

NITCHI

H-50A/HE-50A Series SERVICE MANUAL



CX-016

Disassembly and assembly of Chain hoist

Chain hoist shall be correctly disassembled and assembled when it is checked and repaired for safety use.

This section gives the procedures and the cautious points in disassembly and assembly for chain hoist.

1-1. Procedure of disassembly

[Tools]

(1)Ratchet handle or spanner (13 , 17 , 19) (2)Pliers

(3)Pliers for Snap ring (4)Screw driver

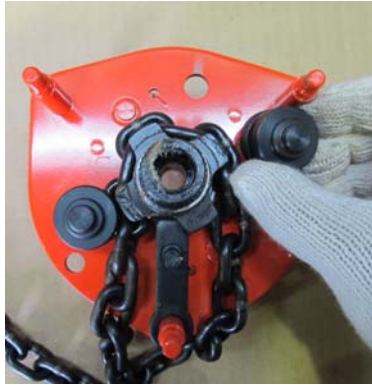
Remove the oil,mud,sand,dust,etc.from the chain block.

Then place it on the working table,and dismantle it following the procedures below.

	Procedure		Cautious points
1		Place the chain hoist with P/No.28 Handwheel cover upside. Loosen and remove three P/No.51 Spring nut from P/No.28 Handwheel cover. Detach P/No.28 Hand wheel cover from the Stay bolt.	
2		Remove P/No.7 Hand chain from P/No.25 Hand wheel.	Rotate P/No.25 Handwheel so as to Make the □ of P/No.7 Hand chain link come to the Stay bolt, and remove P/No.7 Hand chain.
3		Stretch P/No.50 split pin of P/No.1 Pinion shaft and pull it out with pliers.Loosen and remove P/No.84 Check nut.	

4		With rotating P/No.25 Handwheel counter-clockwise, detach it from P/No.1 Pinion shaft.	
5		With lifting two P/No.12 Pawl slightly, remove two P/No.14 Friction disc and P/No.15 Ratchet.	
6		With lifting two P/No.12 Pawl slightly, rotate P/No.13 Disc hub counterclockwise to detach it.	
7		Reverse the Body. Loosen and remove three P/No.55 Spring nut from P/No.27 Gear cover.	(Main body of 3t) Remove Nut for P/No.33 Yoke pin and pull P/No.33 Yoke pin out.

8		Detach P/No.27 Gear cover from the Stay bolt.	Hold P/No.32 Top hook
9		Detach two P/No.2,3 Pinion gear from P/No.22 Gear side plate.	
10		Pull out P/No.1 Pinion shaft.	
11		Remove P/No.65 Snap ring from P/No.8 Load sheave.	Tool: Pliers for Snap ring.

12		Detach P/No.4 Load gear.	
13		Detach P/No.22 Gear side plate from the Stay bolt.	When it is hard to be detached, hammer it lightly.
14		Rotate P/No.8 Load sheave so as to make the □ of P/No.9 Load chain come to P/No.16 Load chain guide, then remove both P/No.16 Load chain guides.	
15		Remove P/No.20 Load chain anchoring pin.	

16		Remove P/No.9 Load chain from P/No.8 Load sheave.	
17		Detach P/No.8 Load sheave from P/No.24 Wheel side plate.	
18		Remove P/No.18 Stripper from the Stay Bolt.	
19		[Replacement of Pawls] Detach the Snap ring from Pawl pin, and P/No.12 Pawl and P/No.10 Pawl spring can be removed.	

20		[Load chain of hook block] Loosen and remove P/No.48 Chain fastening bolt and Nut(U-nut),then P/No.9 Load chain can be detached from P/No.47 Bottom hook.	Make sure to loosen the right U-nut.
----	---	---	---

After the chain hoist was disassembled,wash all the parts and place them on the working table.

Check them with the Table-1 Inspection List of chain hoist.

As for the parts for replacement,refer the code number on the table-4 Parts List.

1-2. Procedure of assembling

After all the parts were checked and the replacement parts were prepared, assemble them as the following procedure.

[Preparation] Grease, Machine oil]

	Procedure		Cautious points
1		Insert P/No.10 Pawl spring and P/No.12 Pawl to the Pawl pin and tighten them up with P/No.66 Snap ring for Pawl pin.	Make sure P/No.66 Snap ring for Pawl pin fit in the groove of Pawl pin. Make sure P/No.10 Pawl spring is working correctly.
2		Reverse P/No.24 Wheel side plate. Attach P/No.18 Stripper to the Stay bolt.	
3		Attach P/No.8 Load sheave with the spline up.	Grease to the bearing.

4		Fit P/No.9 Load chain with the weld facing outside,to P/No.8 Load sheave.	The weld of vertical link shall face outside. The end link of P/No.20 Load chain anchoring pin shall be vertical link.
5		Attach two P/No.16 Load chain guide to P/No.24 Wheel side plate.	Rotate P/No.8 Load sheave until the □ of P/No9 Load chain comes to P/No.16 Load chain guide.
6		Put P/No.20 Load chain anchoring pin through the vertical link of P/No.9 Load chain,and attach them to P/No.24 Wheel side plate.	P/No.9 Load chain shall not be twisted.
7		Place P/No. 22 Gear side plate having Stay bolts coming through its bores. Then rotate P/No.8 Load sheave to see if it works smoothly.	Be sure to grease each bearing.

8		Fit P/No.4 Load gear to the spline of P/No.8 Load sheave, and retain those parts with P/No.65 Snap ring.	Make sure P/No.65 Snap ring fits in groove correctly.
9		Insert P/No.1 Pinion shaft.	Grease to the rotating part.
10		Insert two P/No.2,3 Pinions with pinion gear to the Pinion metal, paying attention to the position of O-makings.	Align O-making ('Timing-mark') of P/No.2,3 Pinion gear in the same direction on both sides of P/No.1 Pinion shaft. Grease to the spindle of P/No.2,3 Pinion gear.
11		Make sure the gears rotate smoothly, then grease around the gears. Insert P/No.32 Top hook assembly between the Plates with each hole for P/No.33 Yoke pin in the same position.	

12		Attach P/No.27 Gear cover with P/No.33 Yoke pin, to the Stay bolt. Tighten them up with three P/No.55 Spring nut.	(Main body of 3t) Tight up P/No.33 Yoke pin with the Nut.
13		Reverse P/No.27 Gear cover upside down. Lifting two P/No.12 Pawl slightly, attach P/No.13 Disc hub to P/No.1 Pinion shaft.	
14		Lifting two P/No.12 Pawl insert P/No.14 Friction disc, P/No.15 Ratchet and P/No.14 Friction disc. Grease slightly to the inner hole of P/No.15 Ratchet.	Be sure not to grease P/No.14 Friction disc face. Pay attention to the direction of P/No.15 Ratchet.
15		Attach P/No.25 Handwheel to P/No.1 Pinion shaft. Hold the end of P/No.1 Pinion shaft, and turn P/No.25 Handwheel to see if it is correctly placed.	Grease the screw. Make sure P/No.25 Handwheel turns smoothly.

16		Insert the P/No.53 Plain washer and P/No.84 Check nut. Tighten up the Check nut to the bottom, then make a reverse 1/2 ~ 1/4 turn so that the slit of Check nut and the bore of the pinion shaft are aligned. Insert P/No. 50 Split pin to retain it.	Turn P/No.25 Handwheel to see if it rotates smoothly and P/No.12 Pawl clicks. Use a new P/No.50 Split pin.
17		Set P/No.7 Hand chain to P/No.25 handwheel.	Be sure P/No.7 Hand chain not tangled.
18		Attach P/No.28 Handwheel cover to the Stay bolt and tighten them up with three P/No.51 Spring nut.	
19		Attach P/No.47 Bottom hook on the end of P/No.9 Load chain with P/No.18 load chain fastening bolt and Nut.	

2. Inspection of chain hoist

2-1. Inspection list of chain hoist

1. Main body 2. Top and Bottom hooks 3. Load chain 4. Hand chain
5. Brake 6. Gears 7. Others

Type of inspection : D = Daily P = Periodic

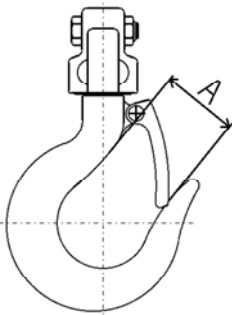
[Table-1]

	Type of inspection		Item	method	Requirements
	D	P			
1	○	-	Lifting/ Lowering	Lift and lower by hand chain	When lifting,the brake shall click. When lowering,the brake shall work correctly
2	○	○	Opening	(D) Visual (P) Measure	Almost the same with Standard dimension.[Table-2]
	○	○	Bolt and nut	Visual inspection	No bent nor wear out
	○	○	Deformation/ Wear/Scar	Visual inspection	No serious deformation, wear, nor scars on hook and holder.
3	○	○	Pitch length wear	(D) Visual (P) Measure	Almost the same with standard dimensions.[Table-3]
	○	○	Deformation/ Scar/rust	Visual inspection	No dent, crack, nor rust
4	○	○	Pitch length/ Deformation	Visual inspection	Almost the same with standard dimensions.[Table-3]
5	-	○	Disc hub	Dismantle → Visual and measure	Shall be flat without wear nor dent.
	-	○	Friction disc	Dismantle → Visual and measure	No quench nor wear on brake side. Minimum dimension : 2 mm
	-	○	Brake face and hole of ratchet	Dismantle → Visual and measure	No wear nor scars on brake side. No peeling nor exhaustion in the hole by frictional burn.

	Type of inspection		Item	method	Requirements
	D	P			
5	-	○	Brake face of Handwheel	Dismantle → Visual and measure	Shall be flat without scars.
	-	○	Pocket and screw of Handwheel	Dismantle → Visual and measure	No wear on pocket. Screws shall not sway
	-	○	Pawl and pawl Pin	Dismantle → Visual and measure	No wear on tip of pawl. Pawl pin shall not be worn out.
	-	○	Spring for pawl	Dismantle → Visual and measure	Shall be elastic without exhaustion.
6	-	○	wear/ breakage	Dismantle → Visual and measure	No deformation, crack, nor breakage.
	-	○	Pocket of load sheave	Dismantle → Visual and measure	No wear nor deformation. It shall gear well with load chain.
7	-	○	Bearing	Visual inspection	No shaft shall sway due to the wear of roller.
	-	○	Load chain guide	Visual inspection	It shall rotate lightly without deformation or scars.
	-	○	Stripper	Visual inspection	No bent nor exhaustion on the tip of the stripper.
	○	○	Bolt/Nut/ Split pin/ C-ring/ Snap ring	Visual inspection	(D) Inspect from outside : No slack nor fall off. (P) Inspect from outside and inside : No slack nor fall off.

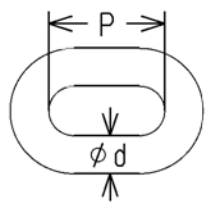
• HOOK DIMENSIONS (OPENING)

[Table-2[

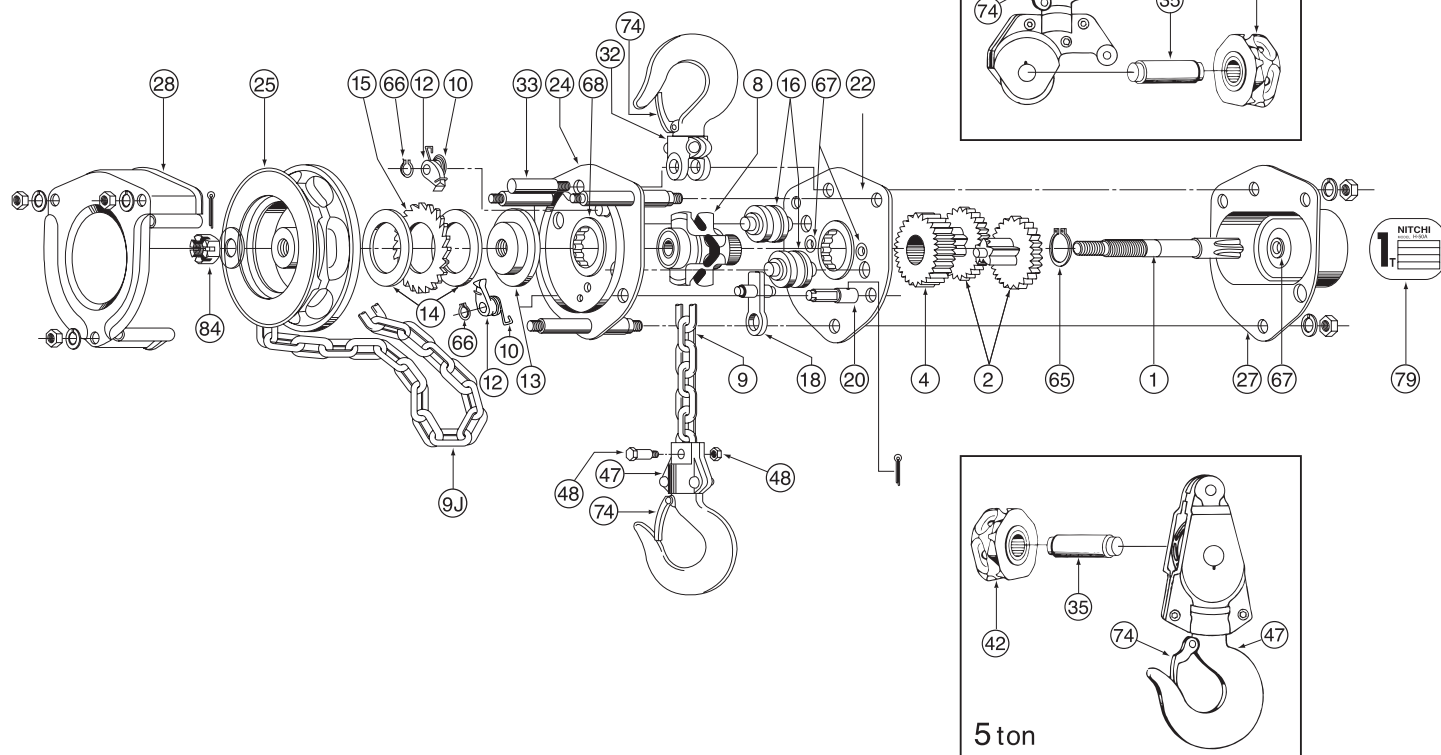
	Capacity (ton)	Standard Dimension A (mm)	Permissible Limit A (mm)
	0.5	30	33
	1	36	40
	1.5	39	43
	2	42	46
	3	48	53

• CHAIN WEAR MEASUREMENT

[Table-3]

			
Capacity (ton)	Diameter of Link (d) (mm)	Standard Dimension (P) (mm)	Permissible Limit (P) (mm)
0.5	5	15.1	15.3
1	6.3	19.1	19.5
1.5 and 5	7.1	21.2	21.6
2	7.9	24.2	24.7
3 and 10	10.0	30.3	30.9
Hand chain	5	24.0	25.0

PARTS LIST (Model H-50A, HE-50A)



PARTS LIST (Model H-50A)

Index No.	Part Name	Nos. used	0.5 t	1 t	1.6 t	2 t	3.2 t	5 t
1	Pinion shaft	1	GHH5A001	JHH5A001	KHH5A001	LHH5A001	NHH5A001	KHH5A001
2	Pinion (with pinion gear)	2	GHH5A003T	JHH5A003T	KHH5A003T	LHH5A003T	NHH5A003T	KHH5A003T
4	Load gear	1	GHH5004	JHH5004	KHH5004	LHH5004	NHH5004	KHH5004
8	Load sheave	1	GHH5008T	JHH5008T	KHH5008T	LHH5008T	NHH5008T	KHH5008T
	Load chain	1	φ5	φ6.3	φ7.1	φ8	φ10	φ7.1
9 J	Hand chain	1	J-5					
10	Pawl spring	2	GHH5010		KHH5010			
12	Pawl	2	IRB3007		KRB3007			
13	Disc hub	1	GHH5A013	JHH5A013	KHH5A013	LHH5A013		KHH5A013
14	Friction disc	2	GHH5A014	JHH5A014	KHH5A014	LHH5A014		KHH5A014
15	Ratchet	1	GHH5A015	JHH5A015	KHH5A015	LHH5A015		KHH5A015
16	Load chain guide	2	GHH5016	JHH5016	KHH5016	LHH5016	NHH5016	KHH5016
18	Stripper	1	GHH5018U	JHH5018U	KHH5018U	LHH5018U	NHH5018U	KHH5018U
20	Load chain anchoring pin	1	GHH5020	JHH5020	KHH5020	LHH5020	NHH5020	KHH5020
22	Gear-side plate	1	GHH5A022T	JHH5A022T	KHH5A022T	LHH5A022T	NHH5A022T	KHH5A022T
24	Wheel-side plate assembly	1	GHH5024U	JHH5024U	KHH5024U	LHH5024U	NHH5024U	KHH5024U
25	Handwheel	1	GHH5A025	JHH5A025	KHH5A025	LHH5A025	NHH5A025	KHH5A025
27	Gear cover	1	GHH5A027T	JHH5A027T	KHH5A027T	LHH5A027T	NHH5A027T	KHH5A027T
28	Handwheel cover	1	GHH5028	JHH5028	KHH5028	LHH5028	NHH5028	KHH5028
32	Top hook assembly	1	GHH5032U	JHH5032U	KHH5032U	LHH5032U	NHH5032U	PHH5032U
33	Yoke pin	1	RH4010033		RH4015033	RH4020033	HH4030033	PH4015033
35	Idle sheave pin	2						
42	Idle sheave	2						
47	Bottom hook assembly	1	GHH5047U	JHH5047U	KHH5047U	LHH5047U	NHH5047U	PHH5047U
48	Load chain fastening bolt with nut	1	GHH5048T	JHH5048T	KHH5048T	LHH5048T	NHH5048T	PHH5048T
65	Snap ring for load sheave	1	SRC5122	SRC5125	SRC5130	SRC5138	SRC5145	SRC5130
66	Snap ring for pawl	2	SRC5108		SRC5112			
67	Plain bushing for pinion	4	GHH5A067		KHH5A067	LHH5A067		KHH5A067
67	Needle bearing	4						
68	Needle bearing for load sheave	2	TR273510NR	TR324210NR	TR364710NR	TR425313NR	TR506213NR	TR364710NR
74	Safety latch assembly	2	GHH5074T	JHH5074T	KHH5074T	LHH5074T	NHH5074T	PHH5074T
79	Label	1	GHH5A0791	JHH5A0791	KHH5A0791	LHH5A0791	NHH5A0791	PHH5A0791
84	Check nut	1	KN11M8		KN12M12			

PARTS LIST (Model HE-50A)

8	Load sheave	1	GHE5008	JHE5008	KHE5008	LHE5008	KHE5008	
9	Load chain	1	φ5	φ6.3	φ7.1	φ8	φ7.1	
68	Plan bushing for load sheave	1	GHE5005	JHE5005	KHE5005	LHE5005	KHE5005	
22	Gear-side plate	1	GHE5A022T	JHE5A022T	KHE5A022T	LHE5A022T	KHE5A022T	
24	Wheel-side plate assembly	1	GHE5024U	JHE5024U	KHE5024U	LHE5024U	KHE5024U	
79	Label	1	GHE5A0791	JHE5A0791	KHE5A0791	LHE5A0791	NHE5A0791	
32	Top hook assembly	1					NHE5032U	
47	Bottom hook assembly	1					NHE5047U	