PENDANT SWITCH FOR AIR HOIST

PCS-1
PCS-2

INSTRUCTION MANUAL

- Never use the hoist to lift or transport people.
- Always read this manual before operating.
- Keep this manual available carefully.

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ENDO KOGYO CO., LTD.

HM-10011a

ENDO

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Important

- Before operation and mounting a pendant switch, read this manual and the introduction manual for a hoist carefully. And never use this without understanding this contents enough.
- A person who installs, maintains and uses a hoist always has to read this manual.
- Always keep this manual available with a instruction manual for a hoist so that this is used at maintenance and inspection.

Ⅰ. Specification

Type	PCS-1	PCS-2
Available air pressure MPa {kgf/cm²}	0.4～0.6 {4～6}	
Available air hoist	EHL-025TS EHL-05TS EHL-1TW	EHL-1TS EHL-2TW EHL-3TS EHL-6TW
Mass (kg)	2.3	2.7

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Ⅱ. Checks before Installation and Cautions.

- Check that a delivered pendant switch is the same as your order(check the name plate)
- Check there was no damage to a pendant switch during transportation.

Ⅲ. Installation

Caution

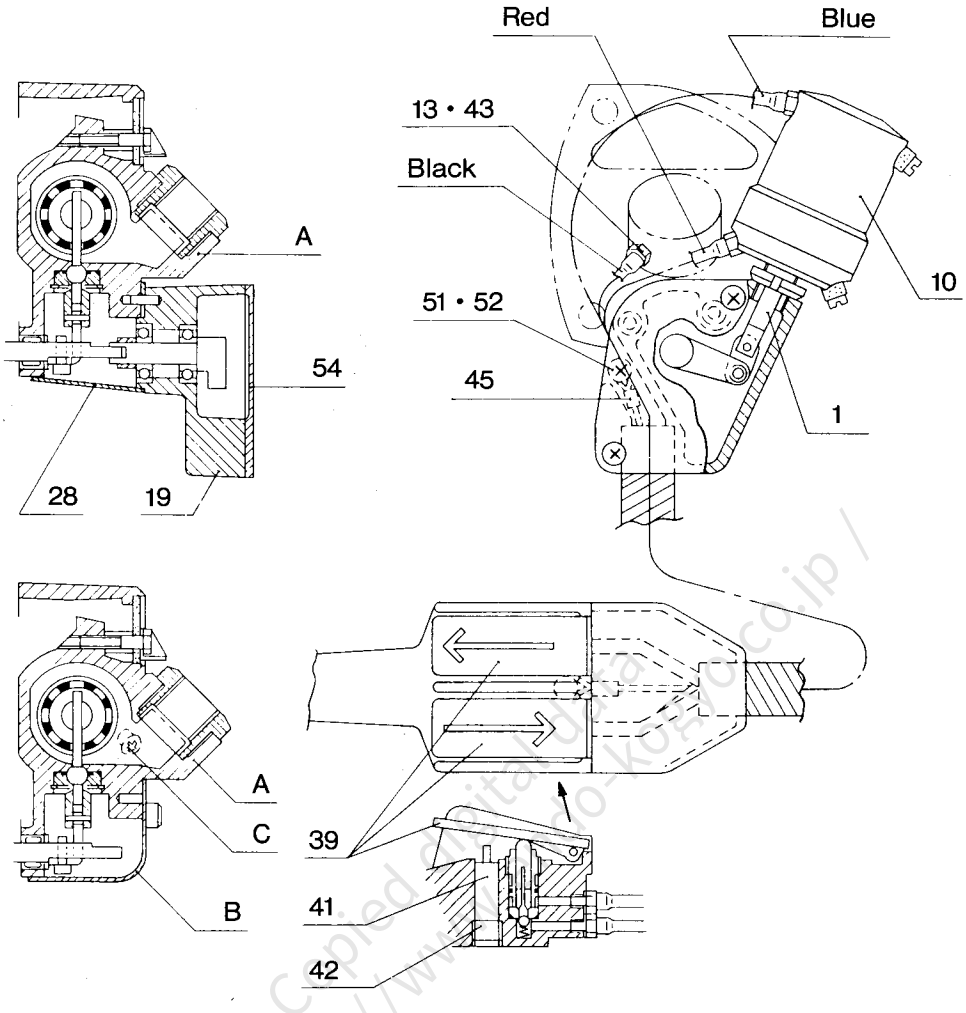
- Always shut off air supply before mounting when a hoist is already installed.
- Never do a work on an unstable condition. Make as stable condition for safety work.
- Allow only qualified or educated people to mount a pendant switch to a hoist.
- Careless working makes a hoist and pendant switch damage or makes people injure. So do a suitable working.

1. Mounting it to a hoist (See fig. 1)

When a pendant switch is delivered separately from a hoist, attach a pendant switch to the hoist using the following procedure.
For the hoists of models EHL-1TS, EHL-2TW, EHL-3TS and EHL-6TW, a pendant switch is not installed in the factory even if a pendant switch is included in the specifications.

1) Remove Cover(B) and Machine screw(C) from Valve housing(A).
2) Mount Seal(13) and Nipple(43) which is shipped with a pendant switch to the mounting portion.
3) Remove Cover(54) from Cylinder holder(19).
4) Mount Cylinder(10) and Cylinder holder(19) in a body with Cover(28) to Valve housing(A).
5) Fix Wire rope(45) on Cylinder holder with Plain washer(51) and Machine screw(52).

6) Pipe nylon tubes according to the difference of color.
7) Mount Cover(54).



Fig,1

2. Installation of a hoist.

● Follow the instruction manual for a hoist.

Ⅳ. Checks after installation and Test run.

1. Follow the instruction manual to check Load chain, Lifting, Limit switch for lifting and lowering.

2. Speed adjustment by a pendant switch(See fig,1)

● Push button set(34) meets Buffer spool compl.(41) at first.
In this stage, a hoist operates at a low speed.
The stronger a push button is pushed, the more the speed is increasing to its maximum.

● **Before shipping, Buffer spool compl(41) is adjusted to lift a rated load at a low speed when supplying air pressure is 0.4MPa {4kgf/cm2} .**
If required, the hoisting speed is reduced by readjusement of Buffer spool compl. Turn Screw(42) counterclockwise to increase the speed, and Turn Screw(42) clockwise to reduce the speed.

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Ⅴ. Caution on Use.

- Do not suddenly start,suddenly stop or suddenly reverse the hoist. Operate a hoist smoothly.
- Never lock the push button switch at operating position. Certainly operate a pendant switch by operater himself.
- Never strike a pendant switch against the lifted load and structures.
- Never pull a pendant switch when a trolley is used.

Ⅵ. Lubrication

- For inspection and maintenance, Clean a pendant switch thoroughly everytime a pendant switch is disassembled and lubricate a pendant switch again.
- Coat the lithium saponified molydenum disulfide grease equivalent corresponding to the No2 class of NLGI (National Lubrication Grease Institute) (Molykote BR2-S, and so on)
- Coat a grease of EP type to other sliding surfaces. See Recommended Lubricants on Instruction manual of a hoist.

Ⅶ. Disassembly and Reassembly

Caution

- **Always shut off the air supply before disassembly and reassembly.**
- **Careless working may cause the damage to the hoist or/and injury to people. Therefore,perform the suitable work.**
- **Qualified or well trained personnel should perform the work.**
- **Whenever grasping the parts in a vise,always use copper-covered vise jaws to protect the surface of the parts and help preventing distortion.**

1. Procedure of Disassembly

- Follow Instruction manual for a hoist regarding the removement and disassembly of a hoist.
- Follow the under mentioned procedure for disassembly of a pendant switch seeing the drawing(P-8)

When consumption parts is replaced, disassemble only required portions.

—1) Remove Cover(54), and take off Nylon tube(47,48,49) from Cylinder(10) and a hoist.

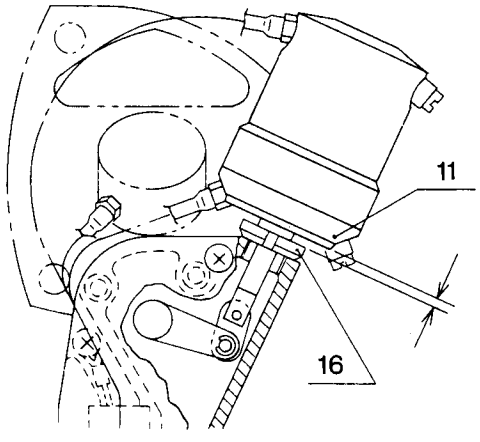
—2) Take off Wire rope(45) from Cylinder holder(19).

—3) Remove Cylinder holder and Cylinder in a body.

—4) Take off Retaining ring(27), put out Pin(26) from behind Cylinder holder. (There is a hole to put out Pin.)

—5) Measure the dimension between Bearing nut(16) and Cylinder Cover(11) (See fig,2)

note; Measurement is required when assembling, Never fail to do.



Fig,2

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−6) Loosen Bearing nut, take off Cylinder from Cylinder holder.

−7) Cylinder portion

①Remove Cap screw(12).

②Remove Lock nut, pull out Piston(7), Spacer(4),(6), Spring(5), Ring(3).

③Remove Retaining ring(2), remove Cylinder Cover(11).

−8) Cylinder holder portion

①Check that Shaft rotates smoothly and the connecting part is not worn.
If there is not any abnormality, it is not necessary to disassemble Shaft.

②Push out Shaft from Sleeve side(25) by hand press.

−9) Valve housing portion

①Remove Valve Cover(50), remove Nylon tube and Wire rope.

②Remove Pin(40) and Push button set.

③Pull out Valve knob(38), Pin(37).

④Remove Liner(36), take off Sheet(35), Steel ball(33), Spring(32).

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2. Reassembly

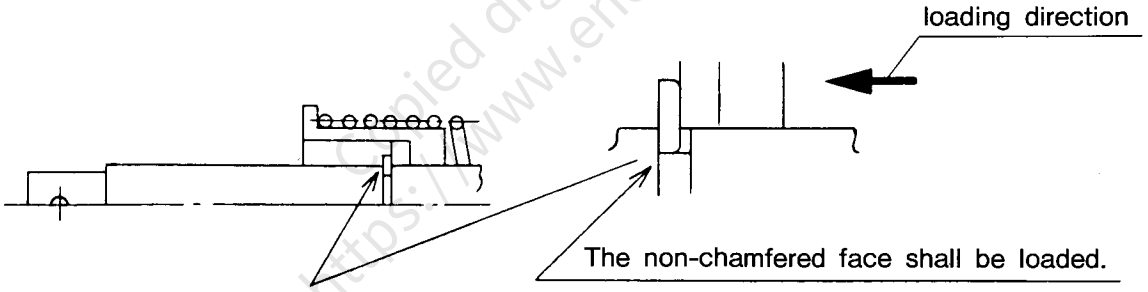
Caution

- **Before reassembly, clean all parts of hoist disassembled to check cracks, flaws, deformation and wear.**
- **Never use acidic solvent.**
- **Replace every damaged parts and excessively worn parts. Also replace burred or damaged screws.**
- **Always use manufacturer's replacement parts.**
- **Do not use solvent when cleaning the rubber parts such as O-ring,etc and the plastic parts.**
- **Whenever grasping the parts in a vise, always use copper-covered vise jaws to protect the surface of the part and help preventing distortion.**
- **Always press the inner ring of ball-type bearing when installing the ball bearing on the shaft.**
- **Always press the outer ring of ball-type bearing when pressing the ball bearing in a bearing recess.**

Reassembly should be done according to reverse procedure of disassembly, and be careful with following points.

—1) Always replace Retaining ring with new one.

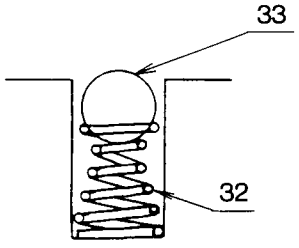
—2) Assembly directions for Retaining ring(See fig,3)
Set Retaining ring so that the non-chamfered face is loaded.



Fig,3

—3) Mount Cylinder(10)and Cylinder holder(19) so that the dimensions are to be measured at disassembly.

—4) Mount Spring(32) as shown fig,4.
Be careful for Steel balls(33) not to fall down from the upper surface of Spring.



Fig,4

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Ⅷ. Parts list

Remark when purchasing parts

- Specify part No.,part name and model of hoist.
- State clearly SER. No. (product No.) if attached.
- The parts without part No. cannot be supplied individually. Please purchase a set or completed unit.

■How to read parts list

Ref. No.	Part No.	Quantity PCS-1	Quantity PCS-2	Description
–	LHP000018	1	1	Control valve assembly ←
13	P2H400214	4	4	–Seal
30	P2H100018	1	1	–Valve housing
⋮	⋮	⋮	⋮	⋮
41	LHP000053a	2	2	–Buffer spool compl. ←
41-1	P2H400252a	2	2	– –Spring case
41-2	P2H400253	2	2	– –Spool
41-3	P2H400254	2	2	– –Spring
41-4	KA40210007	2	2	– –Retaining ring
⋮	⋮	⋮	⋮	⋮
53	KA10220510	2	2	–Machine screw

This mark shows the range of set or the completed unit.

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■ PARTS LIST PCS-1·PCS-2 PENDANT SWITCH

Ref. No.	Part No.	Quantity PCS-1	Quantity PCS-2	Decription
–	LHP000016a	1	-	Cylinder assembly
–	LHP000017a	-	1	Cylinder assembly
–	LHP000202a	1	-	–Cylinder compl.
–	LHP000203a	-	1	–Cylinder compl.
1	P2H400215	1	1	– –Piston rod
•2	KA40110007	1	1	– –Retaining ring
3	P2H400216a	1	1	– –Ring
4	P2H400217a	1	1	– –Spacer
5	P2H400218	1	1	– –Spring
6	P2H400219a	1	1	– –Spacer
7	P2H400220a	1	1	– –Piston
•8	KA50100315	1	1	– –O-ring
•9	P2H400221	1	1	– –Lock nut
10	P2H300156b	1	1	– –Cylinder
11	P2H300157	1	1	– –Cylinder cover
12	KA00910410	4	4	– –Cap screw
•13	P2H400214	4	4	– –Seal
14	P2H400222	2	2	– –Silencer
15	P2H400223	2	2	– –Bolt
16	KA64101002	1	1	– –Bearing nut
17	P2H400224a	1	-	– –Link
17	P2H400208a	-	1	– –Link
18	P2H400865	1	1	– –Pin
43	P2H400257b	2	2	– –Nipple
–	LHP000204	1	-	–Cylinder holder compl.
–	LHP000205	-	1	–Cylinder holder compl.
19	P2H200058b	1	-	– –Cylinder holder
19	P2H200057a	-	1	– –Cylinder holder
20	KA43200412	1	1	– –Parallel pin
21	LHP000076	1	-	– –Shaft
21	P2H300150	-	1	– –Shaft
24	KA60102012	2	-	– –Ball bearing
24	KA60103032	-	2	– –Ball bearing
25	P2H400165	1	-	– –Sleeve
25	P2H400209	-	1	– –Sleeve
26	P2H400228	1	1	– –Pin
27	KA40310040	1	1	– –Retaining ring
29	KA00910642	2	-	– –Cap screw
29	KA00910844	-	2	– –Cap screw
31	KA16110508	1	1	– –Set screw
53	KA10220510	2	2	– –Machine screw
54	P2H300162a	1	-	– –Cover
54	P2H300152	-	1	– –Cover
59	P2H400265	1	-	– –Spacer
28	P2H400229	1	-	–Cover
28	P2H300151	-	1	–Cover

Ref. No.	Part No.	Quantity PCS-1	Quantity PCS-2	Decription
–	LHP000018	1	1	Control valve assembly
•13	P2H400214	4	4	–Seal
30	P2H 100018	1	1	–Valve housing
31	KA 16110508	2	2	–Set screw
32	P2H300158	2	2	–Spring
33	KA63100304	2	2	–Steel ball
•34	KA50100080	4	4	–O-ring
35	P2H400247	2	2	–Seat
36	P2H300159	2	2	–Liner
37	P2H400248	2	2	–Pin
38	P2H400249	2	2	–Valve knob
39	LHP000210	1	1	–Push button set
40	P2H400251a	1	1	–Pin
41	LHP000053a	2	2	–Buffer spool compl.
41-1	–	2	2	– –Spring case
41-2	–	2	2	– –Spool
41-3	–	2	2	– –Spring
41-4	–	2	2	– –Retaining ring
42	P2H400256	2	2	–Set screw
43	P2H400257b	3	3	–Nipple
50	P2H200059a	1	1	–Valve cover
53	KA 10220510	2	2	–Machine screw
•13	P2H400214	2	2	Seal
43	P2H400257b	1	1	Nipple
–	LHP000019c	1	1	Control tube compl.
44	–	1	1	–Protection hose
60	–	2	2	–Inner
45	–	1	1	–Wire rope
46	–	2	2	–Lock tube
47	–	1	1	–Nylon tube(black)
48	–	1	1	–Nylon tube(red)
49	–	1	1	–Nylon tube(blue)
61	KA86100022	2	2	–Hose clip
51	KA30220500	2	2	Plain washer
52	KA 10120510	2	2	Machine screw
55	P2H300261	1	-	Name plate
55	P2H300262	-	1	Name plate
56	KA 14549803	2	2	Drive screw
57	P2H300274b	1	1	Caution plate
58	P2H400465a	2	2	Convex belt

We recommend that you stock parts indicated by a bullet(•).
Parts without part numbers can not be supplind separetely.
When ordering spare parts, specify part number(not the reference number), description and model of the hoist.

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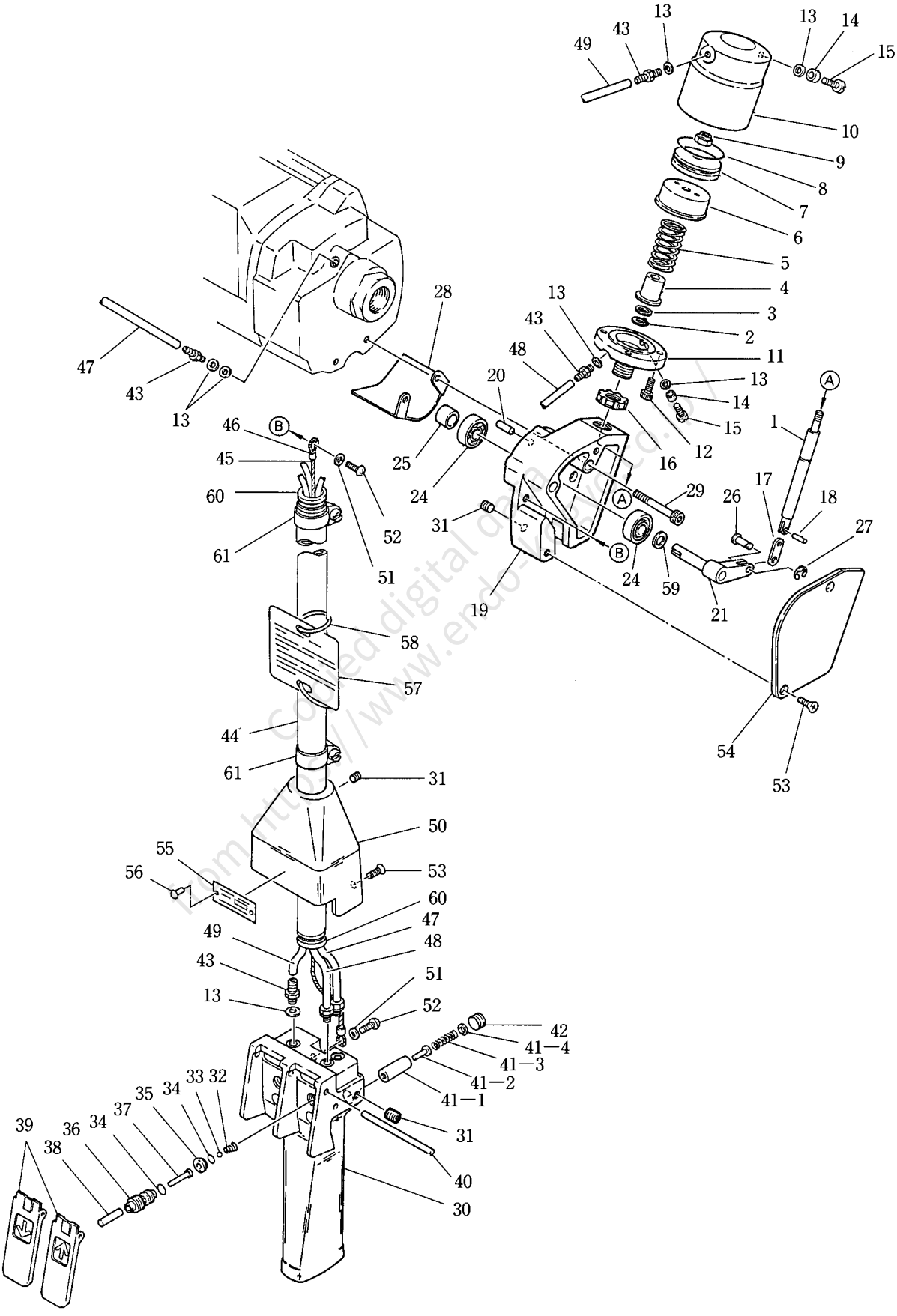
■PCS−1
■PCS−2



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