KITO

KITO High Speed CB

Owner's Manual (Supplement)

Contents

1. Introduction

The KITO High Speed CB is designed to allow for quicker lifting and lowering speeds when under no load than when under a rated load. Also, it switches from high-speed mode to low-speed mode automatically, and is switched from low-speed mode to high-speed mode manually by operating the hand chain.

For information, such as an explanation of the symbols used in this manual, how to use a chain hoist and safety precautions, carefully read OWNER'S(OPERATOR'S) MANUAL AND SAFETY INSTRUCTIONS FOR KITO MANUAL CHAIN HOIST M3 SERIES.

2. Safety Precautions

⚠ CAUTION

Prohibited

・Never operate the hand chain with more force than necessary or while in an unsteady posture.
When the load touches the ground or when the hand chain has been operated in a stop-go manner, the force it takes to move the hand chain will be much lower when you start operating it again, so if you pull hard on the chain, the lack of resistance may make you lose your balance.

・Never operate this product in a horizontal position (horizontal pulling).
The hand wheel may spin and fail to operate.

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

■Operating Conditions (Temperature) -20°C to +60°C (-4°to 140°F)

■Disposal

⚠ CAUTION

Mandatory

・When disposing of this product, do so in accordance with local regulations and/or the rules set out by your organization.

Failure to comply with this instruction may result in injury and/or physical damage.

3. Operation

■Explanation of Terms

Terms	Explanation
High-speed Mode	State in which the load chain moves more quickly than a standard chain hoist of the same capacity
Low-speed mode	State in which the load chain moves at the same speed as a standard chain hoist of the same capacity
Lifting switch load	Minimum load at which the hoist switches automatically from high-speed mode to low-speed mode while being lifted

■Lifting switch load

Rated Load (t)	Lifting Switch Load (t)
2.5	0.25 or less
5	0.5 or less
7.5	0.7 or less
10	0.9 or less
15	1.3 or less
20	1.8 or less
30	2.2 or less
40	2.9 or less
50	3.2 or less

Note:
The construction of KITO High Speed CB models is such that the switch load during lowering is higher than the lifting switch load.
As a result, some loads may be in the high-speed mode during lowering, even though they are in the low-speed mode during lifting.

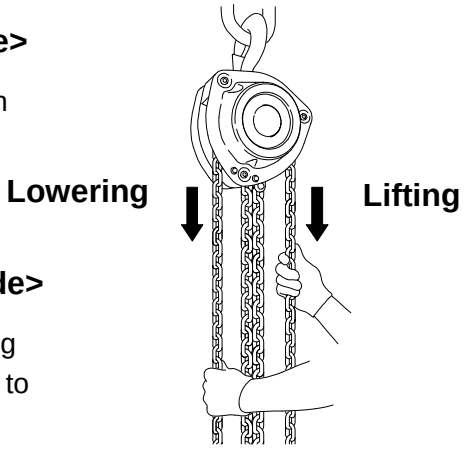
■Guide to service life of the clutch

Rated Load (t)	Expired service life of the clutch (m)
2.5	3200
5	1600
7.5	1066
10	800
15	533
20	800
30	640
40	457
50	400

■Operation Method

<Switching from High-speed Mode to Low-speed Mode>

When a load at equal to the lifting switch load or greater is put on the hook, the hoist automatically switches from the high-speed mode to the low-speed mode.



<Switching from Low-speed Mode to High-speed Mode>

- When there is no load or when the load is less than the lifting switch load, follow the steps below when you want to switch to high-speed mode.

- Quickly pull the hand chain about 15cm in the lowering direction, and then quickly pull it back about 15cm in the lifting direction.

* Strongly pulling the hand wheel down and up returns the hoist to the high-speed mode.

⚠CAUTION
・**Take care not to catch your fingers or hand in the hand wheel.** ・**If the hand chain is operated abruptly, it may cause the clutch to disengage, leaving zero load on the hand chain, so be careful not to exert more pressure than is necessary on the hand chain, the lack of resistance may make you lose your balance.**

* Immediately after switching has been completed, slowly resume lowering operation after momentarily stopping hand chain operation. The chain hoist may return to low-speed mode if the hand chain is operated abruptly.

・ If the hoist still fails to go into high speed after pulling the hand chain in the lowering direction and then pulling the hand chain in the lifting direction, follow the steps in reverse order (pull the hand chain in the lifting direction and then pull the hand chain in the lowering direction).

If after these operations the hoist still fails to go into high-speed mode, contact KITO.

Note:

・During the switch from high-speed mode to low-speed mode automatically, if the hand chain is pulled, a jerking may be felt. This is just the feeling of the transmission set's clutch engaging and is normal.
・The average amount of force to lift a load at the rated capacity is greater than a standard chain hoist.
・When the hoist is in the no-load, high-speed mode at low temperatures, the load on the hand chain is heavier.
・With a load that exceeds the lifting switch load, if the hoist has been operated in a stop-go manner, it may take more force initially to operate the hand chain.
・A rasping brake noise may be heard when pulling the chain in the lowering direction while in low-speed mode. This is normal.

<Switching to High-speed Mode when the hoist is in low-speed mode without a load >

・Operate according to <Switching from Low-speed mode to High-speed mode> in the usage section.

⚠ DANGER	
 Mandatory	・**While using this product, if it ever fails to switch smoothly from the high-speed mode to the low-speed mode, stop using it immediately and contact your nearest service shop or KITO.** Failure to follow this instruction may cause a serious accident, resulting in a serious injury or death.

4. Inspections

■Pre-Work Inspection

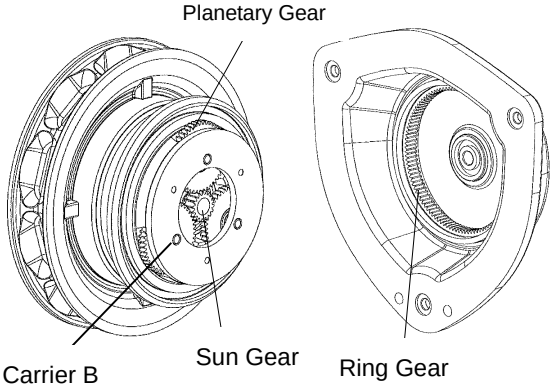
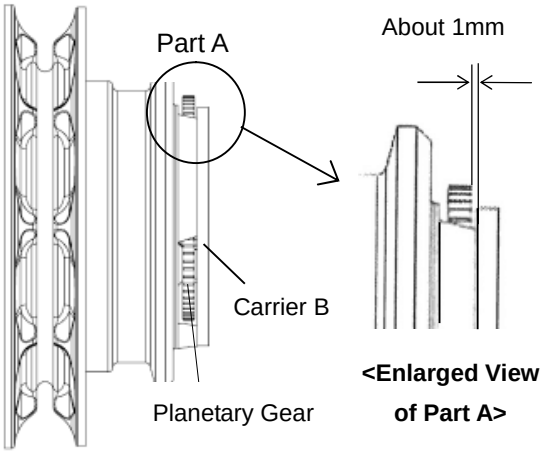
Confirm the following in conjunction with the separate OWNER'S (OPERATOR'S) MANUAL AND SAFETY INSTRUCTIONS FOR KITO MANUAL CHAIN HOIST M3 SERIES, section "7. INSPECTION".

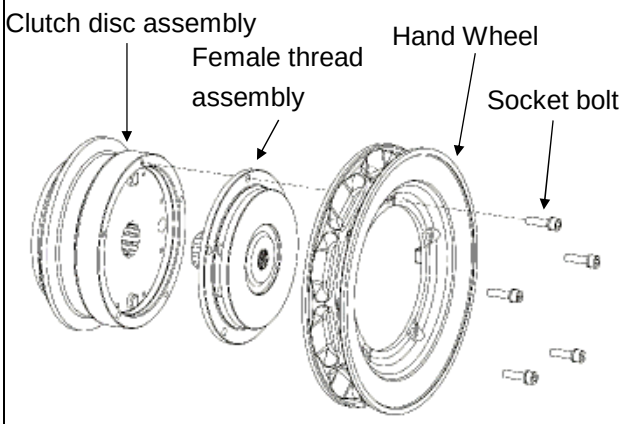
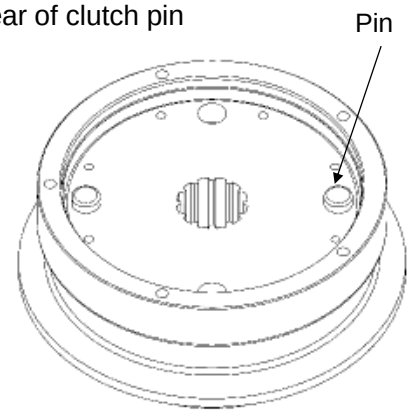
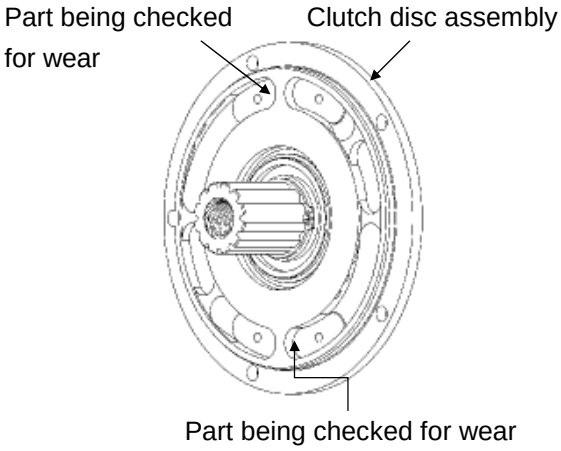
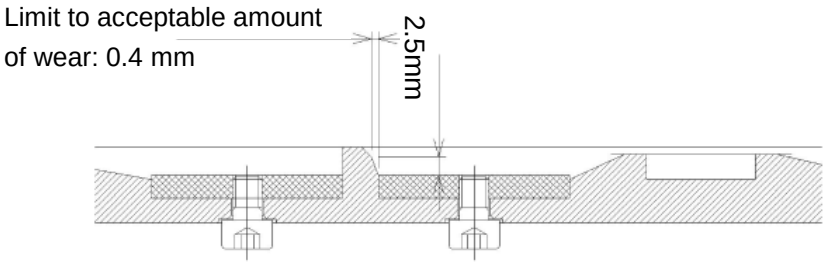
●At no load, does the hoist lift smoothly in the high-speed mode?

■Periodic Inspection

・Annual Inspection

If your hoist exceeds the discard limits or criteria listed below for any of the items, stop using it and contact your nearest service shop or Kito.

Item	Inspection Method	Discard Limit/Criteria
Winding Mechanism ①Wear and scratches on teeth of each gear	<Transmission Set> <Wheel Cover Assembly>  	・No missing teeth or marked wear or scratches in the teeth ※If used outdoors or in a dusty environment, inspect not only on an annual basis, but as required, because dust may be allowed in to wear or flaw the gear teeth.
②Planetary gear clearance	 **<Enlarged View of Part A>** **<Side View of Transmission Set>**	・A clearance of approx. 1mm at part A (between carrier B and the planetary gear).

Item	Inspection Method	Discard Limit/Criteria
③Wear of clutch pin and clutch disc	a. Remove the socket bolt from the transmission set and then remove the hand wheel and female thread assembly.  b. Wear of clutch pin  c. Wear of clutch disc  	・No pin deformation, no significant wear or scratches. ・No significant wear on the part that is being checked for wear. * The limit to the acceptable amount of wear is 0.4 mm at a height 2.5 mm from the bottom.

5. Overhaul, assembly and adjustment

The brake is disassembled and reassembled as follows.

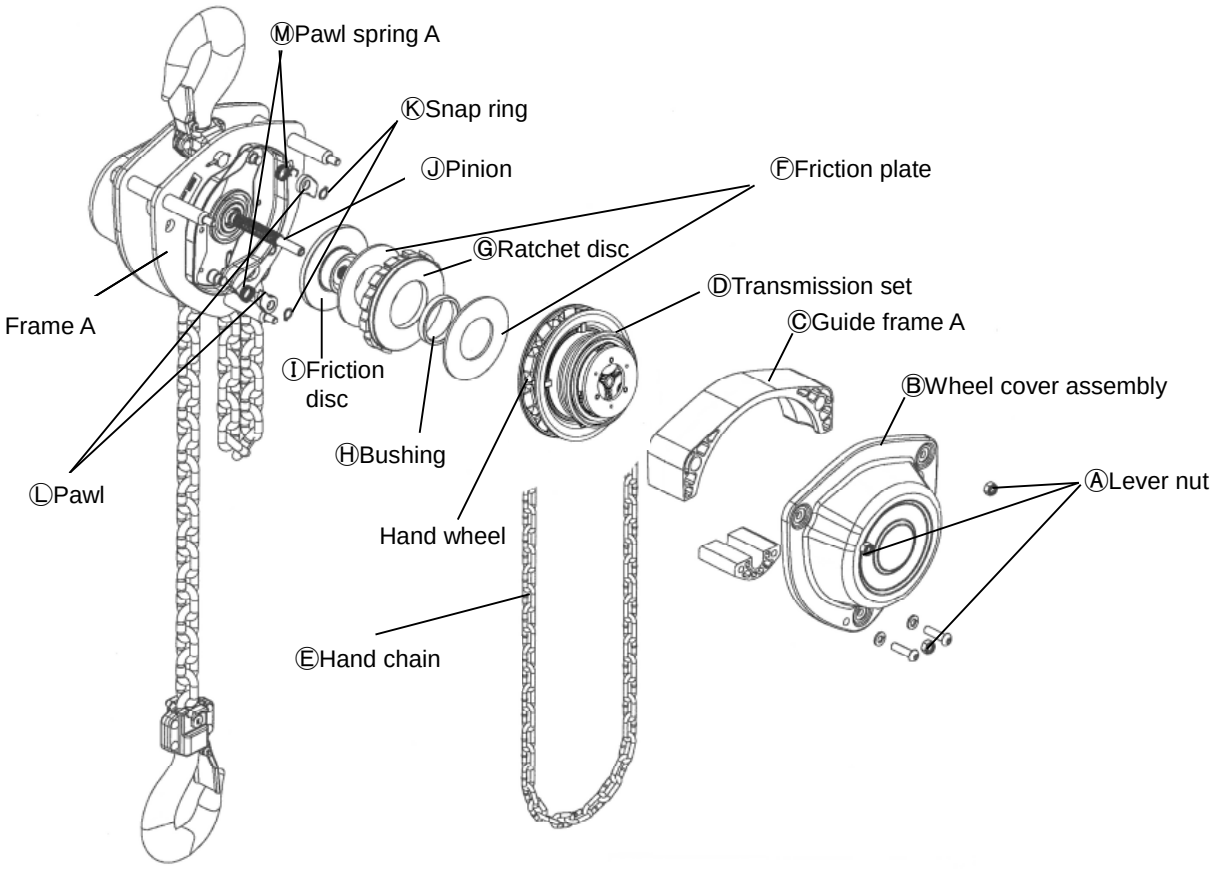
For instructions on other parts, refer to the separate OWNER'S (OPERATOR'S) MANUAL AND SAFETY INSTRUCTIONS FOR KITO MANUAL CHAIN HOIST M3 SERIES, section "8.2 Overhaul, Assembly and Adjustment".

⚠ CAUTION

- **The transmission set Ⓓ uses strong magnets, so note the precautions below during dis/reassembly.**
  - **Keep magnetic media, such as magnetized cards, tape and prepaid cards away from the unit.**
    The magnetic data may be corrupted.
  - **Keep away from precision electronics, such as computers, electronic watches and CRTs.**
  - **People with electronic medical devices, such as pacemakers, may not perform dis/reassembly.**
    Doing so may damage electronic medical equipment and other precision electronics.
  - **Do not expose to iron filings, ironsand, etc.**
  - **Before carrying out the work, please make sure that there are no metal parts in the vicinity.**
    The magnet could attract metal parts and you could have your hand pinched, causing an injury.

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

< KITO High Speed CB Disassembly Diagram>



■Brake Disassembly

1) Make sure it is in the high-speed mode before disassembly and lower it about 10cm without a load.
※If you do not do this procedure, you will not be able to pull off the transmission set Ⓓ.
Refer to "Switching from Low-speed Mode to High-speed Mode" under "Operation Method" on page 2.

2) Remove the three lever nuts Ⓐ, then remove the wheel cover assembly Ⓑ, and guide frame A Ⓒ and then remove the hand chain Ⓔ from the hand wheel of the transmission set Ⓓ.

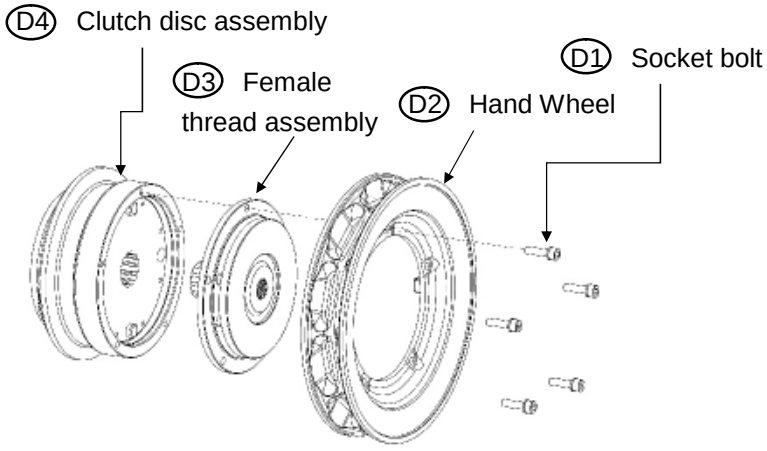
3) While holding the hand wheel of the transmission set Ⓓ, pull off the transmission set Ⓓ.

⚠ CAUTION
・**When pulling off the transmission set Ⓓ, the gears of the transmission set may turn, so take care to avoid pinching your fingers.**

4) Remove the two friction plates Ⓕ, the ratchet disc Ⓖ and the ratchet bushing Ⓗ.

5) While turning the friction disc Ⓘ to the left, remove it from the pinion Ⓙ, then remove the snap rings Ⓚ and pawls Ⓛ and two pawl springs A Ⓜ.

6) Disassembling the transmission set
You will need to disassemble the transmission set when checking the wear of the clutch pin and clutch disc in a periodic inspection.
Remove the (D1) socket bolt from the transmission set, and then remove the (D2) hand wheel and (D3) female thread assembly.



⚠ CAUTION	
Mandatory	・**Before carrying out the work, please make sure that there are no metal parts in the vicinity.** The magnet could attract metal parts and you could have your hand pinched, causing an injury. Failure to observe this instruction may cause damage or property

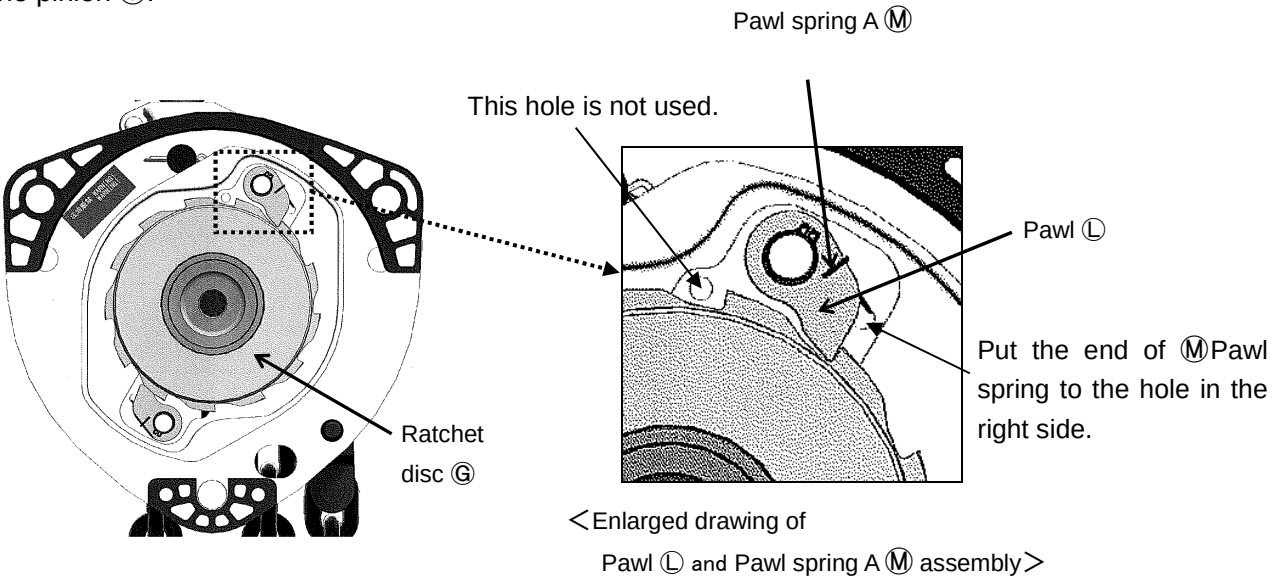
■Brake Assembly

1) Apply machine oil to the pawl shaft (in frame A), install pawl springs A Ⓜ and the pawls Ⓛ in order, securing them with the two snap rings Ⓚ.

2) Carefully wipe off any debris from the braking and sliding surfaces of the friction disc Ⓘ, two friction plates Ⓕ and ratchet disc Ⓖ and make sure the ratchet bushing Ⓗ (oil-impregnated bushing) is oily enough. Then assemble the friction plate Ⓕ (one), bushing Ⓗ, ratchet disc Ⓖ and friction plate Ⓕ (one) in order into the brake bushing.

⚠ CAUTION
・The friction plate Ⓕ are the dry type, so do not apply oil to them. **・If the bushing Ⓗ is not greasy, let it soak in turbine oil for a day, then wipe off the oil and install it.** Failure to comply with these instructions may result in injury and/or physical damage.

3) While holding the two pawls Ⓛ free with your fingers, screw the parts assembled in step 2 onto the pinion Ⓙ.



＜Enlarged drawing of Pawl Ⓛ and Pawl spring A Ⓜ assembly＞

⚠ CAUTION
・Make sure the pawl springs A Ⓜ are seated correctly on the pawls Ⓛ. And make sure the pawls Ⓛ and the ratchet disc Ⓖ are meshing correctly. Refer to the above drawings. Failure to comply with this instruction may result in injury and/or physical damage.

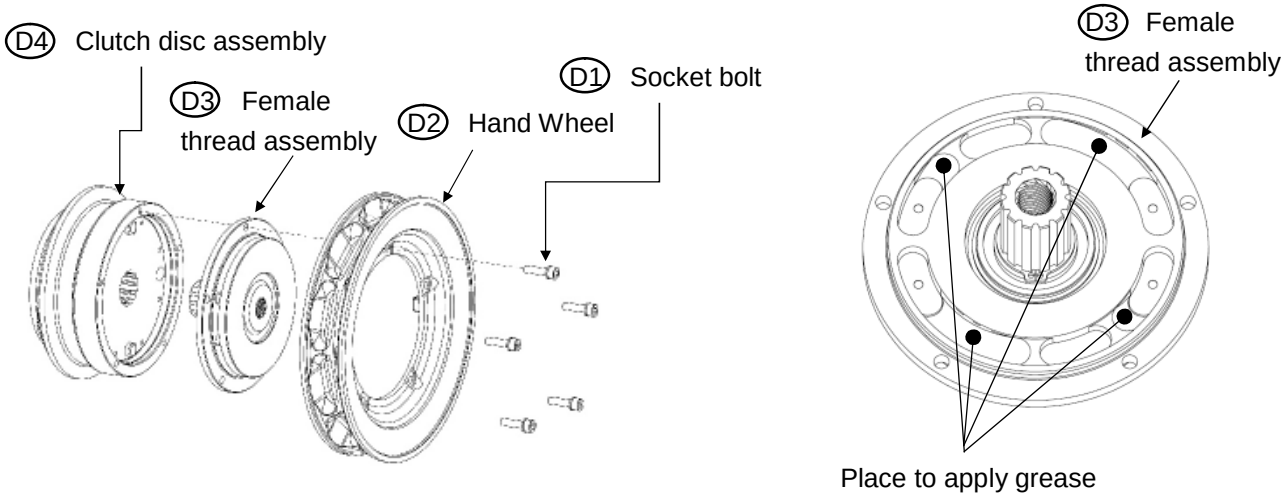
4) Assembling the transmission set

If you have disassembled the transmission set to confirm the degree of wear to the clutch pin and clutch disc in a periodic inspection, you will need to assemble it again afterwards.

Apply 1 g of grease (Sumitec 305 (Sumitomo Lubricant Co., Ltd.) to each part of the (D3) female thread assembly shown in the figure below.

Install the (D3) female thread assembly and (D2) hand wheel to the (D4) clutch disc assembly and apply 5N・m of tightening torque to the (D1) socket bolt.

<Figure: (D3) female thread assembly : Place to apply grease>



⚠ CAUTION

Mandatory

・Before carrying out the work, please make sure that there are no metal parts in the vicinity.
The magnet could attract metal parts and you could have your hand pinched, causing an injury.
Failure to observe this instruction may cause damage or property damage.

5) Wipe the surface of the transmission set Ⓓ well to remove any debris and apply the grease (Sumitec 305: Sumico Lubricant Co., LTD) to the Sun Gear. And apply machine oil to the nuts of the transmission set Ⓓ and screw them onto the pinion studs. (Refer to “KITO High Speed CB Disassembly Diagram”.)

⚠ CAUTION

・Use Sumitec 305 (Sumico Lubricant Co., LTD) for applying to the Sun Gear.
The use of wrong grease may affect operability, be sure to use the designated grease.

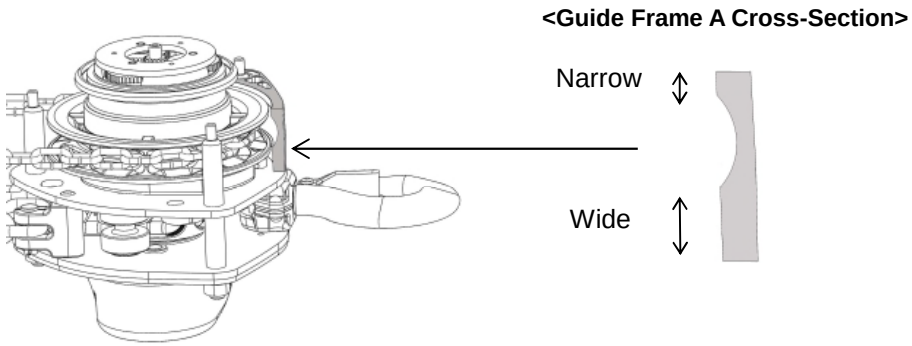
Failure to comply with this instruction may result in injury and/or physical damage.

⚠ CAUTION

・Do not install the transmission set Ⓓ in the state where the friction plate Ⓕ has fallen off.
・Do not install the transmission set Ⓓ in the state where the pawl Ⓛ has come off from the Ⓖ ratchet disc.

Failure to comply with this instruction may result in injury and/or physical damage.

6) Mount the hand chain Ⓔ on the hand wheel of the transmission set Ⓓ so the side that is wider from the groove inside guide frame A Ⓒ is on the top hook side.



7) Fit the foil cover bumper Ⓑ and tighten with a tightening torque of 6 N · m at the lever nut Ⓐ (3 places).

⚠ CAUTION

- **During installation, do not push the wheel cover assembly in excessively, but as you operate the hand wheel in the lifting direction, allow the gears to mesh.**
- **Make sure to use three new lever nuts Ⓐ.**
  Never re-use the three lever nuts which were removed from the body, during disassembly.

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

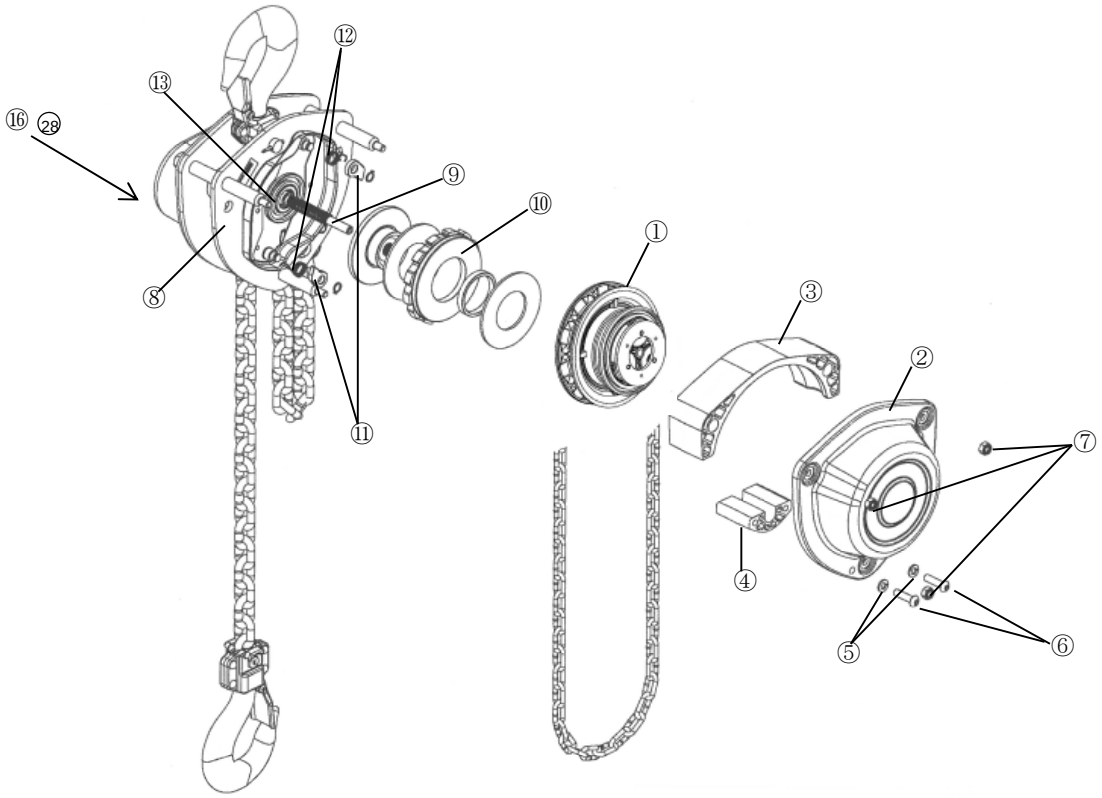
6. Troubleshooting

Refer to the following in conjunction with the separate OWNER'S (OPERATOR'S) MANUAL AND SAFETY INSTRUCTIONS FOR KITO MANUAL CHAIN HOIST M3 SERIES, section "9 Troubleshooting".

Troubleshooting

Situation	Cause	Remedy
Hoist fails to lift or Hoist fails to lower	・Debris in the gears of the transmission and wheel cover. ・Transmission set's clutch mechanism is not working properly.	・Wipe out the debris in the gears. Conduct a periodic inspection. If the hoist still fails to operate after wiping out the debris, contact your nearest service shop or KITO.
Sometimes lifts, sometimes fails to lift a load. or Sometimes lowers, sometimes fails to lower a load.	・Transmission set's clutch mechanism is not working properly.	・Stop using the hoist and contact your nearest service shop or KITO.
A rasping brake noise is heard when pulling the hand chain in the lowering direction.	・The noise is caused by the brake.	・The noise occurs due to structural reasons and is normal. It is possible to temporarily reduce the amount of noise through an overhaul of the brake assembly. Refer to section "5. Overhaul, assembly and adjustment" for overhauling.

7. Parts List



The following list is of parts specific to the KITO High Speed CB . For parts not in the list, refer to section "11. PARTS LIST" in OWNER'S (OPERATOR'S) MANUAL AND SAFETY INSTRUCTIONS FOR KITO MANUAL CHAIN HOIST M3 SERIES.

Fig. No.	Part No.	Part Name	No. per Hoist		Parts code
			WLL 2.5t to 15t	WLL 20t to 50t	
1	1301	Transmission Set	1	2	C3MA025-1301
2	5171	Wheel Cover Assembly	1	2	C3MA025-5171
3	351	Guide Frame A	1	2	C3MA025-9351
4	352	Guide Frame B	1	2	C3MA025-9352
5	368	Spring Washer	2	4	J1WS011-20080
6	373	Hex Button Head Bolt	2	4	J1BL1-0803030
7	74	Lever Nut	3	6	C2BA100-9074
8	5101	Frame A Assembly	1	2	C3BT025-5101
9	111	Pinion	1	2	C3MA025-9111
10	152	Ratchet disc	1	2	C3MA025-9152
11	155	Pawl	2	4	C3MA025-9155
12	179	Pawl Spring A	2	4	C3MA025-9179
13	140	Ball Bearing	1	2	J1GR022-06007
16 *	145	Ball Bearing	1	2	J1GR022-06007
28 *	135	Ball Bearing	1	2	J1GR022-06201

*The ball bearings fig. nos. 16 and 28 above are parts with the same figure numbers in 11. PARTS LIST in OWNER'S (OPERATOR'S) MANUAL AND SAFETY INSTRUCTIONS FOR KITO MANUAL CHAIN HOIST M3 SERIES, so refer to "11. PARTS LIST" when selecting the parts.

KITO

Global Website: kito.com