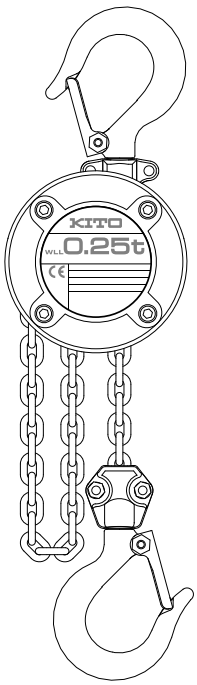
BULLETIN NO.CX-1108-CE-00

KITO

Original Instruction

OWNER'S (OPERATOR'S) MANUAL
AND SAFETY INSTRUCTIONS
FOR KITO MANUAL CHAIN HOIST

CX003



WARNING This equipment should not be installed,operated or maintained by any person who has not read and understood all the contents of this manual. Failure to read and comply with the contents of this manual can result in serious bodily injury or death, and/or property damage.

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Introduction

This Instruction Manual is intended for those operating the KITO model CX chain hoist. Separate document; Disassembly/Reassembly Manual is also available for the relevant person (**Note**). Please contact KITO or your dealer for the material.

Note : A person who is authorized by the business entity as having thorough knowledge and expertise on the structure and devices of a chain hoist, or a person with similar thorough knowledge and expertise and capable of understanding periodic inspection, and Disassembly/Reassembly Manual.
When these conditions are not satisfied, consult KITO or your dealer, or request maintenance.

Intended Purpose

This manual chain hoist is designed and manufactured to lift and lower a load manually within a normal work environment. Movement in the horizontal direction is also enabled by combining with a trolley.

- Reproduction of this document, in whole or in part, without prior consent is prohibited.
- This document is subject to change without prior notice.
- This document was prepared with the utmost care. However, the customer is kindly requested to inform us of any question, error or unclear point included in the document.

Safety precautions

Improper use of this manual chain hoist may result in danger, such as falling of the lifted load. Before installation, operation, maintenance and inspection, be sure to read this manual carefully, comply with its instructions and operate the product correctly. Prior to operation, all the safety and operating information, and safety precautions must be fully understood. In this manual, precautions are classified into three categories: "Danger", "Warning" and "Caution". In addition, read the instruction manuals of the equipment (such as trolley) related to the operation of the manual chain hoist, and follow the instructions.

Description of signal words

⚠DANGER	DANGER indicates an imminently hazardous situation, which, if not avoided, will result in death or serious injury.
⚠WARNING	WARNING indicates a potentially hazardous situation, which, if not avoided, could result in death or serious injury.
⚠CAUTION	CAUTION indicates a potentially hazardous situation, which, if not avoided, may result in minor or moderate injury.

However, even CAUTION situations may result in serious injury or death depending on circumstances. Ensure all precautions are recognized as important and complied with. After reading this manual, ensure it remains readily available for users.

Description of safety symbols

Prohibited	⃠Means a "Prohibited" action or a thing "**You must not do**". Specific prohibited actions are shown in the safety symbol or described near the same.
Mandatory	❗Means a "**Mandatory Action**" or "**Do as indicated**". The specific required action is shown in the safety symbol or described near the same

Disclaimer

- KITO shall not be liable for any damage incurred due to fire, natural disasters such as earthquake and lightning, actions of a third party, other accidents, intentional or accidental improper operation or misuse by customer, and operation under conditions exceeding the operating environmental conditions.
- KITO shall not be liable for any incidental damage incurred, due to the use or inability to use this product (loss of business profit, interruption of business, and damage to the lifted load).
- KITO shall not be liable for any damage incurred due to negligence concerning the instructions in this manual, or operation under a condition exceeding the range defined in the specifications.
- KITO shall not be liable for any damage arising from malfunction due to the combination of the chain hoist used with other equipment, unrelated to KITO.

Restricted usage

- This product is not designed nor manufactured to transport people. Do not use the product to transport people.
- This product is designed and manufactured for the purpose of lifting and lowering a load manually under normal operating environmental conditions. Do not lift or lower loads using electric power. Movement in a horizontal direction is enabled by combining with a trolley. Decide on and judge the appropriateness of use in accordance with the intended purpose of the product design and manufacture.
- Since this chain hoist is used under diverse conditions, the customer should judge whether the product would be used appropriately by carrying out analysis and tests if necessary. Ensuring the product performance and safety are the responsibility of the person who judges the appropriateness.

Operators

- Before operating the product, read this manual and that of related equipment thoroughly to understand the contents.

Handling & Maintenance

⚠WARNING

Prohibited

Do not handle the chain hoist in any of the following manners.

Handling the chain hoist in the manner described below may result in death or severe injury.

- Only suitably competent persons are allowed to disassemble or repair the chain hoist.
  Separate document; Disassembly/Reassembly Manual is provided for such competent persons. Disassembly and repair shall be carried out in accordance with the document and page 17 to 39.
- Do not enter into any area below a lifted load or moving range thereof. Do not transport a load over people or allow people to enter into the moving range of a lifted load.
- Do not remodel the product and its accessories.
- Do not adjust or disassemble the Bottom Yoke and Overload Limiter (a device to prevent excessive overload).

Mandatory

Comply with the following instructions when handling the chain hoist.

Failure to comply with these instructions may result in death or severe injury.

- Before operating the product, fully understand the contents of this manual and the caution labels.
- Carry out daily inspection before operation.
- Request the competent person to carry out periodic inspection (monthly, annually), or ask KITO.
- Keep the record of the periodic inspections.

⚠CAUTION

Prohibited

Do not drag or throw the chain hoist when carrying.

The chain hoist may be broken or damaged and any fall of the lifted load during use may result in injury or physical damage to property.

Mandatory

Follow the operating environmental conditions (refer to page 11) when using the chain hoist.

Use of chain hoist beyond the conditions may result in injury or physical damage to property.

Mandatory

When discarding the product, disassemble it to ensure it is not reused, and discard in accordance with locale government regulations and ordinances or the rules defined by the business entity.

Contact your local government and related division for details.
Refer to Disassembly/Reassembly Manual for how to disassemble the chain hoist, or consult with KITO.

Chapter 1

Operation

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Safety precautions

Mounting

⚠WARNING

Prohibited

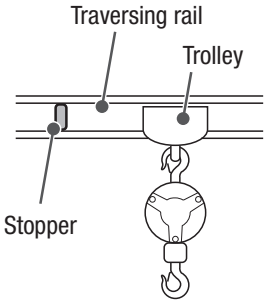
Avoid the following when mounting the chain hoist.

Failure to comply with these instructions may result in death or severe injury.
- Ensure that only trained or competent persons install the chain hoist.
- Do not install the chain hoist within the range of movement of other devices (equipment), such as a trolley.

Mandatory

Comply with the following instructions when installing the chain hoist.

Failure to comply with these instructions may result in death or severe injury.
- Check that the structure for mounting the chain hoist has sufficient strength.
- Fix the Top Hook to the structure securely.
- Before using the chain hoist with a trolley, read the Instruction Manual of the trolley carefully and install it by adjusting the rail width.
- Install a stopper at both ends of the traversing rail for the trolley.

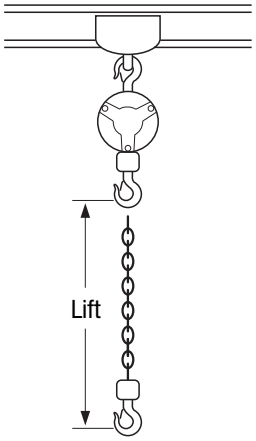


⚠CAUTION

Mandatory

Comply with the following instructions when installing the chain hoist.

Failure to comply with these instructions may result in injury or damage to property.
- Install the chain hoist to avoid impeding the hoist.
- Install the Load Chain with sufficient length for lifting work.
- If the adjustment of the bottom of the hand chain between 500 mm and 1000 mm from the ground is required, consult KITO.



Before use

⚠WARNING

Mandatory

Before moving the load, warn all the surrounding people.

Failure to comply with these instructions may result in death or severe injury.

⚠CAUTION

Mandatory

Check the following before using the chain hoist.

If a defect is found while checking the chain hoist, stop using it, place a notice indicating "failure/inspection in progress" and request a competent person to carry out inspection and repair.
Failure to comply with these instructions may result in death or severe injury.
- Carry out daily inspection before operation (refer to page 15).
- Check to see whether there is any defect in the sling.
- Check to use a proper chain hoist for your purpose, capacity and lift.
- Check the work environment to see if the work area is secure to pull the hand chain vertically and to maintain a good view without any obstacles to monitor the operation.
- Check to see if the footing is secure.

Operation

⚠WARNING

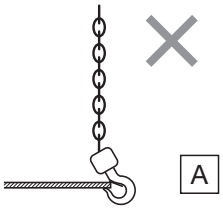
Prohibited

Do not use the chain hoist in the following manners.

Failure to comply with these instructions may result in death or severe injury.

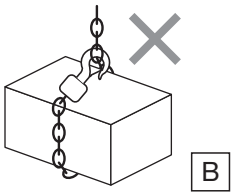
<General>

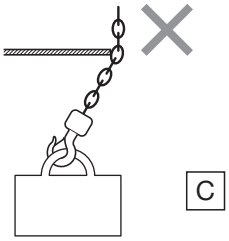
- The Load Chain is exclusively designed for this model of chain hoist. Do not use chains of other models of chain hoist. Ensure that a competent person replaces the chain with an authorized part for this model, referring to Disassembly/ Reassembly Manual.
- Operate the chain hoist using only manual force.
- Do not leave a lifted load unattended for an extended period.



<Slinging>

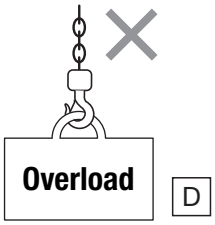
- Do not use a Hook without a Latch.
- Do not apply a load to the tip of the hook or latch. **<Fig. A>**
- Do not use the load chain as a sling. **<Fig. B>**
- Do not operate the load chain while it is in contact with any sharp edges, e.g. of a steel plate. **<Fig. C>**

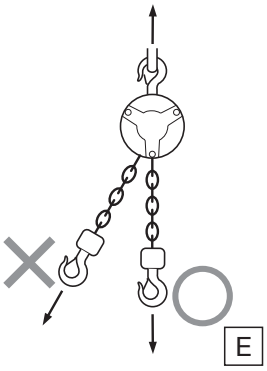




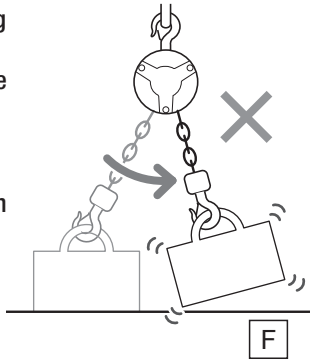
<Lifting>

- Do not lift more than the rated load. **<Fig. D>**
- Do not cause the load to come into contact with the load or hand chains.
- Do not lift the load while holding the load chain.
- Do not swing the lifted load.
- Do not use the chain hoist without a straight line present between the top and bottom hooks relative to the load direction. **<Fig. E>**

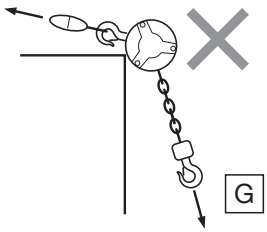


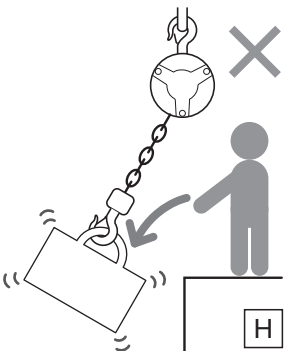


- Do not swing the load when lifting it off the ground. **<Fig. F>**
  For chain hoists with a trolley, lift the load underneath the trolley to avoid exerting excessive force on the trolley.
- When the chain hoist is used as a sling by connecting the top hook of the hoist to the crane, it overrides the overload limiter:
  Do not lift more than the rated load.
  Before lifting, ensure that load chain slack is eliminated.
- Do not impede the hand chain with a lifted load or a member of the structure caught on the chain.



- Do not use the chain hoist as a fulcrum. **<Fig. G>**
- When lifting off a load from a pallet, lift the load to avoid exposing to shock, such as the load falling. **<Fig. H>**
- Do not lift or lower excessively.
- Before use, confirm the minimum distance between the hook and load (minimum headroom) and lift in technical data.
- Do not repeatedly operate the overload limiter (slipping action).
- If the overload limiter is activated, stop the lifting operation immediately and ensure that the chain hoist is in a no load state.





(Continued on the following page)

⚠WARNING

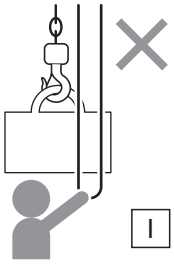
Prohibited

Do not use the chain hoist in the following manners.

Failure to comply with these instructions may result in death or severe injury.

<Transportation/Move>

- Do not operate the chain hoist underneath the load or transport a load over people. **<Fig. I>**
- Do not ride on a lifted load and do not use the chain hoist to support, lift, or transport people. **<Fig. J>**
- Do not strike the stopper of the traversing rail or the structure with the chain hoist or the trolley.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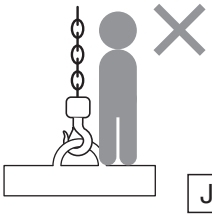
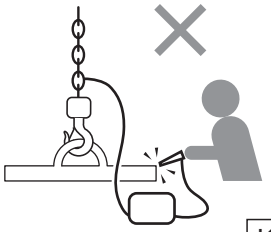

J

<Post-lifting Work>

- Do not execute welding or cutting work on a suspended steel plate.
- Do no use the load chain as the earth for welding work. **<Fig. K>**
- When repairing or disassembling, ensure that the chain hoist is placed down on the floor and that only competent persons maintain the chain hoist.
- Ensure that the hand chain is pulled by a single person.


K

<Abnormality/failure>

- Do not use a damaged chain hoist or one generating abnormal sounds.
- Do not use the chain hoist if one of the following defects is found in the load chain.
  Deformation, twists, kinks, flaws, cracks, adhesion of foreign matter, corrosion, and abnormal meshing.
- Heavy elongation or abrasion.
- Do not use the load chain hoist out of order or under repair.

Mandatory

Follow the instructions below when using the chain hoist.

Failure to comply with these instructions may result in death or severe injury.

- If any abnormality is detected during use, immediately stop using of the chain hoist, indicate "failure/repair in progress" and request a competent person to perform maintenance and repair.
- When the manual force becomes excessive, stop operation immediately.
- Use sling appropriate for the weight and shape of a load. Improper slinging may result in an unsafe situation, such as the falling of the lifted load.

⚠CAUTION

Prohibited

Do not use the chain hoist in the following manners.

Failure to comply with these instructions may result in death or severe injury.

- Do not operate the chain hoist as the hand chain is tangled or twisted.
- Do not expose the chain hoist to sparks from welding.
- Do not use an overload limiter for measuring the weight of the load.
- Do not fix the hook directly to the latch of a load-carrying platform to avoid applying excessive force to the hook.
- Do not impede the lifted load or hand chain with other structures.

Mandatory

Observe the following instructions when using the chain hoist.

Failure to comply with these instructions may result in death or severe injury.

- Unwind any twists in the load chain before lifting a load.
- If the load and hand chains are entangled or twisted, stop the operation immediately and reset the entangled or twisted chains.
- When lifting a load with two hoists, choose each hoist whose lifting capacity exceeds the load and operate the respective chain hoist to keep the load lifted horizontal.
- There are risks of overheating of the braking system during prolonged lowering of loads.
  If you are considering of the use under such condition, consult KITO.

Maintenance inspection / storage

⚠WARNING

Mandatory

Only competent persons are allowed to carry out maintenance inspection of the chain hoist.

Failure to comply with these instructions may result in death or serious injury.

- The competent person should carry out maintenance inspection in accordance with page 17 to 39 and Disassembly/ Reassembly Manual.
- Do not cut, extend, or weld the load and hand chains.
- Do not apply oil to the braking part.

⚠CAUTION

Mandatory

Comply with the following instructions when carrying out maintenance inspection and storing the chain hoist.

Failure to comply with these instructions may result in injury or physical damage to property.

- To avoid misuse of the chain hoist under repair, apply a label indicating "failure/inspection in progress" on the chain hoist.
- When storing the chain hoist, wipe off dust and waterdrop, apply oil to the neck of the hook and load chain and store the hoist indoors when not used for lifting loads.
- When replacing a part, use only an authorized part for the KITO model CX chain hoist.
  Even though the part is an authorized one for KITO chain hoist, it may not be used for different model.

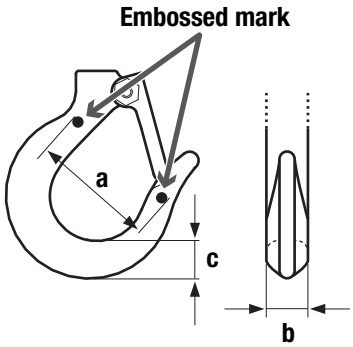
Unpacking

- Check that the information on the box and the product match the details of your order.
- Check to see whether the product has been deformed or damaged by an accident in transit.
- Fill in the blank provided in the right table with the Lot NO. (written on the nameplate on the product), the date of purchase, and the name of the store where you purchased the product.

  * When repair or a spare part is needed, also inform KITO of the information.

Lot NO.	CX1A-
Date of purchase	
Store	

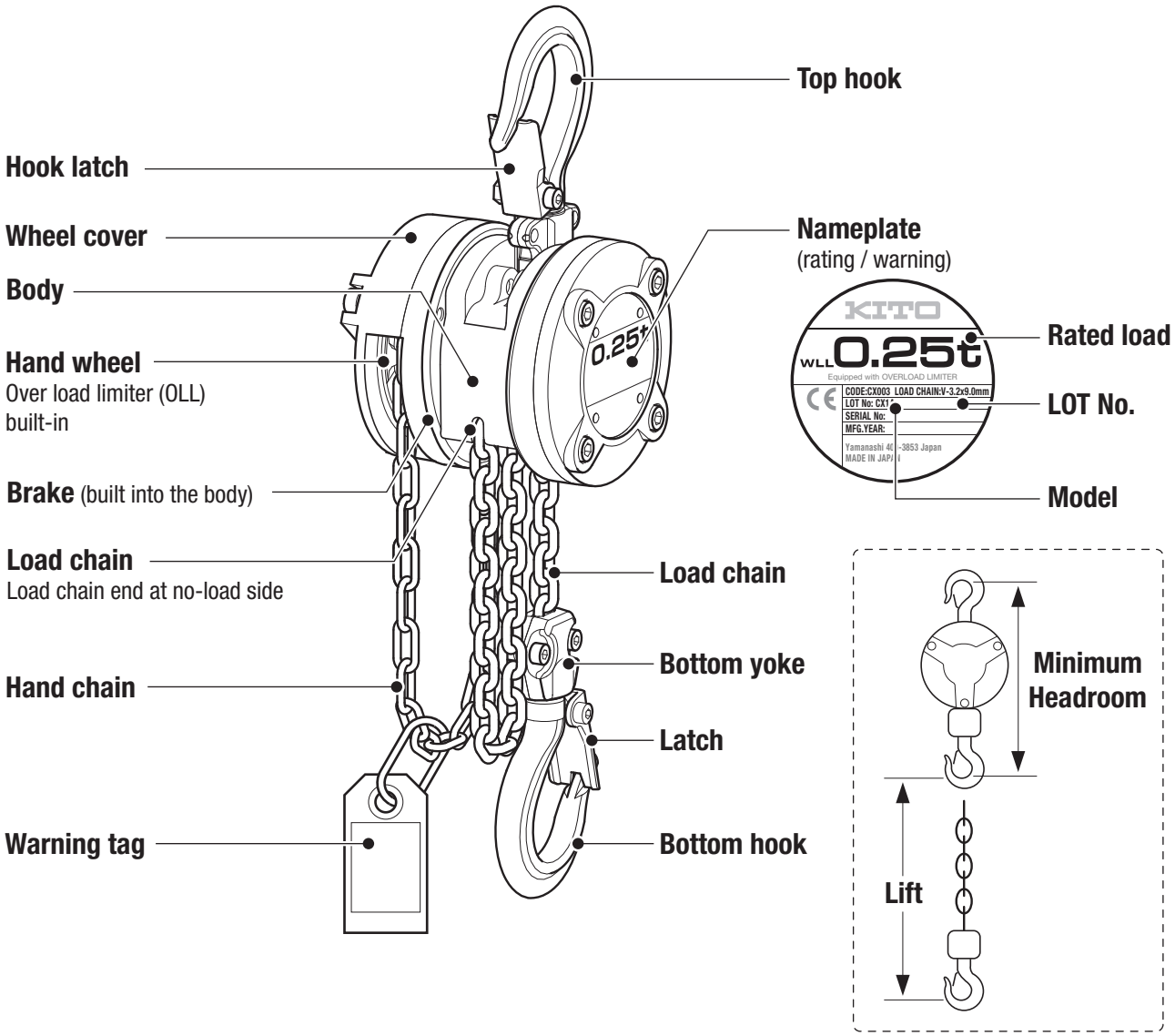
- Fill in the spaces provided in the right table with the distance a between embossed marks, the hook width b and the thickness c for both the top and bottom hook. (These figures are referred in maintenance.)



Dimensions when new

Top hook	Dimension a	mm
	Dimension b	mm
	Dimension c	mm
Bottom hook	Dimension a	mm
	Dimension b	mm
	Dimension c	mm

Main parts



Specifications

Product code	Rated load (t)	Standard lift (m)	Minimum Headroom (mm)	Standard length of the hand chain double fold (m)	Pull to lift Load*1 (N) [kgf]	Hand chain length for 1m lifting*2 (m)
CX003	0.25	2.5	217	2	147[15]	33.8

Product code	Load chain diameter x pitch (mm)	Chain fall lines	Test Load (t)	Weight for additional 1m of lift (kg/m)	Mass (kg)
CX003	3.2 × 9.0	1	0.38	0.4	2.4

*1: Average hand pull to lift the rated load.

*2: Length of the hand chain necessary to lift a load 1m.

Operating environmental conditions

Operating temperature range	-40°C to +60°C
Operating humidity range	Use the hoist at under 100%RH. This product cannot be used in water.
Materials	Standard materials are used. Special materials such as sparkless materials and asbestos are not used. With regard to the environmental load substances, 6 substances defined in the RoHS directives are not contained in this product.

Do not use the chain hoist in the following environments:

- In an alkaline/acidic atmosphere
- In an organic solvent/explosive atmosphere

Incidentally, when you wish to use the chain hoist in environments other than the aforementioned normal use environments, such as one with a high salt content, or in an environment where outdoor use in particular is extensive, it may be possible to use the chain hoist by carrying out maintenance inspection frequently. In such cases, consult with KITO beforehand.

Installation

Read the "Safety precautions : Mounting" on page 6 carefully before use and follow the instructions.

- Check that the structure for mounting the chain hoist has sufficient strength.
- Only allow trained or competent persons to install the chain hoist.
- Do not install the chain hoist within the moving range of other devices (equipment), such as a trolley.
- Before using the chain hoist with a trolley, read the Instruction Manual of the trolley carefully and install it by adjusting the rail width. Install a stopper at both ends of the traversing rail for the trolley.
- If the adjustment of the bottom of the hand chain between 500 mm and 1000 mm from the ground is required, consult KITO.

Note: Our KITO TS trolley (Models TSP005) can be connected to this hoist. When using the chain hoist by connecting to a trolley, change the capacity on the trolley nameplate to 250kg, corresponding to CX003. For details, contact KITO.

Preoperational check

Read the "Safety precautions : Mounting" on page 6 and "Safety precautions : Maintenance" on page 9 carefully before use and follow the instructions.

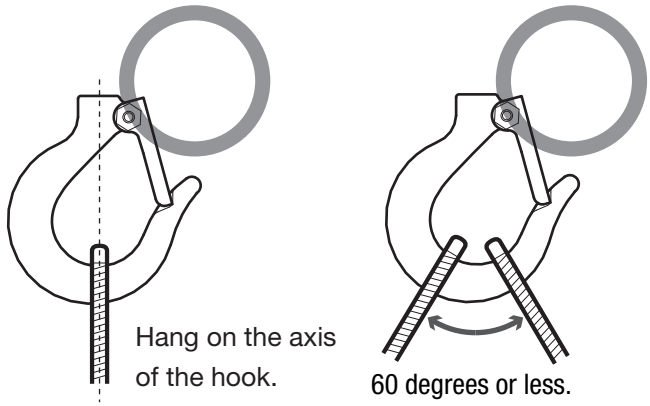
The user must carry out a daily inspection before operation.

Even if the chain hoist is permanently installed and used for the same purpose repeatedly, check all the works for the day and check to ensure that it does not exceed the rated load on each occasion.

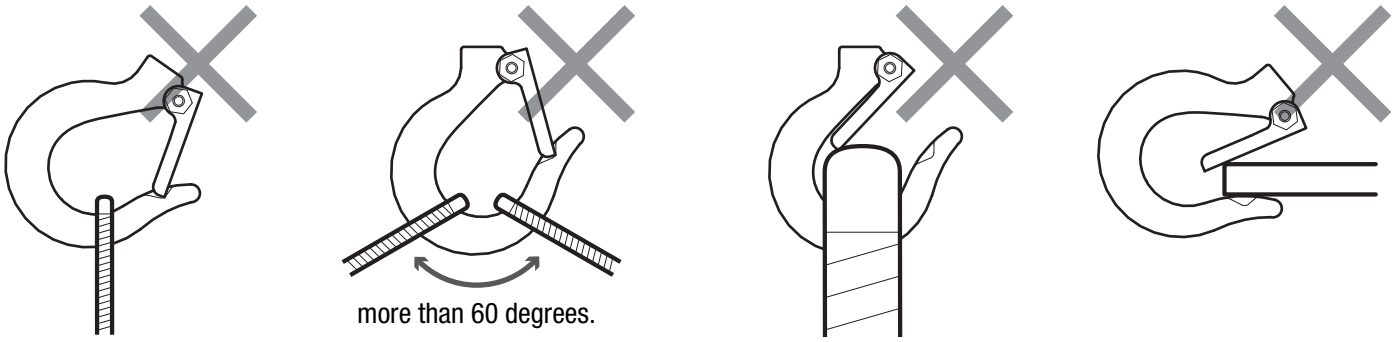
Operation

Read the "Safety precautions" Operation on pages 7 to 9 carefully before use and follow the instructions.

Correct way to lift a load



Avoid the dangerous hooking method shown in the following diagrams.



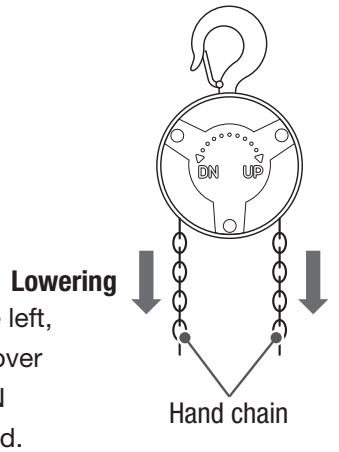
The holding object or the sling is not hooked in the correct position.

The angle is too wide.

The hook latch does not close.

The load is applied at the tip of the hook.

Operation method



When the hand chain on the left, as viewed from the wheel cover side, is pulled down (in a DN direction), the load is lowered.

When the hand chain on the right, as viewed from the wheel cover side, is pulled down (in an UP direction), the load is lifted.

This product is designed for a rated load to be hoisted by pulling the hand chain with a force of 147N (15kgf) or less. If the load cannot be lifted unless the hand chain is pulled with a force of 147N (15 kgf) or greater during a load lifting operation under the rated load, there is a possibility of failure in the chain hoist. In such abnormal cases, stop use and consult a competent person.

Overload limiter (OLL)

⚠DANGER

Do not adjust or disassemble Overload Limiter (OLL).

Failure to comply with these instructions may result in death or serious injury.

This product is equipped with an overload limiter (OLL: a device to prevent an excessive overload) as standard. An excessive overload via the hand chain activates OLL which slips the hand wheel to prevent damage to the product.
When OLL operates, the maximum load to the product is approximately 2.4 times of the rated load.
If OLL operates, reduce a load to less than the rated load. Also check that the structure for mounting the chain hoist (including a trolley) has no damage.

Maintenance and storage

Read the "Safety precautions : Maintenance, inspection/storage" on page 9 carefully after use and follow the instructions.

Care

- Do not drag or throw the chain hoist when carrying.
- Never apply oil to the braking part.
- Wipe off dust and moisture, and apply oil to the neck of hook and the load chain.

Storage

- When not in use, ensure that it does not encumber other works.
- Store the hoist in a dry area indoors.
- When installing outdoors, cover the hoist to avoid exposure to rain or store in a place with covering against rain.
- Before storing the hoist, pull the hand chain by about 10cm to lower the hook and ensure that the brake is released.

Inspection Classification

To maintain continuous and satisfactory operation, a regular inspection procedure must be initiated to replace worn or damaged parts before they become unsafe.

INSPECTION Classification

Inspection intervals must be determined by individual application and are based on the type of service to which the hoist will be subjected and the degree of exposure to wear, deterioration or malfunction of the critical components.

The type of service to which the hoist is subjected can be classified below.

- **Normal Service** – service that involves operation with randomly distributed loads within the rated load limit, or uniform loads less that 65% of rated load for not more than 15% of the time.
- **Heavy Service** – service that involves operation within the rated load limit which exceeds normal service.
- **Severe Service** – service that involves normal or heavy service with abnormal operating conditions.

The three general classifications are herein designated as DAILY, FREQUENT and PERIODIC, with respective intervals between inspections as defined below.

DAILY Inspection – visual examinations by the operator or other competent person before daily operation.

FREQUENT Inspection – visual examinations by the competent person with intervals per the following criteria:

- **Normal service** – monthly
- **Heavy service** – weekly to monthly
- **Severe service** – daily to weekly

Records are not required.

PERIODIC Inspection – disassembly/reassembly inspection by the competent person with intervals per the following criteria:

- **Normal service** – yearly
- **Heavy service** – semiannually – 6 months
- **Severe service** – quarterly – 3 months

Records are to be kept for continuing evaluation of the condition of the hoist.

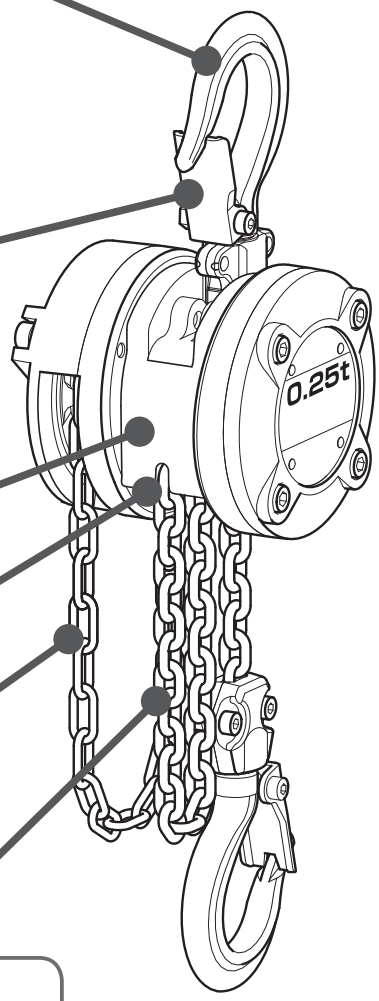
Daily inspection

Inspections include the "Daily inspection" carried out by the operator, using the product before use, and a more thorough "Frequent/Periodic inspection (page 17 to 31)" carried out by a competent person with sufficient knowledge, who can disassemble the chain hoist.

- Be sure to carry out these inspections in order to use the chain hoist safely.
- Separate document; Disassembly/Reassembly Manual is also available for the competent person. Please contact KITO or your dealer for the material.

Hook
- To ensure both the top/bottom hooks have no deformation or flaws.
- For the neck part of both the top /bottom hooks to rotate smoothly.
- To ensure no looseness in the bolts and nuts fixing the bottom yoke.

Latch
- For the latch to be closed.
- For the latch to have no deformation or flaws.
- For the latch to open/close smoothly.



Body

End at no-load side

Hand chain
- For the hand chain to have no deformation, flaws, twists or kinks.

Load chain
- For the end at the no-load side to be fixed to the body.
- To have no deformation, flaws, twists or kinks.
- To have no conspicuous rust
  * Remove rust, when it is observed.
- For the load chain to be oiled.

* If it is not oiled, remove the dust and moisture on the load chain and apply the lubricant JIS K 2246 class 1, No.1 (code: NP-9) rust preventive oil equivalent (DAPHNE OIL COAT RL-44, IDEMITSU KOSAN Co., LTD. recommended) Consult KITO if the usage environment does not allow the application of lubricating oil to the load chain.

Appearance
- For the nameplate to be fixed firmly and for the displayed contents to be clear and legible.
- No loosend or fallen-out bolts and nuts
- To have no flaws and damages to the appearance.

Lifting

To carry out a lifting operation with one hand while lightly pulling the load chain on the bottom hook side with the other.
- To be able to hear the pawl of the brake device sounds clicks and to move smoothly
- Bottom hook should stop when the operation is stopped.
  * If the bottom hook is entangled with the load or hand chain, untangle the chain.

Lowering

To carry out a lowering operation with one hand while lightly pulling the load chain on the bottom hook side with the other.
- To make no noise during the lowering and move smoothly.
- Bottom hook should stop when the operation is stopped.
- If the hoist cannot be lowered, check that bottom hook is not lowered excessively, ant then carry out the lowering operation by strongly pulling the hand chain for a moment. If it is still unable to lower, consult with the competent person, or contact KITO.

If there are any abnormalities, consult the competent person or contact KITO.

Parts List

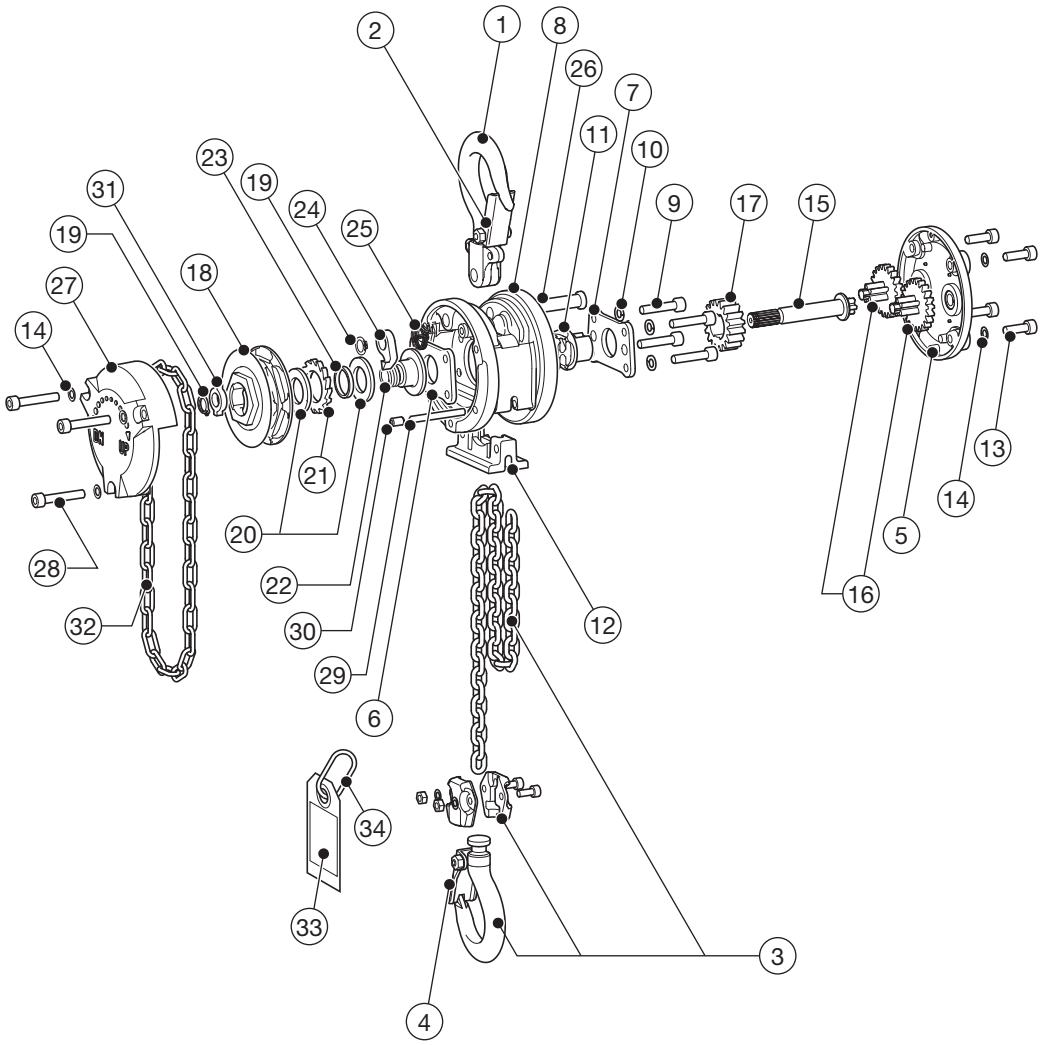


Fig. No.	Part No.	Part Name	Parts per Hoist	Part code	Application
1	1001	Top Hook Set	1	L1XA003-1001	
2	071	Latch	1	L1XA003-1071	
3	1011	Bottom Hook Complete Set	1	C1XA003-1011	
4	071	Latch	1	L1XA003-1071	
5	5103	Gear Case Assembly (Europe)	1	C1XG003-5103	
5	5103	Gear Case Assembly (Other)	1	C1XD003-5103	
6	101	Frame A	1	C1XA003-9101	
7	102	Frame B	1	C1XA003-9102	
8	6104	Body Assembly	1	C1XA003-6104	
9	106	Socket Head Cap Screw	4	J1BE9-050252	
10	107	Spring Lock Washer	4	J1WS011-2005	
11	116	Load Sheave	1	C1XA003-9116	
12	162	Chain Guide	1	C1XA003-9162	
13	108	Socket Head Cap Screw	4	J1BE3-050151	
14	109	Conical Lock Washer	7	C1XA003-9109	
15	111	Pinion	1	C1XA003-9111	
16	112	Gear #2	2	C1XA003-9112	
17	114	Load Gear	1	C1XA003-9114	

Fig. No.	Part No.	Part Name	Parts per Hoist	Part code	Application
18	5115	Hand Wheel Assembly	1	C1XA003-5115	
19	117	Snap Ring	2	J1SS000-0000	
20	151	Friction Plate	2	C1XA003-9151	
21	152	Ratchet Disc	1	C1XA003-9152	
22	153	Friction Disc	1	C1XA003-9153	
23	154	Bushing	1	C1XA003-9154	
24	155	Pawl	1	C1XA003-9155	
25	158	Pawl Spring Assembly	1	C1XA003-5179	
26	163	Top Pin	1	C1XA003-9163	
27	171	Wheel Cover	1	C1XA003-9171	
28	176	Socket Head Cap Screw	3	J1BE3-050302	
29	177	End Pin	1	C1XA003-9177	
30	178	Hexagon Socket Set Screw	1	J1TB011-0500	
31	203	Cam Guide	1	C1XA003-9203	
32	842	Hand Chain	1	K7SX025-0000	
33	868	Warning Tag CE-G (Europe)	1	ER1BS9686	
33	868	Warning Tag CE (Other)	1	E7AR003S9886	
34	045	Chain Stopper Link	1	L5BA008-9045	

Chapter 2

Inspection

Table of Contents

Safety precautions **18**
Recommendation for Inspection **20**
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Frequent Inspection 21
Periodic Inspection 24
Preoperational Test 29
Inspection Check Sheet **30**

Safety precautions

This chapter for Chain Hoist includes important contents to prevent injury to persons performing inspection, users and other persons and damage to property, and to disassemble/reassemble the Chain Hoist safely and correctly. Before performing the inspection, be sure to read and follow page 5 to 16 since its contents are also important for inspection.
Disassembly/reassembly of Chain Hoist is essential for inspection. Refer to the separate Disassembly/reassembly Manual to perform inspection correctly.

Person to perform inspection

Inspection shall be performed only by a competent person †.

† Person who is authorized by company to have expertise on the structure and device of Chain Hoist, or has expertise and is capable of understanding page 17 to 31 and Disassembly/reassembly Manual.
When this requirement is not satisfied, consult with KITO, or request KITO for inspection.

Inspection in general

⚠WARNING

Mandatory

Only competent persons to perform inspection of the Chain Hoist.

Inspection performed by anyone other than a competent person may result in death or severe injury.

Prohibited

Do not use parts beyond their discard limit or criteria and unauthorized parts for KITO Chain Hoist Model CX003.

Even though the part is an authorized part for KITO Chain Hoist, it may not be used for a different model.
Use parts correctly in accordance with the Disassembly/reassembly Manual.
Failure to do so may result in death or severe injury.

Prohibited

Do not perform inspection of Chain Hoist subject to a load.

When performing inspection of a Chain Hoist, place it on a floor and perform the inspection.
Performing inspection of a Chain Hoist subject to a load may result in death or severe injury.

Prohibited

Do not lubricate the Friction Plate.

The Friction Plate is of the dry type.
Lubricating the Friction Plate may result in death or severe injury due to insufficient braking.

Prohibited

Do not use any oil (grease, rust preventive oil, etc.) in areas near a fire or spark.

Otherwise, this may result in ignition.

⚠WARNING

Mandatory

Perform inspection (frequent, periodic).

Failure of inspection (frequent, periodic) causes death or severe injury.

Inspection may need to be performed earlier than inspection cycle depending on the condition of use. Inspect the hoist at appropriate interval in consideration of the result of daily checks and operating noise.

Mandatory

When any defect is observed during inspection, stop using the Chain Hoist, indicate Failure/Inspection underway and consult with the competent person, KITO or your dealer for inspection and repair.

Use of a product with a defect may result in death or severe injury.

Mandatory

When annual inspection is completed, perform functional inspection (operational check) to confirm the correct operation in accordance with the Disassembly/reassembly Manual.

Failure to do so may result in death or severe injury.

⚠CAUTION

Mandatory

Compare the throat opening and thickness of the Top and Bottom Hooks with those when purchased and ensure these dimensions do not exceed the criteria.

Failure to do so may result in injury or damage to property.

Inspection Check Sheet

⚠WARNING

Mandatory

When any defect is observed during inspection, stop using the Chain Hoist, indicate Failure/Inspection underway and consult with the competent person or KITO for repair.

Use of a faulty Chain Hoist may result in death or severe injury.

* This Check Sheet is a standard sample based on KITO frequent and periodic inspection. Customers should decide upon their own format of the check sheet according to the operation environment and conditions of the customer, and perform the inspection. Be sure to include all check items into the check sheet.

Recommendation for Inspection

Inspection is the first step to safety operation. Carry out daily inspection and periodic inspection.

- Ensure that the operater refers to page 5 to 16 and carry out daily inspection.
- This chapter is composed of frequent and periodic inspection items (About each classification, refre to page 14).
- Inspection shall be performed by a competent person (with expertise), or consult with KITO.
- Inspection items are specified based on standard environment and conditions. Consult with KITO when using the Chain Hoist under special environment or conditions.
- Periodic inspection needs disassembly/reassembly. Refer to the separate Disassembly/reassembly Manual for correct inspection.

Inspection Standard

⚠WARNING

Mandatory

Only competent persons are allowed to inspect the chain hoist.

Anyone other than a competent person inspecting may result in death or severe injury.

Prohibited

Do not use parts beyond their discard limit or criteria and unauthorized parts for the KITO Chain Hoist Model CX003.

Even if the part is an authorized part for KITO Chain Hoist, it may not be used for a different model.
Use parts correctly in accordance with the Disassembly/reassembly Manual.
Failure to do so may result in death or severe injury.

Prohibited

Do not perform inspection of a Chain Hoist subject to a load.

Before performing inspection of a Chain Hoist, place it on a floor.
Performing inspection of a Chain Hoist subject to a load may result in death or severe injury.

Mandatory

Perform inspection within a specified period.

Failure of inspection (frequent, periodic) causes death or severe injury.
Inspection may need to be performed earlier than inspection cycle depending on the condition of use. Inspect the hoist at appropriate interval in consideration of the result of daily checks and operating noise.

Mandatory

If a defect is found while checking the chain hoist, stop using it, place a notice indicating "failure/inspection underway" and request a competent person or KITO to carry out repair.

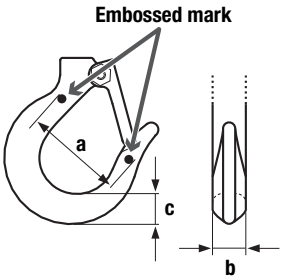
Use of a product with a defect may result in death or severe injury.

Frequent Inspection

Check the Chain Hoist under the installation state or on the workbench.

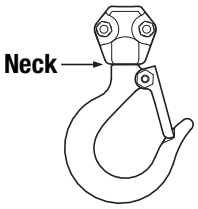
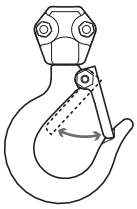
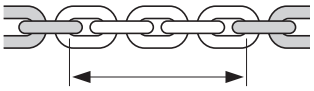
NOTE

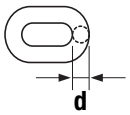
Check the following items in addition to the daily inspection items.
Before a frequent inspection, perform the daily inspection.

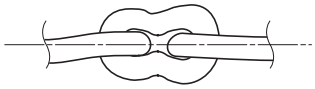
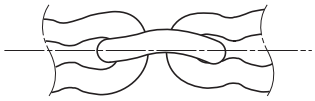
<table>
<tr><th>Item</th><th>Method</th><th>Discard limit or criteria</th><th>Action</th></tr>
<tr><td>Basic function</td><td>Suspend a light load and lift/lower it.</td><td>•Lifting operation should make regular click sounds of the Pawl of the brake unit and perform smoothly.
•Sounds should be at a constant level or no irregular clicks should be heard.
•No sounds should be made when lowering.
•It should be free of any heavy pulling force.
•There should be no slip in braking</td><td>Disassemble the Chain Hoist to verify that the hoist is properly assembled and the components are free of defects.</td></tr>
<tr><td rowspan="2">Top and Bottom Hooks</td><td>Visual check
 </td><td>•The hook should not be significantly twisted or deformed.
•Should be free of any deep notches of flaws.
•Should be free of any loosened or omitted rivets, bolts or nuts.
•Should be free of any foreign matter such as sputter on the Hook.</td><td>Replace the Top Hook Set or the Bottom Hook Complete Set.</td></tr>
<tr><td>Measure the dimensions of each a, b and c of the Top and Bottom Hooks using calipers.
 
</td><td>⚠CAUTION
Compare the deformation and thickness of the Top and Bottom Hooks with those of when purchased to check they are not beyond the criteria.
Using Hook with dimensions beyond the criterion may result in injury or damage to property.

<table>
<tr><th>Standard</th><th>Limit</th></tr>
<tr><td>Dimension a</td><td>Not to exceed the dimension when purchased</td></tr>
<tr><td>Dimension b</td><td>5% or more wear</td></tr>
<tr><td>Dimension c</td><td>5% or more wear</td></tr>
</table>
The nominal values are indicated below for reference, however, the Hook dimensions have tolerances to some extent because it is forged and thermally treated.
<table>
<tr><th rowspan="2">Rated load (t)</th><th>Dimension a</th><th colspan="2">Dimension b</th><th colspan="2">Dimension c</th></tr>
<tr><th>Standard</th><th>Standard</th><th>Limit</th><th>Standard</th><th>Limit</th></tr>
<tr><td>0.25</td><td>39</td><td>11</td><td>10.5</td><td>12.5</td><td>11.9</td></tr>
</table></td><td>Replace the Top Hook Set or the Bottom Hook Complete Set.</td></tr>
</table>

(Continued on the following page)

<table>
<tr><th>Item</th><th>Method</th><th>Discard limit or criteria</th><th>Action</th></tr>
<tr><td rowspan="2">Top and Bottom Hooks</td><td>Check the deformation of the Hook neck visually.
 
</td><td>•The neck should not be deformed or twisted beyond the discard limit.</td><td>Replace the Top Hook Set or the Bottom Hook Complete Set.</td></tr>
<tr><td>Rotate Hook.</td><td>•Should rotate smoothly.</td><td>Replace the Top Hook Set or the Bottom Hook Complete Set.</td></tr>
<tr><td>Latch</td><td>Move Latch for a few times.
  </td><td>⚠WARNING
Do not use Hook without Latch.
Failure to do so may result in death or severe injury.
•Should securely close the hook throat.
•Should move smoothly.</td><td>Replace Latch.</td></tr>
<tr><td>Load Chain</td><td>Check abrasion visually and using calipers.
 

 
</td><td>NOTE
Carefully check the position, especially where the Load Chain engages with the Load Sheave.
<table><tr><th rowspan="2">Rated load (t)</th><th colspan="2">Pitch length for 5 links (mm)</th><th colspan="2">Chain diameter (d)mm</th></tr><tr><th>Standard</th><th>Limit</th><th>Nominal diameter</th><th>Limit</th></tr><tr><td>0.25</td><td>45.5</td><td>46.8</td><td>3.2</td><td>2.9</td></tr></table>•Check abrasion of Load Chain by measuring the total length of 5 links of chain.
However, when the chain diameter is excessively worn with visual check, replace the Load Chain.
•For measuring control, measure the chain diameter, referring to the limit value in the above table.
Needle tip calipers are needed to measure pitch length of 5 links and the wire diameter.</td><td>Replace the Bottom Hook Complete Set.</td></tr>
</table>

Item	Method	Discard limit or criteria	Action
Load Chain	Visually ensure the Load Chain is free of corrosion (rust).	•Should be free of excessive corrosion (rust). **NOTE** - When abrasion of Load Chain is observed, also check the Load Sheave for safety's sake. (Refer to the item of Load Sheave in the "Lifting mechanism" page of Annual Inspection.) - Apply lubricant JIS K 2246 class 1, No.1 (code: NP-9) rust preventive oil equivalent (DAPHNE OIL COAT RL-44, IDEMITSU KOSAN Co., LTD. recommended)	Replace the Bottom Hook Complete Set.
	Visually check Load Chain has no deformation or flaws.  	**⚠CAUTION** **Do not perform any prohibited items in page 5 to 16. Use the Load Chain correctly.** •Should have no deformations such as distortion. •Should have no deep flaws.	Replace the Bottom Hook Complete Set.
	Visually check to see if there are any sputter on the Chain Hoist.	•Should be free of sputter. **NOTE** Keep the Chain Hoist away from welding sparks.	Replace the Bottom Hook Complete Set.

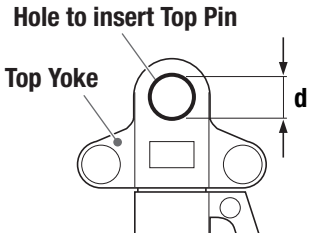
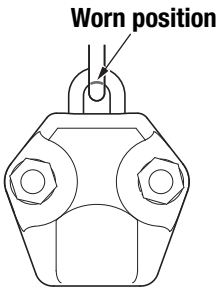
(Continued on the following page)

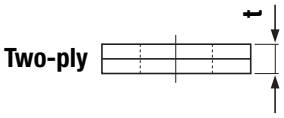
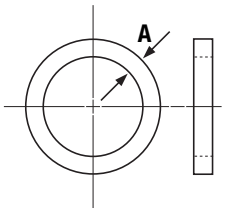
Periodic Inspection

Disassemble the Chain Hoist and check each part in detail.
When this inspection is completed, reassemble the Chain Hoist correctly in accordance with the Disassembly/reassembly Manual.

NOTE

Check the following items in addition to the frequent inspection items. Perform disassembly/reassembly work correctly, referring to the separate Disassembly/reassembly Manual.

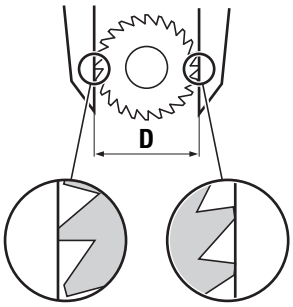
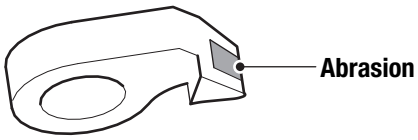
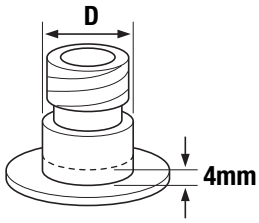
<table>
<tr><th>Item</th><th>Method</th><th>Discard limit or criteria</th><th>Action</th></tr>
<tr><td>Top Hook</td><td>Measure the diameter of the hole of the Top Yoke to insert the Top Pin, using calipers. When the hole is an oval hole, measure the maximum diameter of the oval hole.
 
</td><td><table><tr><th rowspan="3">Rated load (t)</th><th colspan="2">Hole diameter (d) mm</th></tr><tr><th colspan="2">For Top Pin</th></tr><tr><th>Standard</th><th>Limit</th></tr><tr><td>0.25</td><td>8.3</td><td>8.8</td></tr></table></td><td>Replace the Top Hook Set.</td></tr>
<tr><td>Bottom Hook</td><td>Check the abrasion at the worn position of the Chain of Bottom Hook (indicated with an arrow).
 
</td><td>•Load Chain should be free of excessive abrasion and deformation at the worn position of the chain on the Bottom Yoke side.
•Perform measuring control of the chain diameter, referring to the Frequent Inspection (Page 21). Load Chain should not beyond the limit of chain diameter.
•A point caliper is needed to measure the abrasion (of chain diameter).</td><td>Replace the Bottom Hook Complete Set.</td></tr>
<tr><td>Braking mecha-nism</td><td>Visually check the braking surface to ensure no abrasions or flaws.</td><td>⚠WARNING
Do not lubricate the Friction Plate.
The Friction Plate is a dry type brake. Lubricating the Friction Plate may result in death or severe injury due to insufficient braking.
•Should free of scars or gouged flaws on the braking surface of the Friction Disc, Friction Plate, Ratchet Disc, and Hand Wheel Assembly.
•The braking surface of the above mentioned parts should not be excessively worn with the tool marks erased and surface lustered.</td><td>Replace the scarred or worn parts.</td></tr>
</table>

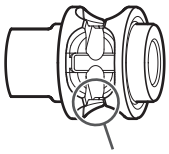
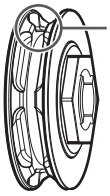
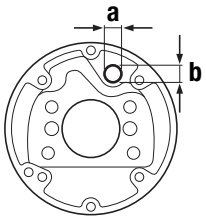
<table>
<tr><th>Item</th><th>Method</th><th>Discard limit or criteria</th><th>Action</th></tr>
<tr>
<td rowspan="3">Braking mechanism</td>
<td>Check the crack of the Friction Plate visually and measure the abrasion using calipers.
 
</td>
<td>•The Friction Plate should be free of chips or cracks.
<table>
<tr><th rowspan="2">Rated load (t)</th><th colspan="2">Thickness of two Friction Plates Dimension t (mm)</th></tr>
<tr><th>Standard</th><th>Limit</th></tr>
<tr><td>0.25</td><td>5.0</td><td>4.5</td></tr>
</table></td>
<td>Replace both Friction Plates.</td>
</tr>
<tr>
<td>Measure the abrasion of Bushing using a vernier caliper.
 
</td>
<td>•Should be uniform in thickness.
<table>
<tr><th rowspan="2">Rated load (t)</th><th colspan="2">Dimension A (mm)</th></tr>
<tr><th>Standard</th><th>Limit</th></tr>
<tr><td>0.25</td><td>1.6</td><td>1.4</td></tr>
</table></td>
<td>Replace the Bushing.</td>
</tr>
<tr>
<td>Heat the Bushing with a match flame to check that it is impregnated with oil.</td>
<td>⚠WARNING
Do not use any oil (grease, rust preventive oil, etc.) in areas near a fire or spark.
Failure to do so may result in ignition.

•Bushing should be sufficiently impregnated with oil (such that oil oozes off the surface when heated).

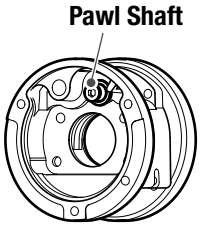
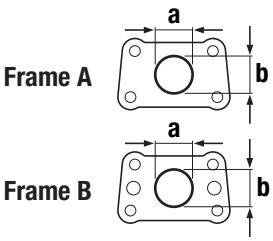
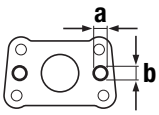
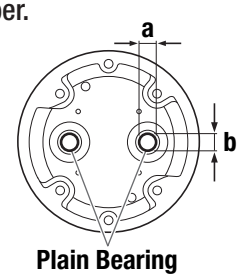
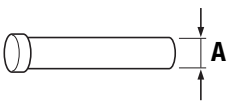
NOTE
For replacing or assembling Bushing, soak it in turbine oil for a day, and wipe excessive oil from its surface before reuse.</td>
<td>Soak the Bushing in turbine oil for a day and wipe off excessive oil.</td>
</tr>
</table>

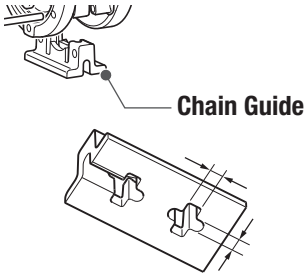
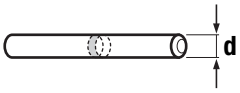
(Continued on the following page)

<table>
<tr><th>Item</th><th>Method</th><th>Discard limit or criteria</th><th>Action</th></tr>
<tr><td rowspan="5">Braking mechanism</td><td>Measure the abrasion of the Ratchet Disc with a vernier caliper.
 
</td><td><table><tr><th rowspan="2">Rated load (t)</th><th colspan="2">Dimension D (mm)</th></tr><tr><th>Standard</th><th>Limit</th></tr><tr><td>0.25</td><td>33.8</td><td>32.4</td></tr></table></td><td>Replace the Ratchet Disc.</td></tr>
<tr><td>Visually check Pawl.</td><td>•The Pawl should not be worn with a step on the tip.
 
</td><td>Replace the Pawl.</td></tr>
<tr><td>Visually check Pawl Spring Assembly.</td><td>•Should be free of deformations, flaws, breaks or poor spring.</td><td>Replace Pawl Spring Assembly.</td></tr>
<tr><td>Visually check corrosion (rust).</td><td>•Each part should be free of excessive corrosion (rust).</td><td>Replace any rusty part.</td></tr>
<tr><td>Measure the abrasion of the Friction Disc in contact with the Bushing (as shown in the following figure with a dotted line) with a vernier caliper.
 
</td><td><table><tr><th rowspan="2">Rated load (t)</th><th colspan="2">Dimension D (mm)</th></tr><tr><th>Standard</th><th>Limit</th></tr><tr><td>0.25</td><td>16.4</td><td>15.6</td></tr></table></td><td>Replace Friction Disc.</td></tr>
</table>

Item	Method	Discard limit or criteria	Action
Lifting mechanism	Visually check the abrasion and flaw of the Load Sheave.  **Pocket and Tooth**	•Should be free of abrasion in the Pocket or run-on flaws on the Tooth of the Load Sheave.	Replace the Load Sheave.
	Visually check the abrasion and flaw on tooth of the Load Gear and Gear #2.	•Should be free of chips of tooth, stepped abrasions, and flaws.	Replace the Load Gear and the Gear #2.
	Visually check the deformation of the Pinion.	•Pinion should be free of deformation, such as bend.	Replace the Pinion.
	Visually check the abrasion and flaw on the tooth of the Pinion.	•Should be free of chips of tooth, stepped abrasions, and flaws.	Replace the Pinion.
	Visually check the abrasion and flaw of the Hand Wheel.  **Pocket and Tooth**	•Should be free of abrasion in the Pocket, run-on flaws or breaks on the Tooth of the Hand Wheel.	Replace the Hand Wheel Assembly.
	Visually check the deformation of the Cam Guide.	•Cam Guide should be free of significant deformation. **NOTE** Deformed Cam Guide results from excessively lowering. Instruct the operator on proper use of the Chain Hoist.	Replace the Cam Guide.
	Visually check the Hand Chain.	•Should be free of deformation, such as torsion.	Replace the Hand Chain.
Body	Visually check and measure the bearing hole for Top Pin with a vernier caliper.  	•Should be free of significant deformations or flaws. •The dimensional difference between a and b should be 0.5mm or less.	Replace Body Assembly.

(Continued on the following page)

<table>
<tr><th>Item</th><th>Method</th><th>Discard limit or criteria</th><th>Action</th></tr>
<tr><td rowspan="6">Body</td><td>Visually check the Pawl Shaft.
 
</td><td>•Pawl shaft should be secured to Body.</td><td>Replace the Body Assembly.</td></tr>
<tr><td>Visually check and measure the bearing hole of Frames A and B for the Load Sheave with a vernier caliper.
 
</td><td>•Should be free of substantial deformations or flaws.
•The dimensional difference between a and b should be 0.5mm or less.</td><td>Replace the Frame A or B.</td></tr>
<tr><td>Visually check and measure the bearing holes of Frame B for the Gear with a vernier caliper.
 
</td><td>•Should be free of significant deformations or flaws.
•The dimensional difference between a and b should be 0.5mm or less.
•Should be free of deformation of the Frame.</td><td>Replace the Frame B.</td></tr>
<tr><td>Visually check the deformation and flaw of the Gear Case.</td><td>•Should be free of significant deformations, flaws or cracks.</td><td>Replace the Gear Case Assembly.</td></tr>
<tr><td>Visually check and measure the abrasion of holes of the Gear Case for the Plain Bearings with a vernier caliper.
 
</td><td>•Should be free of significant deformations or flaws.
•The dimensional difference between a and b should be 0.5mm or less.</td><td>Replace the Gear Case Assembly.</td></tr>
<tr><td>Visually check and measure the deformation and abrasion of the Top Pin with a vernier caliper.
 
</td><td>•Significantly deformed Top Pin has reached the discard limit.
<table>
<tr><th rowspan="2">Rated load (t)</th><th colspan="2">Dimension A (mm)</th></tr>
<tr><th>Standard</th><th>Limit</th></tr>
<tr><td>0.25</td><td>8</td><td>7.6</td></tr>
</table></td><td>Replace the Top Pin.</td></tr>
</table>

Item	Method	Discard limit or criteria	Action
Others	Visually check the deformation of the Chain Guide.  	•Should be free of crushed grooves, deformations or cracks.	Replace the Chain Guide.
	Visually check and measure the deformation, abrasion and corrosion (rust) of the End Pin with a vernier caliper.  	•The End Pin should be free of significant deformation. •Should be free of flaws or deformations. •Should be free of significant corrosion (rust). (Measure dimension d.) Rated load (t): 0.25 End Pin diameter (mm): Standard 3.9, Limit 3.7	Replace the End Pin.

Preoperational Test

⚠WARNING

When the periodic inspection is completed, perform a preoperational test to check that the hoist operates correctly.

Failure to do so may result in death or severe injury.

Item	Method	Discard limit or criteria	Action
No load test	Repeat lifting and lowering a few times.	•The Chain Hoist should be operated with a light pulling force. •The Chain Hoist should have regular click sounds of Pawl when lifting.	Disassemble the Chain Hoist to verify that the hoist is assembled properly and the components are free of defects.
Rated load test	Lift and lower the rated load for 20 to 30cm. Perform the items in the "Basic function" of Frequent Inspection.	•The Chain Hoist should have regular click sounds of Pawl and run smoothly when lifting. •The sound should be at a constant level with no irregular clicks. •The Chain Hoist should make no sound when lowering. •It should be free of a heavy pulling force. •It should be free of slip in braking.	

KITO

KITO Chain Hoist Model CX

Inspection Check Sheet (for Model CX003)

Type	Rated Load	Lot No.	Control No.	Date of Installation	Installed Place

Check mark example: ○= Good, △= To be replaced (adjusted) at next inspection, × = Defective. To be replaced (adjusted)

Range	Category	Check Item	Date of Check					
Frequent Inspection	Appearance	Nameplate (from daily check)						
		Appearance of Body and others (from daily check)						
		Loosened or omitted nuts (from daily check)						
	Function	Lifting / lowering						
		Abnormal sound						
		Hand pulling force						
		Brake						
	Top/Bottom Hook	Throat opening						
		Abrasion of Hook, Gap at Neck						
		Deformation, flaw						
		Loosened or missing bolts or nuts (from the daily check)						
		Rotation of Hook						
		Latch						
	Load Chain	Torsion (from daily check)						
		Oil application (from daily check)						
		Abrasion						
		Corrosion (rust)						
		Deformation, flaw						
		Sputter						

Inspected by	Inspector						
Checked by	Competent person						

⚠WARNING

Mandatory

When any defect is observed during inspection, stop using the Chain Hoist, indicate Failure/ Inspection underway and consult with the competent person or KITO for repair.

Use of a faulty Chain Hoist may result in death or severe injury.

NOTE

This Check Sheet is a standard sample based on KITO frequent and periodic inspection. Customers should decide upon their own format of the check sheet according to the operation environment and conditions of the customer, and perform the inspection. Be sure to include all check items into the check sheet.

Check mark example: ○= Good, △= To be replaced (adjusted) at next inspection, × = Defective. To be replaced (adjusted)

Range	Category	Check Item	Date of Check					
Periodic Inspection	Top/Bottom Hook	Deformation of hole to combine the Top Yoke						
		Abrasion of the first link of Chain at the load end.						
	Braking mechanism	Abrasion and flaw on the braking surface						
		Abrasion and crack on the Friction Plate						
		Abrasion of Bushing						
		Oil impregnation of Bushing						
		Abrasion of Ratchet Disc						
		Abrasion of Pawl						
		Deformation and abrasion of Pawl Spring						
		Corrosion (rust)						
		Abrasion of contact surface of Bushing of Friction Disc						
	Lifting mechanism	Abrasion and flaw of Load Sheave						
		Abrasion and flaw of Load Gear and Gear #2						
		Deformation of Pinion						
		Abrasion and flaw of Hand Wheel						
		Deformation of Cam Guide						
		Torsion and deformation of Hand Chain						
		Abrasion and flaw on tooth of Pinion						
	Body	Deformation of hole for Top Pin						
		Deformation of holes on Frames A and B for bearing						
		Deformation and flaw of Gear Case						
		Abrasion of plain bearing of Gear Case						
		Deformation and abrasion of Top Pin						
	Others	Deformation of Chain Guide						
		Deformation, abrasion, and corrosion (rust) of End Pin						
	Test	No load test						
		Rated load test						

Inspected by	Inspector							
Checked by	Competent person							

Chapter 3

Troubleshooting

Table of Contents

Introduction **34**
Safety Precautions **34**
Troubleshooting **35**
Lifting up failure 35
Lowering failure 37

Introduction

When a defect is observed while using the Chain Hoist or during its inspection, stop using the Chain Hoist and repair (maintain) the hoist. This chapter describes how to troubleshoot causes of the failure and defect and to take countermeasures for Competent person †.
When a defect is found, stop using the Chain Hoist immediately and check the cause.

- Most of the causes of failure or defect of the Chain Hoist come from improper usage. Carefully read **Owner's Manual of Chain Hoist** and use the Chain Hoist correctly. Also, inform operators of the result of repair (maintenance) and direct them to operate the Chain Hoist properly.
- **For repair (maintenance) of Chain Hoist, perform the repair (maintenance) correctly in accordance with page 17 to 31 and separate "Disassembly/reassembly Manual".**

  † Competent person is those authorized by the company as having expertise on the structure and device of a Chain Hoist, or with appropriate expertise and capable of understanding page 17 to 31 and Disassembly/reassembly Manual.
  When this requirement is not satisfied, consult with KITO or your dealer.

Safety Precautions

This Troubleshooting for the Chain Hoist includes important contents to prevent injury to persons performing repair (maintenance), users and others, and damage to property, and to perform repair (maintenance) of the Chain Hoist safely and correctly.
Before performing repair (maintenance), be sure to read and follow page 5 to 16 since its contents are also important for repair (maintenance).

Person to perform repair (maintenance)

Repair (maintenance) shall be performed by a competent person, or consult with KITO or your dealer.

Repair (maintenance) in general

⚠WARNING

Mandatory

Only competent persons are allowed to perform repair (maintenance) of the Chain Hoist.

Repair (maintenance) by anyone other than a Competent person may result in death or severe injury.

Mandatory

When replacing a part, do not use an authorized part for the KITO Chain Hoist Model CX003.

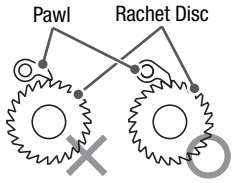
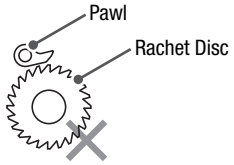
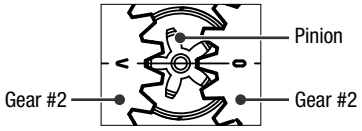
Even if the part is an authorized part for the KITO Chain Hoist, it may not be used for a different model.
Use parts correctly in accordance with the Disassembly/reassembly Manual.
After disassembling/reassembling, perform the operation check described in the Disassembly/reassembly Manual.
Failure to do so may result in death or severe injury.

Troubleshooting

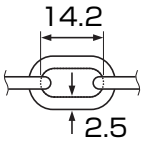
Lifting up failure

Checking sounds from the hoist is a critical inspection point. Note the operating sound of the Chain Hoist.

- For lifting, the Chain Hoist makes clicking sounds.
- For lowering, the Chain Hoist does not make clicking sounds.

Symptom		Cause	Action
Cannot lift load	The Pawl sounds weak or irregularly.	•The Ratchet Disc is assembled with its wrong side fitting, as shown in the figure. 	Reassemble the Pawl and Ratchet Disc to ensure they engage correctly.
	The Pawl makes no sounds.	•The Pawl is wrongly assembled upside down, as shown in the figure. 	Reassemble the Pawl in the correct direction.
		•The Pawl Shaft and Pawl clogged with dust or rust caused by a long-term negligent maintenance may make poor contact for the Pawl and Ratchet Disc.	Perform periodic disassembly and inspection to remove dust and rust. Replace if found rusty significantly. Any irregularities such as rust may deteriorate Pawl Spring. Replace if found rusty.
	Cannot operate manually.	•The positions of the "O" and "V" marks on Gear #2 are not set correctly.	Reassemble Gears correctly. When reassembly is completed, be sure to perform an operational test and check that the hoist operates smoothly. * Assemble Gear #2 with the "O" and "V" marks set around the Pinion as shown in the figure. 
		•The Load Chain is installed as twisted or tangled, and is caught between the Chain Guide and Load Sheave.	Reassemble the Load Chain correctly, being careful not to assemble it twisted or tangled. (Refer to separate Disassembly/ reassembly Manual.)
	Cannot lift the rated load or less	•Fault of Overload Limiter (OLL: a device to prevent an excessive overload) due to frequent lifting of an excessive overload.	Stop using the Chain Hoist. Replace the Hand Wheel Assembly. Lift the rated load or less and avoid frequent use of overload limiter.
		•Cam Guide contacts the inner upper left corner of the Hand Wheel.	Reassemble properly. (Refer to separate Disassembly/reassembly Manual.)

(Continued on the following page)

Symptom		Cause	Action
Sometimes fails to lift load	Pawl sounds weak. Pawl sounds irregularly.	•Pawl Spring Assembly lacks spring, or breaks. •Pawl does not return to original position due to accumulated rust (corrosion).	Replace Pawl Spring Assembly. Perform disassembly inspection regularly.
		•Missing Pawl Spring Assembly causes poor return. •Poor return of Pawl due to mis-assembly. (Pawl Spring is caught between the step of Pawl Shaft and the Pawl.)	Reassemble the hoist correctly. When reassembly is completed, be sure to perform an operational test, and check that the pawl sounds click.
		•Frequently extended use causes Pawl or Ratchet Disc to wear with poor engagement.	Replace Pawl Spring Assembly. Perform disassembly inspection regularly.
	Hand Chain slips.	•Abrasion of sprocket of Hand Wheel. •Elongation or abrasion of Hand Chain. •Wrong size of Hand Chain.  Length when purchased (guideline)	Replace Hand Wheel Assembly. Perform disassembly inspection regularly. Use proper Hand Chain.
Lift a load normally but Pawl clicking sounds are weak (with regular clicks).		•Weakened or broken Pawl Spring Assembly causes insufficient force of Pawl.	Replace the Pawl Spring Assembly. Perform disassembly inspection regularly.
		•Poor return of Pawl due to mis-assembly. (Pawl Spring is caught between the step of Pawl Shaft and the Pawl.)	Reassemble the hoist correctly. When reassembly is completed, be sure to perform an operational test, and check that the pawl sounds click.
Heavy pulling force at no load (with occasional squeaking sound).		•Poor gear engagement. •Abrasion of gear tooth flank. •Lack of lubricant caused by a long-term negligent maintenance may result in abrasion or breakage.	Replace Gear. Perform disassembly inspection regularly.
Lift load only halfway but not further.		•Load Chain of the Bottom Hook or Hand Chain is entangled or twisted.	Be sure to check that the Bottom Hook is not entangled or twisted with the Load Chain or Hand Chain.
		•The Overload Limiter (OLL: a device to prevent an excessive overload) is activated.	Reduce the load to less than the rated load.

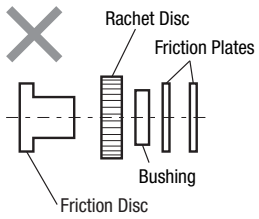
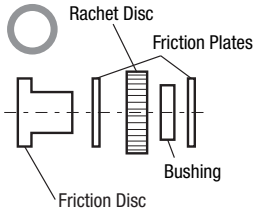
Lowering failure

Lowering failure is mainly due to a deficiency of the brake.

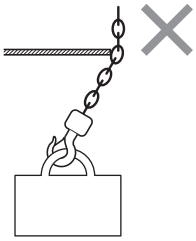
⚠WARNING

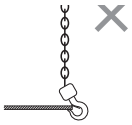
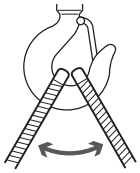
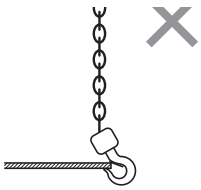
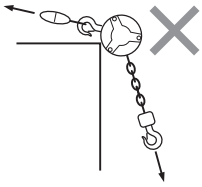
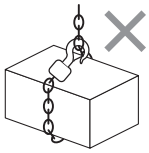
Do not lubricate the Friction Plate.

The Friction Plate is of the dry type.
Lubricating the Friction Plate may result in death or severe injury due to insufficient braking.

Symptom	Cause	Action
Not lower load	•Leaving the Chain Hoist loaded for a long time or subjecting to mechanical impact during work may lock the brake.	Pull the Hand Chain strongly for lowering for a moment to release the brake.
	•Rust locks the brake.	Replace the rusted part. Perform disassembly inspection regularly.
Hard to lower load.	•Caw Guide contacts the inner upper right corner of the Hand Wheel.	Reassemble (Refer to separate Disassembly/reassembly Manual.)
Load falls when lowering starts.	•A foreign object between friction surfaces.	Disassemble the Chain Hoist, remove the object, and then reassemble. Replace the Friction Plate if scratched.
	•Brake slip caused by significant rust.	Reassemble the rusted part. Use according to operating conditions in page 5 to 16. After use, store the Chain Hoist in accordance with the Maintenance and storage in page 5 to 16.
	•Mis-assembly of the Friction Plate. Friction Plates are set at only one side as shown below, or one Friction Plate is missing.  	Reassemble Friction Plates correctly as below. 
	•Friction Plate is cracked.	Replace cracked Friction Plate.
Load drifts	•Slight dust on the brake surface. •The brake surface has oil, such as grease, attached.	Disassemble the Chain Hoist, remove the dust or oil, and then reassemble. Replace the Friction Plate if scratched. Perform disassembly inspection regularly according to the operating environment.
	•Abrasion of Friction Plate due to frequent extended operation.	Replace worn Friction Plate. Perform disassembly inspection regularly, according to the frequency of operation.
Worn Load Chain	•Lack of lubricant (frequent extended use).	Replace the abraded Load Chain. Always apply oil to the Load Chain in accordance with page 5 to 16. Also perform disassembly inspection regularly.

(Continued on the following page)

Symptom	Cause	Action
Scarred or deformed Load Chain	•Mis-assembly causes Load Chain to twist.	Assemble Load Chain correctly in accordance with the Disassembly/ reassembly Manual.
	•Load Chain is entangled with Hand Chain.	Before use, be sure to check that the Load Chain is not entangled with the Hand Chain.
	•Load Chain is in contact with an obstacle. 	Prevent interference of Load Chain by other object. Do not wind the Load Chain around the load.
	•Overload elongates the Load Chain.	Replace the Load Chain. Use the hoist under the rated load. **⚠WARNING** **Do not lift the load beyond the rated load.** Failure to do so may result in death or severe injury.
Rust or corrosion	•Lack of oil. •The use of a Chain Hoist exposed to the rain •Influenced by seawater, chemicals, etc	Thorough safety control in accordance with the operating environment. **⚠WARNING** **Remove dirt and water, and apply oil to the neck of the Hook and Load Chains, and then store the Chain Hoist indoors.** Failure to do so may result in injury or damage to property.
Broken Load Chain	•May result from combination with the causes described in page 37/38, including impact load. •Welding heat affects strength. •Entangled Load Chain.	**⚠WARNING** **Cutting of Load Chain may result in severe accidents, including fatalities. Conduct appropriate maintenance, including correct handling, daily check and inspection.**

Symptom	Cause	Action
Stretched Hook	•Overload. The Hook is to open gradually under more than double the rated load.	Replace the Hook. **⚠WARNING** **Hook opening indicates overload. Do not lift the load beyond the rated load.** Lifting a load beyond the rated load may result in death or severe injury.
	•Lifting a load at the tip of the Hook. 	Replace the Hook. Lift a load at the center of the Hook saddle.
	•Improper hooking of the sling or the use of a sling of inappropriate size relative to the Hook. •Slinging angle too wide.	Replace the Hook. Use a sling appropriate for the work. The slinging angle should be 60 degrees or less.  60 degrees or less.
Bent hook neck	•Lifting a load at the tip of the Hook.  •Applied force from an oblique direction to the Hook being fixed. 	Replace the Hook. **⚠WARNING** **Lift a load at the center of Hook saddle.** Lifting a load at a position other than the center of the hook saddle may cause to break the Hook and result in death or severe injury. Lift a load while the Top and Bottom Hooks are aligned straight with the load direction.
Twisted Hook	•Winding the Load Chain around the load. 	Replace the Hook. Do not wind the Load Chain around the load as a sling.
Detached Latch	•Hook deformed by overload. •Improper sling size to hook. •Sling hooked on latch.	Replace the Hook. Sling a load correctly.

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DECLARATION OF CONFORMITY

We, **KITO Corporation**,
2000 Tsuijiarai, Showa-cho,
Nakakoma-gun, Yamanashi-ken, Japan
declare under our sole responsibility that the products:

Manual chain hoist in capacities of 250 kg	**CX, model CX1**

to which this declaration relates are in conformity with the following EC directives and standards.

EC directives:

Machinery Directive	**2006/42/EC**

Harmonized standards:

EN ISO 12100-1 and EN ISO 12100-2	**Safety of machinery**
EN 818-7	**Short link chain for lifting purposes, increased quality, grade V, certified by Fachausschuss Metall und Oberflächenbehandlung**
EN 13157	**Hand powered lifting equipment**

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URL. http://www.kito.co.jp