OM-ED3ZZZ-MGE-04

OWNER'S (OPERATOR'S) MANUAL AND SAFETY INSTRUCTIONS FOR ED SERIES ELECTRIC CHAIN HOIST (MODEL EDIII)

BEFORE USING THIS PRODUCT:

ALWAYS SAVE THIS BOOK FOR FUTURE REFERENCE

ALWAYS READ OWNER'S (OPERATOR'S) MANUAL AND SAFETY INSTRUCTIONS

⚠ WARNING **: IMPROPER electric chain hoist use could result in death or serious injury. To avoid these hazards:**

: NEVER hoist loads over or near people.
: NEVER work under or near hoisted loads.

: ALWAYS operate, inspect, and maintain this hoist in accordance with applicable safety codes and regulations.

These safety instructions contain important information to help you use the chain hoist in a safe manner. Please refer to this Owner's (Operator's) Manual for additional safety information.

KITO

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DEFINITIONS

⚠ DANGER : **indicates an imminently hazardous situation which, if not avoided, WILL result in death or serious injury.**

⚠ WARNING : **indicates a potentially hazardous situation which, if not avoided, COULD result in death or serious injury.**

⚠ CAUTION : **indicates a potentially hazardous situation and/or unsafe practice which, if not avoided, MAY result in MINOR or MODERATE injury and/or property damage.**

1. BEFORE USE

1-1. Safety Summary

Danger exists when heavy loads are transported, particularly when the equipment is not being used properly or is poorly maintained. Because accidents and serious injury could result, special safety precautions apply to the operation, maintenance and inspection of the Electric Chain Hoist.

Following these simple rules can help to avoid hoisting accidents;

⚠ WARNING : **IMPROPER electric chain hoist use could result in death or serious injury. To avoid these hazards:**

NEVER use a hoist for lifting, supporting or transporting people.

NEVER lift or transport loads over or near people.

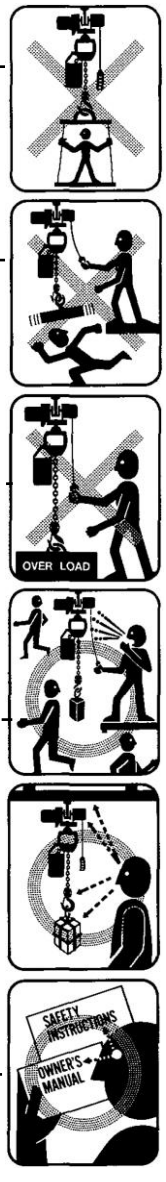
NEVER work near or under hoisted loads.

NEVER lift more than rated load.

ALWAYS let people around you know when a lift is about to begin.

ALWAYS make sure that the supporting structures and load-attaching device are strong enough to hold the weight of the load and hoist.

ALWAYS read the Owner's (Operator's) Manual and safety instructions.



Remember, proper rigging and lifting techniques are the responsibility of the operator. Be sure you read and understand the instructions contained in this manual before using your hoist. Check all applicable safety codes, regulations and other applicable laws for further information about the safe use of your hoist.

More detailed safety information is contained in the following pages. For additional information, please contact KITO Corporation or your authorized KITO dealer.

1-2. Safety Instructions

Serious injury could result if the following safety instructions are not followed.

⚠ WARNING : IMPROPER electric chain hoist use could result in death or serious injury.
To avoid these hazards:

"ALWAYSs"

ALWAYS allow only qualified (trained in safety and operation) people to operate the hoist.

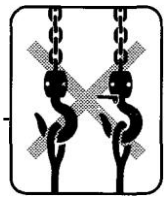
ALWAYS operate a hoist only if you are physically fit.

ALWAYS check the hoist before daily use according to the Recommended Daily Inspection (Refer to Sec. 5).

ALWAYS let the authorized personnel inspect the hoist periodically (Refer to Sec. 5).

ALWAYS make sure that the chain length is long enough for the intended job.

ALWAYS check that the hook latches are in proper working order before use (Refer to Sec. 5-6).



ALWAYS replace all missing and broken hook latches.

ALWAYS be sure that the hoist's rated capacity, which is found on the hoist's label, is well in excess of the weight of the load.

ALWAYS make sure that you and others are clear of the load before lifting begins.

ALWAYS be sure that the load is properly seated in the saddle of the hook.

ALWAYS keep the load from hitting the chain.

ALWAYS use two hoists which each has rated capacities equal to or more than the load to be lifted whenever you must use two hoists to lift a load. This will provide adequate protection in the event that a sudden load shift or failure of one hoist occurs.

ALWAYS check the brake before use (Refer to Sec. 5-6)

ALWAYS check for loose or missing parts before use.

ALWAYS lubricate the hoist regularly (Refer to Sec. 6).

ALWAYS use the specified gear oil.

ALWAYS pay attention to the load at all times when operating the hoist.

ALWAYS ease the slack out of the chain and sling when starting a lift to prevent a sudden loading.

ALWAYS use a hoist only between the allowable ambient temperature from -20°C (-4°F) and to + 40°C (+104°F).

ALWAYS secure a hoist and loads properly after use.

ALWAYS consult the manufacturer or your dealer if you plan to use a hoist in a dusty, moist or greasy environment.

ALWAYS consult the manufacturer or your dealer if you plan to use a hoist in an excessively corrosive environment. (Saltwater, sea air and/or acid or other corrosive compounds)

ALWAYS make sure that all persons stay clear of the suspended load.

ALWAYS maintain firm footing when operating hoist.

ALWAYS avoid unnecessary inching of hoist control.

ALWAYS make the hoist motor completely stop before reversing.

ALWAYS ground the electric chain hoist before using.

ALWAYS use a hoist within the rating of the electrical motor.

ALWAYS be familiar with hoist operating controls, procedures and warnings.

ALWAYS make sure the brake functions properly before use.

ALWAYS use the hoist manufacture’s recommended parts when repairing a hoist.

ALWAYS use the end of the trolley side frames to contact the rail-stops.

ALWAYS shut power off from its source and lock out before servicing is performed.

⚠ WARNING : IMPROPER electric chain hoist use could result in death or serious injury. To avoid these hazards:

"NEVERs"

NEVER use the hoist to transport people.

NEVER lift a load over people.

NEVER work near or under hoisted loads.

NEVER operate a hoist if damaged or malfunctioning.

NEVER use a hoist which has been taken out of service until the hoist has been properly repaired or replaced.

NEVER use a hoist if the hook latch is missing or broken.

NEVER operate unless the load is centered under the hoist.

NEVER splice a hoist chain.

NEVER use the hoist chain as a sling.

NEVER force a chain or hook into place by hammering.

NEVER jerk a load to prevent a sudden loading.

NEVER use a twisted, kinked, damaged or stretched load chain.

NEVER swing a suspended load.

NEVER support a load on the tip of the hook.

NEVER suspend a load for an extended period of time.

NEVER leave a suspended load unattended.

NEVER run the load chain over a sharp edge.

NEVER weld or cut a load suspended by a hoist.

NEVER use the hoist chain as a welding electrode.

NEVER wind so far that the hook touches the hoist body.

NEVER unwind so far that no unloaded chain is left.

NEVER operate a hoist if chain jumping, excessive noise, jamming, overloading or binding occurs.

NEVER allow your attention to be diverted from operating the hoist.

NEVER dropping or releasing a load could result in death or serious injury. To avoid this hazard, do not operate the bottom hook release mechanism (hook cam) when the hoist with cylinder-controlled or optional detachable hook is under load.

NEVER use a hoist in flammable atmosphere where explosion is possible.

NEVER use the limit switch or friction clutch on a regular basis. These devices are for emergency use only.

NEVER adjust or repair a hoist unless qualified people to perform hoist maintenance.

NEVER use the rail-stops to exert impact force on the hoist or the trolley.

NEVER use a hoist without a chain stopper at the end of no-loaded side chain.

NEVER attempt to lengthen the load chain or repair damaged load chain.

NEVER adjust or repair the mechanical brake with friction clutch unless qualified people to perform hoist maintenance.

NEVER pull the push button cord.

NEVER use a hoist beyond 10% higher than the actual power source voltage. (Refer to Sec. 3-2, (5))

NEVER throw a hoist.

NEVER use a hoist without a name plate or warning labels or with illegible name plate or labels.

NEVER remove or obscure the waning tags.

NEVER use modified or deformed hooks.

NEVER use the hoist near fire or where hot objects may touch it.

NEVER touch live electrical parts.

NEVER use the electric chain hoist without grounding it.

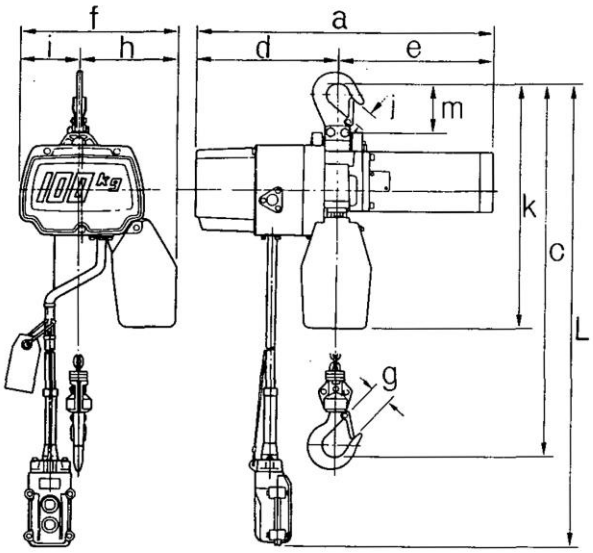
NEVER ground the electric chain hoist to a gas pipe as this can create the possibility of explosion.

NEVER handle the arm-fitting during the hoist operation.

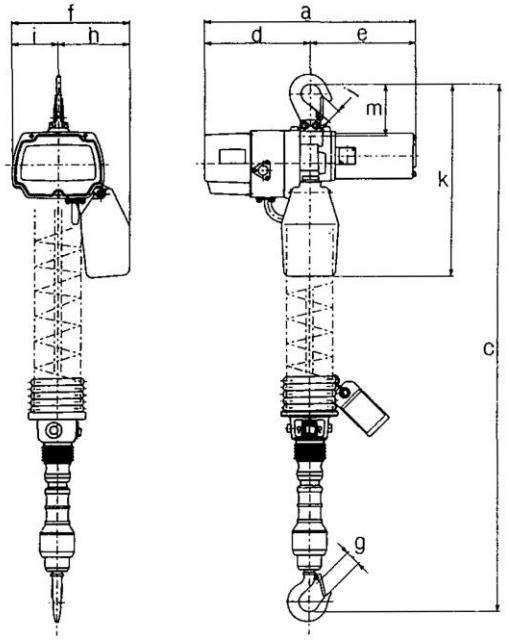
NEVER throw or drop the hoist when carrying it.

WARNING TAGS are installed on a cord.

2. MAIN SPECIFICATIONS



Single-speed type
Dual speed-type



Dual-speed cylinder type

Specifications and dimensions of AC120V type

Rated Power Source			AC120V Single Phase, 50/60Hz																	
Type			Single-Speed Type						Dual-Speed Type						Dual-Speed Cylinder Type				
Model			ED06S	ED10S	ED18S	ED16S	ED24S	ED48S	ED06ST	ED10ST	ED18ST	ED16ST	ED24ST	ED48ST	EDC06SD	EDC10SD	EDC18SD	EDC16SD	EDC24SD
Rated load		(kg)	60	100	180	160	240	480	60	100	180	160	240	480	60	100	180	160	240
Motor output		(W)	300			600			300			600			300			600	
Time rating		(min)	15		10	20		15	15		10	20		15	15		10	20	
Intermittent duty	Duty rating	(%ED)	30		20	30			30		20	30			30		20	30	
	Max. starting frequency	(times/h)	180		120	180			180		120	180			180		120	180	
Rated current		(A)	5		6	10			5		6	10			5		6	10	
Lifting speed		(m/min)	21	13	8	20	13.5	6.7	High speed: 21 Low speed: 4	High speed: 13 Low speed: 3	High speed: 8 Low speed: 3	High speed: 20 Low speed: 4	High speed: 13.5 Low speed: 3	High speed: 6.7 Low speed: 2	High speed: 21 Low speed: 4	High speed: 13 Low speed: 3	High speed: 8 Low speed: 3	High speed: 20 Low speed: 4	High speed: 13.5 Low speed: 3
Standard lift		(m)	3						3						1.8				
Push-button cord length: L		(m)	2.5						2.5						–				
Load chain diameter		(mm)	4						4						4				
Net weight		(kg)	11.5 (12.0)*1			15.5 (16.0)*1		21 (21.5)*1	12.0 (12.5)*1			16.0 (16.5)*1		21 (21.5)*1	14.5 (15.0)*1			18.5 (19.0)*1	
Min. headroom: C		(mm)	315			330		520	315			330		520	945			960	
Dimensions (mm)	a		371			428		428	371			428		428	371			428	
	d		187			205		205	187			205		205	187			205	
	e		184			223		223	184			223		223	184			223	
	f		205			219		229	205			219		229	205			219	
	h		125			135		155	125			135		155	125			135	
	i		80			84		74	80			84		74	80			84	
	g		25					24	25					24	25				
	j		25					24	25					24	25				
	k		340			362		454	340			362		454	340			362	
	m		92					149	92					149	92				

*1: these net weight at control voltage of 27V

Specifications and dimensions of AC240V type

Rated Power Source		AC240V Single Phase, 50/60Hz																
Type		Single-Speed Type						Dual-Speed Type						Dual-Speed Cylinder Type				
Model		ED06S	ED10S	ED18S	ED16S	ED24S	ED48S	ED06ST	ED10ST	ED18ST	ED16ST	ED24ST	ED48ST	EDC06SD	EDC10SD	EDC18SD	EDC16SD	EDC24SD
Rated load	(kg)	60	100	180	160	240	480	60	100	180	160	240	480	60	100	180	160	240
Motor output	(W)	300			600			300			600			300			600	
Time rating	(min)	20		15	20		20	20		15	20		20	20		15	20	
Intermittent duty	Duty rating (%ED)	30		20	30			30		20	30			30		20	30	
	Max. starting frequency (times/h)	180		120	180			180		120	180			180		120	180	
Rated current	(A)	3			5			3			5			3			5	
Lifting speed	(m/min)	21	13	8	20	13.5	6.7	High speed: 21 Low speed: 4	High speed: 13 Low speed: 3	High speed: 8 Low speed: 3	High speed: 20 Low speed: 4	High speed: 13.5 Low speed: 3	High speed: 6.7 Low speed: 2	High speed: 21 Low speed: 4	High speed: 13 Low speed: 3	High speed: 8 Low speed: 3	High speed: 20 Low speed: 4	High speed: 13.5 Low speed: 3
Standard lift	(m)	3						3						1.8				
Push-button cord length: L	(m)	2.5						2.5						–				
Load chain diameter	(mm)	4						4						4				
Net weight	(kg)	11.5 (12.0)*1			15.5 (16.0)*1		21 (21.5)*1	12.0 (12.5)*1			16.0 (16.5)*1		21 (21.5)*1	14.5 (15.0)*1			18.5 (19.0)*1	
Min. headroom: C	(mm)	315			330		520	315			330		520	945			960	
Dimensions (mm)	a	364			428		428	364			428		428	364			428	
	d	187			205		205	187			205		205	187			205	
	e	177			223		223	177			223		223	177			223	
	f	205			219		229	205			219		229	205			219	
	h	125			135		155	125			135		155	125			135	
	i	80			84		74	80			84		74	80			84	
	g	25					24	25					24	25				
	j	25					24	25					24	25				
	k	340			362		454	340			362		454	340			362	
	m	92					149	92					149	92				

*1: these net weight at control voltage of 27V

Notes: (1) The power supply cable is 2mm² × 5m (3 conductors).
(2) Hoisting speed is the average value of wind-up and -down speed under related voltage, rated frequency, and rated load conditions. Speed may differ by voltage and load conditions.
(3) Non-standard lengths of lift (load chain) and push-button cord of the single- and dual-speed types are also available upon request.

⚠ CAUTION : NEVER use the hoist with power source voltage exceeds rated voltage by more than 10%. (Refer to Sec. 3-2)

Additionally, these 3 types of electric chain hoists are available for normal voltage operation and low-voltage (30V) operation. Further, these chain hoists can be used under the different voltages as shown in next page.
The lifting speed varies according to the actual power source voltage as shown in next page.

Relationship between power source voltage and lifting speed

Rated Voltage (V)	Actual Power Source Voltage/ Operation Voltage (V)	Lifting Speed (m/min)					
		300w			600w		
		60kg	100kg	180kg	160kg	240kg	480kg
120	110/110	19.3	11.9	7.3	18.3	12.4	6.1
	110/ 27.5						
	115/115	20.1	12.5	7.7	19.2	12.9	6.4
	115/ 29						
	120/120	21	13	8	20	13.5	6.7
	120/ 30						
240	220/220	19.3	11.9	7.3	18.3	12.4	6.1
	220/ 27.5						
	230/230	20.1	12.5	7.7	19.2	12.9	6.4
	230/ 29						
	240/240	21	13	8	20	13.5	6.7
	240/ 30						

3. PREPARATION AND CHEKING BEFORE USE

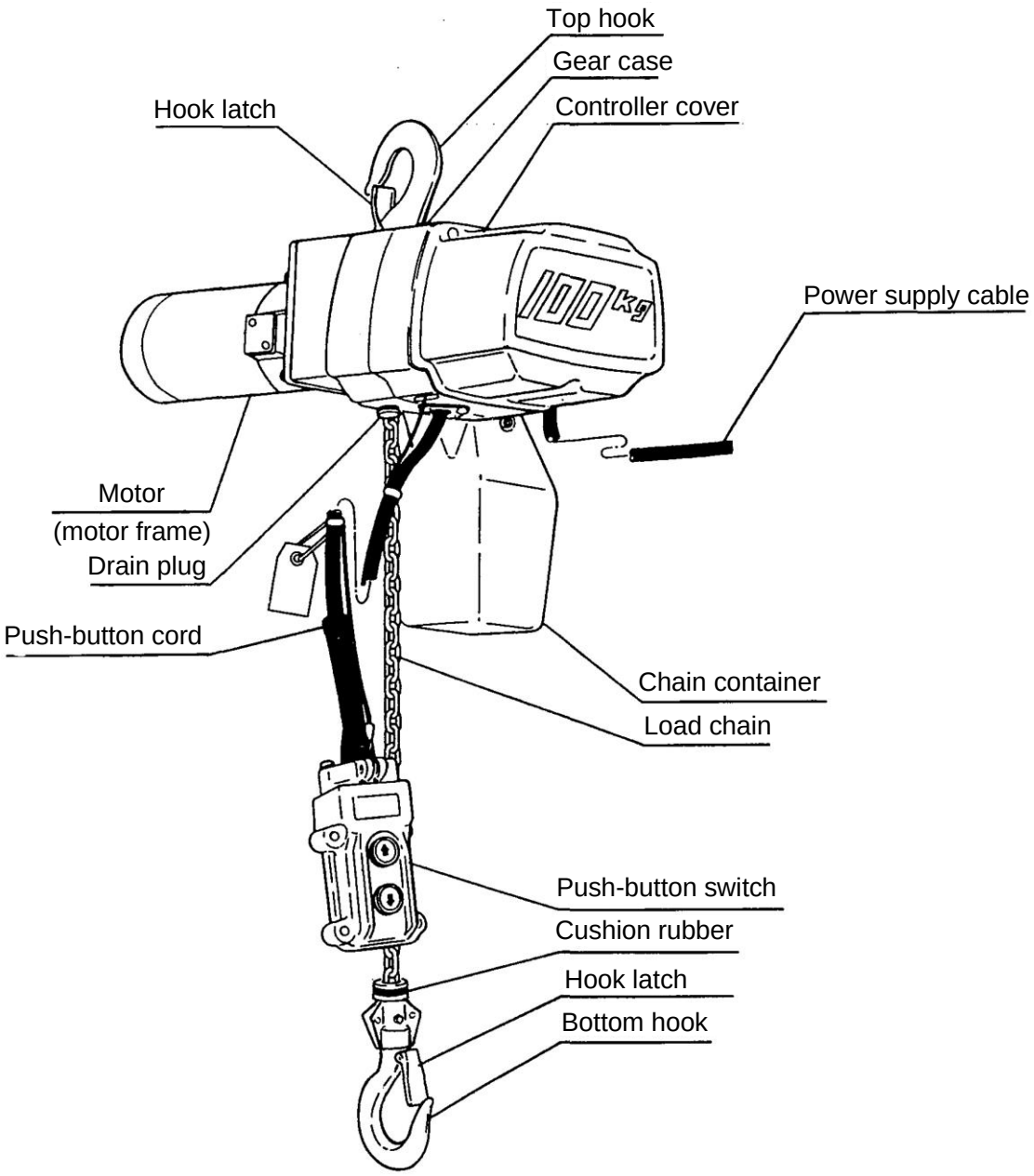
3-1. Packed Contents

Before using, make sure the following contents are packed:

Hoist unit (containing oil)
Chain container (including bolt, nut, and split pin for attaching to hoist unit)
Push-button cord (the dual-speed cylinder type is equipped with a curled cord and fastening belt.)
Load chain
Power supply cable

3-2. Preparation and Checking Before Use

The appearance and profile are as shown in the next;



Single-speed type

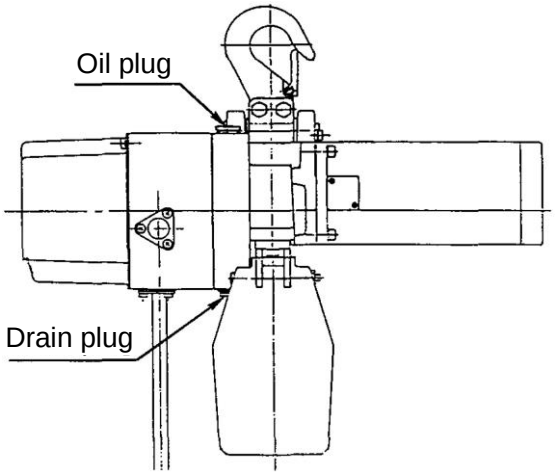
BEFORE USING, PREPARE AND CHECK THE FOLLOWING FIVE ITEMS.

(1) GEAR OIL SUPPLY

Gear oil is pre-supplied in the gear box.

To change gear oil: Remove oil plug and drain plug from gear box. Drain contaminated oil completely, fasten drain plug, supply the specified gear oil sufficiently from the oil plug hole, then firmly fasten the oil plug.

⚠ WARNING : Use of the hoist without sufficient oil can cause immediate and severe damage to the hoist's gear and clutch mechanisms, which can result in hoist malfunctioning and possible death or serious injury. To avoid these hazards, never use the chain hoist without sufficient oil. Refer to the following table.



Gear oil quantity

Rated Load (kg)	Optimal Oil Quantity (ℓ)
60	0.27
100	
180	
160	0.35
240	
480	

⚠ WARNING : Use of oils other than the specified KITO's exclusive gear oil might not allow full exertion of the built-in friction clutch, which can cause load to drop. To avoid these hazards: ALWAYS use the specified KITO's exclusive gear oil.

⚠ WARNING : To avoid oil leak, make sure to firmly fasten drain plug.

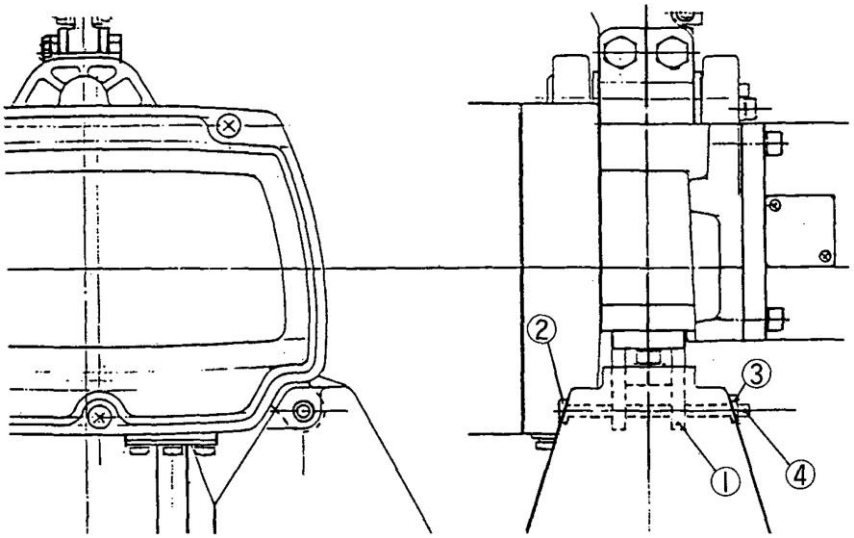
(2) CHAIN CNTAINER FITTING

The chain container stores the load chain of the no-load side. In connecting it to the hoist body, fasten it completely and pay attention to the following points:

⚠ WARNING : Firmly fasten bolt and nut as shown in the following figure appearing on the next page.

⚠ WARNING : ALWAYS be sure that the load chain of the no-load side is properly stored in the chain container and folded correctly from the end.

⚠ WARNING : NEVER store chain in the chain container which exceed the specified length of the chain container.



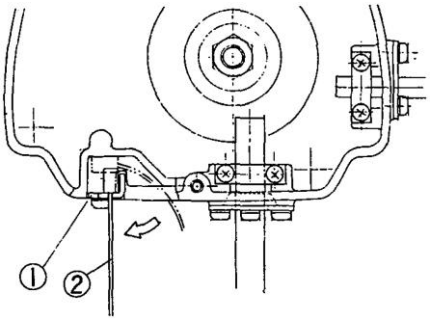
Fitting Procedure:
*Attach the chain container to the chain guide ① with socket bolt ② and U-nut ③.
*Attach the split pin ④ to prevent the U-nut ③ from dropping. Bend pin ends 90° or more.

(3) ATTACHING PUSH-BUTTON AND CURLED CORDS

a. Single- and dual-speed types

While the push-button cord is being connected to the hoist body, the strain relief wire may not be connected yet. After the push button cord connecting, be sure to attach the end of the strain relief wire to the hoist body.

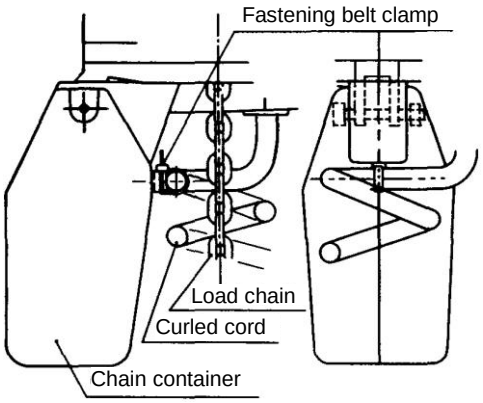
⚠ WARNING : Short-circuit and electric shock may result if the push-button cord is pulled when the strain relief wire is not connected to the hoist body. ALWAYS make sure that the strain relief wire is properly attached to the hoist body as depicted and described in the next.



Fitting procedure:
*As illustrated, hook the strain relief wire ② to the cable support L ① of the hoist body.

b. Dual-speed cylinder type

While the curled cord is being connected to the hoist body, it may not be fixed to the chain container yet. As illustrated, attach it to the chain container so that the clamp of the fastening belt faces the way it does in the figure and so that the load chain comes to the center of the curled cord at that time.



⚠ WARNING : To avoid damage on the curled cord, fix the curled cord to the chain container with the fixing band.

⚠ WARNING : To avoid wearing between load chain and chain guide, straighten up load chain before fitting the curled cord to the chain container.

⚠ WARNING : To avoid damaging the curled cord, attach the chain container so that the fastening belt clamp faces up.

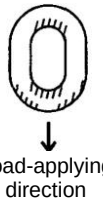
(4) LUBRICATING THE LOAD CHAIN

⚠ WARNING

Chain lubrication is a critical factor in the service life of a load chain. Apply enough machine or gear oil regularly.

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) POWER SUPPLY CABLE ATTACHMENT

A 2 mm^2 × 5 m (3-conductors) power supply cable is normally supplied.

When power source is far away and an extension supply cable is required, use a cable of sufficient diameter as illustrated in the following table.

Extension Cable Diameter (nominal cross-section area of conductor)	Max. Length of Extension Cable (m)
2.0 mm^2	30
1.25 mm^2	15

⚠ CAUTION : The extension cable should be a 3-conductors cable with the specified cross-section area of the conductor.

[Connection to power supply source]

⚠ WARNING : ALWAYS ground the electric chain hoist before using.

⚠ DANGER : NEVER ground the electric chain hoist to a gas pipe as this can create the possibility of explosion.

⚠ DANGER : In addition to grounding, ALWAYS connect to a power supply source equipped with an earth leakage breaker.

⚠ CAUTION : Actual power source voltage should not exceed max. allowable voltage in the following table.

Actual Power Source Voltage (V)	Max. Allowable Voltage (V)
110	121
115	126
120	132
220	242
230	253
240	264

3-3. Installing Trolley

(1) MINI TROLLEY

* Attachment of adjusting spacers

Remove the top hook of the electric chain hoist and connect the adjusting spacers to the trolley, utilizing the top yoke.

A total of 32 adjusting spacers are prepared. Number of spacers differs with rail width. As illustrated, attach adjusting spacers so that dimension A = dimension B (rail width) + 3mm (approx.).

(Reference)

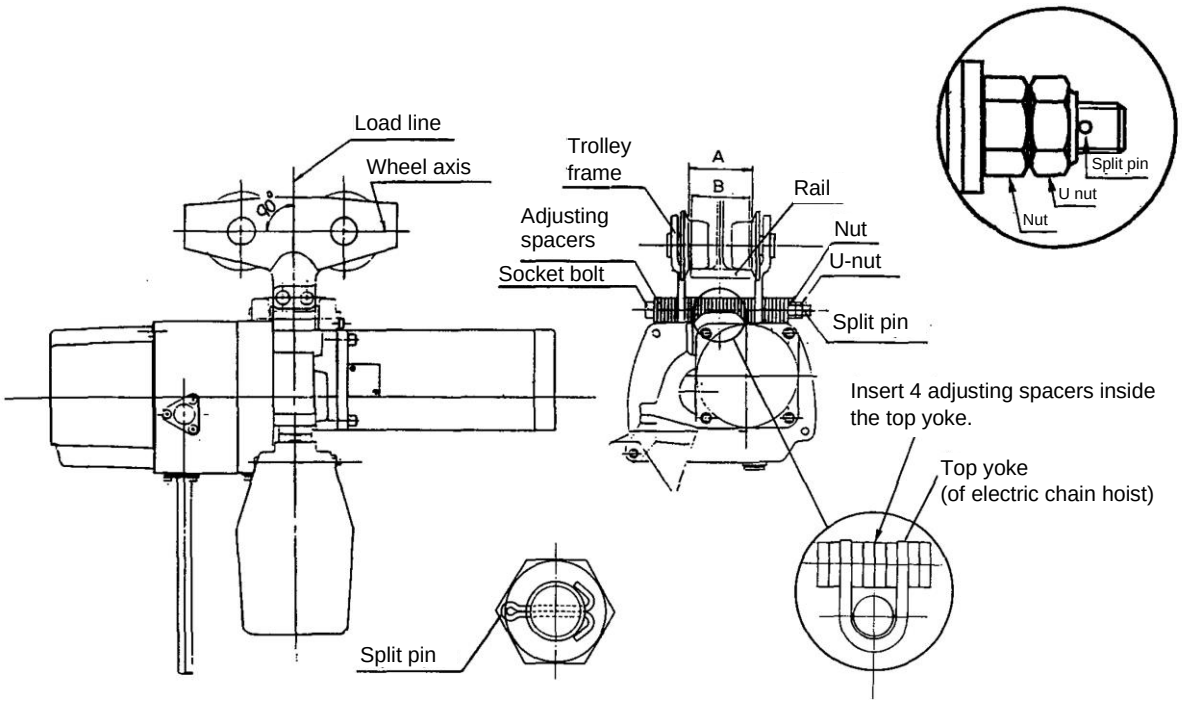
Rail Width		Inside Trolley Frame	Outside Trolley Frame
50	H-steel	Right/left, 8 pcs. each	Right/left, 8 pcs. each
68	H-steel	Right/left, 11 pcs. each	Right/left, 5 pcs. each
	I-steel		
98	H-steel	Right/left, 16 pcs. each	Right/left, 0 pcs. each
100	I-steel		

⚠ WARNING : Incorrect number of adjusting spacers may cause the trolley not to move or to drop. To avoid these hazards:
ALWAYS make sure to use all 32 pieces and confirm that A-B ≒ 3 mm.

* Fitting of socket bolt

Set the trolley so that the wheel axis is right angle to the load line. Attach the socket bolt, nut and U nut (double nut system), adjusting the clearance of 2mm or less between the split pin hole and U nut with 2 Adjusting Spacers and 2 Adjusting Spacer-Bs, and then tighten them and secure the split pin to the bolt.

⚠ WARNING : To avoid the trolley from dropping, firmly fasten the socket bolt, nut and U nut. Insert split pin and bend its ends 90° or more.

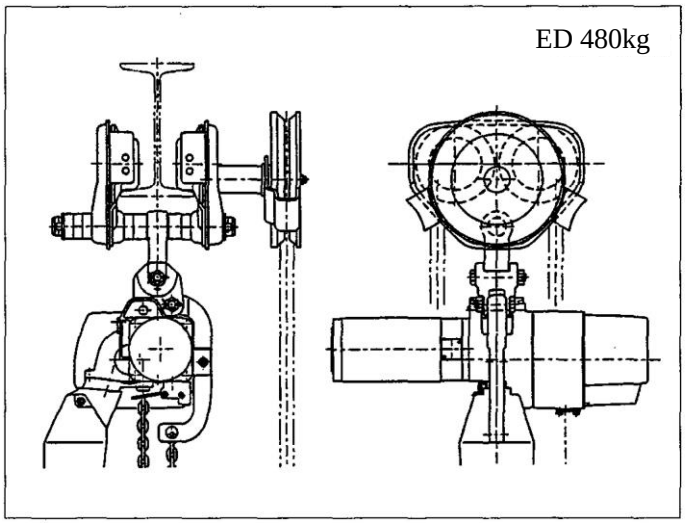


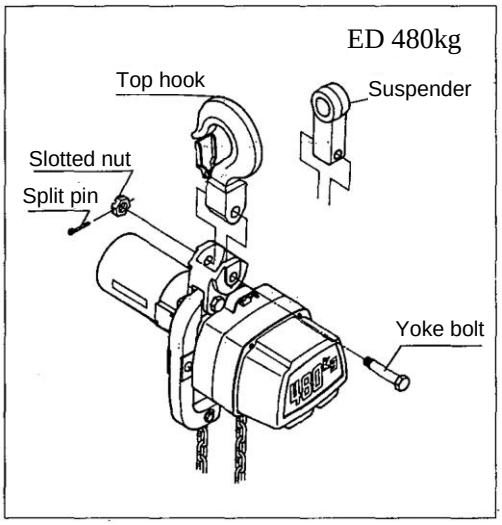
(2) INSTALLING TROLLEY TO RAIL

⚠ WARNING : For all trolley suspended electric chain hoists, rail stops must be installed at each end of the rail. Failure to install rail stops will allow the hoist and trolley to fall off the end of the rail and thus cause an accident that could result in injury and/or property damage. The stops must be positioned so as to not exert impact force on the electric chain hoist frame or trolley wheels. They must contact the ends of the trolley side frames.

⚠ WARNING : Rail stops should be attached with buffers to alleviate trolley impact force.

(3) TS series trolley (480kg only)





*** For more details of connection with TS series trolley, refer to the manual of TS series trolley.**

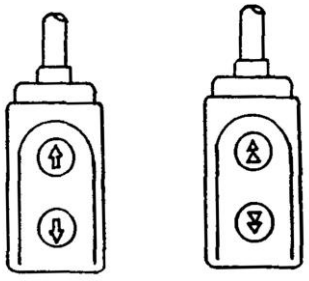
4. OPERATION

As soon as pre-usage preparation and checks have been completed, the hoist will be ready for operation.

⚠ WARNING : In shifting operation between lifting up and lowering down under the loaded condition, ensure to avoid the immediate reverse operation before the hoist motor completely stops. If not avoided, it could result in the hoist's damage. Ensure to avoid the excessive inching operation. (Inching operation: very frequent lifting or lowering operations in a very short time for positioning the hook with very small repeated hook movements.) If not avoided, it could result in the hoist's damage.

4-1. Single-speed Type

The push-button switch is single-step push-in type.
Push ⇧ to lift and ⇩ to lower.
.



Single-speed type Dual-speed type

4-2. Dual-speed Type

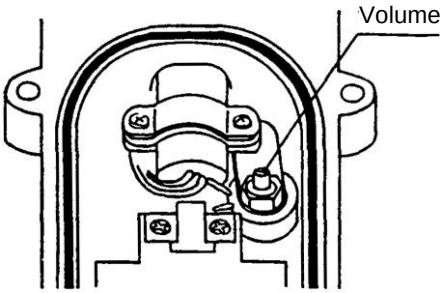
The push-button switch is dual-step push-in type. The first step is for low-speed operation and the second step for high-speed. Push ⏫ to lift and ⏬ to lower.

[Low-speed adjustment procedure]

The push-button can be adjusted by setting the low-speed side for the operating voltage of each country. However, if the low speed does not work or is too fast or slow (owing to voltage and frequency fluctuation), adjust the switch in the following way:

⚠ DANGER : NEVER touch live portions of cables, terminals, and terminal screws during adjustment so as not to incur electric shock.
ALWAYS make sure to turn power off before servicing.

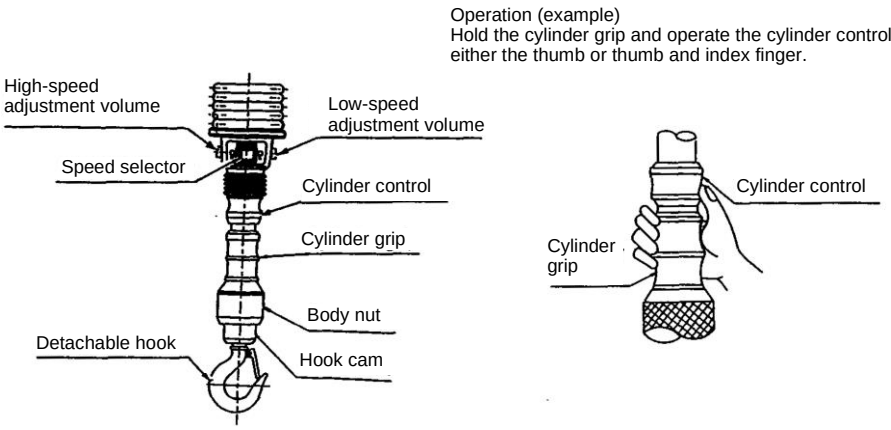
* Open the back lid of the push-button switch (as depicted in the next illustration).
* Turn the volume clockwise to increase speed or counterclockwise to lower it.
* Close the back lid of the push-button switch.



4-3. Dual speed Cylinder Type

(1) This is a handling switch type hoist. The switch is directly attached to the bottom hook.
As illustrated, the switch is cylinder shaped. Load is lifted when the switch is flipped up and lowered when flipped down.

* The operation box has an alternate lighting switch.
* High or low lifting speed is selected by the alternate switch.
* "H" on the left side for high speed, "L" on the right side for low speed.

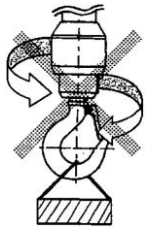


[Speed adjustment procedure]

If the hoist does not operate or have the proper speed, adjust the speed volume as follows:

* For increasing the lifting speed, turn the volume clockwise.
* For decreasing the lifting speed, turn the volume counterclockwise.

(2) The bottom hook is detachable. Detachment and setting are described next.
* To detach bottom hook:
  Holding the body nut, turn the hook cam to be the left (counterclockwise).
* To set the bottom hook:
  The bottom hook can be set by simply pushing it in from underneath.



⚠ WARNING : ALWAYS make sure the hook cam is completely locked.

⚠ WARNING : NEVER dropping or releasing a load could result in death or serious injury. To avoid this hazard, do not operate the bottom hook release mechanism (hook cam) when the hoist with cylinder-controlled or optional detachable hook is under load.

4-4. Electric Chain Hoist with Trolley

To operate the electric chain hoist with trolley, move it horizontally by either pushing the lifted load or the load chain.

⚠ WARNING : NEVER pull the curled cord, push-button switch or push-button cord. Pulling the curled cord, push-button switch or push-button cord may disconnect cord wires. Disconnected wire(s) may cause a short-circuit in the hoist body or any surrounding conductor, giving the operator electric shock.

⚠ WARNING : ALWAYS move the horizontally by grasping the cylinder grip or pushing the load.

⚠ WARNING : ALWAYS pay your attention on your back when you attempt to push a lifted load or the load chain.

5. INSPECTION

5-1. Inspection Classification

(a) INITIAL inspection - prior to initial use, all new, altered, or modified hoists shall be inspected by a designated person to ensure compliance with the applicable provisions of this Manual.

(b) Inspection procedure for hoists in regular service is divided into two general classifications based upon the intervals at which inspection should be performed. The intervals in turn are dependent upon the nature of the critical components of the hoist and the degree of their exposure to wear, deterioration, or malfunction. The two general classifications are herein designated, as FREQUENT and PERIODIC, with respective intervals between inspections as defined below.

(1) FREQUENT inspection - visual examinations by the operator or other designated personnel.
- (a) normal service - monthly
- (b) heavy service - weekly to monthly
- (c) severe service - daily to weekly
- (d) special or infrequent service – as recommended by a qualified person before and after each occurrence.

(2) PERIODIC inspection - visual inspection by a designated person.
- (a) normal service - yearly
- (b) heavy service - semiannually
- (c) severe service - quarterly
- (d) special or infrequent service - as recommended by a qualified person before the first such occurrence and as directed by the qualified person for any subsequent occurrences.

5-2. Frequent Inspection (see table)

Items such as those listed below shall be inspected for defects and damage at intervals as defined in Sec. 5-1 (b) (1). This includes observations during operation for any defects or damage that might appear between PERIODIC inspections. A designated person shall determine whether any defects or damage constitute a hazard or will require more detailed inspection.

a. Trace slipping via braking.
b. Control functions for optimal operation.
c. Damage, cracks, and bends in hooks or noticeable opening.
d. Setting the hook latch; hook latch operation.
e. Optimal lubrication, signs of wear, link damage, or adhesion of foreign matter to the load chain.
f. Load sheave engagement with load chain; load chain twisting.

g. Idle sheave engagement with load chain; load chain twisting.
h. Proper limit switch actuation and motor stopping when the hook rises at upper limit under no load.
i. No deformed, peeled and cracked cushion rubber.
j. No damaged chain spring (option), and minimum free length, 75mm (130mm), of the chain spring.
Note: Initial free length of the spring 85mm (150mm).
* ( ): 60~240kg

5-3. Periodic Inspection (see table)

Complete inspections of the hoist shall be performed at intervals as defined in Sec. 5-1 (b) (2). These inspections may be performed with the hoist in its normal location and do not require that the entire hoist be dismantled. Covers and other items normally supplied to allow inspection of components should be opened or removed for, these inspections. Any deficiencies such as those listed below shall be examined by a designated person to determine whether they constitute a hazard, or whether complete disassembly is necessary. These inspections shall include the requirements of Sec.5-2.

a. Inspection to all items included in FREQUENT inspection.
b. Fastening of screws, bolts, and nuts.
c. Wear, corrosion, cracks, distortion, etc., of the gear, bearings and chain pins.
d. Damage to the hook or fittings that attach the hook to the chain.
e. Damage to or excessive wear of the load sheave chain pocket:
If the chain pocket is too wide or deep, the chain may be lifted up over the pocket or may get caught between the chain guide and load sheave.
Also check the chain guide for wear around the opening through which the chain enters the hoist.
* Extremely worn or damaged parts should be changed.
f. For the friction clutch, see Sec. 6-3.
g. Pitching of contactor contact point deterioration:
Operate the push buttons and check if it sticks at any point.
h. Imperfect insulation of cables, cords, and the control station.

TABLE INSPECTION FOR ELECTRC CHAIN HOISTS

Item	Normal Service		Heavy Service		Strict Service	
	Visual Monthly	Record Yearly	Visual Weekly	Record Semiannually	Visual Daily	Record Quarterly
FREQUENT inspection (see 5-2)						
All functional operating mechanisms for maladjustment and unusual sounds	*	—	*	—	*	—
Brake slippage (see 5-2.a.)	*	—	*	—	*	—
Optimal control functions (see 5-2.b.)	*	—	*	—	*	—
Hook damage, crack, bend and opening (see 5.2.c.)	*	—	*	—	*	—
Hook latch operation (see 5-2.d.)	*	—	*	—	*	—
Optimal load chain lubrication (see 5.2.e.)	*	—	*	—	*	—
Load chain in accordance with 5-2.e.	*	—	*	—	*	—
Load chain reeving for compliance with hoist manufacturer's recommendations	*	—	*	—	*	—
Load sheave engagement with load chain: load chain twisting.	*	—	*	—	*	—
Idle sheave engagement with load chain: load chain twisting.	*	—	*	—	*	—
Proper limit switch actuation and motor stopping when the hook rises at upper limit under no load.	*	—	*	—	*	—
No deformed, peeled and cracked cushion rubber.	*	—	*	—	*	—
No damaged chain spring (option), and minimum free length 75mm (130mm), of the chain spring. Note: Initial free length of the spring 85mm (150mm). * ( ): 60-240kg	*	—	*	—	*	—
PERIODIC inspection (see 5-3)						
Requirements of frequent inspection	—	*	—	*	—	*
Evidence of loose bolts, nuts or rivets (see 5-3.b.)	—	*	—	*	—	*
Evidence of worn, corroded, cracked, or distorted parts such as load blocks, suspension housing, chain, attachments, clevises, yokes, suspension bolts, shafts, gears, bearings and pins. (see 5-3.c.)	—	*	—	*	—	*
Imperfect insulation of cables, cord and control station (see 5.3.h.)	—	*	—	*	—	*
Evidence of damage or excessive wear of sheave (see 5-3.e.)	—	*	—	*	—	*
Evidence of excessive wear on friction clutch (see 5-3.f. 6-3)	—	*	—	*	—	*

TABLE INSPECTION FOR ELECTRC CHAIN HOISTS

Item	Normal Service		Heavy Service		Severe Service	
	Visual Monthly	Record Yearly	Visual Weekly	Record Semiannually	Visual Daily	Record Quarterly
Electrical apparatus for signs of pitting or any deterioration of visible controller contacts (see 5-3.g)	—	*	—	*	—	*
Evidence of damage of supporting structure or trolley, if used	—	*	—	*	—	*
Warning label	—	*	—	*	—	*
End connections of load chain	—	*	—	*	—	*

5-4. Occasionally Used Hoists

(a) A hoist which has been idle for a period of 1 month or more, but less than 1 year, shall be given an inspection conforming with the requirements of Sec. 5-2 before it is placed in service.

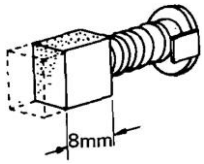
(b) A hoist which has been idle for a period of 1 year shall be given an inspection conforming with the requirements of Sec. 5-3 before it is placed in service.

5-5. Inspection Record

(a) We recommend that dated inspection reports and records be maintained at time intervals specified in Sec.5-1 (b) (2). We suggest strongly that records are stored where they be available to authorized persons.

(b) We suggest strongly that a long-range chain inspection program be established and include records of examination of chains removed from service so a relationship could be established between visual observation and actual condition of the chain.

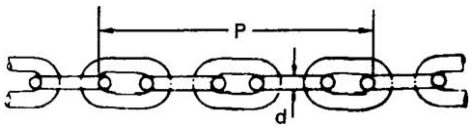
5-6. Inspection Methods and Judgment Criteria

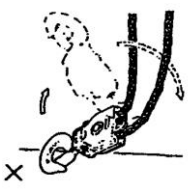
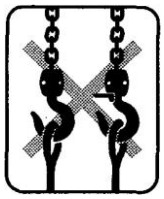
Item	Inspection Methods	Discard Limit/Criteria	Measures
1. HOIST BODY			
(1) Casting damage	Check visually.	· No cracks on hoist body.	Replace.
(2) Abnormal sounds during operation	Lift and lower a light load.	· No vibration or irregular noise from the motor or from inside the hoist body.	Overhaul.
(3) Gear oil quantity; contamination	Check visually.	· Change gear oil regularly, matching usage frequency.	Replace.
(4) Controller cover damage	Check visually.	· No deformation or cracks.	Replace.
(5) Name plate damage	Check visually.	· Capacity should be legible.	Replace.
(6) Cable and cord joint damage	Check visually.	· No damage or loose screws.	Replace/repair.
(7) Brake function	Check brake slipping on lifting or lowering with no load.	· Braking distance: approx. 5 chain links.	Ask service shop to inspect and repair.
	Check brake slipping on lifting or lowering with rated load at high speed.	· Braking distance: approx. 5 chain links.	Ask service shop to inspect and repair.
(8) Brush	Check visually.	· The discard limit of this brush is 8 mm (brush should not be worn past this limit). 	Replace.
2. OPERATION SWITCH			
(1) Function	Operate switch with no load.	· The bottom hook shall lift and lower.	Check power source and make sure cord is connected. Replace if defective (electrical equipment included).
		· To change from low to high speed. (Dual-speed and dual-speed cylinder types)	Replace.
(2) Case cracking	Check visually.	· No cracks.	Replace.
(3) Loose wiring joints	Check visually.	· No loosening or dropping of screws.	Repair.

Item	Inspection Methods	Discard Limit/Criteria	Measures
3. LOAD CHAIN			
(1) Appearance	Check visually.	· Load chain shall be oiled.	Supply oil.
(2) Wear	Measure with calipers.	· Dimension "P" or "d" shall be within the following values:	Replace.

Unit (mm)

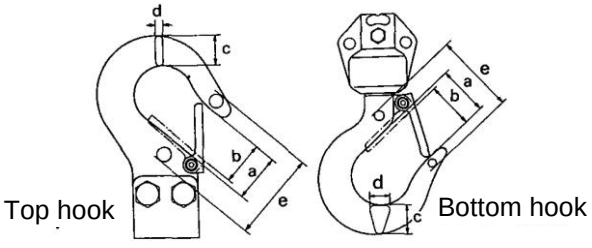
Chain Diameter (d)	Number of Measured Chain Links	Sum of Pitches (P) of Measured Chain Links		Wear Limit of d
		Normal	Discard	
4	5	60.5	61.7	3.3



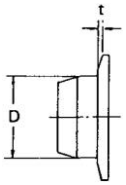
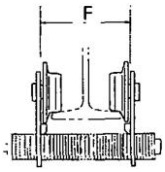
(3) Load chain Appearance	Check visually for greasing and twisting.	Load chain is well lubricated.	If chain is dry, apply the specified lubricant in the section '3.2(4)'.
		Load chain is not twisted or capsized.	If chain is twisted, untwist it and restore it to normal chain condition.
4. HOOKS			
(1) Deformation	Check visually.	· No deformation from original shape (at time of purchase).	Replace.
	Measure dimension "e" between two embossed marks at time of purchase with calipers.	· No deformation from original shape (at time of purchase). · Never use the hook if dimension (c) or (d) becomes less than 90% *of normal*	Replace.
	Measure with calipers.	· Dimensions "c" and "d" are within their limits.	Replace.

(Reference values)

		a mm	b mm	c mm		d mm	
		Normal Size	Normal Size	Normal Size	Discard Limit	Normal Size	Discard Limit
Bottom hook		31.0	25.0	17.0	15.3	12.1	10.9
Top hook		26.5	25.0	17.0	15.3	7.0	6.3
480 kg	Bottom hook	28.0	24.0	23.5	21.0	17.5	16.0
	Top hook						



Item	Inspection Methods	Discard Limit/Criteria	Measures
(2) Flaws	Check visually.	· No deep flaws.	Replace.
(3) Bend at shank of bottom hook	Check visually.	· Never use if bent.	Replace.
(4) Bottom hook movement	Turn hook.	· Hook should turn lightly.	Replace.
(5) Deformation of lower metal fitting	Check visually.	· Should be free from deformation.	Replace.
(6) Chain container damage	Check visually.	· Screws and pins should not be loosened or damaged.	Replace.
		· No invasion of foreign matter.	Repair.
(7) Hook latch	Check visually.	· No deformation from original shape (at time of purchase).	Replace.
(8) Rotation of idle sheave	Turn idle sheave by lifting the load chain up and down, as illustrated.	The idle sheave rotates smoothly. 	Inspect and repair if rotation is not smooth.
5. CHAIN SPRING AND CUSHION RUBBER			
(1) Chain spring deformation (Option)	Check visually.	**NEVER** use deformed chain spring as illustrated or unspringy one, and make sure that the size of free chain spring is the minimum of 75mm (130mm), the initial size of the spring is 85mm (150mm) * ( ): 60-240kg 	Replace chain spring with a new one if deformed.
(2) Cushion rubber deformation	Check visually.	**NEVER** use a cushion rubber if it is deformed as illustrated. 	Replace cushion rubber with a new one if deformed.
6. ELECTRIC CABLE			
(1) Damage of electric cable	Check visually.	· No damage.	Replace.
(2) Loose of electric cable connection	Check visually.	· No loosening.	Repair.
(3) Poor grounding	Check visually.	· Should be grounded.	Ground.

<table>
<tr><th>Item</th><th>Inspection Methods</th><th>Discard Limit/Criteria</th><th>Measures</th></tr>
<tr><td>7. MINI TROLLEY (60-240 kg)
In the case of 480kg, refer to the manual of TS series trolley.</td><td></td><td></td><td></td></tr>
<tr><td>(1) Function</td><td>Move (trolley) under no-load condition.</td><td>· Should run smoothly.</td><td>Replace.</td></tr>
<tr><td>(2) Falling of fasteners</td><td>Check visually.</td><td>· Not fall.</td><td>Repair.</td></tr>
<tr><td>(3) Wheel wear</td><td>Measure with calipers.
 
</td><td>· Contact face and flange wear should be within the following limits:
<table><tr><th colspan="2">Diameter of Tread D (mm)</th><th>Discard Limit of Flange</th></tr><tr><td>Normal</td><td>Discard limit</td><td>t (mm)</td></tr><tr><td>40</td><td>38</td><td>1.5</td></tr></table></td><td>Replace.</td></tr>
<tr><td>(4) Frame deformation</td><td>Check visually.
Measure with calipers.
 
</td><td>· No deformation.
· Frame top dimensions “F” should not exceed dimensions before use by 5% or more.</td><td>Replace.
Replace.</td></tr>
</table>

6. MAINTENANCE

⚠ WARNING **: IMPROPER electric chain hoist use could result in death or serious injury.**
To avoid these hazards:
: NEVER perform maintenance on the hoist while it is supporting a load.
: Before performing maintenance, attach the tag:
["DANGER": DO NOT OPERATE EQUIPMENT BEING REPAIRED.]
: Only allow qualified service personnel to perform maintenance.
: ALWAYS lock-out power source before conducting maintenance.
: After performing any maintenance on the hoist, always test to its rated capacity before returning to service.

6-1. Gear Lubrication

Change gear oil at least once a year.

⚠ WARNING **: To change oil, ALWAYS remove both the oil plug and drain plug to drain determinated oil completely before supplying the specified gear oil.**
: Use of oils other than the specified KITO's exclusive gear oil might not allow full exertion of the friction clutch, which can cause load to drop.
To avoid these hazards:
Always use the specified KITO's exclusive gear oil.

6-2. Load Chain Lubrication

Refer to '3-2 (4) LUBRICATING THE LOAD CHAIN

⚠ WARNING **: IMPROPER electric chain hoist use could result in death or serious injury.**
To avoid these hazard:

ALWAYS lubricate load chain weekly, or more frequently, depending on severity of service.

ALWAYS lubricate more frequently than normal in corrosive environment. (Saltwater, sea air and/or acid or other corrosive compounds)

ALWAYS clean chain with an acid free solvent only to remove rust or abrasive dust build-up. After cleaning, lubricate the chain.

ALWAYS lubricate each link of the chain and apply new lubricant over existing layer.

6-3. Mechanical Brake with Friction Clutch

The mechanical brake with friction clutch has both slip clutch and brake functions.

⚠ WARNING **: IMPROPER electric chain hoist use could result in death or serious injury. To avoid these hazards:**
: NEVER disassemble and adjust the mechanical brake with friction clutch.
: ALWAYS contact your local KITO dealer in case of malfunction of mechanical brake with friction clutch.

NOTICE : When starting to lift, you may hear a slight sharp noise from the hoist. This noise does not imply an abnormality of the hoist.

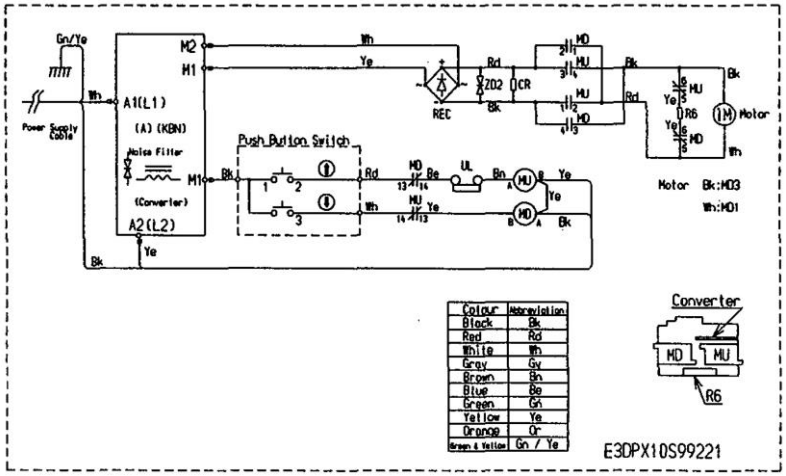
7. CONNECTION DIAGRAM

The electric instruments of the controller (contactor and converter) are installed on a panel and contained in the hoist body.
To check the connection, open the controller cover of the hoist body. Make sure that lead wires are connected correctly and firmly, referring to the following connection diagram.

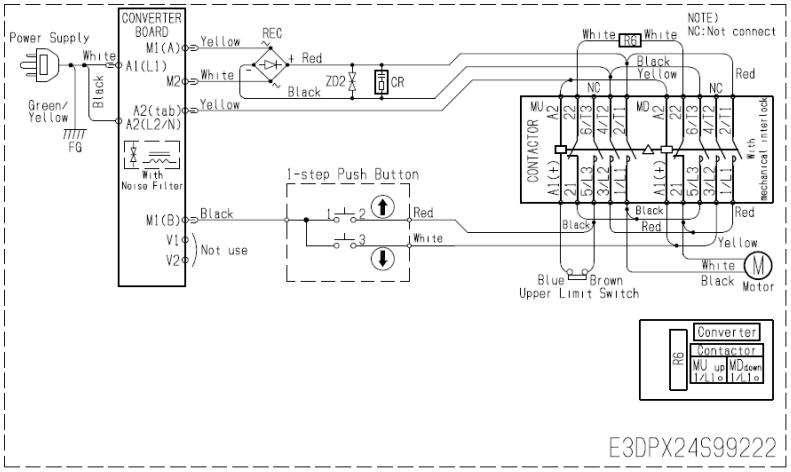
⚠ DANGER **: To avoid possible electric shock, ALWAYS make sure to turn off the power source before checking the connection.**

7-1. Single-speed Type

(1) Normal voltage control type (120V)

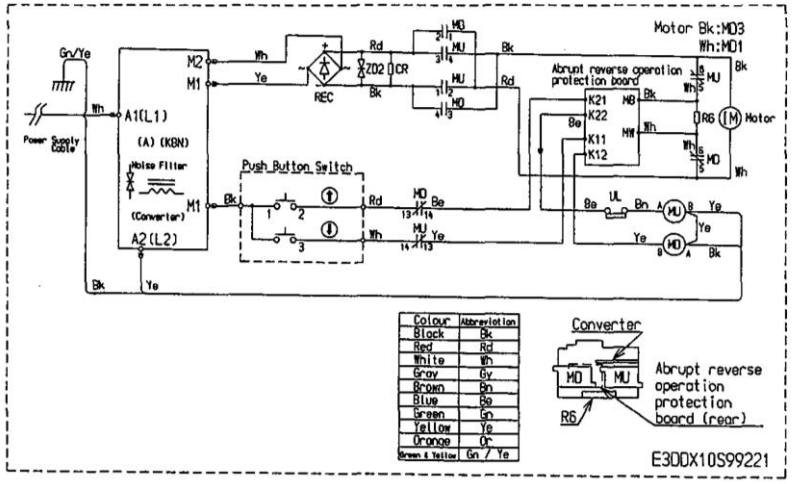


Motor output 300 W
(Rated load 60kg, 100kg, 180kg)

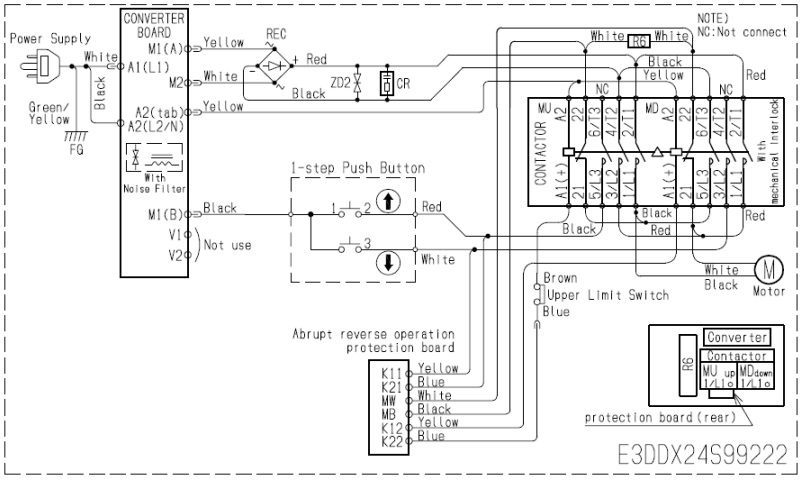


Motor output 600W
(Rated load 160kg, 240kg, 480kg)

(2) Normal voltage control type (240V)

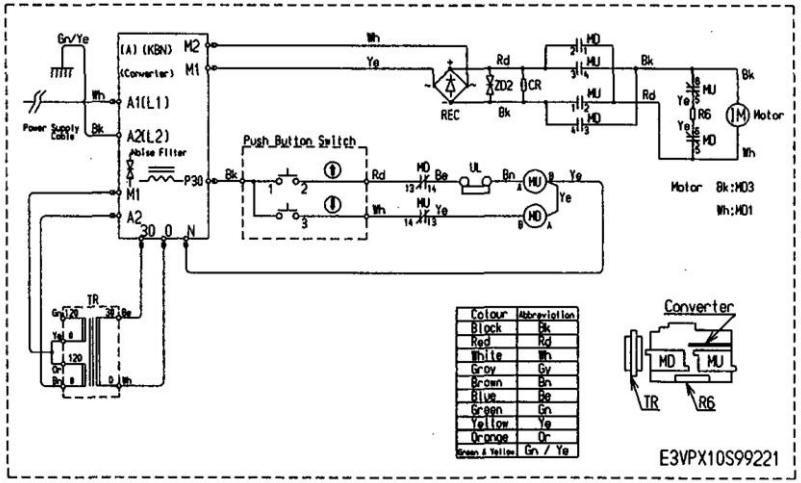


Motor output 300W
(Rated load 60kg, 100kg, 180kg)



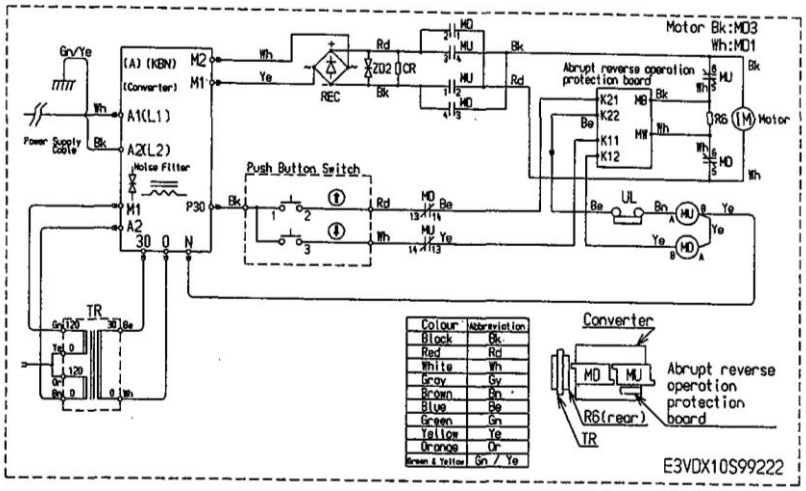
Motor output 600W
(Rated load 160kg, 240kg, 480kg)

(3) Low voltage control type (120V)*

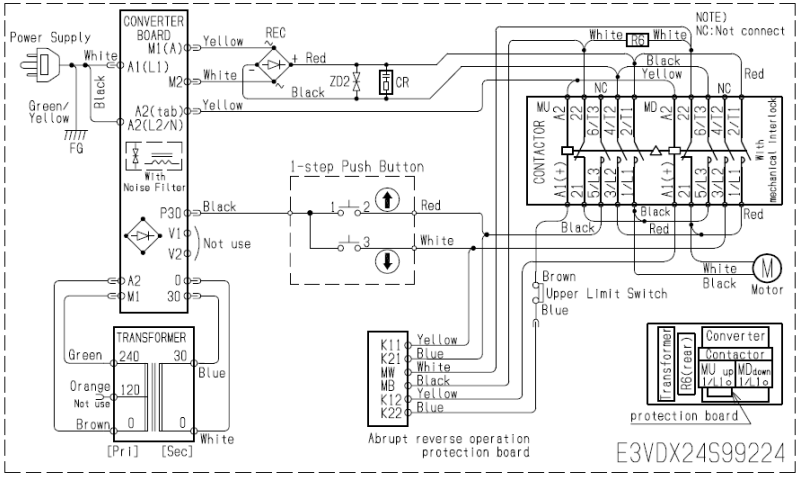


Motor output 300 W
(Rated load 60kg, 100kg, 180kg)

(4) Low voltage control type (240V)



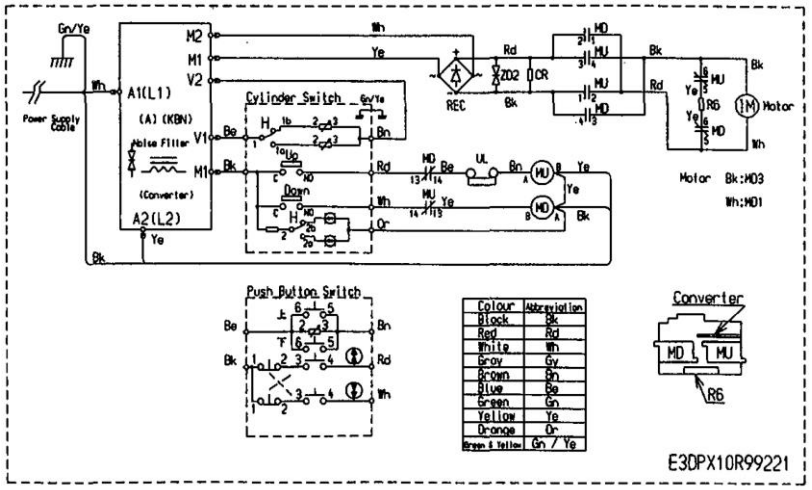
Motor output 300W
(Rated load 60kg, 100kg, 180kg)



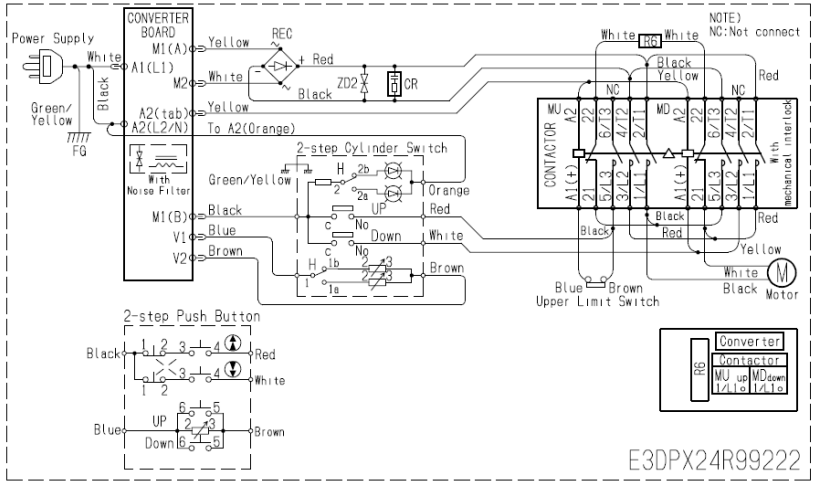
Motor output 600W
(Rated load 160kg, 240kg, 480kg)

7-2. Dual-speed Type and Dual-speed Cylinder Type

(1) Normal voltage control type (120V)

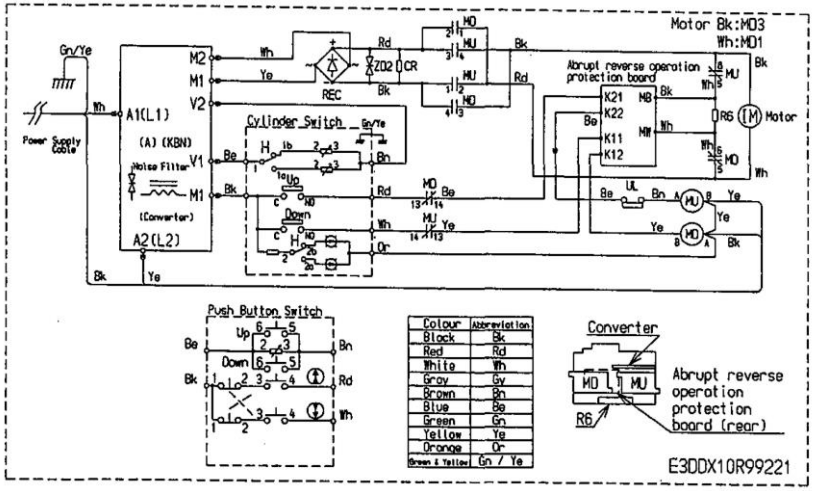


Motor output 300 W
(Rated load 60kg, 100kg, 180kg)

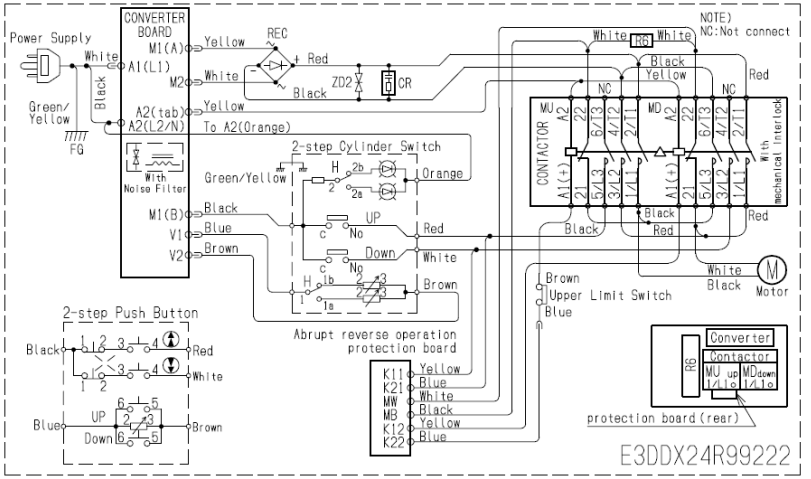


Motor output 600W
(Rated load 160kg, 240kg, 480kg)

(2) Normal voltage control type (240V)

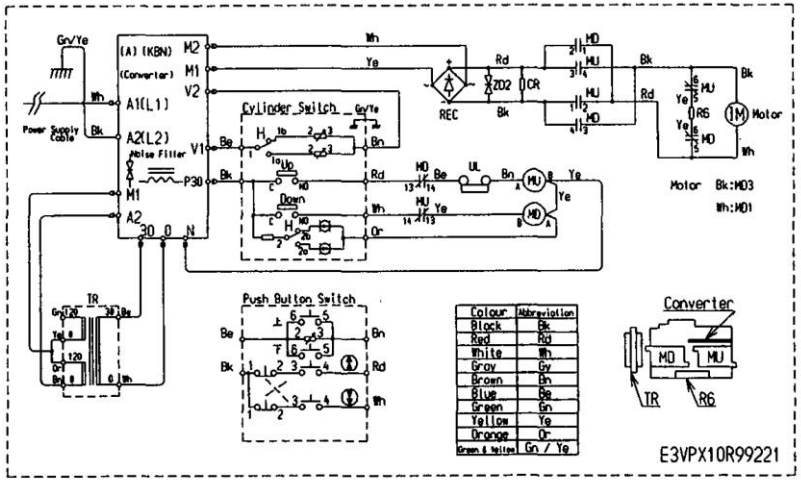


Motor output 300W
(Rated load 60kg, 100kg, 180kg)



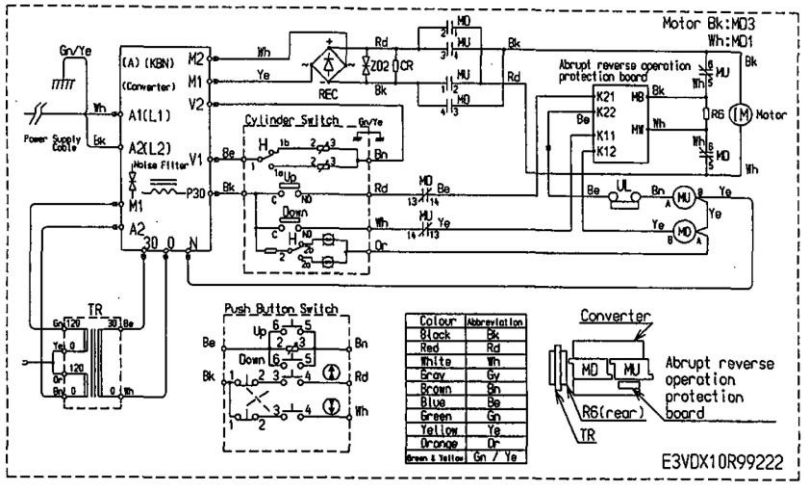
Motor output 600W
(Rated load 160kg, 240kg, 480kg)

(3) Low voltage control type (120V)

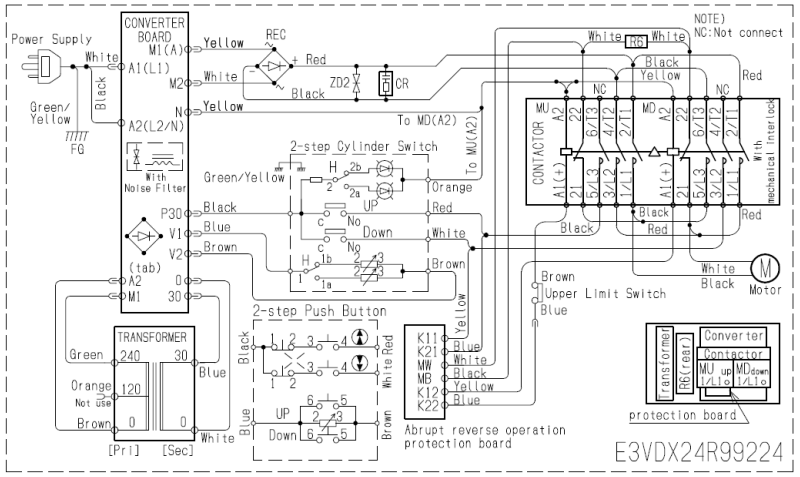


Motor output 300 W
(Rated load 60kg, 100kg, 180kg)

(4) Low voltage control type (240V)



Motor output 300W
(Rated load 60kg, 100kg, 180kg)



Motor output 600W
(Rated load 160kg, 240kg, 480kg)

8. TROUBLE SHOOTING AND SOLUTIONS

When a trouble arises, remove cause ..... referring to the following table.

Trouble	Condition		Cause	Solution
Both lifting and lowering are not possible.	∗ When the push button is pressed, a clicking sound is heard from the electric instruments unit.	∗ Fuse has burned out.	∗ Motor has been burned out due to too much use.	∗ Replace motor. ∗ Use under rated conditions.
			∗ Abnormal voltage.	∗ Use under rated voltage.
		∗ Fuse is normal.	∗ Rectifier abnormality.	∗ Replace rectifier.
			∗ Writing abnormality.	∗ Normalize.
	∗ The push button works, but no clicking sound is heard from the electric instruments unit.	∗ Fuse is normal.	∗ Power cable/push-button cord has been disconnected.	∗ Replace the power cable/push-button cord.
			∗ Voltage drop.	∗ Use under rated voltage.
Either lifting or lowering does not work.	∗ When the push button is operated, a clicking sound is heard from the electric instruments unit.		∗ Brush wear.	∗ Replace brush.
			∗ Chain guide wear.	∗ Replace chain guide.
			∗ Overload (lifting impossible).	∗ Use within rated load.
	∗ The push button is operated but no clicking sound is heard from the electric instruments unit.		∗ Push button cord defect or disconnection.	∗ Replace cord.
Lifting/ lowering speed is too slow.	∗ Speed is not only too slow but constant.		∗ Voltage drop.	∗ Use under the rated voltage.
			∗ Deteriorated speed control function of controller.	∗ Replace with a normal one. ∗ Replace control panel complete set.
	∗ Motor stops with excessive slip under light load.		∗ Deteriorated clutch brake function.	∗ Replace the set of mechanical brake with friction clutch.
	∗ When winding, a motor sound is heard but load lifting tends to stop in the middle.		∗ Overload.	∗ Use within rated load.

Trouble	Condition	Cause	Solution
Brake slippage.	∗ Braking distance is too long, even under no-load conditions.	∗ Motor has become demagnetized, owing to too frequent use.	∗ Replace with a normal one.
		∗ improper contact of electromagnetic contactors.	
		∗ Deteriorated resistor for dynamic braking.	
	∗ The load cannot be held at the level when stopping operation.	∗ Improper gear oil use.	∗ Replace the specified gear oil.
	∗ Within rated load, lifting/ lowering speed is slow.	∗ Deterioration of clutch brake.	∗ Replace the set of mechanical brake with friction clutch.
Oil leakage.	∗ Oil leakage from case joint and chain guide.	∗ Defective gear case packing/oil seal.	∗ Replace with a normal one.
		∗ Loosened assembly bolts.	∗ Fasten with normal torque.
	∗ Leakage from oil plug.	∗ Loosened oil plug.	∗ Fasten oil plug.
A clicking sound is heard from the load chain during lifting.	—	∗ Wear of load sheave.	∗ Replace with a normal one.
		∗ Wear of load chain.	
		∗ Rust on load chain.	
Electric shock.	—	∗ Accumulation of moisture/foreign matter on electrical instruments.	∗ Remove moisture/foreign substance.
		∗ Improper grounding.	∗ Secure correct grounding.

Ask your local KITO dealer to repair.

For maintenance, a fuse shown in the table is attached in the controller cover (the capacity/ name plate side) as a spare.

Fuses for maintenance

Rated road [kg] / Rated power source / Speed		Fuse capacity [A] × (Nos. per hoist) [pcs.]			
		120 [V]	240 [V]	120 [V]	240 [V]
		Normal voltage operation		Low-voltage operation	
60	Single	10 × (2)	5 × (2)	10 × (2)	5 × (2)
80	Dual	10 × (2)	5 × (2)		
180		0.1 × (1)	0.1 × (1)		
160	Single	15 × (2)	10 × (2)	15 × (2)	10 × (2)
240	Dual	15 × (2)	10 × (2)		
480		0.1 × (1)	0.1 × (1)		

9. WARRANTY

KITO Corporation (“KITO”) extends the following warranty to the original purchaser (“Purchaser”) of new products manufactured by “KITO” (KITO’s Products).

(1) “KITO” warrants that KITO’s Products, when shipped, shall be free from defects in workmanship and/or materials under normal use and service and “KITO” shall, at the election of “KITO”, repair or replace free of charge any parts or items which are proven to have said defects, provided that all claims for defects under this warranty shall be made in writing immediately upon discovery and, in any event, within one (1) year from the date of purchase of KITO’s Products by “Purchaser” and provided, further, that defective parts or items shall be kept for examination by “KITO” or its authorized agents or returned to KITO’s factory or authorized service center upon request by “KITO”.

(2) “KITO” does not warrant components of products provided by other manufacturers. However to the extent possible, “KITO” will assign to “Purchaser” applicable warranties of such other manufacturers.

(3) Except for the repair or replacement mentioned in (1) above which is “KITO”’s sole liability and purchaser’s exclusive remedy under this warranty, “KITO” shall not be responsible for any other claims arising out of the purchase and use of KITO’s Products, regardless of whether “Purchacer”’s claims are based on breach of contract, tort or other theories, including claims for any damages whether direct, indirect, incidental or consequential.

(4) This warranty is conditional upon the installation, maintenance and use of KITO’s Products pursuant to the product manuals prepared in accordance with content instructions by “KITO”. This warranty shall not apply to KITO’s Products which have been subject to negligence, misuse, abuse, misapplication or any improper use or combination or improper fittings, alignment or maintenance.

(5) “KITO” shall not be responsible for any loss or damage caused by transportation, prolonged or improper storage or normal wear and tear of KITO’s Products or for loss of operating time.

(6) This warranty shall not apply to KITO’s Products which have been fitted with or repaired with parts, components or items not supplied or approved by “KITO” or which have been modified or altered.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE.

10. PARTS LIST

Exploded views and part names of the electric chain hoist are given in the following.
Note: When ordering replacement parts, please specify the following points:

1. Voltage
2. Capacity and lifting speed
3. Model number on name plate
4. Correct part names and numbers
5. Lineal length of push button cord or power supply cable

■ Controller cover, gear case, body, motor, top/bottom hook, load chain, chain guide, chain container

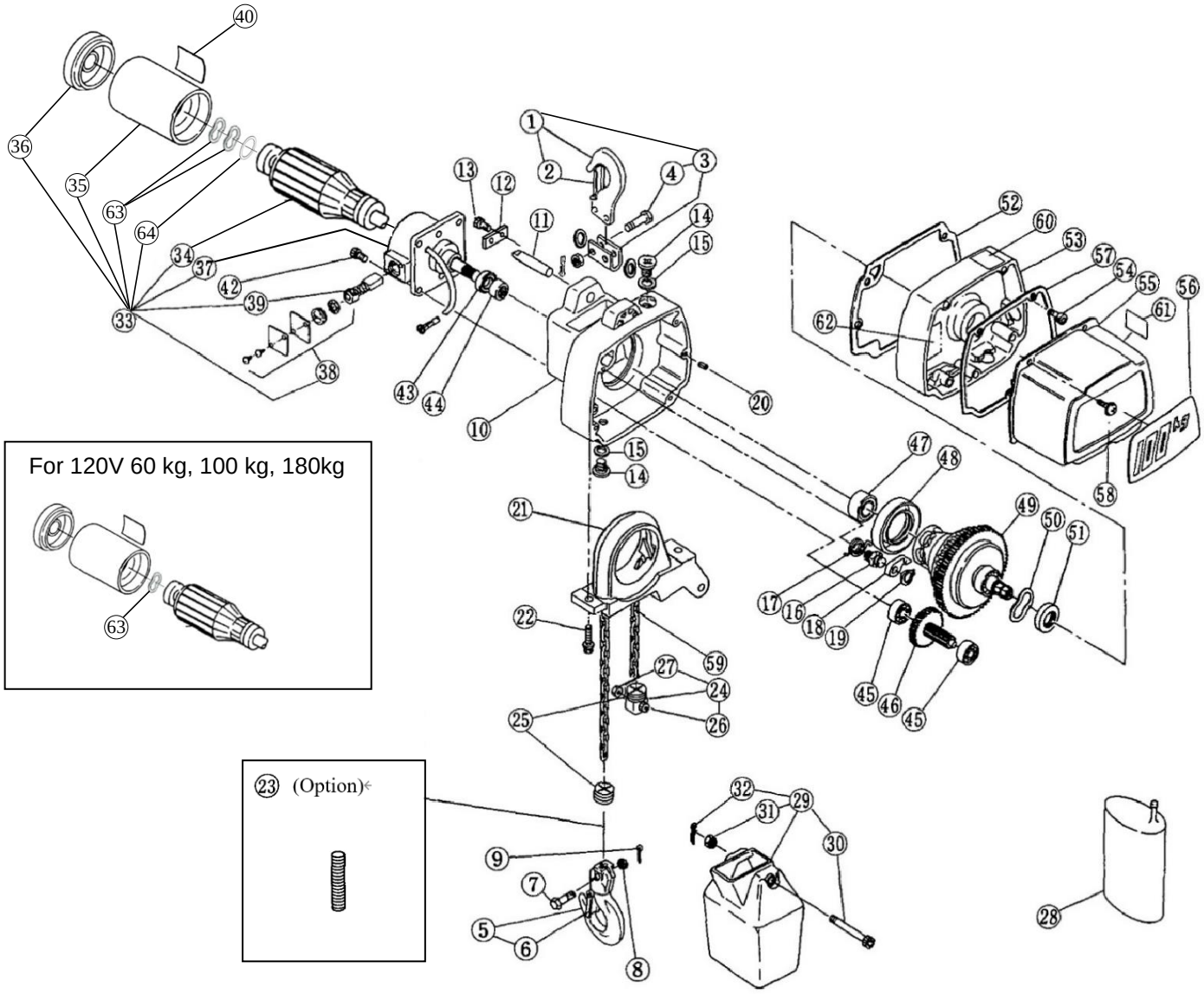


Fig No.	Part No.	Part Name	Nos. Per Hoist	Capacity				
				60kg	100kg	180kg	160kg	240kg
1	E2D1001	Top hook assembly	1	E2DBX10S1001	←	←	←	←
2	E2D1071T	Hook latch assembly T	1	L4BA008-1071	←	←	←	←
3	E2D1011	Top yoke complete set	1	E2DBX24S1011	←	←	←	←
4	E2D5091	Top pin assembly	2	C3BA010-1041	←	←	←	←
5	E2D1021	Bottom hook complete set	1	E2DBX10S1021	←	←	←	←
6	E2D1071B	Hook latch assembly B	1	L1LA005-1071	←	←	←	←
7	E2D041	Chain pin	1	E1DBX10S9041	←	←	←	←
8	E2D049	Slotted nut	1	E1DBX10S9049	←	←	←	←
9	E2D096	Split pin	1	J1PW02-016008	←	←	←	←
10	E3D101	Body	1	E3DBX10S9101	←	←	E3DBX24S9101	←
11	E2D117	Top pin E	1	E2DBX10S9117	←	←	E2DBX24S9117	←
12	E2D118	Shaft stopper	1	×	×	×	E2DBX24S9118	←
13	E2D072	Socket bolt with spring washer	2	×	×	×	J1BG2-0501010	←
14	E2D111	Oil plug	2	E5FE003S9111	←	←	←	←
15	E2D112	Plug packing	2	E2YS005-9109	←	←	←	←
16	E2D269	Pawl pin	1	E2DBX10S9269	E2DBX18S9269	←	E2DBX10S9269	←
17	E2D270	Pawl spring	1	E1DBX10S9270	E2DBX18S9270	←	E1DBX10S9270	←
18	E2D268	Pawl	1	L4BA015-9155	L4BA008-9155	←	L4BA015-9155	←
19	E2D271	Snap ring	1	J1SS000-00011	J1SS000-00009	←	J1SS000-00011	←
20	E2D114	Set pin	2	J1PS11-050010	←	←	←	←
21	E3D401	Chain guide	1	E3DBX10S9401	←	←	E3DBX24S9401	←
22	E2D451	Socket bolt with spring washer	2	J1BG2-0601818	←	←	←	←
23	E3D421	Chain spring (option)	1	E3DBX10S9421	←	←	←	←
25	E3D046	Cushion rubber	2	E3DBX10S9046	←	←	←	←
24	E3D1045	Stopper complete set	1	E1DBX10S1045	←	←	←	←
26	E2D086	Socket bolt with spring washer	1	J1BG2-0502020	←	←	←	←
27	E2D087	Lever nut	1	C2BA020-9074	←	←	←	←
28	E3D901	Gear oil for to ED2	1	E2DBX06S5901	←	←	E2DBX24S5901	←
		Gear oil for to ED2B	1	E3DHX10S5901	←	←	E3DHX24S5901	←
29	E2D1831	Chain container (3)	1	E2DBX10S1831	←	←	←	←
	E2D1835	Chain container (6)	1	E2DBX10S1835	←	←	←	←
30	E2D854	Socket bolt BP	1	E2DBX10S9854	←	←	←	←
31	E2D853	U nut	1	E2DBX10S9853	←	←	←	←
32	E2D852	Split pin	1	J1PW02-016008	←	←	←	←

For 120V, 50/60Hz

Fig No.	Part No.	Part Name	Nos. Per Hoist	Capacity				
				60kg	100kg	180kg	160kg	240kg
33	E2D1051P	Motor complete set	1	E2DPX10S1561	←	←	E2DPX24S1501	←
34	E2D5508P	Armature assembly	1	E2DPX10S9568	←	←	E2DPX24S9508	←
35	E2D5507	Stator assembly	1	E2DBX10S9507	←	←	E2DBX24S9507	←
36	E2D509	Motor cover	1	E2DBX10S9569	←	←	E2DBX24S9509	←
37	E2D506	Motor flange	1	E2DBX10S9566	←	←	E2DBX24S9506	←
38	E2D1510	Lid assembly	1	E2DBX10S1570	←	←	E1DBX20S1513	←
39	E2D502	Carbon brush	2	E1DBX10S9502	←	←	E1DBX20S9512	←
63	-----	Set spring	1	E1DBX10S9311	←	←	×	×
	-----	Set spring	2	×	×	×	E2DBX24S9514	←
64	-----	Washer	1	×	×	×	E2DBX24S9515	←
40	E2D802	Name plate M for Single speed	1	E2DPX06S9802	E2DPX10S9802	E2DPX18S9802	E2DPX16S9802	E2DPX24S9802
		Name plate M for Dual speed	1	E2DPX06R9802	E2DPX10R9802	E2DPX18R9802	E2DPX16R9802	E2DPX24R9802

For 240V, 50/60Hz

Fig No.	Part No.	Part Name	Nos. Per Hoist	Capacity				
				60kg	100kg	180kg	160kg	240kg
33	E2D1051D	Motor complete set	1	E2DDX10S1501	←	←	E2DDX24S1501	←
34	E2D5508D	Armature assembly	1	E2DDX10S9508	←	←	E2DDX24S9508	←
35	E2D5507	Stator assembly	1	E2DDX10S9507	←	←	E2DBX24S9507	←
36	E2D509	Motor cover	1	E2DBX24S9509	←	←	←	←
37	E2D506	Motor flange	1	E2DDX10S9506	←	←	E2DDX24S9506	←
38	E2D1510	Lid assembly	1	E2DDX10S1513	←	←	←	←
39	E2D502	Carbon brush	2	E2DDX10S9512	←	←	←	←
63	-----	Set spring	1	×	×	×	×	×
	-----	Set spring	2	E2DBX24S9514	←	←	←	←
64	-----	Washer	1	E2DBX24S9515	←	←	←	←
40	E2D802	Name plate M for Single speed	1	E2DDX06S9802	E2DDX10S9802	E2DDX18S9802	E2DDX16S9802	E2DDX24S9802
		Name plate M for Dual speed	1	E2DDX06R9802	E2DDX10R9802	E2DDX18R9802	E2DDX16R9802	E2DDX24R9802

Attention: Parts for ED2 and ED2B

If you own these products, be sure to purchase the following Motor flange set and Armature set.

Although the old and new parts are not interchangeable as individual parts, they are interchangeable when purchased as a set below. Please check the product nameplate for model name identification.

Voltage: Single phase 120V 50/60Hz only. 240V 50/60Hz is not applicable.

Motor output: 300W (60/100/180kg) only. 600W (160/240/480kg) is not applicable.

Fig No.	Part No.	Part Name	Nos. Per Hoist	Capacity				
				60kg	100kg	180kg	160kg	240kg
-----	-----	Motor flange set	1	E2DBX10S1566	←	←	×	×
37	E2D506	Motor flange	1	E2DBX10S9566	←	←	×	×
38	E2D1510	Lid assembly	1	E2DBX10S1570	←	←	×	×
-----	-----	Armature set	1	E2DPX10S1568	←	←	×	×
34	E2D5508P	Armature assembly	1	E2DPX10S9568	←	←	×	×
36	E2D509	Motor cover	1	E2DBX10S9569	←	←	×	×
63	-----	Set spring	1	E1DBX10S9311	←	←	×	×

Fig No.	Part No.	Part Name	Nos. Per Hoist	Capacity				
				60kg	100kg	180kg	160kg	240kg
42	E3D451	Socket bolt with spring washer	4	J1BG2-0602222	←	←	←	←
	E2D162	Socket bolt with spring washer	4	J1BG2-0601818 Note 1	← Note 1	← Note 2	← Note 1	← Note 3
43	E2D221	Oil seal	1	E1DBX10S9221	←	←	←	←
44	E2D222	Needle roller bearing	1	E2DBX10S9222	←	←	←	←
45	E2D231	Ball bearing	2	J1GR0A0-06000	←	←	←	←
46	E2D1223	Gear #2 assembly	1	E2DBX06S1223	E2DBX10S1223	E2DBX18S1223	E2DBX16S1223	E2DBX24S1223
47	E2D238	Ball bearing	1	J1GR0B0-06002	←	←	J1GR0B0-06202	←
48	E2D236	Oil seal	1	E1DBX10S9236	←	←	E2DBX24S9236	←
49	E2D5234	Friction clutch assembly (incl. Load sheave)	1	E2DHX06S5234	E2DHX10S5234	E2DHX18S5234	E2DHX16S5234	E2DHX24S5234
50	E2D311	Set spring	1	E1DBX10S9311	←	←	E1DBX20S9311	←
51	E2D239	Oil seal	1	E6SE005S9221	←	←	E1DBX20S9239	←
52	E2D125	Gear case packing	1	E2DBX10S9125	←	←	E2DBX24S9125	←
53	E2D105	Gear case	1	E2DBX10S9105	←	←	E2DBX24S9105	←
54	E2D152	Socket bolt with spring washer	4	J1BG1-0503232	←	←	J1BG1-0504040	←
55	E2D104	Controller cover	1	E1DBX10S9104	←	←	E1DBX20S9104	←
56	E3D801	Name plate B	1	E3DBX06S9801	E3DBX10S9801	E3DBX18S9801	E3DBX16S9801	E3DBX24S9801
57	E2D109	Controller cover packing	1	E1DBX10S9109	←	←	E1DBX20S9109	←
58	E2D151	Machine screw with spring washer	3	J1AP2-5001010	←	←	←	←
59	E2D841	Load chain	1	(See Table1)				
60	E2D865	Warning seal EO	1	E2DPX10S9865	←	←	←	←
61	E2D866	Warning seal EE	1	E2DPX10S9866	←	←	←	←
62	E2D867	Warning seal EF	1	E2DPX10S9867	←	←	←	←

Note 1: Lot No before 6ASY8681
Note 2: Lot No before 6ASY8680
Note 3: Lot No before 6ASY8312

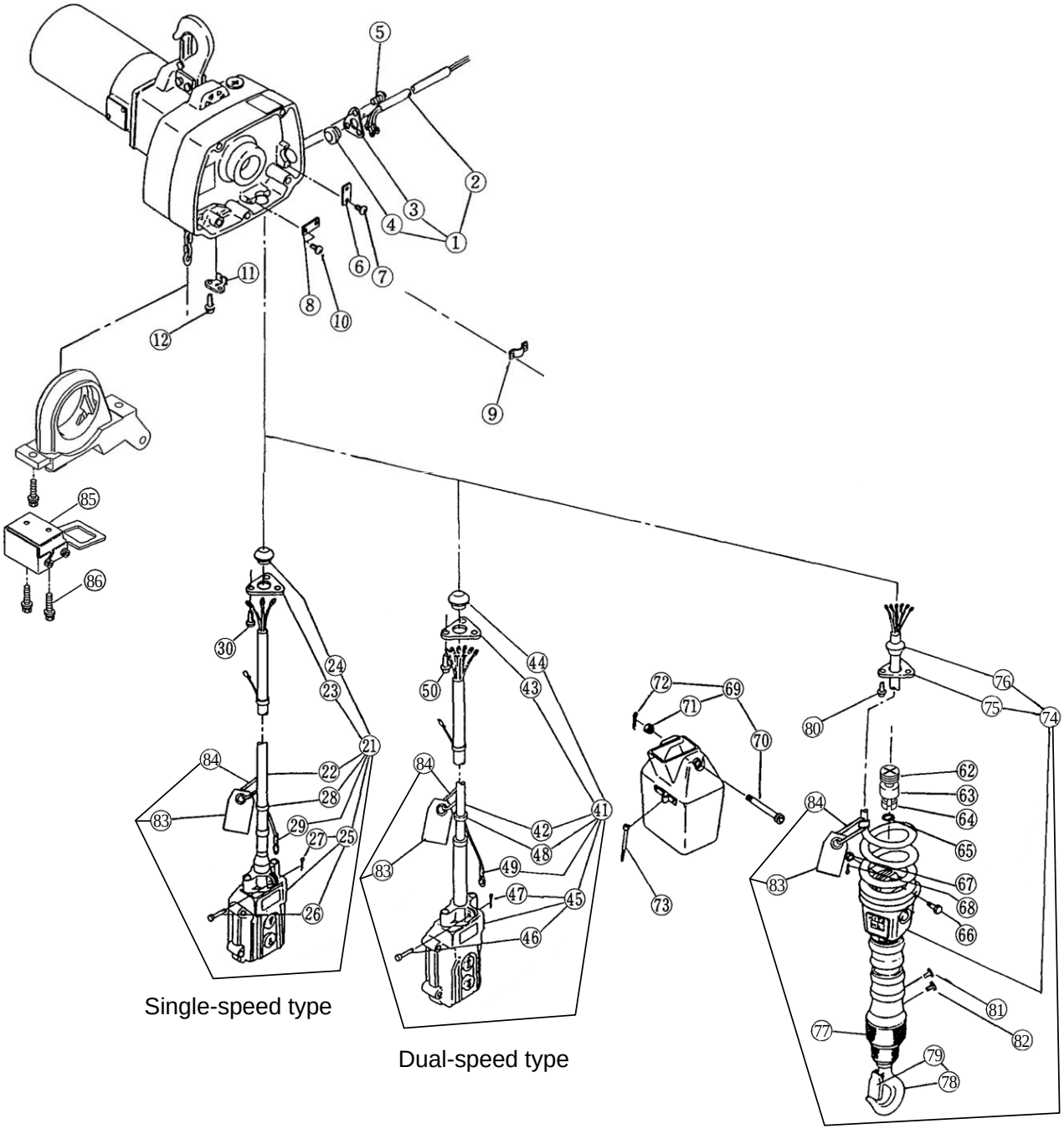
When you order 'Fig No. 42 Socket bolt with spring washer,' please check Lot No of your body and make sure to correspond each other.

Table 1: Load chain

Item code is set according to the lift length.

Lift	60kg	100kg	180kg	160kg	240kg
1.8m (For cylinder type)	K6CN040J00246	←	←	←	←
3m	K6CN040J00328	←	←	←	←
4m	K6CN040J00428	←	←	←	←
6m	K6CN040J00631	←	←	←	←
10m	K6CN040J01035	←	←	←	←
15m	K6CN040J01538	←	←	←	←
20m	K6CN040J02044	←	←	←	←
30m	K6CN040J03053	←	←	←	←

Power supply cable, push button, cylinder switch



Power Supply Cable: Common for Single, Dual Speed and Cylinder Type

Fig No.	Part No.	Part Name	Nos. Per Hoist	Capacity					Re-mark
				60kg	100kg	180kg	160kg	240kg	
1	E2D1521	Power supply cable 3C complete set	1	Z6CE200-1053	←	←	←	←	For 5m
				Z6CE200-1103	←	←	←	←	For 10m
				Z6CE200-1153	←	←	←	←	For 15m
2	E2D521	Power supply cable 3C	1	VCTF3C×2mm^2	←	←	←	←	
3	E2D537	Cable holder C	1	E1DBX10S9537	←	←	←	←	
4	E2D524	Cable packing C8	1	E1DBX10S9524	←	←	←	←	
5	E2D555	Machine screw with spring washer	3	J1AP2-5001010	←	←	←	←	
6	E2D541	Cable clamp E8	1	E2DBX10S9541	←	←	←	←	
7	E2D551	Machine screw with spring washer	2	J1AP2-4001616	←	←	←	←	
8	E2D541	Cable clamp E8 (Single speed)	1	E2DBX10S9541	←	←	←	←	
9	E2D542	Cable clamp E12 (Dual/Cylinder)	1	E2DBX10G9542	←	←	←	←	
10	E2D551	Machine screw with spring washer	2	J1AP2-4001616	←	←	←	←	
11	E2D543	Cable support L	1	E2DBX10S9543	←	←	←	←	
12	ED552	Machine screw with spring washer	2	J1AP2-5001010	←	←	←	←	

Push button: Components differ for Single, Dual Speed and Cylinder Type

Single-speed type

Fig No.	Part No.	Part Name	Nos. Per Hoist	Capacity					Re-mark
				60kg	100kg	180kg	160kg	240kg	
21	E2D1607	Push button cord 3C complete set	1	Z6BE201-1026	←	←	←	←	For 3m
				Z6BE201-1036	←	←	←	←	For 4m
				Z6BE201-1056	←	←	←	←	For 6m
				Z6BE201-1096	←	←	←	←	For 10m
				Z6BE201-1146	←	←	←	←	For 15m
				Z6BE201-1196	←	←	←	←	For 20m
				Z6BE201-1296	←	←	←	←	For 30m
22	E2D607	Push button cord 3C	1	ZECR301-0000	←	←	←	←	
23	E2D537	Cable holder C	1	E1DBX10S9537	←	←	←	←	
24	E2D524	Cable packing C8	1	E1DBX10S9524	←	←	←	←	
25	E2D1615	Push button switch S assembly	1	E2DPX10S1615	←	←	←	←	
26	------	Cord chain pin	1	E3ES002-9541	←	←	←	←	
27	------	Split pin	1	J1PW02-016010	←	←	←	←	
28	------	Lock belt	3	E1DBX10G9861	←	←	←	←	
29	------	Fixing sleeve	1	×	×	×	×	×	
83	E2D931	Warning tag LD	1	L4BD008-9931	←	←	←	←	
84	E2D787	Tag holder	1	E7SE003S9787	←	←	←	←	
30	E2D555	Machine screw with spring washer	3	J1AP2-5001010	←	←	←	←	

Dual-speed type

Fig No.	Part No.	Part Name	Nos. Per Hoist	Capacity				
				60kg	100kg	180kg	160kg	240kg
41	E2D1607	Push button cord 6C complete set	1	(See Table 2 on page 42)				
42	E2D607	Push button cord 6C	1	ZECR601-0000	←	←	←	←
43	E2D537	Cable holder C	1	E1DBX10S9537	←	←	←	←
44	E2D525	Cable packing C12	1	E1DBX10S9525	←	←	←	←
45	E2D1615	Push button switch D assembly	1	E2DPX10R1615	←	←	←	←
46	------	Cord chain pin	1	E3ES002-9541	←	←	←	←
47	------	Split pin	1	J1PW02-016010	←	←	←	←
48	------	Lock belt	3	E1DBX10G9861	←	←	←	←
49	------	Fixing sleeve	1	×	×	×	×	×
83	E2D931	Warning tag LD	1	L4BD008-9931	←	←	←	←
84	E2D787	Tag holder	1	E7SE003S9787	←	←	←	←
50	E2D555	Machine screw with spring washer	3	J1AP2-5001010	←	←	←	←

Dual-speed cylinder type

Fig No.	Part No.	Part Name	Nos. Per Hoist	Capacity				
				60kg	100kg	180kg	160kg	240kg
62	E3D046	Cushion rubber	2	E3DBX10S9046	←	←	←	←
63	E2D044	Stopper collar	1	E1DBX10G9044	←	←	←	←
64	E2D045	Stopper	2	E1DBX10G9045	←	←	←	←
65	------	Snap ring	1	J1SR000-00020	←	←	←	←
66	E2D041	Chain pin	1	E1DBX10S9041	←	←	←	←
67	E2D049	Slotted nut	1	E1DBX10S9049	←	←	←	←
68	E2D096	Split pin	1	J1PW02-016008	←	←	←	←
69	E2D1831	Chain container (3m lift for cylinder type)	1	E2DBX10G1831	←	←	E2DBX24G1831	←
70	E2D854	Socket bolt BP	1	E2DBX10S9854	←	←	←	←
71	E2D853	U nut	1	E2DBX10S9853	←	←	←	←
72	E2D852	Split pin	1	J1PW02-016008	←	←	←	←
73	E2D861	Clamp	1	E1DBX10G9861	←	←	←	←
74	E2DC1607	Push button cord 7C complete set	1	(See Table 3 on page 42)				
75	E2D537	Cable holder C	1	E1DBX10S9537	←	←	←	←
76	E2D525	Cable packing C12	1	E1DBX10S9525	←	←	←	←
83	E2D931	Warning tag LD	1	L4BD008-9931	←	←	←	←
84	E2D787	Tag holder	1	E7SE003S9787	←	←	←	←
77	E2D5041	Detachable fitting E	1	E1ADX20-5041	←	←	←	←
78	E2D1002	Detachable hook assembly	1	E1ADX20-1002	←	←	←	←
79	E2D1071	Hook latch assembly	1	L4BA008-1071	←	←	←	←
80	E2D555	Machine screw with spring washer	3	J1AP2-5001010	←	←	←	←
81	------	Flat head screw	1	×	×	×	×	×
82	------	Flat head screw	1	×	×	×	×	×

Common for Single, Dual Speed and Cylinder Type

Fig No.	Part No.	Part Name	Nos. Per Hoist	Capacity				
				60kg	100kg	180kg	160kg	240kg
83	E2D931	Warning tag LD	1	L4BD008-9931	←	←	←	←
84	E2D787	Tag holder	1	E7SE003S9787	←	←	←	←
85	E3D1411	Limit switch assembly for 120V	1	E3DBX10S1411	←	←	←	←
		Limit switch assembly for 240V	1	E3DEX10S1411	←	←	←	←
86	E3D422	Socket bolt with spring washer	2	J1BG2-0401010	←	←	←	←

Table 2: Dual-speed type

The complete set of push button codes depends on the power supply and control voltage.

Power voltage	Control voltage	Permissible length	Capacity					Lift
			60kg	100kg	180kg	160kg	240kg	
120V	Normal	20m	Z6BD210A1026	←	Z6BD218A1026	Z6BD210A1026	←	For 3m
			Z6BD210A1036	←	Z6BD218A1036	Z6BD210A1036	←	For 4m
			Z6BD210A1056	←	Z6BD218A1056	Z6BD210A1056	←	For 6m
			Z6BD210A1096	←	Z6BD218A1096	Z6BD210A1096	←	For 10m
			Z6BD210A1146	←	Z6BD218A1146	Z6BD210A1146	←	For 15m
			Z6BD210A1196	←	Z6BD218A1196	Z6BD210A1196	←	For 20m
	Low	30m	Z6BD210A1026	←	Z6BD218A1026	Z6BD210A1026	←	For 3m
			Z6BD210A1036	←	Z6BD218A1036	Z6BD210A1036	←	For 4m
			Z6BD210A1056	←	Z6BD218A1056	Z6BD210A1056	←	For 6m
			Z6BD210A1096	←	Z6BD218A1096	Z6BD210A1096	←	For 10m
			Z6BD210A1146	←	Z6BD218A1146	Z6BD210A1146	←	For 15m
			Z6BD210A1196	←	Z6BD218A1196	Z6BD210A1196	←	For 20m
			Z6BD210A1296	←	Z6BD218A1296	Z6BD210A1296	←	For 30m
240V	Normal	10m	Z6BD210A1026	←	Z6BD218B1026	Z6BD210A1026	←	For 3m
			Z6BD210A1036	←	Z6BD218B1036	Z6BD210A1036	←	For 4m
			Z6BD210A1056	←	Z6BD218B1056	Z6BD210A1056	←	For 6m
			Z6BD210A1096	←	Z6BD218B1096	Z6BD210A1096	←	For 10m
	low	30m	Z6BD210A1026	←	Z6BD218A1026	Z6BD224C1026	←	For 3m
			Z6BD210A1036	←	Z6BD218A1036	Z6BD224C1036	←	For 4m
			Z6BD210A1056	←	Z6BD218A1056	Z6BD224C1056	←	For 6m
			Z6BD210A1096	←	Z6BD218A1096	Z6BD224C1096	←	For 10m
			Z6BD210A1146	←	Z6BD218A1146	Z6BD224C1146	←	For 15m
			Z6BD210A1196	←	Z6BD218A1196	Z6BD224C1196	←	For 20m
			Z6BD210A1296	←	Z6BD218A1296	Z6BD224C1296	←	For 30m

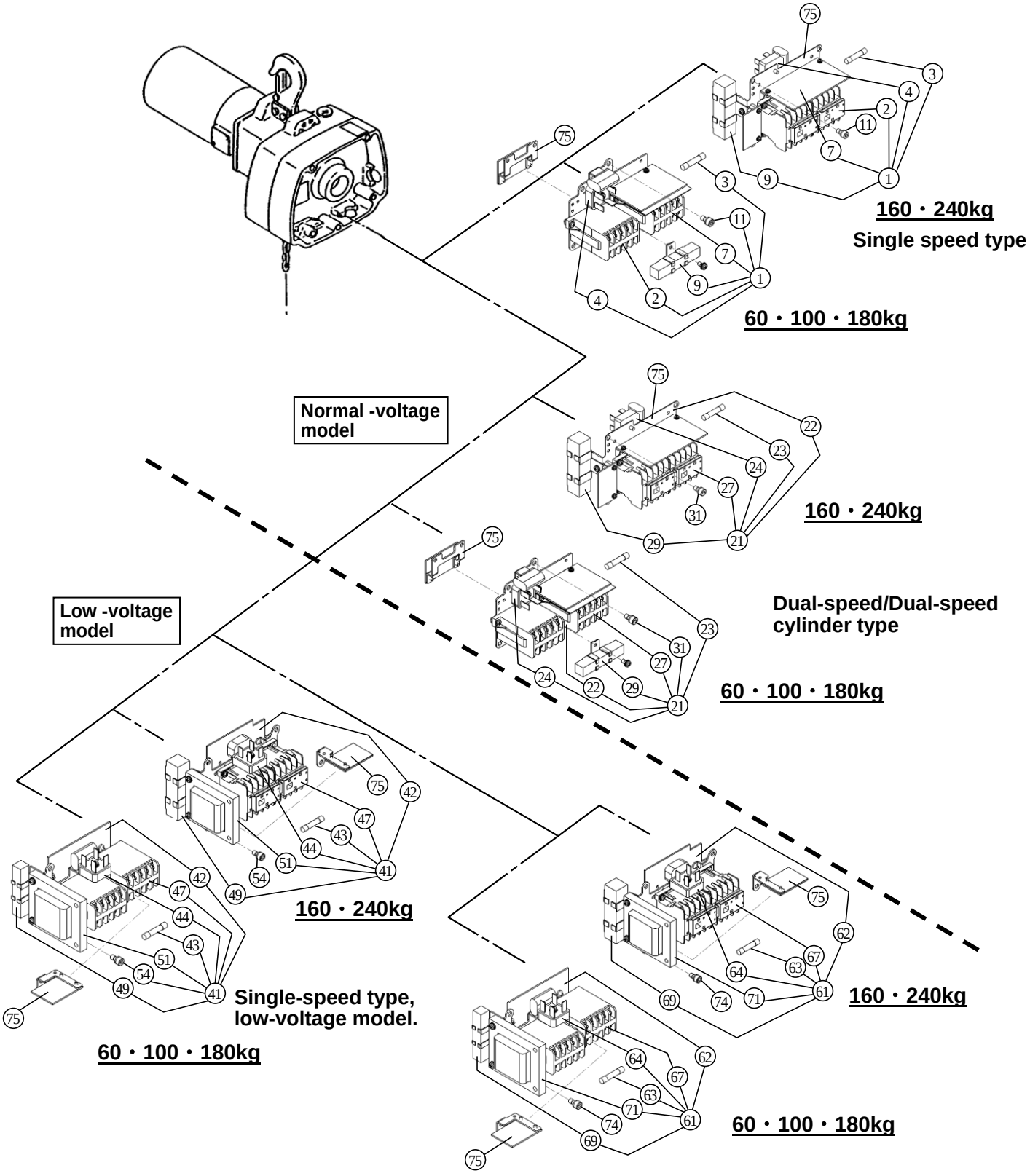
Table 3: Dual-speed cylinder type

The complete set of push button codes depends on the power supply and control voltage.

Power voltage	Control voltage	Part Name	Nos. Per Hoist	Capacity					Lift
				60kg	100kg	180kg	160kg	240kg	
120V	Normal	Push button cord 7C complete set	1	Z6BZ210A1020	←	Z6BZ218A1020	Z6BZ210A1020	←	For 1.8m
	low	Push button cord 7C complete set	1	Z6BZ210C1020	←	Z6BZ218C1020	Z6BZ224C1020	←	For 1.8m
240V	Normal	Push button cord 7C complete set	1	Z6BZ210B1020	←	Z6BZ218B1020	Z6BZ210B1020	←	For 1.8m
	low	Push button cord 7C complete set	1	Z6BZ210C1020	←	Z6BZ218C1020	Z6BZ224C1020	←	For 1.8m

Electric component

Component parts are different by either normal or low voltage type as well as either single or dual speed type.



Normal-voltage model (single-speed type)

Fig No.	Part No.	Part Name	Nos. Per Hoist	Capacity					Re-mark
				60kg	100kg	180kg	160kg	240kg	
1	E3DC1601	Control panel complete set	1	E3DPX10S1601	←	←	E3DPX24S1601	←	For 120V
				E3DDX10A1601	←	←	E3DDX24A1601	←	For 240V
2	E2D616	Converter assembly	1	E2DPX10S1616	←	←	E2DPX24S9616	←	For 120V
				E2DDX10A1616	←	←	E2DDX24A9616	←	For 240V
3	E2D664A	Fuse set	*1	E1DBX10S1644	←	←	E1DBX20S1644	←	For 120V
				E2DDX10S1676	←	←	E1DBX10S1644	←	For 240V
4	E2D622	Silicone stack assembly	1	E2DPX10S5622	←	←	E2DPX24S5622	←	
5	E2D667	Machine screw with spring washer	2	J1AW2-3000808	←	←	J1AP2-3000808	←	For converter
6	E2D663	Machine screw with spring washer	1	J1AW2-4001818	←	←	J1AP2-4001818	←	For silicone stack
7	E2D617	Electromagnetic contactor	2	E2DPX10S9617	←	←	×	×	For 120V
				E2DDX10S9617	←	←	×	×	For 240V
		Electromagnetic contactor complete set	1	×	×	×	MGC2331XA	←	For 120V
				×	×	×	MGC2331YA	←	For 240V
8	E2D661	Machine screw with spring washer	4	J1AP2-4001010	←	←	×	×	For contactor
	------	Machine screw with spring washer	4	×	×	×	J1AP2-4001414	←	For base
9	E2D619	Resistor	1	E2DPX10S9619	←	←	E2DPX24S9619	←	For 120V
				E2DDX10S9619	←	←	E2DDX24S9619	←	For 240V
10	E2D665	Machine screw with spring washer	1	J1AW2-4000808	←	←	J1AP2-4000808	←	For resistor
75	E3D371	Abrupt reverse operation protection board	1	E3DEX10S5371	←	←	E3DEX24S5371	←	For 240V
11	E2D651	Socket bolt with spring washer	3	J1BG2-0501010	←	←	×	×	
			4	×	×	×	J1BG2-0501010	←	

*1: Contents of fuse set are tabulated in page 33.

Normal-voltage model (dual-speed/dual-speed cylinder type)

Fig No.	Part No.	Part Name	Nos. Per Hoist	Capacity					Re-mark
				60kg	100kg	180kg	160kg	240kg	
21	E3DC1601	Control panel complete set	1	E3DPX10R1601	←	←	E3DPX24R1601	←	For 120V
				E3DDX10B1601	←	←	E3DDX24B1601	←	For 240V
22	E2D616	Converter assembly	1	E2DPX10R1616	←	←	E2DPX24R9616	←	For 120V
				E2DDX10B1616	←	←	E2DDX24B9616	←	For 240V
23	E2D664A	Fuse set	*1	E1DBX10R1644	←	←	E1DBX20R1644	←	For 120V
				E2DDX10R1676	←	←	E1DBX10R1644	←	For 240V
24	E2D622	Silicone stack assembly	1	E2DPX10S5622	←	←	E2DPX24S5622	←	
25	E2D667	Machine screw with spring washer	2	J1AW2-3000808	←	←	J1AP2-3000808	←	For converter
26	E2D663	Machine screw with spring washer	1	J1AW2-4001818	←	←	J1AP2-4001818	←	For silicone stack
27	E2D617	Electromagnetic contactor	2	E2DPX10S9617	←	←	×	×	For 120V
				E2DDX10S9617	←	←	×	×	For 240V
		Electromagnetic contactor complete set	1	×	×	×	MGC2331XA	←	For 120V
				×	×	×	MGC2331YA	←	For 240V
28	E2D661	Machine screw with spring washer	4	J1AP2-4001010	←	←	×	×	For contactor
	------	Machine screw with spring washer	4	×	×	×	J1AP2-4001414	←	For base
29	E2D619	Resistor	1	E2DPX10S9619	←	←	E2DPX24S9619	←	For 120V
				E2DDX10S9619	←	←	E2DDX24S9619	←	For 240V
30	E2D665	Machine screw with spring washer	1	J1AW2-4000808	←	←	J1AP2-4000808	←	For resistor
75	E3D371	Abrupt reverse operation protection board	1	E3DEX10S5371	←	←	E3DEX24S5371	←	For 240V
31	E2D651	Socket bolt with spring washer	3	J1BG2-0501010	←	←	×	×	
			4	×	×	×	J1BG2-0501010	←	

*1: Contents of fuse set are tabulated in page 33.

Low -voltage model (single-speed type)

Fig No.	Part No.	Part Name	Nos. Per Hoist	Capacity					Remark
				60kg	100kg	180kg	160kg	240kg	
41	E3D1601	Control panel complete set	1	E3VPK10S1601	←	←	E3VPK24S1601	←	For 120V
				E3VDX10S1601	←	←	E3VDX24S1601	←	For 240V
42	E2D616L	Converter assembly	1	E2VPK10S9616	←	←	E2VPK24S9616	←	For 120V
				E2VDX10S9616	←	←	E2VDX24S9616	←	For 240V
43	E2D664A	Fuse set	*1	E2VPK06S1664	←	←	E2VPK24S1664	←	For 120V
				E2DDX10S1676	←	←	E1DBX10S1644	←	For 240V
44	E2D622	Silicone stack assembly	1	E2VPK10S5622	←	←	E2VPK24S5622	←	For 120V
				E3VPX10S5622	←	←	E3VPX24S5622	←	For 240V
45	E2D667	Machine screw with spring washer	4	J1AW2-3000808	←	←	J1AP2-3000808	←	For converter
46	E2D663	Machine screw with spring washer	1	J1AW2-4001616	←	←	J1AP2-4001818	←	For 120V, For silicone stack
				J1AW2-4001818	←	←	J1AP2-4001818	←	For 240V, For silicone stack
47	E2D617L	Electromagnetic contactor	2	E2VPK10S9617 for 240V	←	←	×	×	
		Electromagnetic contactor complete set	1	MGFK10A2A for 120V*2	←	←	MGC23312A for 120V, 240V	←	
48	E2D661	Machine screw with spring washer	4	J1AP2-4001010	←	←	×	×	For contactor
	------	Machine screw with spring washer	4	×	×	×	J1AP2-4001414	←	For base
49	E2D619	Resistor	1	E2VPK10S9619	←	←	E2VPK24S9619	←	For 120V
				E2VDX10S9619	←	←	E2VDX24S9619	←	For 240V
50	E2D665	Machine screw with spring washer	1	J1AW2-4000808	←	←	J1AP2-4000808	←	For resistor
51	E2D702L	Transformer	1	E2VPK10S9702	←	←	E2VPK24S9702	←	
52	E2D670L	Nut	2	J1NA002-20040	←	←	←	←	For transformer
53	E2D671L	Machine screw with spring washer	2	J1AW2-4001818	←	←	J1AP2-4001818	←	For transformer
75	E3D371	Abrupt reverse operation protection board	1	E3DEX10G5371	←	←	E3DEX24G5371	←	For 240V
54	E2D651	Socket bolt with spring washer	3	J1BG2-0501010	←	←	×	×	
			4	×	×	×	J1BG2-0501010	←	

Part which part No. is suffixed with L is only for low voltage control type hoist.

*1: Contents of fuse set are tabulated in page 33.

*2: With Electromagnetic contactor, Attachment spacer, Machine screw and Lead wire.

Low -voltage model (dual-speed/dual-speed cylinder type)

Fig No.	Part No.	Part Name	Nos. Per Hoist	Capacity					Remark
				60kg	100kg	180kg	160kg	240kg	
61	E3DC1601	Control panel complete set	1	E3VPK10R1601	←	←	E3VPK24R1601	←	For 120V
				E3VDX10R1601	←	←	E3VDX24R1601	←	For 240V
62	E2D616L	Converter assembly	1	E2VPK10R9616	←	←	E2VPK24R9616	←	For 120V
				E2VDX10R9616	←	←	E2VDX24R9616	←	For 240V
63	E2D664A	Fuse set	*1	E2VPK06S1664	←	←	E2VPK24S1664	←	For 120V
				E2DDX10S1676	←	←	E1DBX10S1644	←	For 240V
64	E2D622	Silicone stack assembly	1	E2VPK10S5622	←	←	E2VPK24S5622	←	For 120V
				E3VPX10S5622	←	←	E3VPX24S5622	←	For 240V
65	E2D667	Machine screw with spring washer	4	J1AW2-3000808	←	←	J1AP2-3000808	←	For converter
66	E2D663	Machine screw with spring washer	1	J1AW2-4001616	←	←	J1AP2-4001818	←	For 120V / For silicone stack
				J1AW2-4001818	←	←	J1AP2-4001818	←	For 240V / For silicone stack
67	E2D617L	Electromagnetic contactor	2	E2VPK10S9617 for 240V	←	←	×	×	
		Electromagnetic contactor complete set	1	MGFK20A2A for 120V*2	←	←	MGC23312A for 120V, 240V	←	
68	E2D661	Machine screw with spring washer	4	J1AP2-4001010	←	←	×	×	For contactor
	------	Machine screw with spring washer	4	×	×	×	J1AP2-4001414	←	For base
69	E2D619	Resistor	1	E2VPK10S9619	←	←	E2VPK24S9619	←	For 120V
				E2VDX10S9619	←	←	E2VDX24S9619	←	For 240V
70	E2D665	Machine screw with spring washer	1	J1AW2-4000808	←	←	J1AP2-4000808	←	For resistor
71	E2D702L	Transformer	1	E2VPK10S9702	←	←	E2VPK24S9702	←	
72	E2D670L	Nut	2	J1NA002-20040	←	←	←	←	For transformer
73	E2D671L	Machine screw with spring washer	2	J1AW2-4001818	←	←	J1AP2-4001818	←	For transformer
75	E3D371	Abrupt reverse operation protection board	1	E3DEX10G5371	←	←	E3DEX24G5371	←	For 240V
74	E2D651	Socket bolt with spring washer	3	J1BG2-0501010	←	←	×	×	
			4	×	×	×	J1BG2-0501010	←	

Part which part No. is suffixed with L is only for low voltage control type hoist.

*1: Contents of fuse set are tabulated in page 33.

*2: With Electromagnetic contactor, Attachment spacer, Machine screw and Lead wire.

Trolley related

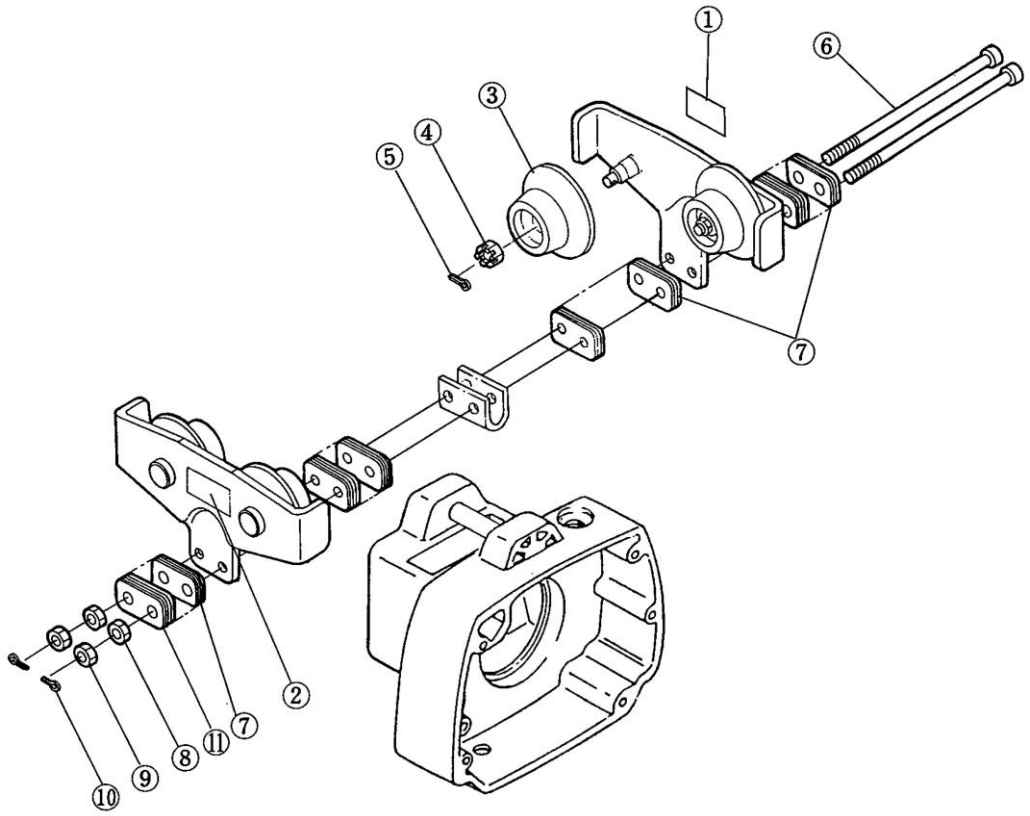


Fig. No.	Part No.	Part Name	Nos. Per Trolley	Capacity
				250kg
1	T1H 801	Name plate C	1	T1HAX30-9801
2	T1H 800	Name plate B	1	T1HAX20-9800
3	T1H5102	Track wheel assembly	4	T1HAX20-9102
4	T1H 152	Slotted nut	4	C3BA010-9049
5	T1H 153	Split pin	4	J1PW01-020012
6	T1H 115	Socket bolt	2	T1HAX20-9115
7	T1H 116	Adjusting spacer	34	T1HAX20-9116
8	T1H 157	Nut	2	J1NA002-30080
9	T1H 155	U nut	2	T1HAX30-9155
10	T1H 156	Split pin	2	J1PW01-020012
11	T1H117	Adjusting spacer B	2	T1HAX30-9117

PARTS LIST (480kg)

Top/bottom hook, suspender, chain container (480kg)

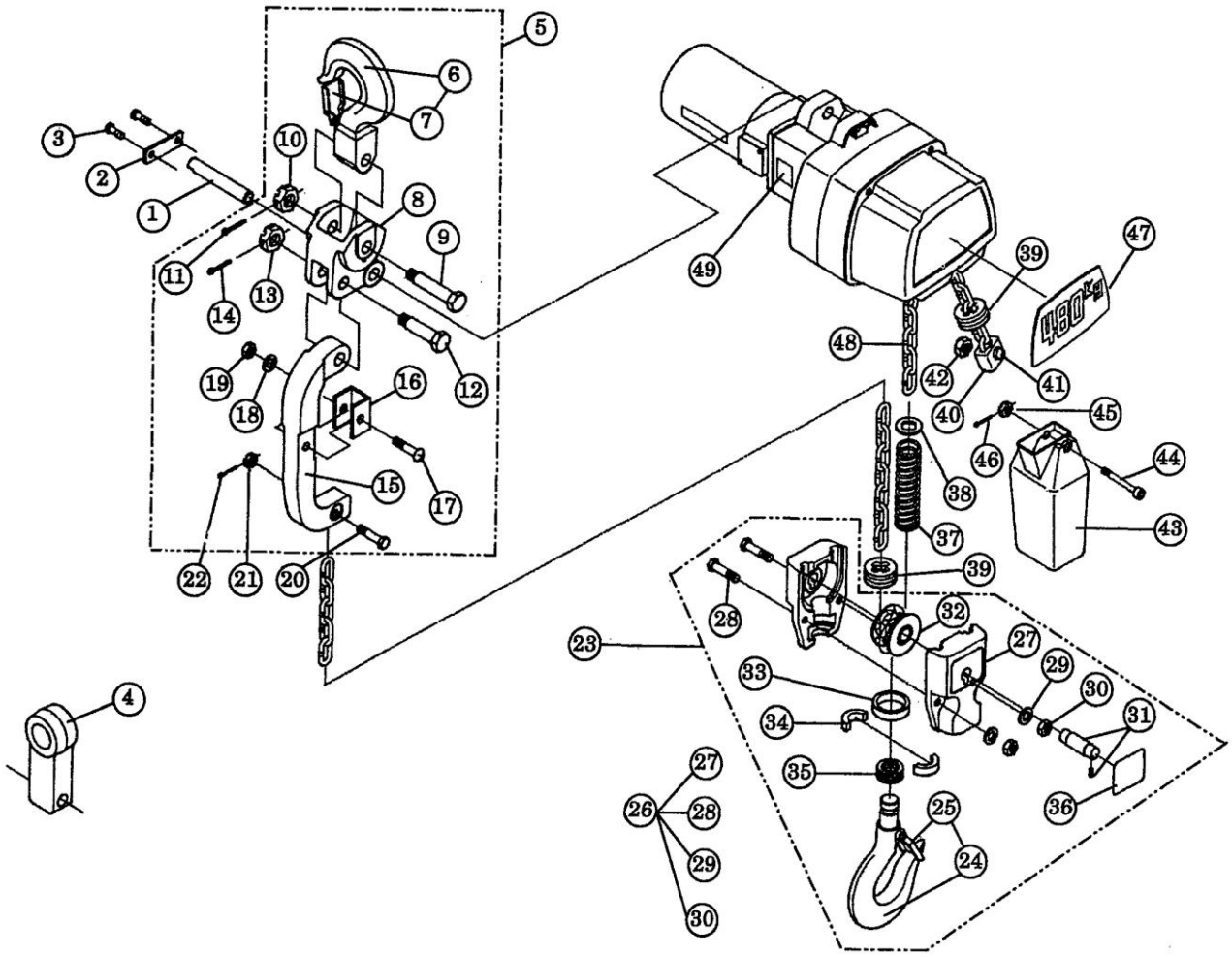


Fig. No.	Part No.	Part Name	Nos. Per Hoist	Supplement	Remark
1	E2D-117	Top pin E	1	E2DBX24S9117	
2	E2D-118	Shaft stopper	1	E2DBX24S9118	
3	E3D-155	Socket bolt with spring	2	J1BG2-0501010	
4	T7PB-004	Suspender PB	1	T7PB005-9004	PT Connect
	T7GB-004	Suspender GB	1	T7GB010-9004	GT Connect
5	E3D-1470	Connection yoke complete set	1	E3DBX48S1470	
6	E3D-460	Top hook assembly	1	E3DBX48S6460	
7	E3D-461	Hook latch assembly	1	C1FA005-1071	
8	E3D-470	Connection yoke	1	E3DBX48S9470	
9	E3D-471	Yoke bolt	1	E5SE005L9006	
10	E3D-472	Slotted nut	1	J1NL001-10100	
11	E3D-473	Split pin	1	J1PW01-025018	
12	E3D-581	Connection bolt	1	E3DBX48S9581	
13	E3D-582	Slotted nut	1	J1NL001-10100	

Fig No.	Part No.	Part Name	Nos. Per Hoist	Supplement	Remark
14	E3D-583	Split pin	1	J1PW01-025018	
15	E3D-580	Joint yoke	1	E3DBX48S9580	
16	E3D-592	Protection pad	1	E3DBX48S9592	
17	E3D-593	Truss head machine screw	1	J1AG2-5003535	
18	E3D-594	Washer	1	J1WD012-00050	
19	E3D-595	U nut	1	E2DBX10S9853	
20	E1D-041	Chain pin	1	E1DBX10S9041	
21	E1D-049	Slotted nut	1	E1DBX10S9049	
22	E1D-096	Split pin	1	J1PW02-016008	
23	E3D-1480	Bottom hook complete set	1	E3DBX48S1480	
24	E3D-2480	Bottom hook assembly	1	E3DBX48S2480	
25	E3D-491	Hook latch assembly	1	ER1BS1002	
26	E3D-2485	Bottom yoke assembly	1	E3DBX48S2485	
27	E3D-485	Bottom yoke	2	E3DBX48S9485	
28	E3D-496	Bolt	2	J1BA1-0602518	
29	E3D-498	Spring lock washer	2	J1WS011-20060	
30	E3D-497	Nut	2	J1NA001-20060	
31	E3D-6489	Bottom shaft assembly	1	E3DBX48S6489	
32	E3D-6487	Idle sheave assembly	1	E3DBX48S6487	
33	E3D-482	Thrust collar A	1	E2YS005-9026	
34	E3D-483	Hook stopper	2	E5FS005L9027	
35	E3D-481	Thrust bearing	1	J1GS000-51103	
36	E3D-597	Name plate C	1	E3DBX48S9597	
37	E3D-590	Chain spring	1	E3DBX48S9590	
38	E3D-591	Washer	1	E3DBX48S9591	
39	E3D-046	Cushion rubber	2	E3DBX10S9046	
40	E3D-1045	Stopper complete set	1	E1DBX10S1045	
41	E2D-086	Socket bolt with spring washer	1	J1BG2-0502020	
42	E2D-087	Lever nut	1	C2BA020-9074	
43	E2D-1835	Chain container (6) (plastic type)	1	E2DBX10S1835	Lift: 3m
	E2D-1833	Chain container (15) (canvas type)	1	E2DBX10S1833	Lift: 3.1-7.5m
	E2D-1834	Chain container (30) (canvas type)	1	E2DBX10S1834	Lift: 7.6-15m
44	E2D-854	Socket bolt BP	1	E2DBX10S9854	For plastic type
				E2DBX10S9851	For canvas type
45	E2D-853	U nut	1	E2DBX10S9853	
46	E2D-852	Split pin	1	J1PW02-016008	
47	E2D-801	Name plate B	1	E3DBX48S9801	
48	E2D-841	Load chain	1	(See Table 4)	
49	E3D-599	Warning seal E (Finger protection)	1	E3DBX48S9599	

Table 4: Load chain

Item code is set according to the lift length.

lift	480kg
3m	K6CN040J00655
4m	K6CN040J00856
6m	K6CN040J01260
10m	K6CN040J02066
15m	K6CN040J03075

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