

KITO

OM-ER2LLZ-CEE-02



Original Instruction

Electric Chain Hoist ER2—High-Function Series

Dual-speed Inverter (VFD) [125kg-5t]

**Limit Lock + Lift-off/Grounding Impact
Attenuation**

Owner's Manual (Supplement)

Introduction

This ER2 electric chain hoist - high function series limit lock + lift-off/grounding impact attenuation unit is an exclusive kit for enhancing the functionality of the ER2 electric chain hoist. It enables you to use press button switches to easily set upper and lower limit lock positions and lift-off/grounding positions for the bottom hook based on the work, thus easing your work load.

Safety Precautions

DANGER



Mandatory

- If you wish to incorporate this limit lock + lift-off/grounding impact attenuation unit with an ER2 you already own, be sure to contact your nearest Kito sales outlet or service shop. Also, as additional modifications are required to use crane specifications, be sure to contact your nearest Kito sales outlet or service shop.
- It is imperative to have a qualified specialist customize your hoist with this kit.
- This owner's manual addresses specific characteristics of the limit lock + lift-off/grounding impact attenuation unit. Prior to use, read this manual and the "ER2 Series Electric Hoist (125kg-5t) Owner's Manual" (separate manual) and follow their instructions.

Failure to follow these instructions may cause a serious accident, resulting in a grave injury or death.

CAUTION



Prohibited

- Do not use the limit lock + lift-off/grounding impact attenuation unit with any hoist other than the ER2 electric chain hoist.

Failure to follow these instructions may cause a serious accident, resulting in a grave injury or death.



Mandatory

- After performing position settings, be sure to check that the hoist operates according to the settings.
- Before beginning work, be sure to check that the bottom hook decelerates/stops correctly using the limit lock + lift-off/grounding impact attenuation function.

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

Product Specifications

Applicable Model : ER2 Electric Chain Hoist (125kg to 5t) (Excluding the 2.8t G series)

Voltage : 3-phase 230V-50Hz, 380-415V-50Hz

Limit Lock Function + Lift-off/Grounding Impact Attenuation

No. of settings

Limit lock position: 1 each for upper and lower

Impact Attenuation - Lift-off/grounding positions:1 each

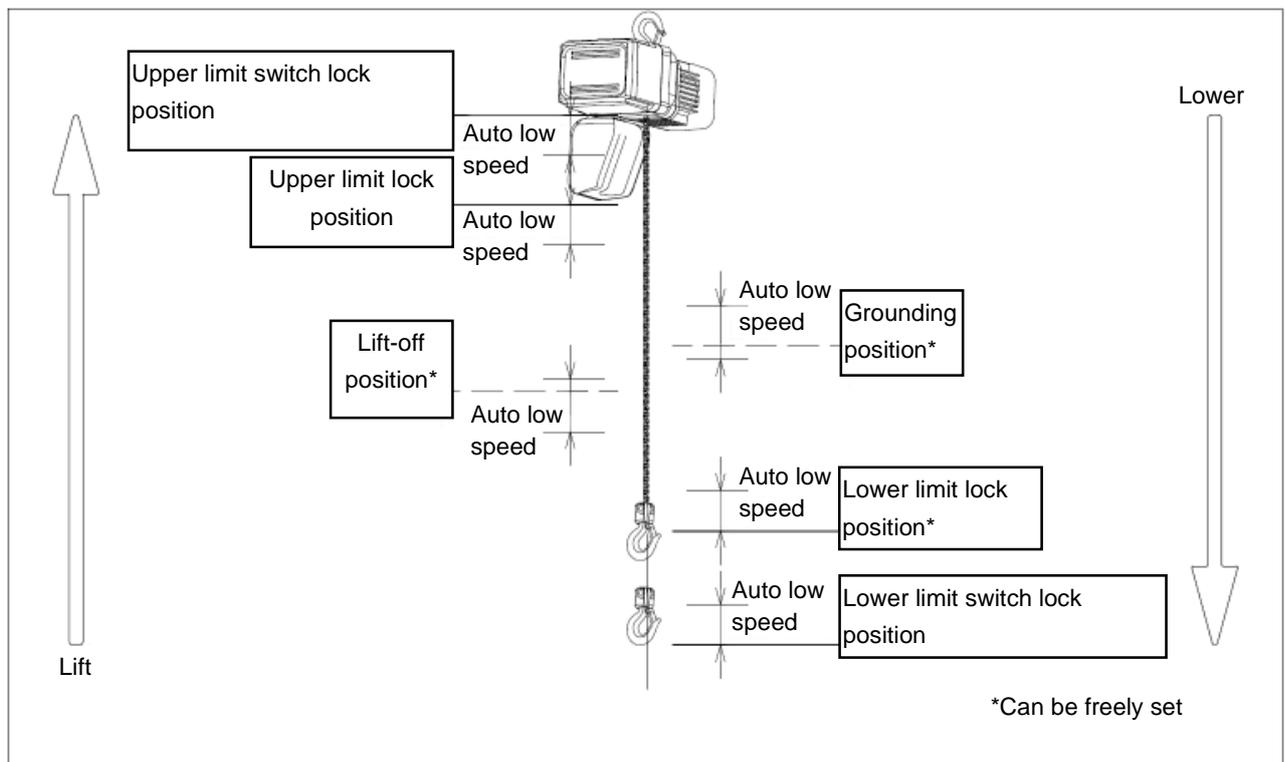
Stop precision : $\pm 10\text{mm}$

(Note: when a load is on the chain, this figure excludes the impact of chain stretch)

Even if a limit lock position or lift-off/grounding position setting is not made, the hoist automatically switches to low speed when it approaches the upper/lower limit switch lock positions.

Operating range : -20°C to 40°C

Operating humidity: 85%RH (no condensation)



Making Settings

Limit Lock Position + Lift-off/Grounding Positions

Activating this function allows you to set one upper limit and one lower limit to automatically stop at, and one lift-off position and one grounding position to decelerate at, anywhere within the lifting range with just the push of a button. (No lock positions or lift-off/grounding positions are set when this unit is shipped.)

<Setting Procedure>

If the product has been shipped from the factory (if this unit is already incorporated), steps 1 and 2 are not required.

If you have replaced parts or the chain, be sure to carry out the procedure starting from step 1.

1. Initial setting
2. Registering the chain length
3. Setting the limit lock and lift-off/grounding positions
4. Resetting the origin

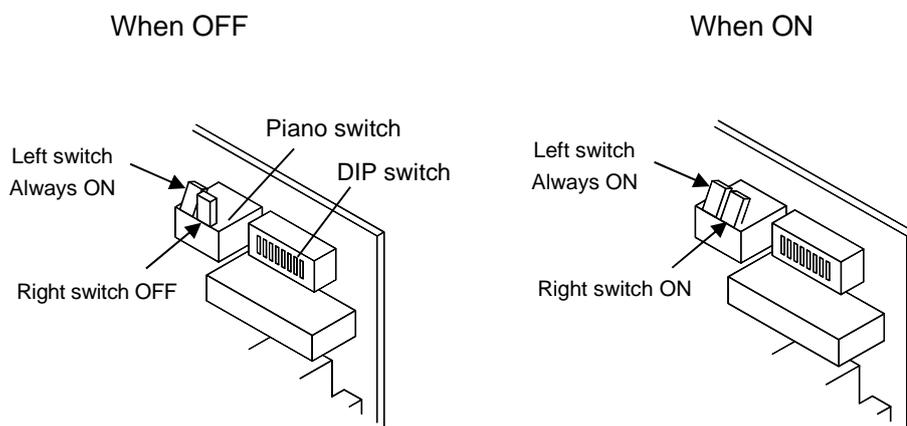
1. Initial setting

As initial setting, to enable settings of the limit lock and lift-off/grounding impact attenuation functions, switch the right side of the piano switch on the interface board to ON.

(This is enabled (set to ON) when shipped from the factory.)

<Making Settings>

- (1) When operating the piano switch, do so with the main power shut off and the electric chain hoist not electrified.
- (2) Open the controller cover and switch the right side of the piano switch on the interface board to ON (press down) as shown below. This allows settings to be made.



2. Registering the chain length

Registering the chain length allows you to set precise positions for stopping anywhere you wish. Further, as the hoist approaches the upper/lower limit switches, it automatically switches to low speed operation, thus avoiding a shock when operating the hoist to its limits. (If your hoist came with the chain already assembled, its chain length is already registered, so this step is not necessary.)

 CAUTION	
 Mandatory	<ul style="list-style-type: none">• While the chain length is registered when the product is shipped, if parts have been replaced or if the hook or chain has been replaced, the chain length must be registered again. (When the kit is shipped by itself, the chain length is not registered, so it must be done.) <p>Failure to comply with these instructions may result in malfunction and/or a serious accident.</p>

<Registration Procedure>

(1) Turn on the electric chain hoist.

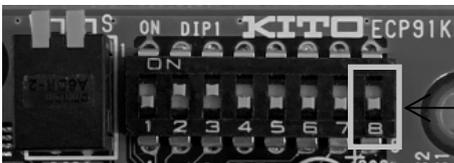
(2) If you open the controller cover, you'll see the DIP switches on the board (figure below).

Turn DIP switch number 8 to ON (flip the switch up). This allows registration to be made.

(3) Cause the upper and lower limit switches to actuate once each in that order and stop the hoist by operating the hoist to its limits.

This completes chain length registration.

(4) After registration, return DIP switch number 8 to its OFF position. (Flip the switch back down.)



Turn DIP switch 8 ON (raise it) for registration.
After registration, turn it OFF (lower it) (return it to its original position).

 DANGER	
 Mandatory	<ul style="list-style-type: none">• When registering the chain length, do so with no load on the hoist.• When operating the DIP switch during chain length registration, take care not to get a shock or to short any of the board parts. <p>Failure to follow this instruction may cause a serious accident, resulting in a grave injury or death.</p>

 CAUTION	
 Mandatory	<ul style="list-style-type: none">• After registration, return DIP switch number 8 to the OFF position.• The positions 1 to 7 on the DIP switch vary between ON and OFF depending on the model, so do not change these settings. <p>Failure to comply with these instructions may result in malfunction and/or a serious accident.</p>

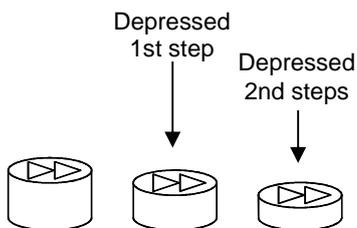
3. Setting the limit lock and lift-off/grounding positions

<Setting Method>

As shown in the table below, the setting method uses 3 buttons, namely, the emergency stop button, the lift button (⬆️), and the lower button (⬇️).

(1) Setting the limit lock positions

- This procedure sets and cancels the upper and lower limit positions.
The upper limit position can be set following Steps 1 to 4. Likewise, the lower limit position can be set following Steps 1 to 4.



Step	Set position		Cancel	
	Upper limit lock position	Lower limit lock position	Upper limit lock position	Lower limit lock position
0	Make sure the right side of the piano switch is ON.			
1	Move the bottom hook to the position to be set.		—	
2	Press the emergency stop button once.			
3	Lifting ⬆️ 1st step Press and hold 5+ seconds	Lowering ⬇️ 1st step Press and hold 5+ seconds	Lifting ⬆️ 2nd step Press and hold 5+ seconds	Lowering ⬇️ 2nd step Press and hold 5+ seconds
4	Rotate the emergency stop button to release it			

(2) Setting the lift-off/grounding positions

- This procedure sets and cancels the lift-off/grounding positions.
The lift-off position can be set following Steps 1 to 4. Likewise, the grounding position can be set following Steps 1 to 4.

Step	Set position		Cancel	
	Lift-off position	Grounding position	Lift-off position	Grounding position
0	Make sure the right side of the piano switch is ON.			
1	Move the bottom hook to the position to be set.		—	
2	Press the emergency stop button once, release it within 5 seconds, and then press it again.			
3	Lifting ⬆️ 1st step Press and hold 5+ seconds	Lowering ⬇️ 1st step Press and hold 5+ seconds	Lifting ⬆️ 2nd step Press and hold 5+ seconds	Lowering ⬇️ 2nd step Press and hold 5+ seconds
4	Rotate the emergency stop button to release it			

- * If you want to fix settings, then after performing settings, turn the right side of the piano switch to OFF (lift it forward) to save the current settings. However, you will no longer be able to change the set stop position/deceleration position.

 DANGER	
	<ul style="list-style-type: none"> • Be sure to perform settings with no load on the hoist. • Be sure to set each position only after registering the chain length (see page 4). • When operating the piano switch, do so with the main power shut off and the electric chain hoist not electrified. <p>Mandatory Failure to follow this instruction may cause a serious accident, resulting in a grave injury or death.</p>

4. Resetting the origin

The set positions may change if there is an emergency stoppage such as if there is a power outage while operating the hoist.

Before operating the hoist after the power is restored, you must Reset the Origin.

- * The hoist will only operate in low speed until you Reset the Origin.

 DANGER	
	<ul style="list-style-type: none"> • When resetting the origin, lower the hoist for a moment and put it in an unloaded state. Failing to do so will prevent a proper reset and may lead to a serious accident. <p>Mandatory Failure to follow this instruction may cause a serious accident, resulting in a grave injury or death.</p>

<Origin Reset Method>

- (1) Press the emergency stop button.
- (2) Depress the lift button () to the 2nd step for 5+ seconds. (Cancel the desired upper limit lock position.)
- (3) Rotate the emergency stop button to release it.
- (4) Lift the hoist until the upper limit switch actuates.
- (5) With the upper limit switch actuated and the hoist stopped, press the emergency stop button and simultaneously press the  button to the 1st step for 5+ seconds.
- (6) Rotate the emergency stop button to release it.

- * After resetting the origin, set the desired upper limit lock position again.

5. Error detection by LED display function of inverter

The LED display "bb" of the inverter indicates a limit lock and lift-off/grounding position error and its details can be confirmed in the following manner.

<Error code display method>

(1) Turn on the power. ("bb" displayed)

LED display
Initial screen



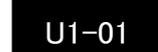
(2) Press until the monitor display screen appears.

Monitor display



(3) Press to display the parameter setting screen, and press .

Parameter setting screen



(4) Press or to display "U7-01".



(5) Press followed by or to display "U7-08".



(6) Press to display the current value (0 to 4).

(7) To quit the monitor display screen and resume operation, press .



until you return to the initial screen.

Error code (U7-08)	Content	Hoist operate mode	Error detail/cause	Countermeasure
0	No error	Normal	N/A	N/A
1	Blackout signal detected	Low speed mode	It happens when the hoist is turned off during operation. The hoist works with low speed mode only when chain length has been registered.	Calibration of the smart limit (see 4)
2	Photo sensor error	Doesn't work	Photo sensor signal could not detected.	Inspect 2 of photo sensors. See the parts list on page 10 for the photo sensors.
3	Drop load detected	Doesn't work	Smart Limit could detect any wrong signal from photo sensors, indicating opposite direction against hoist operation.	Inspect hoist to discover potential drop load mark.
4	Over count	Doesn't work	Encoder signal from photo sensors could be over 2147483648. (over count)	Calibration of the smart limit (see 4) and re-register length of chain

* If the hoist cannot be raised

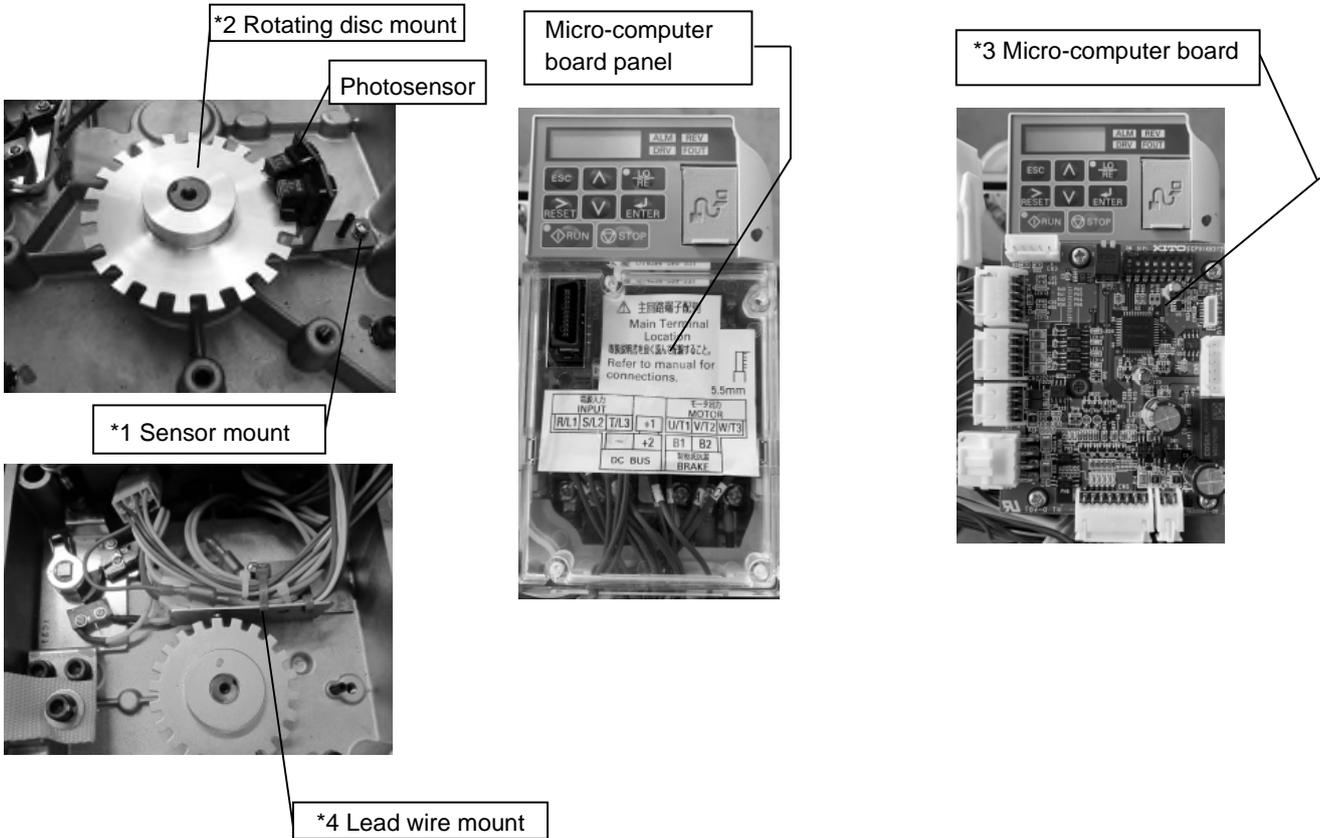
With the power on, turn DIP switch number 8 from OFF to ON. This will enable the hoist to be raised/lowered, but settings will be initiated. Perform settings again.

Maintenance Management

Please perform the daily and periodic inspections based on the following inspection sheet.
 For information on inspections other than for this product, refer to "ER2 Series Electric Chain Hoist (125kg to 5t) Parts List" (separate document) and perform the inspections as indicated.

Limit lock + lift-off/grounding position setting and stop unit inspection table

Item	Periodic Inspection		Inspection Method	Criteria	When out of Specification
	Daily	Periodically			
Screws		○	Visual	None loose	Tighten securely.
Sensor precision	○	○	Operate	Stop precision within ±10mm	Reset the origin Or replace parts
Sensor mount *1		○	Touch with your hands and confirm it is properly mounted.	The sensor mounting parts should not rattle.	Tighten securely.
Rotating disc mount*2		○		The affixing screw should be securely tightened. The rotating disc should not rattle.	Tighten securely.
Micro-computer board mount*3		○		The micro-computer board should not rattle.	Replace parts
Lead wire mount *4 (Only for 125kg to 500kg type)		○	Visual	Lead wire should be fixed on the lead wire guard to prevent it from getting entangled in the rotating disc.	Fix the lead wire on the lead wire guard with the banding band.



Parts List

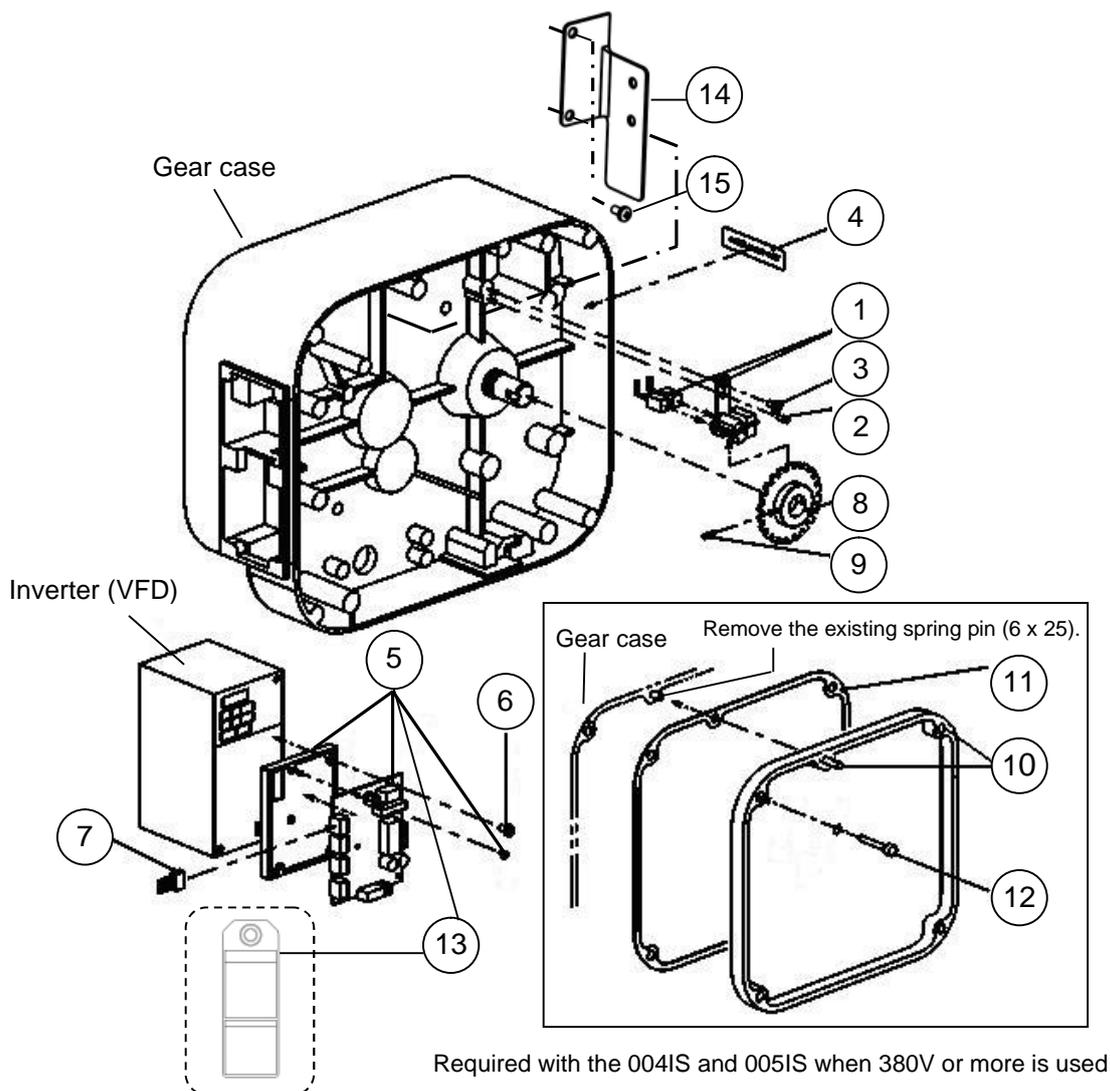


Figure No.	Part No.	Part Name	Quantity per unit	Part code	Remark
1	1669	Photosensor assembly	1	ER2BI1669	
2	672	Spring pin	1	E5SE005S9451	
3	676	Machine screw with spring washer	1	J1AP2-5000808	
4	818	Identification label	1	ER2BS9818	
5	1677	Micro-computer board set	1	ER2BEE001C7	*1
13	693	Tag IK	1	SWD9693ZC	For Push Button Switch
6	679	Pan head machine screw	1	J1AK2-3001515	
7	682	Micro-computer lead wire	1	ER2BEE03I9B3	
8	674	Rotating disc	1	ER2□□9674	*2
9	675	Socket set screw	1	J1TD011-03008	
10	5684	Spacer C assembly	1	ER2CS5684	Required with the 004IS and 005IS when 380V or more is used
11	117	Packing C	1	ER2CS9117	
12	673	Socket bolt	4	J1BE1-0505522	
14	667	Lead wire guard	1	ER2BI9667	Only for 125kg to 500kg type
15	668	Machine screw with spring washer	2	J1AP2-4000808	

*1: As DIP switches 1 to 7 are not set, you must set them to match their current settings. After replacement, perform settings again according to this manual.

*2: As part codes vary depending on the model of the ER2 electric chain hoist, please tell us the model of your ER2 electric chain hoist when placing an order.

For information on standard ER2 electric chain hoist parts, refer to “ER2 Series Electric Chain Hoist (125kg to 5t) Parts List (separate document).”

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