7. PROOF LOAD TEST:

After repair or exceptional circumstances, for proof load test the chain block is installed on a suitable suspension point, then subjected to a static / dynamic test

A static test consisting of suspending a load of: 1,5 times the WLL for WLL less than 20 t and 1,25 the WLL equal to or greater than 20 t for at least 10 minutes.

The lifting path of the load chain shall be at least 300 mm per cycle to achieve at least one complete revolution of the load chain wheel.

Proof load test is also conducted if a repair is performed using non-certified load bearing components. Following the proof load test, the hand operated chain block shall be thoroughly examined. The test shall be considered satisfactory if no cracks, permanent deformation or damage that would adversely affect the function or safety of the lifting equipment is visible, and the connections have not become loose or damaged and if the braking device can hold the load without slipping and if it is possible to perform the dynamic test (as per BS EN 13157) with the same lifting equipment after the static test.

A dynamic test consisting of subjecting the hand operated chain block to a dynamic load of 1,1 times the WLL. This test shall be carried out for each lifting equipment movement under the most unfavorable conditions. The tests shall comprise repeated stopping and starting for each machine movement. The test shall be considered satisfactory if the lifting equipment has carried out all its functions, and that when examined after the test, there is no damage to the mechanisms or structural elements, and that the connections have not become loose or damaged.

	AI TAKAMUL COMPANY FOR ENGINEERING TESTS AND PROFESSIONAL SAFETY LIMITED Lifting Inspection	Doc No: QC-LIF-P-002
		Level: 3
		Page 6 of 6
Title: Inspection Procedure of Hand Operated Lever Hoists		Rev: 2
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8. MARKING:

All hand operated lever hoists shall have a permanent identification plate located in a clearly visible position, which gives the information listed below:

- the name and address of the manufacturer;
- the series or type designation;
- the serial number;
- the WLL on the hoist and on the bottom block;
- year of manufacture;
- the dimensions and quality of the attachments (chains, ropes, webbing, etc.);
- the tensile forces for the first layer and top layer;
- the diameter and minimum breaking force of the rope;
- the marking of the direction of movement;
- the marking of the direction of winding of the rope; and, if applicable,
- the number of winding layers.

If the item is not already marked, it shall be clearly stamped or marked with an identification number and if the test is satisfactory, the WLL and date of the test.

9. REPORTING AND CERTIFICATION:

A certificate of test and thorough examination will be issued upon the satisfactory completion of the examination, i.e. the lifting equipment is safe to operate

A defect report will be issued if the lifting equipment fails to meet the requirements.

10. INSPECTOR COMPETENCY AND QUALIFICATION:

Inspector shall have minimum qualification of LEEA Foundation – LEEA Lifting Equipment General- LEEA Lifting Machines Manual