

No.61-T1005

05.04.2012

Declaration of Conformity

ELEPHANT CHAIN BLOCK CO., LTD.

Address: 180 Iwamuro 2-chome, Osaka-Sayama city Osaka, Japan

We declare, under our solo responsibility, that the products identified in this declaration are in conformity with the requirements of Council Directive and Standards:

Directive	Standards applied
94/9/EC : ATEX	EN1127-1: 2008, EN13463-1:2009, EN13463-5:2003 EN13157:2004
2006/42/EC : Machinery safety	DIRECTIVE 2006/42/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNIL of 17 May 2006

Description of equipment:

Product description: Manually Operated Chain Hoist

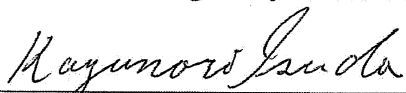
Type: C+-H (K) P (G)

+; Working load limit 0.5 – 20 (t)

H; roll bearing type, K; slide bearing type,

P; with plain trolley, G; with geared trolley

The authorized signatory to this declaration:



Name TSUDA KAZUNORI

Title Executive Director

ELEPHANT CHAIN BLOCK CO., LTD.

- Forward this manual to operator.
- Before using this hoist, each operator should become thoroughly familiar with all warnings, instructions and recommendations in this manual.

(No. 1)

HAND OPERATED CHAIN HOIST

FORM H



OPERATING & MAINTENANCE MANUAL

- Failure to operate equipment as directed in manual may cause injury.
- Retain this manual for future reference and use.
- DO NOT adjust or repair a hoist unless qualified to perform hoist maintenance.
Maintenance requiring disassembling and assembling shall be ordered to ELEPHANT CHAIN BLOCK CO., LTD. or our distributors if such qualified person is absence.
- DO consult ELEPHANT CHAIN BLOCK CO., LTD. or our distributors, for any question concerning with hoist installation.

About TYPE & FORM

TYPE

C 2.5 — H (K) P (G)

↑
Rated Load 0.5, 1, 1.6, 2, 2.5, 3.1, 5, 7.5, 10, 16 or 20 (t)

FORM

H : Manually operated chain hoist without trolley

P : With plain trolley



G : With geared trolley


1) SAFE OPERATING PRACTICES

Improper operation of the chain hoist will possibly cause a dangerous situation such as falling of lifted loads and so on. Carefully read this manual for proper operation before setting-up, installation, operation, maintenance and inspection of the chain hoist.

Do not begin to operate it before you have got familiar with its knowledge, safety information and all the special cares.

The cautions in handling the unit are classified in to two levels in this manual ;

 WARNING	This symbol is used to indicate that a death or serious injuries will be caused in all probability to the user or persons around when the products are improperly used.
 CAUTION	This symbol is used to indicate that damage may be caused to the user or persons around or only material loss will occur when the products are improperly used.

Even the matters indicated “  CAUTION ” may bring a serious result depending on the situation.

Strictly observe both notices as they contain very important matters.

Examples of the symbol:



mark indicates that there are warning/cautious matters. In a sketch a concrete warning (“caution for falling” in case of the symbol on the left) is described.



mark indicates actions to be prohibited. In a sketch or nearby a concrete warning is described.



mark indicates that any action will be required or directed. In a sketch a concrete warning (“general duties for operator” in the case of the symbol on the left) is described.

※The manual must be kept in place where the operator can read it whenever he needs.

1. General



WARNING

- The unit should be operated only by those who are familiar with the manual and contents of the instructing label.
- Do not lift load which exceed the rated load.
- Do not stay under a suspended load and do not move a load over persons.
- Do not use a chain hoist witch was damaged or causes abnormal sound and/or vibration.
- Do not use a chain hoist with twisted, kinked, damaged, severely worn, deformed or elongated load chains.
- Never make modification to the chain hoist and its accessories.
- DO NOT use in potentially explosive atmospheres except “II 2 GD c II B T105°C” according to ATEX directive. Refer to next page.
- DO ground the support(s) of hoist or hoist with trolley when using in explosive atmospheres specified above.
- DO NOT use the hoist in temperatures below -20°C or over 40°C



About ATEX directive

Outline of ATEX directive

Since 1st July 2003, equipment used in potentially explosive atmospheres within the EU is required to comply with the ATEX directive.

ATEX, New Approach directives and CE marking

Directive 94/9/EC, known as ATEX directive, is one of the directives based on the New Approach towards technical harmonization and standardisation.

Products in compliance with all provisions of applicable directives must bear the CE marking.

This is an indication that the products comply with the requirements of applicable directives and have been subjected to the conformity assessment procedure provided for in these directives.

ATEX definitions

Potentially explosive atmospheres are atmospheres likely to become explosive due to local and operational conditions.

The ATEX directive regards explosive atmospheres which are defined as mixtures with air, under atmospheric conditions, of flammable substances in the form of gases, vapours, mists or dusts in which, after ignition has occurred, combustion spreads to the entire unburned mixture.

Classification

Potentially explosive environments are classified into zones.

The ATEX directive defines categories of equipment and protective systems, which can be used in the corresponding zones as per the following table.

Zone	Equipment category	Presence of the explosive atmosphere
0	1	Continuously or for long periods > 1000 hours / year
1	2	Occasionally 10 ~ 1000 hours / year
2	3	Rarely or for short periods < 10 hours / year

Classification of FORM H hoists

II 2 GD c II B T105°C is the classification of FORM H hoists.

- II** : Unit group II = other areas
- 2** : Category 2 for zone 1 and 2 respectively
- GD** : G for gas, D for dust
- c** : Type of ignition protection c = constructive safety
- II B** : Group of gases
- 105°C** : Maximum surface temperature 105°C

2. Installation and Setting-UP



WARNING

- Inspection before operation and periodic inspection must be by all means carried out. DO consult ELEPHANT CHAIN BLOCK CO., LTD. or our distributors, for any question concerning with hoist installation.
- The chain hoist should not be installed in places deviated from the provision where it is, for example, exposed to rain, water or other unsuitable chemicals.



CAUTION

- Attach a stopper to the ends of the traverse and travel rails.
- Make sure that a location on which the chain hoist is installed has a sufficient strength.
- Suspend the chain hoist in a manner that it can freely swing about.

3. Operation and Handling



WARNING

- Do not get on a suspended load.
- Do not leave a suspended load unattended.
- Do not allow your attention to be diverted from operating the chain hoist.
- Do not use the chain hoist for the oblique pulling.
※First move the chain hoist to right above a load and then lift it.
- Do not use the chain hoist for the earth lifting (for example, hooking fixed objects such as houses or structures).
- Do not carry out turn over of a suspended load.
※Turn over should be done by means of a device specialized in that purpose or only by a skilled person.
- Make sure before operation that the hand chain properly function. Do not operate the chain hoist when the hand chain is in disorder.
- Make sure before operation that the brake properly functions. Do not operate the chain hoist when the brake is in disorder.
- Do not apply the electric welding on a suspended load.
- Do not allow the load chain to be used as a ground (earth) for the welding machine.
- Do not allow the load chain to be touched by a live welding electrode.
- Do not operate the chain hoist in such a manner that a load and/or its hand chain is suspended from any structure.



CAUTION

- Do not use the chain hoist with a damaged safety latch of the hook.

- Do not allow the chain hoist body or trolley hit against stoppers or other structures.
- Do not use the chain hoist with the nameplate and label attached to the body removed or left unclear.
- Operate the chain hoist only by means of a manual pulling force (of the operator).
- Do not throw away or drag the chain hoist.
- Stop lifting once when the load chain becomes tense to check safety.
- In lifting a load with two chain hoists, select a chain hoist of which rated load exceeds the load to be lifted.
- Always keep the hoist body and the load chain clean so that dust, sands and the like will not be deposited on them.
- Make sure that the range of lift of the chain hoist is sufficient for the intended work.
- Always lubricate the load chain before use.
- Pay attention that the load chain should not be over-lowered.

4. Maintenance, Inspection and Modification



WARNING

- Never use parts other than genuine ones made by us.
- Never do shortening or lengthening of the load chain.
- Do not use load chains made by any other manufacturers than us.
- As the load chain is of specific property, never use the chain of other type hoists. It should be exchanged for new genuine one.
- Only specialists authorized by the employer may carry out the maintenance, inspection or repair.
- Carry out the maintenance, inspection or repair with the chain hoist unloaded (e. g. without loads).
- When any disorder is found in the maintenance or inspection, immediately make repair before re-operating the chain hoist.



CAUTION

- Whenever carrying out the maintenance, inspection or repair, prepare a warning indication of "Under working" ("Under inspection", etc.).

2) INSTALLATION AND OPERATION

1. Installation



WARNING

- The unit should not be operated by persons who have not fully understood this manual, instructions or plates on the unit.
- The support (structure such as buildings) on which the hoist body is installed is to bear loads more than 4 times the rated load.
 - ※In case that the chain hoist is suspended from a crane as an auxiliary device, its safety factor should be 5.
 - ※It is very dangerous to use a support of which strength is not sufficient, as it may be damaged due to the load.

PROPER HANDLING AND CAUTIONS

Slinging method

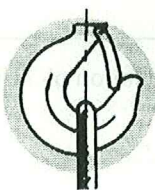


WARNING

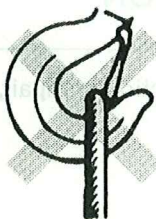
- Inspect all the tools to be used on the day before use.
- Wrong slinging may cause quite dangerous situations such as fallen loads etc.
 - ※Avoid slinging methods as shown below, which are very dangerous.

1) How to apply a load to the hook

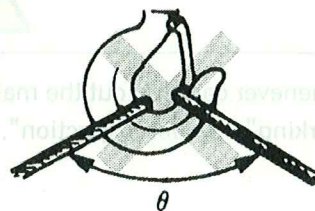
Incorrect slinging (Avoid the examples below) :



※Correct slinging: the load coincides with the axle of the hook.



※A supporting structure or the sling is set on an improper point of the hook.



※Too wide slinging angle, it should be within 60 degrees.



※The safety latch does not properly function.



※Only the tip of hook cannot bear a load.

- 2) Never wind a load chain directly around a load regardless of its weight. It is quite dangerous, since the load chain may be broken.

(Fig. 1)

It is dangerous to wind the load chain around the hook of a chassis Etc., because the strength of the chain will be reduced to $1/3$ to $1/5$ of the normal value. (Fig. 2)

- 3) The load chain twisted should not be loaded, as the bearing capacity of the chain will be reduced in a twisted state. Be sure to bring the load chain into straight state before applying a load. (Fig. 3)

In a chain hoist with more than 2 falls, it will happen that the chain is twisted by the bottom hook which goes through between the chains and is turned. In this case, the twist should be cleared by returning the bottom hook through the chains. (Fig. 4)

- 4) Do not suspend the top hook on a single wire rope. The hook cover may be worn out due to the movement of the wire rope de-twisting.

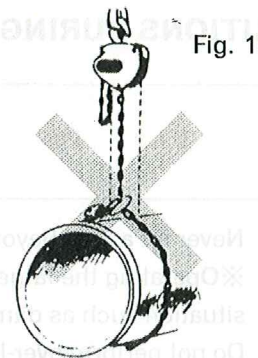


Fig. 1

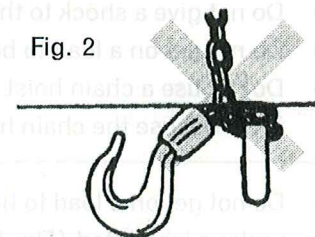


Fig. 2

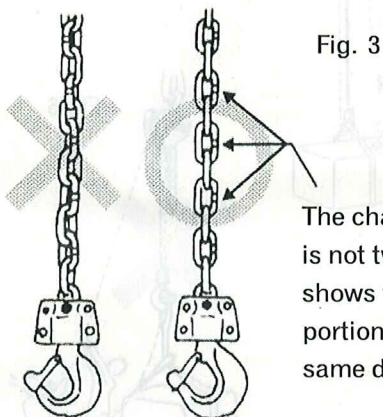


Fig. 3

The chain which is not twisted shows welded portions in the same direction.

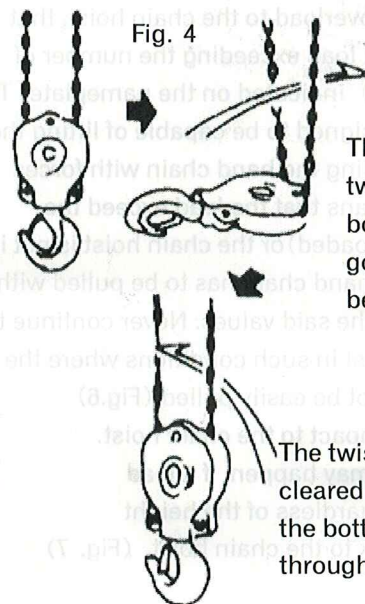


Fig. 4

The chain will be twisted by the bottom hook going through between the chains.

The twist can be cleared by returning the bottom hook through the chains.

CAUTIONS DURING OPERATION



WARNING

- Never lift a load beyond the rated load of the unit (Over-loading).
※Operating the large crane in conditions of overloading or earth-lifting will cause a quite dangerous situation such as damage of the chain hoist and the like.
- Do not perform over-lifting and over-lowering.
- Do not give a shock to the chain hoist.
- Do not get on a load to be lifted and do not stay under a load lifted.
- Do not use a chain hoist which is not in order.
※Do not use the chain hoist in the incorrect manners as shown below, which are quite dangerous.

- 5) Do not get on a load to be lifted and do not stay under a load lifted. (Fig. 5)
- 6) Do not apply an overload to the chain hoist, that is, do not apply a load exceeding the number of tons (rated load) indicated on the nameplate. The chain hoist is designed to be capable of lifting the rated load by pulling the hand chain with forces 25 to 50 kg. It means that the load exceed the rated load (over-loaded) or the chain hoist is not in order, when the hand chain has to be pulled with force more than the said values. Never continue to use the chain hoist in such conditions where the hand chain cannot be easily pulled. (Fig. 6)
- 7) Do not give an impact to the chain hoist. Severe accident may happen, if a load suddenly falls regardless of the height and gives a shock to the chain hoist. (Fig. 7)

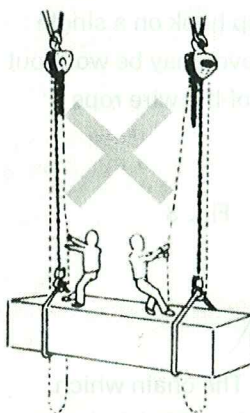


Fig.5

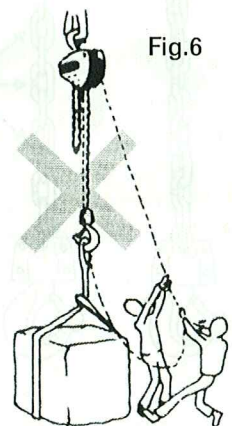


Fig.6

- 8) Do not perform over-winding, that is, over-lifting or over-lowering. Check whether the chain hoist is overwound or not when the hand chain cannot be easily pulled during operation. (Fig. 8)

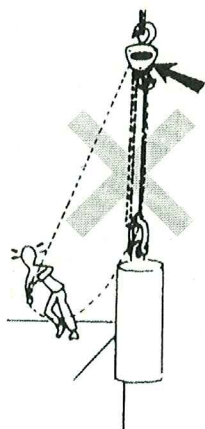


Fig.8

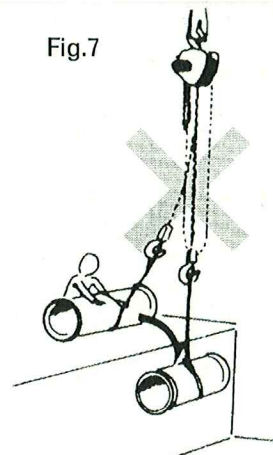
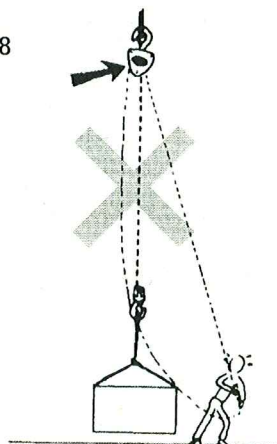


Fig.7

- 9) Do not apply a bending force to the hook of the chain hoist. Such handling ways as shown in Fig. 9 are very dangerous and should be absolutely avoided.

The hook clearly deformed as shown in Fig.10 should be scrapped and exchanged with a new and genuine one.

- 10) Carry out the routine inspection before use of the chain hoist. Refer to the daily inspection and Fig.11 in the next page.

- 11) Notice about the manipulation of the hand chain: It should be avoided that the hand chain will be abruptly jammed when it is manipulated with or without a load or a load is lifted by means of another power. Otherwise, the hand chain will be partially deformed or damaged, or the pinion shaft will be eventually broken. in an extreme case, such a dangerous accident as falling down of the suspended load can happen.

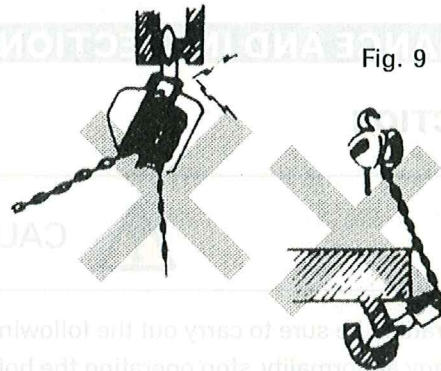
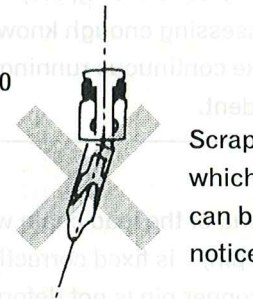


Fig. 9

Fig. 10



Scrap the hook of which deformation can be visually noticed.

3) MAINTENANCE AND INSPECTION

DAILY INSPECTION



CAUTION

- For daily operation, be sure to carry out the following check prior to operation.
 - ※In case of any abnormality, stop operating the hoisting unit and take proper counter-measure by a specialist possessing enough knowledge on the unit or by a dealer of our products.
 - ※Do not make continuous running under abnormal condition as it is very dangerous and might lead to a severe accident.

- (1) Check if the end of the load chain without hook (chain stopper pin) is fixed correctly. Check also if the chain stopper pin is not deformed and rotates smoothly.
- (2) Are firm connections made between the top hook and the hoist body, the body and the load chain, and the load chain and the bottom hook respectively?
- (3) Are visually no deformations of the top and bottom hooks noticed?
- (4) Are no parts missing? Are no severely deformed portions noticed?
- (5) Is the load chain well lubricated? Doesn't it show any remarkable damages or deformations?
- (6) Check whether the hand chain runs easily and smoothly on operation and smooth ratchet sound is heard during lifting.
 - ※Immediately stop operating the chain hoist and make repair of it, when such abnormalities as mentioned above (item 1 through 6) are found.

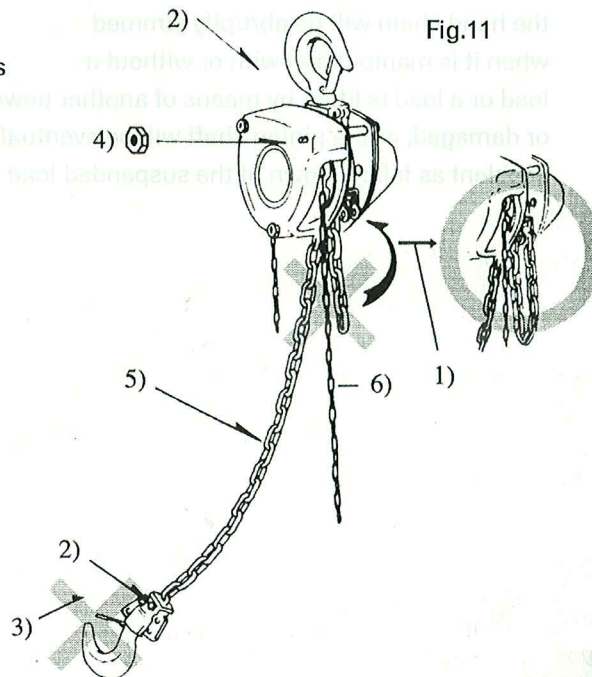


Fig.11

PERIODIC INSPECTION

In case of troubles and/or any abnormality, stop operating the hoisting unit and take proper counter-measures by a specialist possessing enough knowledge on the unit or by a dealer of our products. It may happen that the load chain and the hooks fail in a dangerous state even if they show no remarkable changes in their function. It is therefore indispensable to make a periodic measuring check based on "the Methods for Maintenance and Inspection" as stated below. The periodic inspection should be normally made once a month. Exchange damaged or deformed parts with new ones.

4)THE METHODS FOR MAINTENANCE AND INSPECTION



WARNING

- Do not use parts and the chain hoist over the limit of use.
- If any wearing parts are found in excess of the standard limit of use as stated below in carrying out the daily and periodic voluntary inspections, they should be replaced for sure.
※It is very dangerous to use parts over the standard limit of use.
- When replacing load chains, be sure to use the load chain manufactured by us. Load chains manufactured by any others are not applicable.

1. Checking the load chain and its lifetime

The load chain begins to be broken from even one place of weak chain link and thus it is important to carefully inspect the whole chain.

For checking the elongation, measure the inner length of 5 links with a vernier calipers the right sketch shows.

It is normally sufficient to check the links in a distance of approx. every 50 cm but check them by making the

measuring distance shorter when the elongation of the chain is close to the limitation for use stated in Table 1 so that none of them will exceed the limitation for use.

Exchange the load chain with a new one which is found by visual check to be clearly influenced by higher temperatures or to be clearly deformed. Furthermore, do not weld a load chain to the original one by users themselves.



Table 1 Limitation of the deformed load chain for use

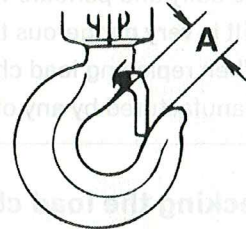
Rated load (Number of falls)	Link diameter / P×5 mm (New chain)	P×5 mm (Limit value)
0.5 t (1)	5 / 75	77.6
1 t (1)	6.3 / 95.5	98.3
1.6 t (1)	7.2 / 105	108.6
2 t (1)	8 / 120	124.1
2.5 t (1)	9 / 135	139.6
3.1 t (2)	7.2 / 105	108.6
5 t (2)	9 / 135	139.6
7.5 t (3)	9 / 135	139.6
10 t (4)	9 / 135	139.6
16 t (6)	9 / 135	139.6
20 t (8)	9 / 135	139.6

2. Checking the hook and its lifetime

- When the dimension shown by "A", in the sketch has exceeded the limitation as specified in Table 2, the hook should be replaced with a new genuine one.
It is very dangerous to use such a deformed hook by making repair by heating and/or welding.
- Disassemble the chain stop bolt on the bottom hook and replace with a new one when it shows wear, bend or cracks.
※Do not forget to set the split pin on re-assembling the stop bolt.

Table 2 Limitation of deformed hook for use

Rated load (Number of falls)	Value A (New hook)	Value A (Limit value)
0.5 t (1)	30	31.5
1 t (1)	34.8	36.6
1.6 t (1)	39	40.9
2 t (1)	43	45.2
2.5 t (1)	45	47.3
3.1 t (2)	50	52.5
5 t (2)	58	60.9
7.5 t (3)	76.5	80.3
10 t (4)	76.5	80.3
16 t (6)	96	100.8
20 t (8)	97	101.9



5) CRITERIA FOR USING AND CHECKING CHAIN HOIST

1. Criteria for check



WARNING

(Criteria for use)

The following shall be observed in using the chain hoist.

- Make sure that the class of the chain hoist is fit for conditions of its use.
- The chain hoist should not be used to lift a load exceeding the rated load except for testing purpose.
- For our chain hoist, never use load chains made by any other manufactures than us.
- Do not use the chain hoist of which range of lift is not sufficient.
- Do not use a bottom hook which is not equipped with a safety latch or of which latch has no safety effect.
- Do not use chain hoist on which chain stoppers are missing.
- Do not wind the load chain directly around a load.
- Do not hang a load on the tip of the hook.
- Do not quickly pull the hand chain on lifting and lowering operation.
- Do not perform over-lifting and over-lowering.
- Do not walk below a suspended load.
- Avoid to pull a load in oblique direction.
- Avoid an operation of so-called earth lifting.
- Before operation, check the load chain for twisting or tangling. The chain hoist can be used only after such twisting and tangling are corrected.
- When the chain hoist is used in special conditions such as lower or higher temperatures, or corrosive

atmosphere, etc., consult us before use.

(16) The chain hoist should not be modified by the users. If any modification is required, it should be done by us.

(17) Do not leave the chain hoist for many hours with a load suspended.



CAUTION (Criteria for use)

(18) Make a routine inspection before use.

(19) Immediately stop operating the chain hoist when an abnormally big pulling force for the hand chain is required.

(20) Do not drop the chain hoist from a higher place.

(21) Apply a lubricant to the load chain before use.

(22) Use the chain hoist, applying lubricants to its gears, bearings and points which are liable to wear.

(23) The chain hoist should be applied with antirust to be kept for a long period.

(24) Consult us whenever special usage of the chain hoist is required.

2. Criteria for check

(1) Use the chain hoist by checking it daily⁽¹⁾ and periodically⁽²⁾.

(2) Refer to Table 3 ⁽³⁾ which gives check items, check methods and check criteria to be used in the daily check.

However, items other than those specified should be also checked, when the chain hoist is frequently used, or in special cases.

(3) The periodic inspection should be made in accordance with the table 3 ⁽³⁾.

(4) When the chain hoist is repaired, check it on periodic check items given in Table 3 ⁽³⁾ after its repair, and make sure that it works in a normal state. Use spare parts only made by us.

Notes

(1) Refer to checking before use.

(2) Periodic check is usually made at intervals of six months or one year depending on the frequency of use.

(3) Check the items with the mark "O" in Table 3.

Table 3 Criteria for check

Type of check		Check items	Check method	Check criteria
Daily check	Periodic check			

MARKING AND THE LIKE

O	O	Marking (nameplates)	Visual	Presence of marking
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FUNCTION

O	O	Lifting and Lowering function	Lifting and Lowering without load	(1) Lifting and lowering function can be smoothly carried out. (2) Smooth ratchet sound must be heard in lifting. (3) The brake shows no abnormality in lowering.
	O	Function ⁽⁴⁾	Rated load	No slippage occurs.

Note⁽⁴⁾ : The check for the function in the periodic inspection should be performed after checking of the chain hoist body etc.

HOOK

<input type="radio"/>	<input type="radio"/>	Opening of hook	Check visually in daily check and by measurement in periodic check	No deformation should be found when its dimensions are compared with standard dimensions. (Refer table 2)
<input type="radio"/>	<input type="radio"/>	Deformation	Visual	Free from bend and distortion.
<input type="radio"/>	<input type="radio"/>	Wear and corrosion	Visual	Free from severe wear and corrosion.
<input type="radio"/>	<input type="radio"/>	Flaws and other harmful defects	Visual	Free from cracks and other harmful defects.
<input type="radio"/>	<input type="radio"/>	Latch	Function	Free from severe wear or deformation and operates properly.

LOAD CHAIN

<input type="radio"/>	<input type="radio"/>	Pitch elongation	Check visually in daily check and by measurement in periodic check	Do not use load chains with pitch elongated. (Refer table 1)
<input type="radio"/>	<input type="radio"/>	Wear	Check visually in daily check	Do not use load chains which are worn in diameter by 10% or more.
<input type="radio"/>	<input type="radio"/>	Deformation	Visual	Free from deformation.
<input type="radio"/>	<input type="radio"/>	Flaws and other harmful defects	Visual	Free from cracks and other harmful defects.
<input type="radio"/>	<input type="radio"/>	Corrosion	Visual	Free from serious rust.

HAND CHAIN

<input type="radio"/>	<input type="radio"/>	Hand chain	Visual	Free from serious deformation and pitch elongation.
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BODY

<input type="radio"/>	<input type="radio"/>	Frame	Visual	Free from deformation and severe corrosion.
<input type="radio"/>	<input type="radio"/>	Gear case	Visual	Free from deformation and severe corrosion.
	<input type="radio"/>	Gears	Visual	Free from breakage, crack or severe wear.
	<input type="radio"/>	Load sheave and idle sheave	Visual	Free from breakage, crack or severe wear.
	<input type="radio"/>	Hand chain wheel	Visual	Free from breakage, crack or severe wear.
	<input type="radio"/>	Bearings	Function	Operates smoothly.
<input type="radio"/>	<input type="radio"/>	Chain stopper pin	Visual	Free from deformation or severe corrosion and properly installed.

BOLTS AND NUTS

<input type="radio"/>	<input type="radio"/>	Bolts,nuts,revets, split pins, snap rings	Check visually in daily check	Should not get loose or missing.
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BRAKE

	<input type="radio"/>	Wear of brake linings	By measurement	Free from severe wear. (based on the maker's instructions)
	<input type="radio"/>	Ratchet and ratchet wheel	Function	Movement of ratchet shall be smooth and functioning properly.

INSPECTION CERTIFICATE

The goods had passed rigid inspection by us ahead of delivery in
accordance with our standard in terms of test load and all other respects
in good and satisfactory condition.



ELEPHANT CHAIN BLOCK CO., LTD.

Osaka JAPAN

No.ET-4213-4
September 20, 2011