- **This manual should be surely handed over to the users.**
- **The users of the chain lever hoist should thoroughly read this manual.**

No.1

CHAIN LEVER HOIST

MODEL YA-80,YA-100,YA-160
YA-320,YA-630,YA-900

(ONE TOUCH FREE SPOOLING MECHANISM)

OPERATION MANUAL

- Thank you for your purchasing of our product (YA series).
- It is quite important that you carefully read this operation manual before using the chain lever hoist.
- This manual should be kept close to the chain lever hoist, as the maintenance and inspection works absolutely require it.
- Please consult distributors of our firm's products about the inspection requiring dismantling and assembling of the unit.

ELEPHANT CHAIN BLOCK CO., LTD.

Osaka, JAPAN

SAFE OPERATING PRACTICES

Improper operation of the chain lever hoist will possibly cause dangerous situation such as falling of lifted loads, electric shock and so on. Carefully read this manual for proper operation before setting-up, installation, operation, maintenance and inspection of the chain lever 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 into 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 " ⚠ " may bring a serious result depending on the situation. Strictly observe both the 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 of lifted loads" 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 the 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 labels.
- Never lift a load which exceeds the rated load.
- Do not stay under a suspended load. Do not operate the chain lever hoist when somebody stays in an area where a suspended load is moved. Do not move a load over persons.
- Do not use a chain lever hoist which was damaged or causes abnormal sound and/or vibration.
- Do not use a chain lever hoist with twisted, kinked, damaged, severely worn, deformed, or elongated load chains.
- Never manipulate the operation handle by connecting a pipe and the like to it or by foot.
- Never make modifications to the chain lever hoist and its accessories.

2. Installation and Setting-up

⚠ WARNING

- Inspection before operation and periodic inspection must be by all means carried out.
- The installation work should be performed only by the specialized contractors or experienced technicians.
- Make sure that a location on which the chain lever hoist is installed has a sufficient strength.
- Fix loads firmly on the bed of truck by the chain lever hoist and observe the relating laws and regulations in your country on driving along a load.

⚠ CAUTION

- The chain lever hoist should not be installed in places deviated from the provision where it is, for example, exposed to rain or water.

3. Operation and Handling

⚠ WARNING

- Do not get on a suspended load and do not use the chain lever hoist to lift, support or transport persons.
- Do not allow your attention to be diverted from operating the chain lever hoist.
- Do not use the chain lever hoist for the earth lifting (for example, lifting objects fixed under the ground).
- Turnover of a suspended load should be done only by the experienced operator.
- Make sure before operation that the lever properly functions. Do not operate the chain lever hoist when the lever is in disorder.
- Make sure before operating the chain lever hoist that the brake properly functions. Do not operate the chain lever hoist when the brake is in disorder.
- Do not make electric welding on a suspended load.
- Do not allow the load chain to be used as a ground for welding.
- Do not allow the load chain to be touched by a live welding electrode.

⚠CAUTION

- Do not use the chain lever hoist with a damaged safety latch of the hook.
- Do not use the chain lever hoist with name plates and labels attached to the body removed or left unclear.
- Operate the chain lever hoist only by means of a manual pulling force (of the operator).
- Do not throw away or drag the chain lever hoist.

- Stop lifting once when the load chain is properly tensed.
- In lifting a load with two chain lever hoists, select a chain lever 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 lever hoist is sufficient for the intended work.

4. Maintenance and Inspection

⚠ WARNING

- Never use parts other than genuine ones made by us.
- Never do shortening or lengthening of the load chain.

- Only specialists authorized by the employer may carry out the maintenance, inspection or repair.
- Carry out the maintenance, inspection or repair with the chain lever hoist unloaded (e.g. without loads).
- When any disorder is found in the maintenance or inspection, immediately make repair before re-operating the chain lever hoist.

⚠CAUTION

- Whenever carrying out the maintenance, inspection or repair, prepare a warning indication for “Under working” (“Under Inspection”, etc.).

Notice:

Inspections requiring dismantling and assembling of the unit should be carried out only by dealers of our products.

MOUNTING AND OPERATION

⚠WARNING

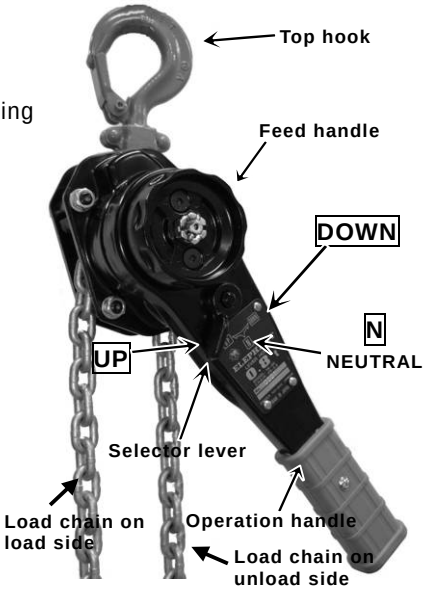
- The unit should be operated by persons only who have fully understood the manual and instructing labels on the unit.

FREE SPOOLING MANIPULATION

1. Adjustment of length of load chain

1.1 How to operate free spooling device

When you adjust the length of load chain, Manipulate free spooling device by following procedure and photographs.



1.2 Procedure for free spooling

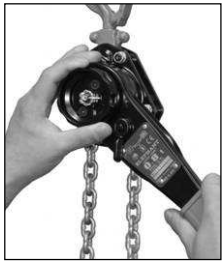
1) Set the selector lever to "N" position.

2) Turn the feed handle half-turn counterclockwise. Then, free spooling will be available automatically.

1.3 Procedure for release of free spooling

3) You can adjust the length of load chain by pulling it.

4) Set the selector lever to "UP" position.



5) Hold down the feed handle softly and manipulate the operation handle to pull the bottom hook.

- If the load chain is loose and lifting is impossible, manipulate the operation handle while gently holding it. The load chain will be tightened.

2. Making use of the one touch free spooling

- Set the selector lever to "N" position and pull the load chain to unloaded side

first slowly. Then, pull the load chain to loaded side slowly. Free spooling will be available automatically.

- Notice on adjusting the load chain length:
  a) Free spooling manipulation will be impossible when the unit is used in such a manner as the load chain is given impact.
  b) Free spooling manipulation will be also impossible when the brake is actuated.
  c) When the unit is in such states as above paras.a) and b), set the selector lever to the “DOWN” position and manipulate the operation handle and the free spooling after the brake is released.

2. Making use of the feed handle

To tighten the load chain which is a little loose, set the selector lever to the “UP” position to turn the feed handle clockwise. By this manipulation, the load chain will be quickly tensed.

CAUTION ON CO-HOISTING BY MORE THAN 2 SETS OF CHAIN LEVER HOISTS

⚠ CAUTION

- Co-hoisting by more than 2 sets of chain lever hoists may be very risky depending on installing and using them.
  ※Pay attention to balancing of a load as stated below;

- When a combination of 2 lever hoists with different capacities is used, make sure that the hoist with a smaller capacity is not severely loaded.
- When a load is lifted parallel by a number of chain lever hoists, make sure that the load is not unevenly carried by them.
- When a number of chain lever hoists are used in a lengthwise row, select hoists with an equal rated load.

※A combination of hoists with different capacities will be very risky when a hoist with bigger capacity is operated.

- Use wire ropes, clips, shackles, fitting pieces etc. which are sufficiently strong for slinging the top and bottom hooks of the chain lever hoist.
- When it is used as an additional hoist for a big crane, select a chain lever hoist with a bigger capacity than the actual load. Furthermore, do not operate the crane in a manner of so-called earth-lifting. Otherwise, the chain lever hoist will be damaged.
- When a number of chain lever hoists are used or one is used in combination with other machines, do not overload the chain lever hoist. Use the chain lever hoist in a well balanced condition, making sure the safety.

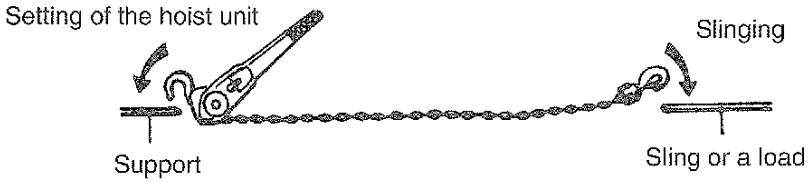
INSTALLATION

1. Installation of the hoist unit

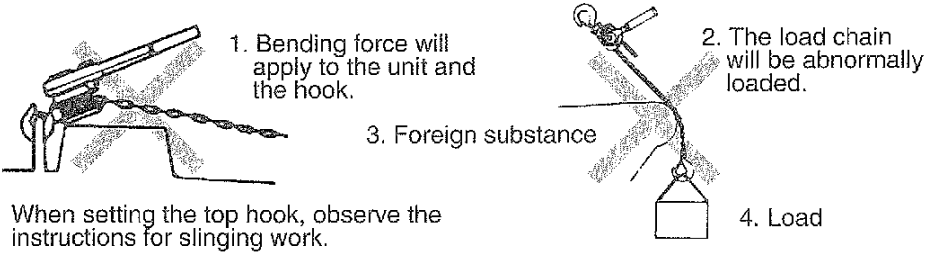
⚠WARNING

- The support structure on which the hoist unit is installed is to bear loads more than 4 times the rated load.

※It is very dangerous to use a support of which strength is not sufficient, as it may be damaged due to the load. In case that the chain lever hoist is used as an auxiliary device for a crane, its safety factor should be 5.



Make sure when setting the unit that a support can surely bear the load and set the unit such that the top and bottom hooks is in line with each other.

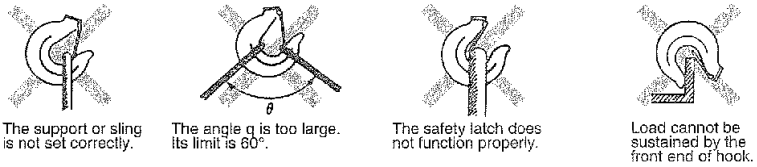


PROPER HANDLING AND CAUTIONS

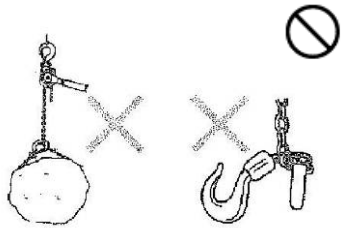
⚠WARNING

- Inspect all the tools to be used on the day before use. Wrong slinging may cause quite dangerous situations.

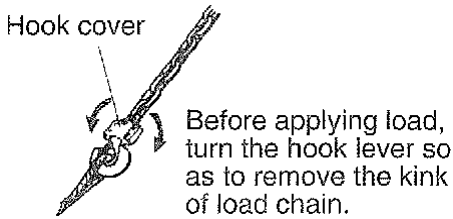
(1) Do not allow such slinging ways as shown below, which are very dangerous.



(2) Do not wind the load chain around the load.
※The strength of load chain and bottom hook may be reduced, causing danger.
Do not hook the load chain to the hooks or the like of vehicles; the chain strength may be reduced to 1/3 to 1/5.



(3) Before applying load in winding-up operation, remove the tension of load chain.



2. Lifting and lowering

To lift, set the selector lever to the UP position, and move the operation handle forward and backward so that the bottom hook will be lifted.

Checking the brake
In no-load state the winding-up is possible by turning the feed handle. If the load increases to such an extent that the feed handle can be hardly turned by hand, set the selector lever to the DOWN position after winding up by approx. 1/2 turn of the operation handle, and then turn the handle inversely by approx. 30°. Check that the brake operates properly. Ascertain that the load does not fall down even when your hand is released from the handle.

To lower the bottom hook, set the selector lever to the DOWN position, and move the operation handle forward and backward. If the handle can be hardly operated at first, jog the handle. After that, the handle operation will be easier.

⚠ CAUTION

- If load chain does not move when you lift up and down no load or light load by operating the handle, please operate it while pulling the load chain lightly on load side. It is not malfunction.

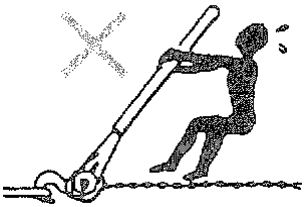
CAUTIONS DURING OPERATION

1. Dangerous operation

⚠WARNING

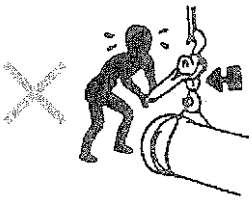
- Never apply a load beyond the rated load to the unit (over-loading).
- Do not perform over-lifting or over-lowering.
- Do not give a shock to the chain lever hoist.
- Do not get on a load to be lifted and do not allow anybody to stay under a load lifted.
- Do not use a chain lever hoist which is not in order.
- Do not use the chain lever hoist in incorrect manners as shown below, which are quite dangerous.

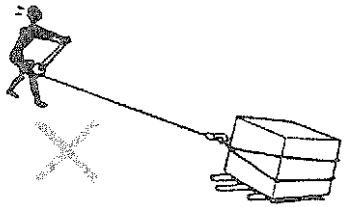
1) Never overload.



a) The load can be normally wound up or moved merely by operating the handle by one hand.
b) Do not attach a pipe or the like to the operation handle for lengthening it.
c) If excessive force is required to hoist or pull the load, stop the operation at once. The load may exceed the rated load, causing overload, or the unit is over-lifted or over-lowered.

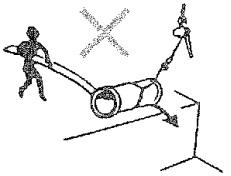
2) Avoid excessive lifting and lowering.





Winding-up the bottom hook beyond the limit is referred to as “over-lifting” and winding-down beyond the limit is “over-lowering”. These operations may damage the chain lever hoist. Do not attempt such operation in any circumstances.

3) Avoid shocks.

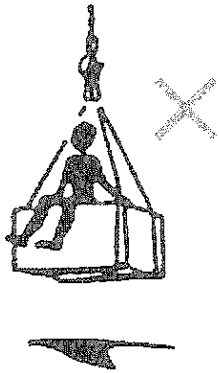


Do not allow the chain lever hoist to absorb any shock caused by dropping a load even when drop height is insignificant. If the shock is intensive, it may cause a serious danger even when the load is light.

4) Do not mount or stand under any lifted load.

5) The grip made from rubber may be pulled out.

The rubber may be deteriorated depending on conditions used and thus be easily pulled out of the handle.
Never suspend yourself from the handle, giving your full weight to the unit.



6) Others

- In no cases, use a defective chain lever hoist.
- Always handle the chain lever hoist with care.
  Never throw it down from any height.

MAINTENANCE AND INSPECTION

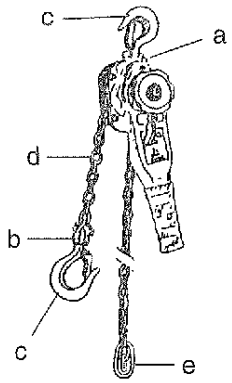
DAILY INSPECTION

- For daily operation, be sure to carry out the following checks prior to operation.
- When any abnormality is found, stop operating the chain lever hoist and take proper counter-measures in accordance with “the measures when abnormalities are found”.
- When a trouble cannot be solved, contact dealers of our products.

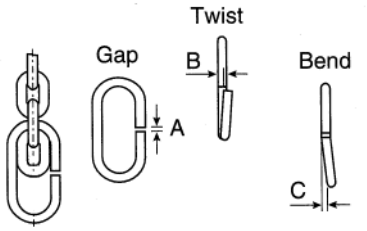
※Do not make continuous running under abnormal conditions, as it is very dangerous and may lead to a severe accident.

1. Check items

1) Visual appearance for any deformation of missing parts.
   a) The top hook attached to the main body must not be deformed.
   b) Bolt, nut, washer and split pin which fix the load chain
   to the hook assembly must be properly fitted.
   c) The top and bottom hooks must be normal in shape, and free of flaw with normal opening, and the safety latch must be normal.
   d) The load chain must be oiled and free of any remarkable flaw like damage, deformation or wear.
   e) The chain stopper should be fitted to the second link from the end of load chain not equipped with the bottom hook. Chain stopper should be in vertical direction against the face of sprocket.
   f) The chain stopper should not be deformed in excess of the limits shown in the sketch.



2) Check that the selector lever properly function, by actually moving it.
3) Check that the pawl normally rattles when the selector lever is set to the NEUTRAL position and the feed handle is turned in the clockwise direction.



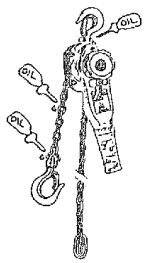
A = less than 2 mm
B = less than 1.5 mm
C = less than 2 mm

2. Measures when abnormalities are found

- In case those parts are simply missing and any dismantling work is not required, the unit can be operated again by mounting genuine parts on it. When the chain stopper is deformed or lubrication for the load chain is required, the unit can be also operated by exchanging the stopper with new one and by lubricating the load chain respectively.
  Make sure that the brake functions normally when the chain lever hoist is again used after the completed remedy.

STORAGE

Wipe mud and water off the surface of the unit after it is used, and apply oil to the load chain and the neck of hooks.



PERIODIC CHECKING

In case of troubles and/or any abnormality, stop operating the hoisting unit and consult a dealer of our products. It may happen that the load chain and the hooks fall in a dangerous state even if they show no remarkable changes in their function. It is therefore indispensable to make a periodic measuring check. The periodic inspection should be normally made once a month. Observe the following "INSPECTION AND LIMITATION FOR USE".

MAINTENANCE AND INSPECTION

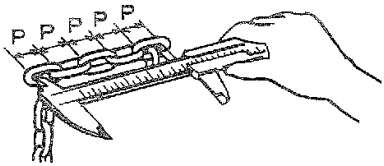
⚠WARNING

- Do not use parts and the chain lever hoist over the limit of use.
- In carrying out the daily and periodic inspections, if any wearing parts are found in excess of the standard limit of use, they should be replaced for sure.
- It is very dangerous to use parts over the standard limit of use.

1. INSPECTION OF LOAD CHAIN AND ITS LIFETIME

Check the load chain not partly but for the whole length in a careful manner.
For checking the elongation, measure the inner length of 5 links, that is, the sum of 5 pitches with a vernier caliper as the following sketch shows. It is normally sufficient to check the links in a distance of every 30 cm but check them by making the measuring distance shorter when the elongation of the chain is close to the limitation for use so that none of them should exceed the limitation for use.
Replace the load chain which is found to have one or several links of which wire diameter has been reduced to 95 % or less (the smallest value should be measured) of the initial wire diameter due to worn connecting portion of links or flaws replaced with new one.

- Welded portion of the chain link shows a flaw bigger than 0.5 mm in depth.
- The chain link has been deformed.
- The chain link has been exposed to a high temperature, as it shows, for example, welding spatters.
  Replace load chains which show any one of the 3 faults as mentioned above with new ones.



Rated load	Wire diameter (mm)		Pitch (P×5) (mm)	
	Standard value	Limit for use	Standard value	Limit for use
0.8t・1t	ϕ5.6	5.3	85.6	88.2
1.6t	ϕ7.1	6.7	105.7	108.9
3.2t・6.3t・9t	ϕ9.0	8.5	135.3	139.3

2. INSPECTION OF HOOK AND ITS LIFETIME

Please measure dimensions both A and B after purchasing and record them in the below table. Please check the dimensions by applying them as standard values.

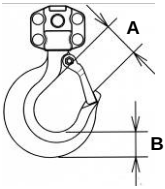
Standard value	Limit for use
A =	Transformation of 8% or more
B =	Wear-out of 5% or more

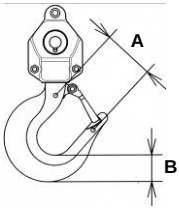
※5% or more only as for 9t

It is allowed to use the official standard values in the below table for checking. However, please note that hooks have a margin of error because they are forged by heat treatment.

Hooks showing either of following faults should be also replaced;

- It has a flaw of 1 mm or more in depth.
- It has a deformation such as bending and the like (to be visually noticed).





※only as for 9t

Rated load	Dimension A (mm)		Dimension B (mm)	
	Standard value	Limit for use	Standard value	Limit for use
0.8t	30～31	32.5	19	18.0
1t	36	38.9	22	20.9
1.6t	36～37	38.9	26	24.7
3.2t	44～45	47.6	35	33.2
6.3t	59	63.7	46	43.7
9t	126	132.3	62.5	59.3

CRITERIA FOR USING AND CHECKING CHAIN LEVER HOISTS

WARNING (1. Criteria for use)

The following shall be observed in using the chain lever

(1) The chain lever hoist should not be used to lift a load exceeding the rated load except for testing purpose.
(2) Do not use a load chain other than ones manufactured by us.
(3) Do not operate the chain lever hoist in such a manner as a sudden load is applied to it.
(4) Do not use the chain lever hoist of which range of lift is not sufficient for the work.
(5) Do not use hooks which are not equipped with a safety latch or of which latch has no safety effect.
(6) Do not use a load chain which is not equipped with a chain stopper.
(7) Do not wind the load chain directly around a load.
(8) Do not hang a load on the tip of the hook.
(9) Do not operate the operation handle by connecting it to a longer bar etc.
(10) Do not operate the operation handle by foot.
(11) Do not perform over-lifting and reversing.
(12) Do not walk below a suspended load.
(13) Never use the free spooling mechanism with a load suspended.
(14) Do not leave the chain lever hoist for many hours with a load suspended. If such a handling cannot be avoided, set the selector lever to the position of “UP” and fix the operation handle to the load chain bearing the load by means of a rope.

(15) Before operation, check the load chain for twisting or tangling. The chain lever hoist can be used only after such twisting and tangling is corrected.
(16) When the chain lever hoist is used in special conditions such as lower or higher temperatures, or corrosive atmosphere, etc., consult us before use.
(17) The chain lever hoist should not be modified by the users. If any modification is required, it should be done by us.

⚠ CAUTION (Criteria for use)

(18) Make a routine inspection ([1]) before use and carry out a periodic inspection ([2]) on occasion.
(19) Immediately stop operating the chain lever hoist when an abnormally big hand force is required.
(20) Do not drop the chain lever hoist from a higher place.
(21) Apply a lubricant to the load chain before use.
(22) Use the chain lever hoist, applying lubricants to its gears, bearings, and points which are liable to wear.
(23) The chain lever hoist should be applied with antirust to be kept unused for a long period.
(24) Consult us whenever any special usage of the chain lever hoist is required.

Notes;
([1]) It means an inspection before use.
([2]) It means a regular inspection to be carried out every 6 months or one year depending on the working frequency.

2. Criteria for check

(1) Refer to Table 1 ([3]) which gives check items, check methods and check criteria to be applied in the daily check. However, items other than those specified should be also checked, when the chain lever hoist is frequently used, or in special cases.
(2) The periodic inspection should be made in accordance with the table 1 ([3])
(3) When the chain lever hoist is repaired, check it on periodic check items given in Table 1 ([3]) after its repair, and make sure that it works in a normal state.
(4) Use genuine spare parts only made by us.

TABLE 1 CRITERIA FOR CHECK

Type of check		Check items	Check method	⚠ **WARNING! Check criteria** (Devices and parts out of the following criteria should be replaced or scrapped as waste.)
Daily check	Periodic check			

MARKING AND THE LIKE

○	○	Marking (nameplate)	Visual	Presence of marking(nameplate), Exchange it with a new one if unreadable
—	○	Grade of the Load chain	Visual	Check for the grade of the load chain

FUNCTION

○	○	Lifting and lowering function	Lifting and lowering without a load	(1) Smooth ratchet sound must be heard in lifting (2) Lifting and lowering function can be smoothly carried out (3) The brake shows no abnormality in lowering
—	○	Function ([4])	Test for rated load and 30 cm distance	(1) The operation handle functions smoothly (2) The load sheave and the load chain or the idle wheel are well engaged respectively (3) The brake functions properly. (4) The load chain shows no twisting or tangling in lifting and lowering operations (5) The hand (operation) force should not extraordinarily change
○	○	Change device for lifting and lowering operations	Operation	The change device should be smoothly operated
○	○	One touch free Spooling mechanism	Operation	The one touch free spooling mechanism should be smoothly operated

HOOK

○	○	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 (A list of major dimensions of hooks should be prepared before their use.)
○	○	Deformation	Visual	Free from bend and distortion
○	○	Deformation of shank	Check visually in daily check and by measurement in periodic check.	There should be no big clearance between hook fitting and shank
○	○	Wear and corrosion	Check visually in daily check and by measurement in periodic check.	Free from severe wear and corrosion
○	○	Flaws and other harmful defects	Visual ([5])	Free from cracks and other harmful defects
○	○	Latch	Visual Function	Free from severe wear or deformation and operates properly

LOAD CHAIN

○	○	Pitch elongation	Check visually in daily check and by measurement in periodic check.	Don't use load chains with pitch elongation of 5% minimum. (Prepare a list of standard dimensions before use.)
○	○	Wear	Check visually in daily check and by measurement in periodic check.	Don't use load chains which are worn in diameter by 10% or more. (Refer to "GUIDE FOR LOAD CHAIN REPLACEMENT")
○	○	Deformation	Visual	Free from deformation
○	○	Flaws and other harmful defects	Visual ([5])	Free from cracks and other harmful defects
○	○	Corrosion	Visual	Free from serious rust

BODY

○	○	Frame	Visual	Free from deformation and severe corrosion
○	○	Gear case	Visual	Free from severe deformation and corrosion
—	○	Gears	After dismantling check them visually or by Measurement.	(1) Free from severe wear (2) Free from breakage
—	○	Flaws and other harmful defects	After dismantling check them visually or by Measurement	(1) Free from severe wear and deformation (2) Free from cracks and breakage
—	○	Corrosion	Visually After dismantling or by Measurement	(1) Free from severe wear and deformation (2) Free from flaws and breakage
—	○	Bearings	Visually or by Measurement	Free from harmful defects such as wear, cracks, breakage, etc.
○	○	Chain stopper	After dismantling check them visually	(1) Presence of the clamp (2) Free from deformation

BOLT AND NUTS

○	○	Bolts, nuts, rivets, split pins, snap rings, etc. at all the components	Visual	(1) In daily check, the presence of nuts, rivets, split pins, etc. which can be seen from outside should be checked, and nuts, rivets, snap rings, etc. should not get loose. (2) In periodic check, abnormality of the said parts should be checked internally and externally.

BRAKE

—	○	Wear of brake linings	By measurement	Free from severe wear (based on the maker's instructions)
—	○	Brake screws	Visually or by measurement	Free from severe wear
—	○	Ratchet and ratchet wheel	Visually or by measurement	Free from severe wear

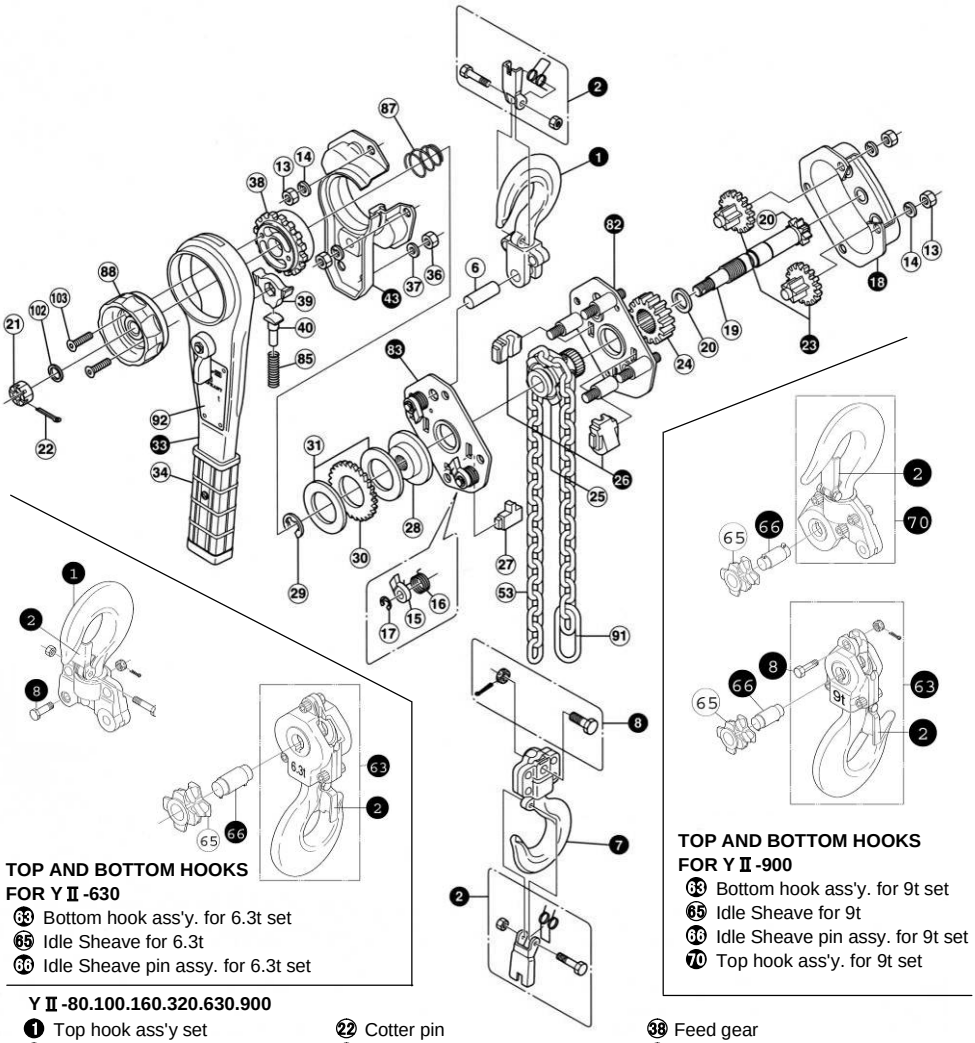
Note:

([3]) Inspect the items with o-mark in Table 1.

([4]) Inspect the function again after dismantling and assembling.

([5]) In periodic check, the magnetic particle test or the liquid penetrant test should be carried out when necessary.

DETAIL DRAWING : YA-80.100.160.320.630.900



YⅡ-80.100.160.320.630.900

❶ Top hook ass'y set
❷ Safety latch set
⑥ Top hook pin
❼ Bottom hook ass'y set
❽ Chain stop bolt set
⑬ Hex. nut
⑭ Spring washer
⑮ Pawl
⑯ Pawl spring
⑰ E-ring for pawl
⑱ Gear cover ass'y set
⑲ Pinion shaft
⑳ Washer for pinion shaft
㉑ Hex. castle nut
㉒ Cotter pin
㉓ 2nd and 3rd gear ass'y set
㉔ Load gear
㉕ Load sheave
㉖ Chain guide ass'y set
㉗ Chain stripper
㉘ Disc hub
㉙ E-ring for disc hub
㉚ Ratchet wheel
㉛ Brake lining
㉝ Lever ass'y set
㉞ Lever grip set
㊱ Hex. nut
㊲ Spring washer
㊳ Feed gear
㊴ Ratchet for feed gear
㊵ Ratchet spring pin
㊸ Lever cover set
㊸ Load chain set
㊷ Gear-side plate ass'y set
㊸ Lever-side plate ass'y set
㊺ Ratchet spring
㊼ Spring for floating mechanism
㊽ Feed handle
㊶ Chain stopper
㊷ Name plate
㊷ Check Washer
㊸ Countersunk bolt

EC declaration of conformity

in compliance with the EC Machinery Directive 98/37/EC, Annex ⅡA (2006/42/EC)

We hereby confirm that due to its design and construction and in the type marketed by us the machine designated below conforms with the pertinent essential safety and health requirements of the relevant EC Directive.

In case of a modification of the machine which is not agreed with us, this declaration is no longer valid.

Designation of the machine : manual chain lever hoist

Types : YA-80
YA-100
YA-160
YA-320
YA-630
YA-900

Pertinent EC Directives : EC Machinery Directive (98/37/EC)
(2006/42/EC)

User harmonized standards, especially : EN 13157, JIS B8819, JIS B8812
ISO 9001-2000 (Certificate Number JQA-1547)

Date/signature of manufacturer : 8.25.2009

Information on the signer : H. Doi

(H.DOI)
Quality Assurance Division

The goods has 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.

Inspector H. Doi

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