

HANDLING and MAINTENANCE INSTRUCTIONS

for

SINGLE PHASE ELECTRIC CHAIN HOIST (EF 2 SERIES)

approved by CSA

IMPORTANT

When assembling a hoist with trolley, follow each assembling method of the manual which was shipped with the product.

C O N T E N T S

Please read thoroughly this manual before use.

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Pre-operational cares and checks

1. Lubricating the gear case

The gear case contains oil at time of delivery. In replacing oil, untighten the draining oil plug, remove the oil and pour the specific amount of the new oil into the case, and reinstall the plug. (Table 1)

Table 1. Amount of Gear Oil

Cap (kg)	Amount of Oil (ℓ)
125-S	0.6
250-L	
250-S	
500-L	
500-S	
1000-L	

Standard gear oil : Bonnoc 260
made by Nippon Oil Co., Ltd.

Recommended gear oil : MEROPA
No.320 made by TEXACO oil Co.,

2. Install a chain container to hoist body.

A special canvas chain container is available as an option. When the chain container is used, install it to the hoist body as shown in Fig. 1. Every chain container is indicated with the load chain capacity it can contain. Should a smaller capacity chain container be used, all of the required length of chain can not be collected in it. This is undesirable. Check the length of load chain and select a proper capacity chain container.

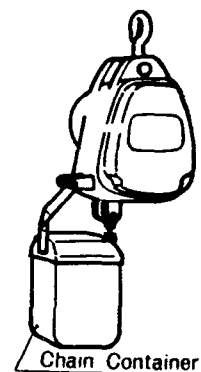


Fig. 1.

3. When a chain container is not used

Mount a stopper at the ninth link from the end of load chain as shown in Fig. 2, and connect the end of the load chain to the hoist body without twist in the load chain.

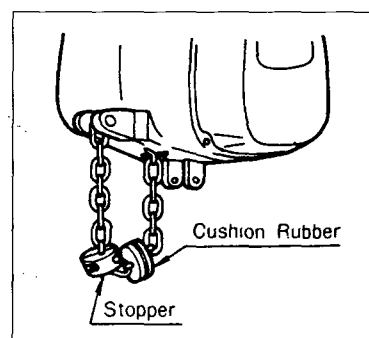


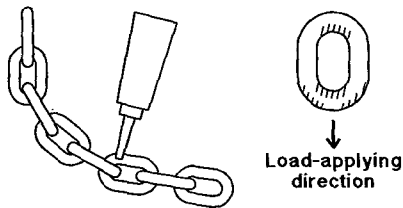
Fig. 2

4. Lubricating The Load Chain

Chain lubrication is a critical factor in the service life of a load chain. KITO's specified chain lubricant or equivalents to industrial general lithium grease (NLGI No.0), can provide a longer service life. Use of machine oil or gear oil requires regularly application.

Lubrication Procedures

- Vertically suspend the chain under no load conditions.
- Remove dust or water drops from the chain.
- Apply lubricant around the sections where the chain links come into contact with each other and the load sheave or idle sheave as shown in the following figures.



- After the chain lubrication is done, lift and lower without any load to spread the lubricant thoroughly.

Please consult with KITO Corporation if any of lubricants are not allowed at your site.

5. Prevent capsizing in load chain

If your hoist is any of 250-L, 500-L, 1000-L and 2000-L capacities, the bottom hook is suspended by a two fold load chain. Check to see if the bottom hook is not capsized, giving a twist in the load chain as shown in Fig. 3. If the load chain is capsized, restore it to normal. Never try to suspend a load onto the twisted chain. If the load chain is not twisted, the welded part of the chain are in alignment (Fig. 3).

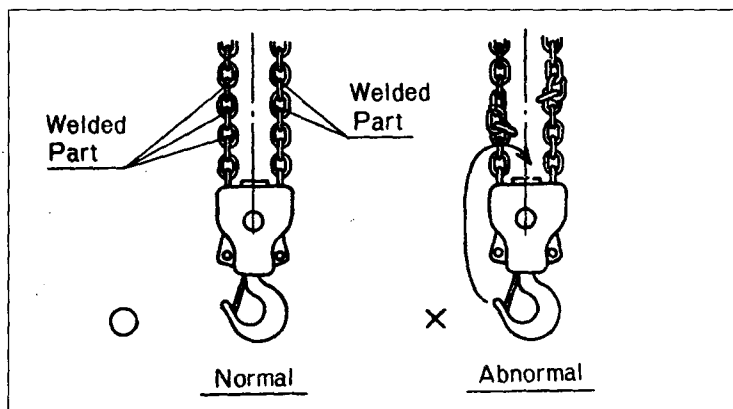
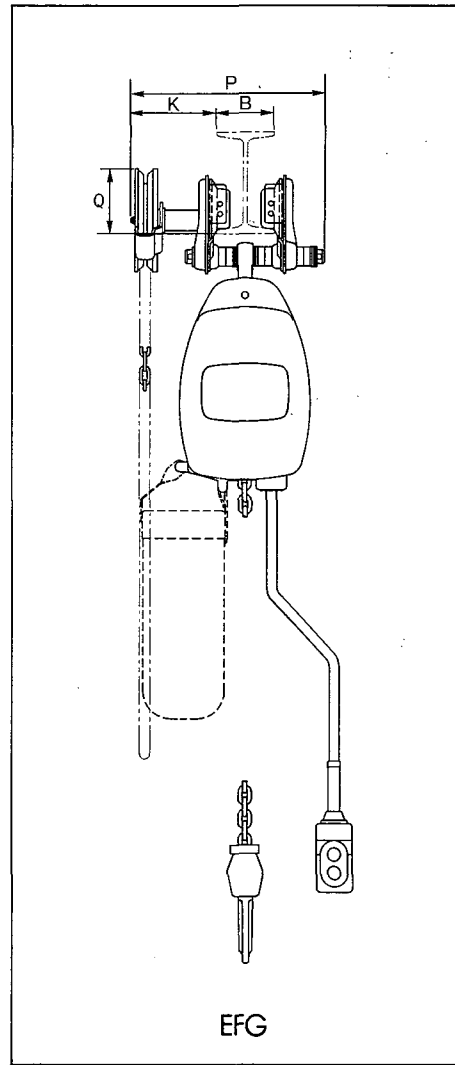
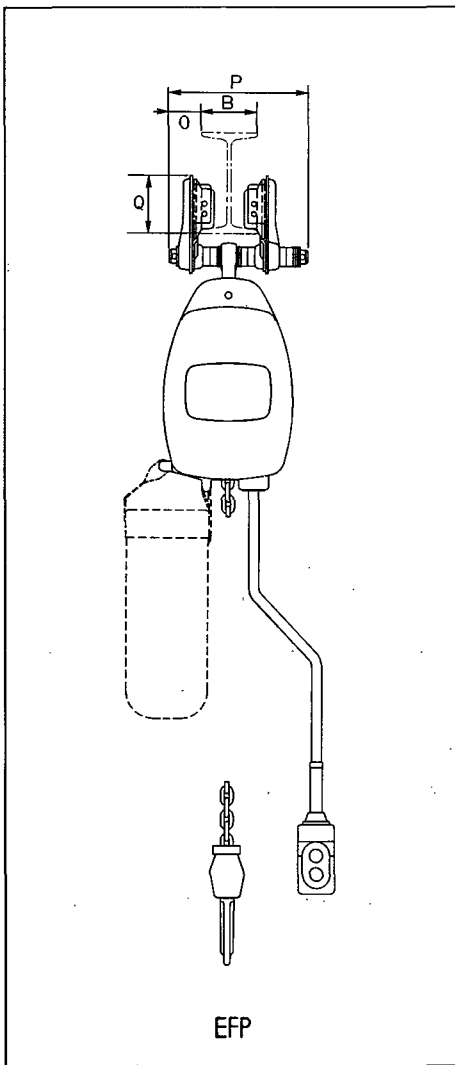


Fig. 3

6. Check combination of trolley and hoist

When all the mounting work is over, check the following.

- 1) Make sure that the relation of the position of the trolley to that of the electric hoist is proper. (Refer to figure)
- 2) Make sure that the stopper for prevention of the derailing of the trolley is surely fixed on the beam.
- 3) Make sure that all the bolts, nuts and split pins are where they should be and are surely tightened.



7. Electrical power supply

7-1 Installation of power supply cable (PT and GT type)

- (1) Provide a messenger wire (3-6mm dia. wire) along the beam and hang the power supply cable without twisting it through the cable hangers.
- (2) Install the messenger wire as shown in Fig. 7. For PT and GT types, the wire should be located on the right side of the cable hanger arm of the hoist.

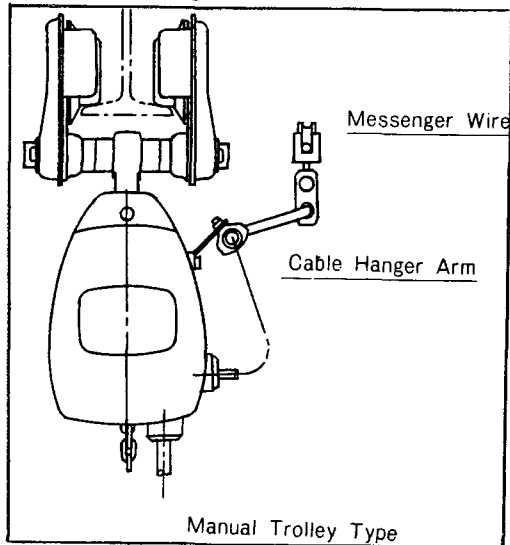


Fig. 7

- * When the beam has a curve, messenger wire at the curve can not be installed. A special T type cable hanger for the curved beam section is available upon request. Consult your local dealer for proper number of hangers and spacing between them as they differ depending on the location and radius of the curve in the beam.
- * Also consult your local dealer in case the electrical power supply is by means of other ways.

7-2 Electrical wiring

Kito single phase hoist can be used on single phase electric power source. Compared with conventional home electrical equipment, a big capacity's motor is used on the hoist. Consult your local electrical workers for proper wiring of the single phase hoist.

(1) Connection

Connection WHITE and BLACK lead wires of the power supply cable to the switch in the main switch box. Cables must be securely connected for safety operations.

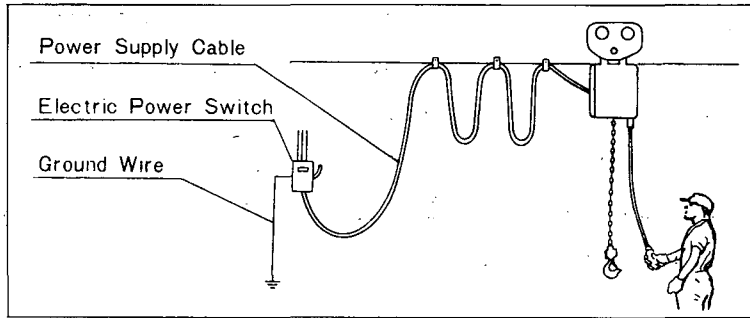


Fig. 8

(2) Ground wiring

The GREEN wire is the ground wire, which should be always connected to a suitable ground. Unless the wire is grounded, operators may sometimes feel a shock when touching any part of the hoist or chain.

* Do not paint the trolley running surface of the beam when electrical grounding work is not provided on the copper conductor.

8. Notes on trial operation

After initial installation of the hoist and before each day's use, perform trial operation to make sure that the hoist functions satisfactorily.

Check of voltage

Check supply voltage before every day use. Should the voltage be not within plus or minus 10% of the rated voltage electrical devices may not function properly.

Check of control button

Make sure that depression of ⬆ button lifts the load chain and depression of ⬇ button lowers the chain.

Tips for Safe Operation

1. Friction clutch

The KITO FALCON electric chain hoist is equipped with a built-in friction clutch as the overwinding protection device. This clutch eliminates complex electrical circuitry unless otherwise necessary and its simple construction reduces troubles to minimum if such happens.

However, overloading or other improper use of clutch may result in poor hoisting and retaining of the load.

1-1 Do not overload the hoist

When the hoist is overloaded in excess of the torque, the friction clutch provided slips to allow the motor by itself run free to protect the other parts. However, if the hoist is overloaded close to the slip torque and if the load is forcibly lifted with the clutch slipping, the load, once lifted, may fall. This kind of use is dangerous and must be prohibited.

The friction clutch is not an overload protection device. Always make sure before lifting that the load to be lifted is within the capacity of the hoist.

1-2 Do not overwind

When the cushion rubber hits the chain guide and when the chain is overlifted or overlowered, the friction clutch slips to make the

motor run free. However, do not use this safety device as a means to stop the hoisting.

1-3 Do not re-adjust the setting of friction clutch

The clutch sets already to function satisfactorily before the delivery from factory: therefore, do not attempt to re-adjust the clutch setting at your end.

2. Hang precisely any loads on the hook.

As shown in the Figure 9, sling precisely. As shown in the Figure 10, if you sling any load forcibly or bind directly the load to the hook, slings may be slipped off or the hook will be deformed, which are causes of accidents. As for slings, it is recommended to use safe and effective sling.

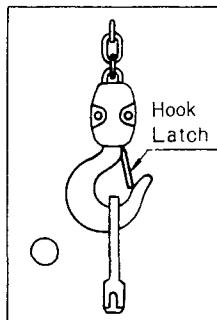


Fig. 9

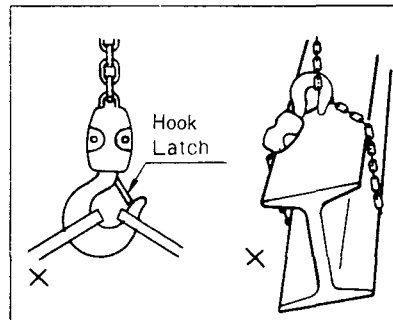


Fig. 10

3. Safety latch

A hook latch is provided on a bottom hook to avoid a sling from slipping off the hook. Make sure before hoisting if the hook latch is correctly positioned as shown in Fig. 9.

4. Do not hoist a load with multiples of hoists.

This is dangerous. Never hoist a load with two or more hoists. If such is unavoidable, distribute the load evenly to each hoist used and do not overload any hoists.

5. Always confirm before Lifting a load that every chain fall of a double-fall-hoist can share evenly the load.

6. Always hoist load at its center of gravity.

Always hoist load at its center of gravity. If not, unbalanced load may not only slip off from the hook, but also, in case of trolley type, cocked trolley may force the beam to swing sideways.

7. Do not reverse direction of motor rotation quickly.

Always make a complete stop of the motor when you move from one operation (eg. lifting) to the next (eg. lowering). Quick reversal direction of motor rotation may cause failure or shorten the motor life.

8. Do not bump trolley against beam stopper.

A stopper is generally provided at each end of the beam to prevent the trolley run off the beam. Bumping into it may damage the trolley itself or hoist mechanism. Care must be also exercised when work is done near the stopper.

9. Do not pull push button control cord.

Do not attempt to move the trolley by pulling the push button control cord. Electrical trouble may result.

10. Cautions when welding work is done.

When welding work is done, keep the load chain and the hook away from the grounding wire of the electric welder.

11. Do not allow load to hit chain container.

When the load is slung directly by the bottom hook without use of sling chain or other devices and lifted to the full height, the load may hit and push up the chain container. This may prevent the container to house all necessary length of the load chain in it. This is dangerous. Whenever the bottom hook directly slings the load, care must be exercised so as not to allow the load to hit the container.

12. Check capsize in load chain and correct positioning of chain.

1. Capsize in the load chain must be avoided at any time. Particularly capsize in load chains of double-falls type (250-L, 500-L, 1000-L, and 2000-L types) is dangerous. Correct the capsize in accordance with Fig. 3 in page 2.

2. The correct load chain set up is that the weld of each link face outward as shown in Fig. 11. When you replace a load chain, set it up correctly with respect to the welds.

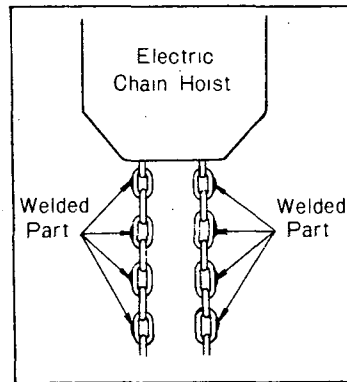




Fig. 11

12. Precautions concerning wiring work

In case cover is removed for wiring work, do not touch energized parts with hand, as condensers are charged if energized once even after current supply is cut.

After cutting power supply, never fail to press either of the push button   to discharge the condensers.

Care and maintenance

1. Inspection and exchange of oil, grease

1-1 Gearbox

The oil in the gearbox can be used semi-permanently if the hoist is used at a normal frequency. However, in case it is used at a high frequency, exchange oil for new oil, depending on the deterioration of the oil in the gearbox.

Use gear oil designated by KITO.

Similar oil; Meropa Lubricant No.320 made by Texaco Oil Co. or Caltex Oil Co.

1-2 Drive units of trolley

The following parts of motorized trolleys and geared trolleys should be oiled from time to time.

* Tooth part of pinion and wheel grease

2. Load chain lubrication

Clean and lubricate the load chain to assure longer service life and safe operation of the chain.

For further information, refer to '4. Lubricating the load chain' on Page 2.

3. Storage

1) Do not expose the hoist to rain or dew.

Do not store it in a humid place.

2) When the hoist is installed outdoors cover it or move it back under the roof after use.

3) To store the hook suspension type, hook it on the wall or hang it from the ceiling.

Trouble Shooting

Trouble	Cause	Remedy	Remarks
	Broken fuse	Replace fuse of same rating.	Do not use copper wire as substitute. Do not use fuse of larger rating.
Won't move.	Broken condensor	Replace new ones	Replacing should be made as 1 pair of complete set.
Won't lift.	Voltage drop	Check the voltage with a voltohmmeter and check wiring.	Interrupt the operation
	Discontinuity in power supply cable Discontinuity in push button control cord	Check discontinuity in the cable where cable is subject to frequent bending, and repair cable and cord.	Immediately the motor hums but does not rotate.
	Overload	Check the weight of the load	
	Slipping due to poor friction clutch performance	Replace with Kito-adjusted friction clutch.	

Trouble	Cause	Remedy	Remarks
Brake slips	Worn brake shoe	Check the brake shoe and replace it as needed.	
Snapping sound is heard.	Worn load chain Rusted load chain	Check and replace the load chain as needed.	
Electrical leak	Poor grounding works	Provide correct grounding	Leak at places other than the electric chain hoist may sometimes be responsible.
	Foreign matters or moisture depositing on electrical parts.	Remove foreign matters from or dry the electrical parts.	
Oil leak	Oil plug missing	Install the regular oil plug.	If oil leak occurs at places other than oil plug, disassemble and check thoroughly for the cause and repair.
	Loose oil plug	Tighten the plug.	
	Oil plug packing missing	Use new packing.	



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