OPERATION MANUAL

CGS-618H

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I . INSTALLATION OF MACHINE

1. DIMENSION & FLOOR REQUIREMENT:

The minimum space for machine:

For your convenience to operate, please take the walkway into consideration. Therefore, the ideal space for machine should be:

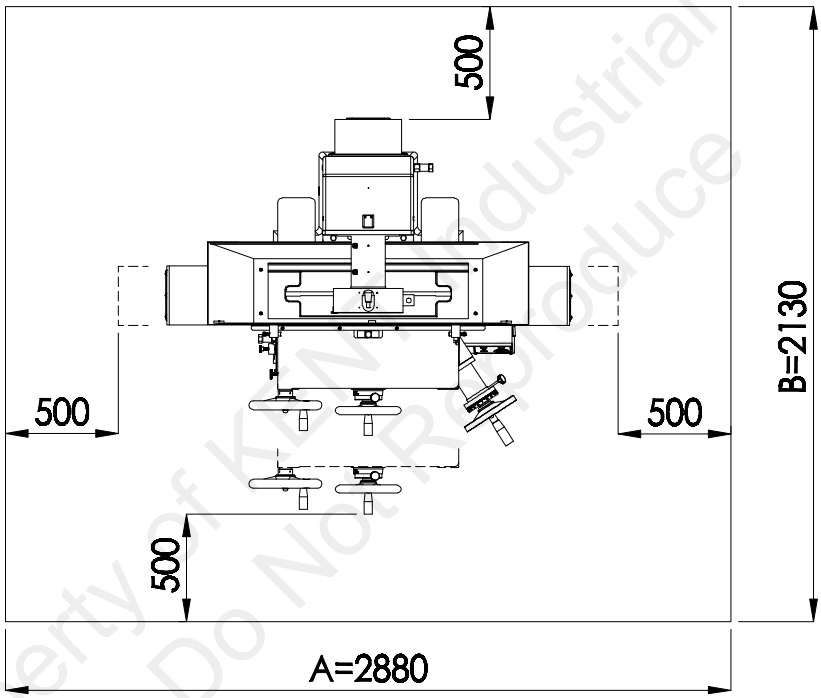
CB-618ASD:

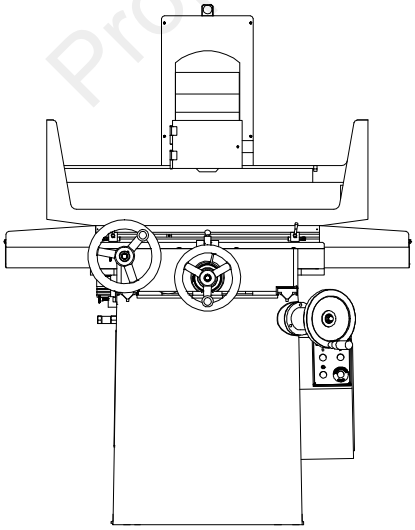
A - 2880MM (115")

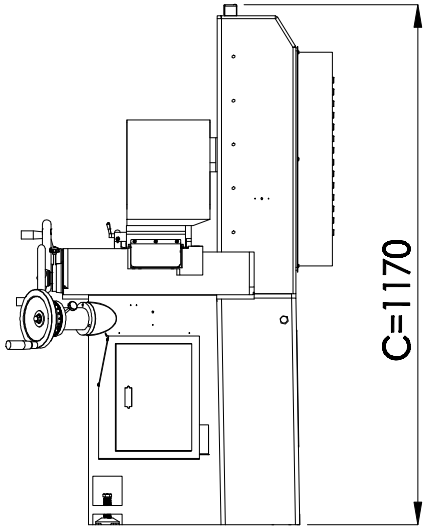
B - 2130MM (85")

C - 1170MM (47")

Note: Keep the machine away from the environment which might cause any explosion.







Ⅰ. INSTALLATION OF MACHINE

2. REQUIREMENT OF THE GROUND:

Firm, steady, well constructed ground, and a well adjusted levelness of machine are the essential elements for precision grinding. The heat from the sunshine, and any vibration might also influence the precision.

The foundation for the machine needs:

(1)The bearing strength for machine should be more than 2 tons/㎡.

(2)Avoid the sun shining directly on the grinder.

(3)Avoid locating machine near other machines, such as Press or EDM.

(4)Good ventilation.

(5)Please install your machine based on the foundation plan.

(6)Foundation drawing please refer to the following:

3. REQUIREMENT OF THE ENVIROMENT:

As there's no anti-explosive electrical device, this machine cannot be operated in a potentially explosive environment. The requirement of the environment for this machine is as the below:

(1)Temperature: 5~40℃; However, if you're doing very precise grinding, please keep the temperature around 20℃.

(2)Relative humidity: 30%~95%, no dew allowed.

(3)Atmosphere: don't allow dust, corrosive fumes, salt, or acidic air in the neighborhood.

(4)Avoid any vibrating environment.

(5)Avoid sun shining directly on the machine.

(6)Avoid the disturbance from electromagnetism.

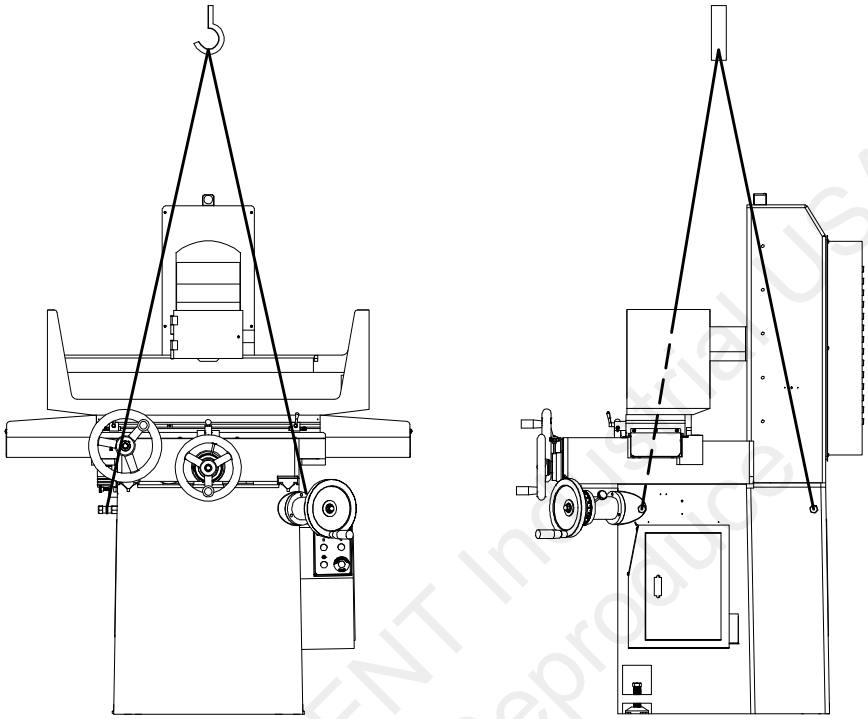
Light level: above 200 Lux.

I . INSTALLATION OF MACHINE

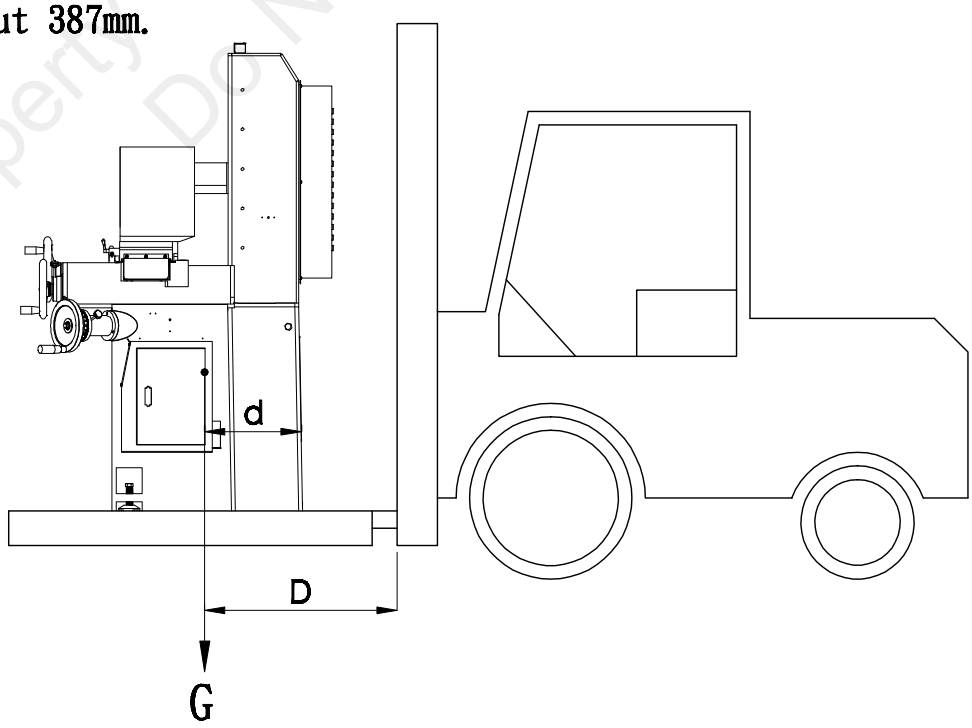
4. TRANSPORTATION OF MACHINE:

N.W: 740~840 KGS; G.W: 840~940 KGS

(1) CRANE LIFTING: Use steel cable or belt for hanging.
(As shown on the below drawing.)



(2)FORK LIFTING: Use the fork lift for transportation.
D: Distance the shorter the better.
G: Center of gravity.
d: About 387mm.

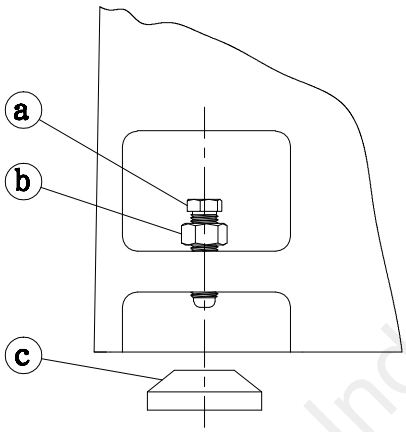


I . INSTALLATION OF MACHINE

5. LEVELING BOLT & PAD

(1)Lock the leveling bolts and nuts onto the basement, and put the leveling pads under the machine. Lay down the machine carefully and adjust the leveling bolt to set at the center of the leveling pad.

(2)Follow the above to locate every leveling bolt on each pad, but leave the nuts un-tightened.



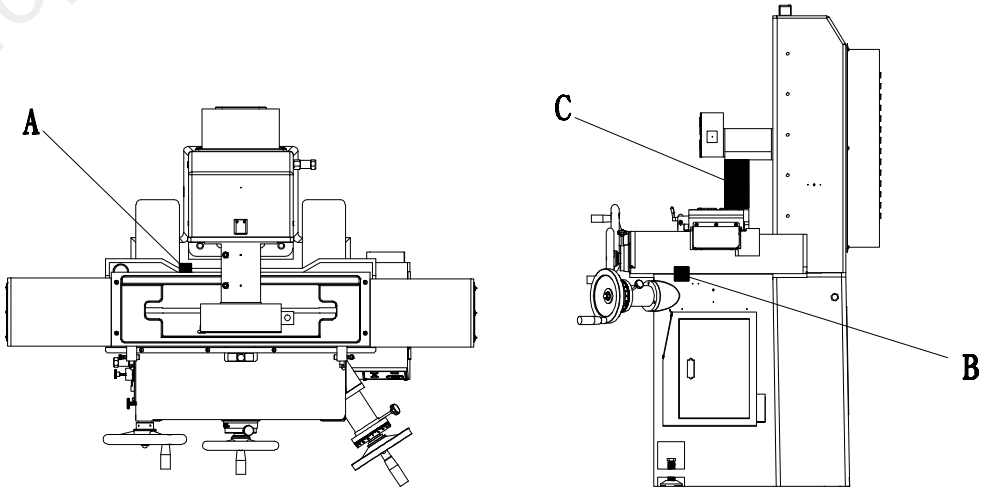
a. Leveling bolt
b. Screw nut
c. Leveling pad

6. REMOVE THE CLAMPS

When the machine is fixed on the required location, please remove the clamps. Do not cast away the clamps, they could be prepared for next transportation.

NOTE: (1) Before dismantling the crossfeed (B) and longitudinal (A) fixing blocks, please don't operate the handwheels to move the machine in case of any damage.

(2) Using the vertical feed handwheel to move the spindle upward to take off the fixing wooden block (C).



I . INSTALLATION OF MACHINE

7. REMOVE DESICCANT & CLEAN THE ANTI-RUST OIL:

The machine has coated with the anti-rust oil and hanged desiccant to prevent rusting.

The brown cream on the surface of machine is anti-rust oil.

We coated the anti-rust oil on the table, spindle nose…., etc., and the desiccant will be put inside the electrical box, or hang on the table…., etc. After installation, please take off the desiccant and use cleaning rag with diesel to wipe off the anti-rust oil. Do not use any liquid that might corrode metal to do the job.

8. LEVELNESS ADJUSTMENT:

(1)Necessary tools: Leveling gauge x 2 sets (Tolerance: 0.02mm); Spanner x 2 sets (M20).

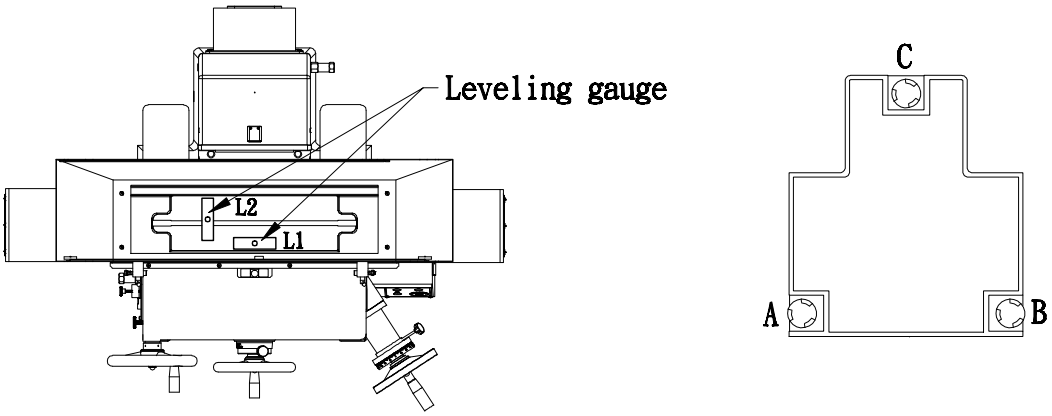
(2)Clean up the table surface or magnetic chuck, and put 2 sets of leveling gauge on by crosswise and longitudinal direction (L1 & L2).

(3)First, adjust the leveling bolts A & B to set the leveling bubble of leveling gauge L1 at the center (tolerance maintains within 1 scale). Secondly adjust the leveling bolt C to keep the bubble of the leveling gauge L2 at the center (tolerance maintains within 1 scale).

Repeat the adjustment methods until the tolerance of both leveling gauges satisfy the precision requirement.

(4)After the adjustment, tighten the screw nuts.

(5)Newly set up machine should check the levelness once in a week. And after that, check up should be made every six months.

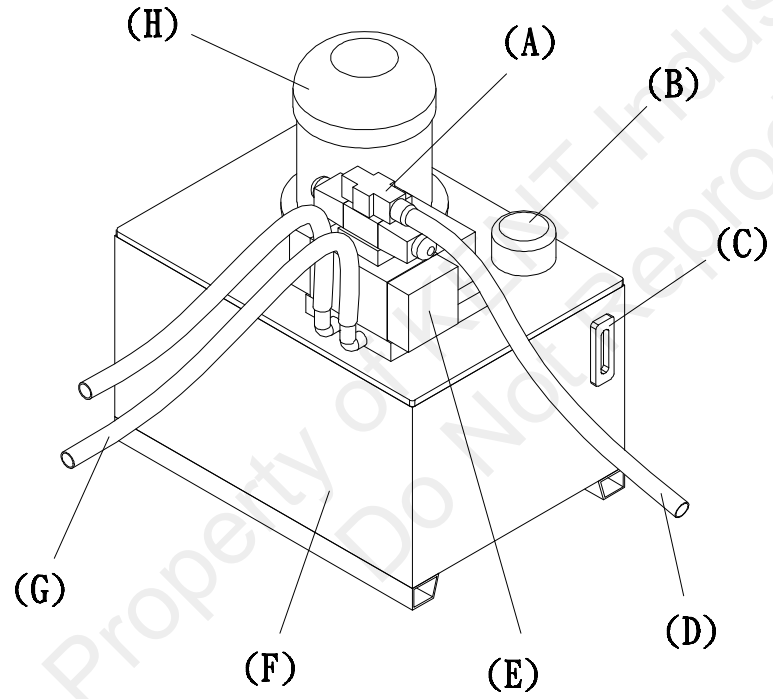


I . INSTALLATION OF MACHINE

9. HYDRAULIC SYSTEM SET UP:

(1) Hydraulic oil capacity: total oil tank is about 105 liters.

(2) Please check the drawing below about the oil inlet and outlet of hydraulic system. First, please locate the hydraulic tank in the right and beside the machine. Secondly, connect the hydraulic pipes according to the tags attached on the pipes and the oil tank. Thirdly, fill in sufficient oil with recommended oil brand. The oil level must maintain within the required amount shown on the oil gauge.



(A) Hydraulic solenoid valve
(B) Oil filler cover
(C) Oil gauge
(D) Power cable
(E) Directional control unit
(F) Oil tank
(G) Oil pipe
(H) Hydraulic motor

(3) Connect the power cables into the electrical box by the labels on them.

To ensure the performance of hydraulic system, please obey the below:

(1)First-time oil replacement should be done after 3 months operation.

(2)Replace the oil and the filter at an interval of 6 months after the first replacement.

(3)Check the pressure of pump within 12~16 Kg/cm2.

*Hydraulic system is properly adjusted before shipment. Unless it's necessary, please don't re-adjust it casually.

*Clean the filter of hydraulic tank every 6 months. Please discard the waste material according to the government sanitation or environmental laws.

Please be sure to fill the following suggested oil:

BRAND	TYPE	BRAND	TYPE
SUN	SUNVIS 916	SHELL	TELUS 32
SHOWA	A-R32	MOBIL	D.T.E 24
ESSO	NUTO H32	TEXACO	LUBE TAC #2
BP	ENERGOL HLP 32	ARAL	VITAM GF 32

10. AUTO LUBRICATION OIL CIRCULATION SYSTEM:

(1)With the spindle activation, this system starts immediately to constantly deliver the lubrication oil to necessary guide ways for smoothness and prevent wear out.

(2)A lubrication oil gauge (G) mounted on the top of the column for monitoring. Whenever the machine is on, it's obvious to check the oil from this gauge.

(3)Recommended oil brand: CPC #32 SLIDEWAY OIL or ISO #G68

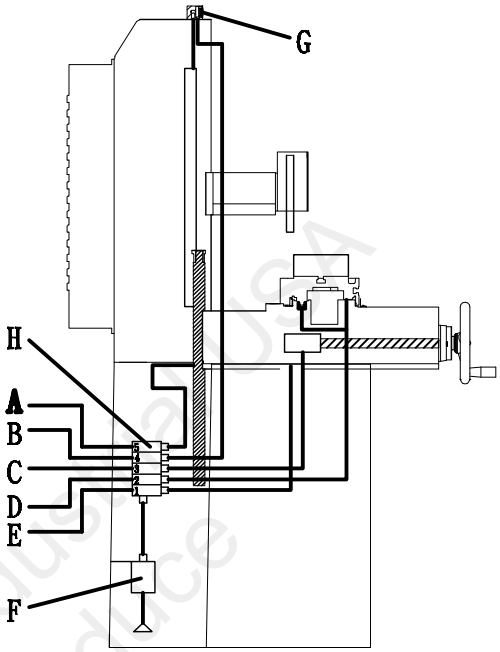
(4)Oil capacity: 4 liters.

I . INSTALLATION OF MACHINE

10. AUTO LUBRICATION OIL CIRCULATION SYSTEM:

(5)Parts list:

A. Vertical feed screw
B. Vertical slideways
C. Cross feed screw
D. Longitudinal slideways
E. Cross slideways
F. Lubrication oil pump
G. Lubrication oil gauge
H. Oil distributor



Note: Diseases of the skin may be caused by continuous contact with the oil, particularly with neat oil, and also with soluble oil. The following precautions should be taken:

1.: Avoid unnecessary contact with the oil.
2.: Wear protective clothing.
3.: Use protective shields.
4.: Do not wear oil soaked or contaminated clothing.
5.: After work thoroughly wash all parts of the body that has contact with the oil.
6.: Change the oil regularly.
7.: Dispose the oil correctly and properly.

Ⅰ. INSTALLATION OF MACHINE

11. REQUIREMENT OF THE ELECTRICITY:

(1)Voltage: 3 Phases, AC voltage which is decided by customers, rated voltage: 0.9~1.1.
(2)Frequency: 50/60Hz, 0.99~1.01 rated frequency.
(3)Voltage for electromagnetic chuck: Max. DC 110V (optional accessory).
(4)Electricity consumption: 3 KVA.
(5)Connecting wire: 2mm (R, S, T, E)
(6)Check the rotation direction of the spindle motor, hydraulic motor and so on after the wire connection.
Make sure all the motors rotation is by clockwise.
We've done the test before the shipment, if one of the motors rotation is normal, the rest will be the same.

Ⅱ. SAFETY PRECAUTIONS

Safety first!

We're glad to provide the information for using machines safely, to assist and keep safety while you're working, and to help avoiding any damage to the machine. We present this manual for your reference.

Please check if there's any pages missing in your manual as soon as you receive the machine. Let us or the agent nearby know if there's any insufficiency.

Put your manual near the machine in case you want to read it. Also keep the manual carefully so that you'll be able to read it any time you want.

Please use your experience and the information from this manual to get the most secure working environment.

1. GENERAL OPERATING SAFETY PRECAUTIONS:

1.1.: Machine usage - Obey every message and instructions you learn from the manual.
1.2.: Only an operator who is well trained for grinding machines should operate and maintain the machine.
1.3.: Please read and understand the manuals before using the machines.
1.4.: Keep the working area clean, and leave no oil spot.
1.5.: Do not wear gloves while operating machines.
1.6.: Please wear suitable outfit while operating machines. Tie up your sleeve links and don't wear any necktie.
1.7.: Do not touch any moving or rotating parts of the machine.
1.8.: Do not touch or open the parts where we have the electrical signs on, such as electrical box.
1.9.: Turn off the power before maintenance or leaving machine unattended.
1.10.: Make sure you have enough light in your working area.

Ⅱ. SAFETY PRECAUTIONS

1. GENERAL OPERATING SAFETY PRECAUTIONS:

1.11.: Prepare non-electric-conductor fire extinguisher (dry powder) in case of any fire danger.

1.12.: Stop the machine immediately if anything unexpected happens.

2. SAFETY PRECAUTIONS FOR OPERATING MACHINE:

For using this machine safely, please ask every operator, maintenance technician or any other people to obey the safety precautions. To obey the safety precautions below will reduce the danger of any possible damage.

2.1.: This machine can only grind metal workpiece. But do not grind magnesium or magnesium alloy.

2.2.: This machine cannot be used in a place where there's gas which is easy to burn or explode.

2.3.: Do not disassemble any protective guard before using.

2.4.: Please read an understand your manual before operation.

2.5.: Check the position of emergency stop buttons and other stop button before operation.

2.6.: Confirm the function of the buttons before operation.

2.7.: Wear safety glasses.

2.8.: Make sure every switch is in the position of "OFF" before operation.

2.9.: Require people with experiences to balance and install the grinding wheel.

2.10.:Check the running direction of the grinding wheel before operating.

2.11.:Turn on the power to rotate the grinding wheel about five minutes at least, then start to work.

2.12.:Check if the workpiece is secure on the table or magnetic chuck and is very steady before operation.

2.13.:Stop the movement of the table before adjusting the travel of cross and longitudinal movement.

Ⅱ. SAFETY PRECAUTIONS

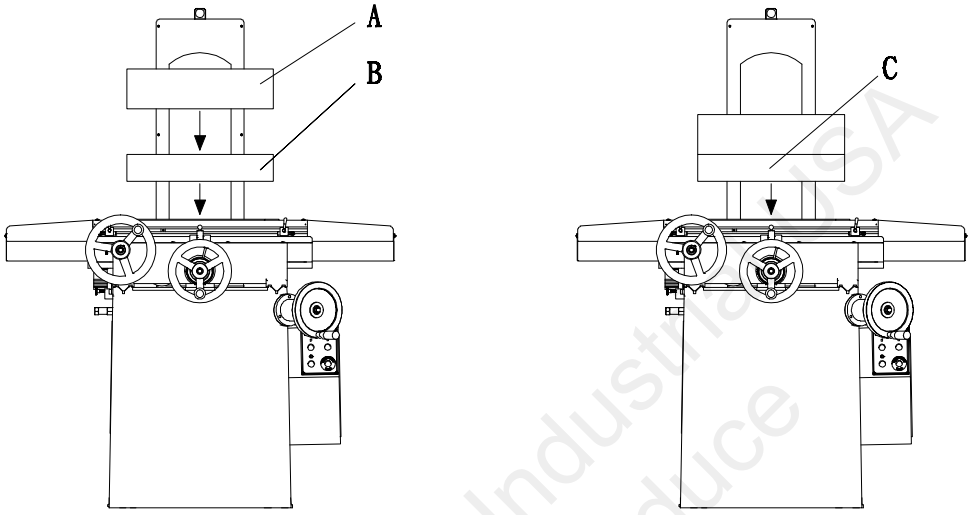
2. SAFETY PRECAUTIONS FOR OPERATING MACHINE:

2.14. :Before changing the procedure of grinding, make sure the machine stops completely.
2.15. :Never use any coolant liquid that is easy to burn or poisonous.
2.16. :The grinding wheel of this machine should be able to handle at least 2000M/min. speed.
2.17. :Do not grind on the side of the grinding wheel.
2.18. :Do not change any electrics or parts of machine.
2.19. :Require qualified people to maintain the electrical parts of machine.
2.20. :Do not tear off the warning signs on the machine. If they are not clear or damaged, please contact your agent or our sales department for replacement.
2.21. :Never mount on a workpiece too large for the machine.
2.22. :Use the correct lifting equipment for handling.
2.23. :Never use excessive depth of grinding or feed rate.
2.24. :Do not run the machine unattended.
2.25. :Turn off the coolant before stopping wheel.
2.26. :Do not grind the material for which the wheel is not designed.
2.27. :Dress the wheel regularly to avoid loading.

Ⅱ. SAFETY PRECAUTIONS

3. TABLE LOADING CAPACITY:

A = Workpiece weight: 160KGS, B = Magnetic chuck weight: 20KGS,
C = A+B Total weight: 180KGS



4. GENERAL GRINDING:

(1). Grinding volume: If it's for mass grinding volume, it's recommended choosing low grain size grinding wheel (about #30~#36), and set the dressing speed fast.

(2) If it's for smooth/polishing surface grinding, it's recommended choosing high grain size grinding wheel (about #46~#80), and set the dressing speed low.

(3) Table deforming: Mostly, the reason for this is set the grinding value too much, grinding face gets worn out or less of cooling. Find the reason and fix it.

(4) Workpiece burnt out: if this happens, mostly the reason is the grinding wheel gets worn out or too much chips stuck in the grinding wheel.

NOTE: Correctly choosing suitable grinding wheel and proper operation has effective influence on the grinding performance.

Ⅱ. SAFETY PRECAUTIONS

5. GRINDING WHEEL ASSEMBLY:

(1) Choosing correct grinding wheel and do the sound test to decide which grinding wheel is suitable for your production. Please check the below:

a. Check if there's any crack, damage or notch in the wheel. Abandon the wheel with any of the above problem.

b. See if there's any label or paper on the wheel, and don't tear them off.

c. Check if there's anything between flange and the wheel. Clean it up before set up.

d. See if the wheel got deformed. If it is, abandon it.

(2) Tap the wheel with a wooden hammer, listen if there's any metal sound, and also change the places you tap to listen if there's any different sound. Cracks of the wheel will reveal by different sound.

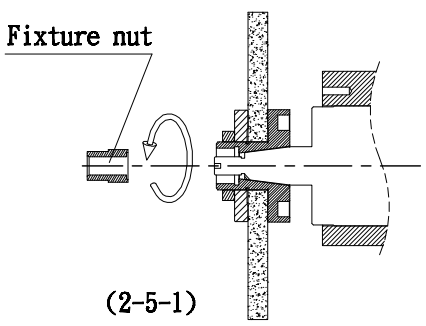
(3) After using the grinding wheel for a period of time, check and tighten the wheel with the flange again.

6. GRINDING WHEEL ENGAGE/DISENGAGE PROCEDURE:

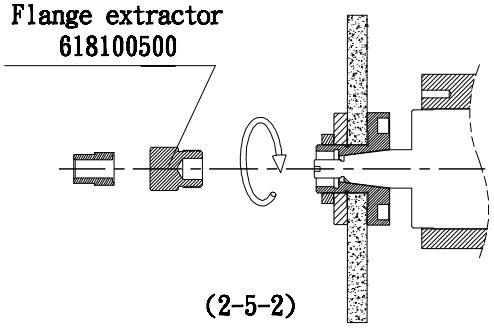
ENGAGE:(a) Clean the contact surface of the spindle taper and the I.D. of wheel flange, and apply some oil on. Then it's OK to put the wheel & flange set onto the spindle.

(b) Screw up the fixture nut by counter-clockwise direction to fasten the wheel & flange set on the spindle. (2-5-1)

DISENGAGE: Loosen the fixture nut and take it off. Then screw in he flange extractor to draw out the wheel & flange set from the spindle. (2-5-2)



(2-5-1)



(2-5-2)

Ⅱ. SAFETY PRECAUTIONS

7. GRINDING WHEEL BALANCING ADJUSTMENT:

In order to obtain fine surface finish, the grinding wheel must be checked and re-balanced periodically. A standard and well balanced grinding wheel is supplied from the grinder manufacturer. Please note the following procedure for balancing.

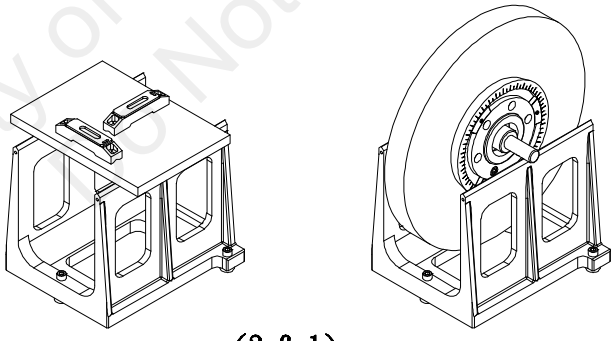
(1)Put the balancing stand on a steady table or ground, and use the leveling gauge to adjust the levelness of the balancing stand. (2-6-1)

(2)Let the wheel roll freely on the stand to find out its gravity center "W" and mark it on the wheel. (2-6-2)

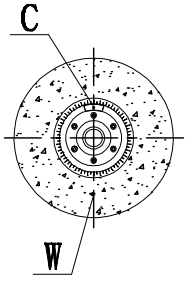
(3)Insert a balancing block into the opposite side as "C", and rotate the wheel 90 degrees to check which side is heavier. (2-6-3)

(4)Insert another balancing block on heavier side as "K", in which is on the same arc from "C" point. (2-6-4)

(5)Turn the wheel 90 degrees to check the balance of the wheel. If it's still not well balanced, repeat the above method until the wheel balance is done. If it requires to do the grinding on different workpiece material, it's better to change the wheel with the flange set to save time for balancing. (2-6-5)



(2-6-1)



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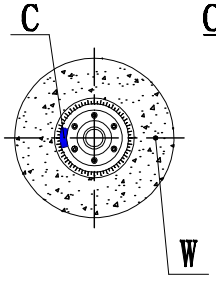

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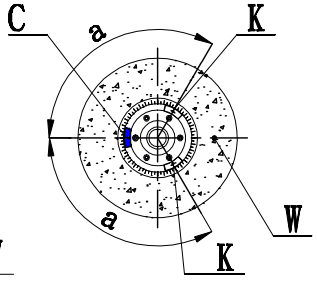

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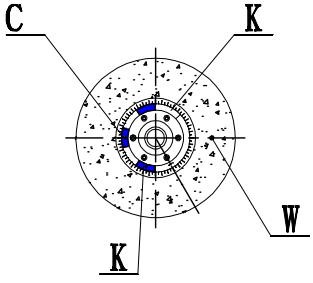
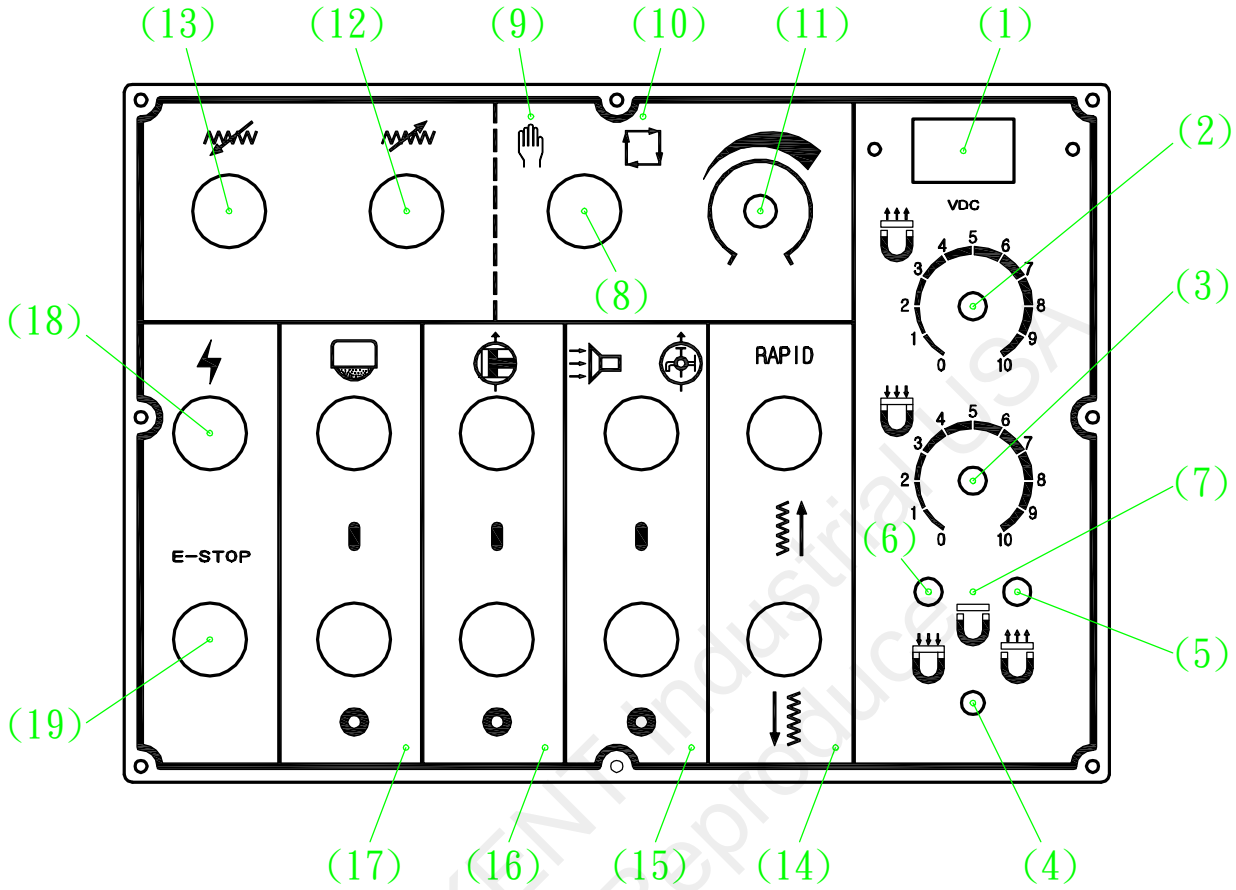


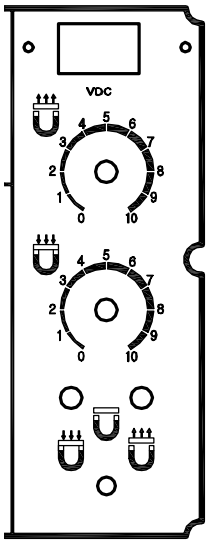
(2-6-5)

Ⅱ. SAFETY PRECAUTIONS

8. CONTROL PANEL (1A~3A)



A. ELECTRO MAGNETIC CHUCK CONTROL:



(1) VDC value display:
This window shows the value for Magnetizer/Demagnetizer.

(2) Demagnetizer switch:
If the corresponding value gets higher, the demagnetizing power gets higher.

(3) Magnetizer switch:
If the corresponding value gets higher, the magnetizing power gets higher.

(4) Chuck control switch:
Use this switch to select Magnetizer/ Demagnetizer mode or OFF.

(5) Demagnetizer indication lamp:
Switch to this mode for demagnetization. When the workpiece gets completely demagnetized, this light will go off.

Ⅱ. SAFETY PRECAUTIONS

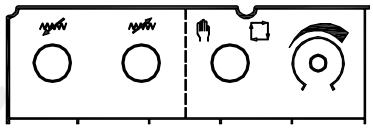
8. CONTROL PANEL (1A~3A)

A. ELECTRO MAGNETIC CHUCK CONTROL:

(6) Magnetizer indication lamp:
Switch to this mode for magnetization. When it's working on magnetization, this light will be on.

(7) OFF mode:
Switch to this to shut down the chuck control and the lamps will both go off.

B. CROSSFEED CONTROL:



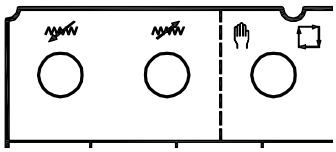
(8) Crossfeed mode select switch:

(9) Manual mode:
select this for Manual operation.

(10) Auto mode:
select this for Auto operation.

(11) Crossfeed step infeed value control:
Under the "Auto operation" mode, the saddle will infeed automatically by the value set at this switch .
Turn clockwisely for more infeed volume.

Manual mode:



(12) Push saddle "IN" button and saddle will move "IN" toward the column.

(13) Push saddle "OUT" button and saddle will move "OUT" toward the operator.

Auto mode:

(12) Push saddle "IN" button to force the saddle to change the moving direction to be "IN".

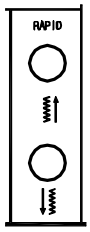
(13) Push saddle "OUT" button to force the saddle to change the moving direction to be "OUT".

Ⅱ. SAFETY PRECAUTIONS

8. CONTROL PANEL (1A~3A)

C. SPINDLE RAPID VERTICAL CONTROL:

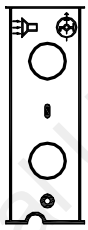
(14)RAPID - UP
RAPID - DOWN



※ 安全護鎖裝置當油壓啟動時，
無法快速下降，以確保安全。

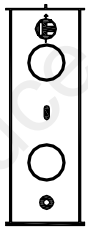
D. COOLANT/DUST SYSTEM CONTROL:

(15)ON
OFF



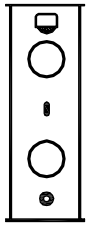
E. HYDRAULIC SYSTEM CONTROL:

(16)ON
OFF



F. SPINDLE SYSTEM CONTROL:

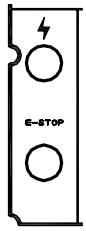
(17)ON
OFF



G. MAIN POWER SUPPLY CONTROL:

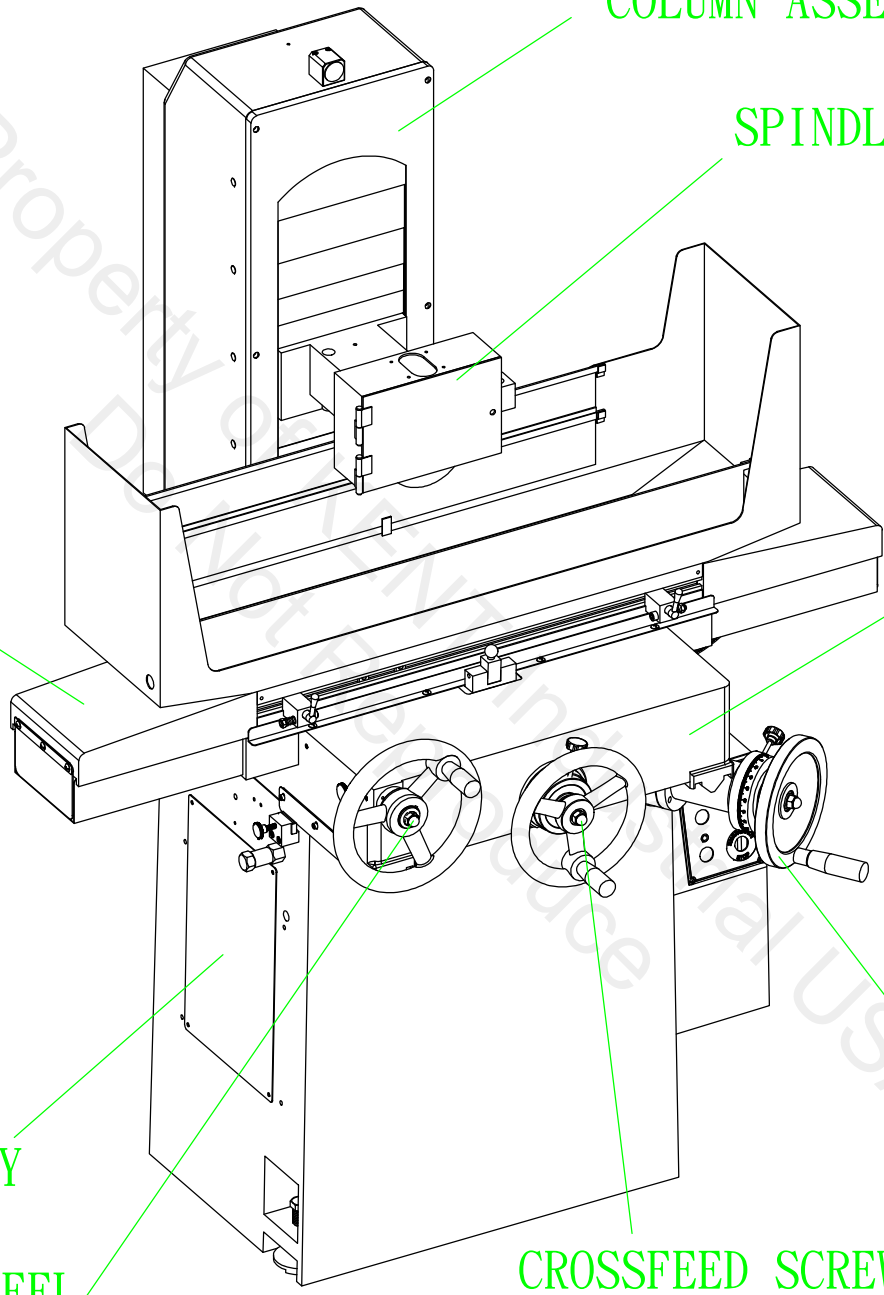
(18)Main power supply button:
Push this button to activate the main power supply.

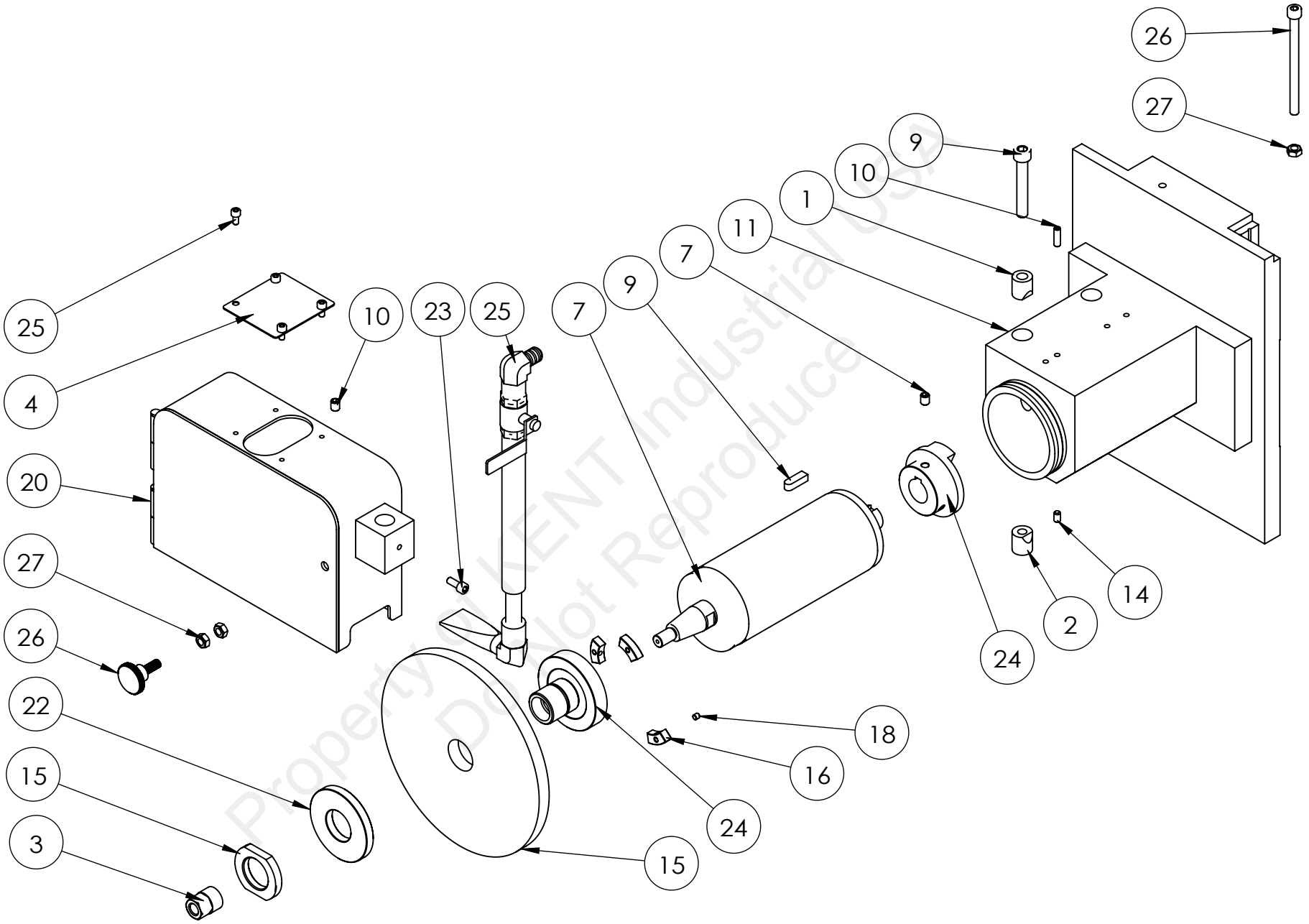
(19)Emergency stop button:
Push this button to shut down all the functions currently activating on the machine. Switch it clockwisely and release it to reset.



Ⅲ. PARTS LIST

1. MACHINE MAIN PARTS





06181A0200 spindle assembly

06181A0200 spindle assembly				
NO.	PART NO.	DESCRIPTION	Q,TY	NOTE[SPEC.]
1	06181010A0	spindle fixed block A	2	
2	06181010B0	spindle fixed block B	2	screw tooth
3	0618102000	flange locking nut	1	
4	06181001B0	cover plate	1	
5	3060405400	wheel guard handle	1	
6	NH000000M8	hex. Nut	3	M8x1.25Px12Wx6H
7	06181A0100	spindle assembly	1	
8	0618101100	motor coupling	1	
9	KEYS080725	key	1	8x7x25
10	BHU0081210	Inner hex. headless screw	6	M8-10L
11	0618101300	spindle housing	1	
12	BH00101560	inner hex. Screw	2	M10x1.50Px60L
13	BHU0061020	Inner hex. headless screw	2	M6x1.0Px20L
14	BHU0061010	Inner hex. headless screw	2	M6x1.0Px10L
15	FA0S10C350	flange cover	1	
16	FA0010B350	balancing block	3	33130-92-004
17	SB01000004	steel ball	3	ϕ4
18	BHU0050805	Inner hex. headless screw	3	M5-5L
19	WH00205133	grinding wheel	1	205x13x31.75
20	0618100200	wheel guard	1	
21	BH00050810	inner hex. Screw	4	M5x0.8Px10L
22	FA0S10B350	flange plate	1	
23	BH00061016	inner hex. Screw	1	M6x1.0Px16L
24	FA0010A350	flange body	1	
25	06181A2100	spray nozzle set	1	
26	BH00081211	inner hex. Screw	1	M8x1.25Px110L
27				

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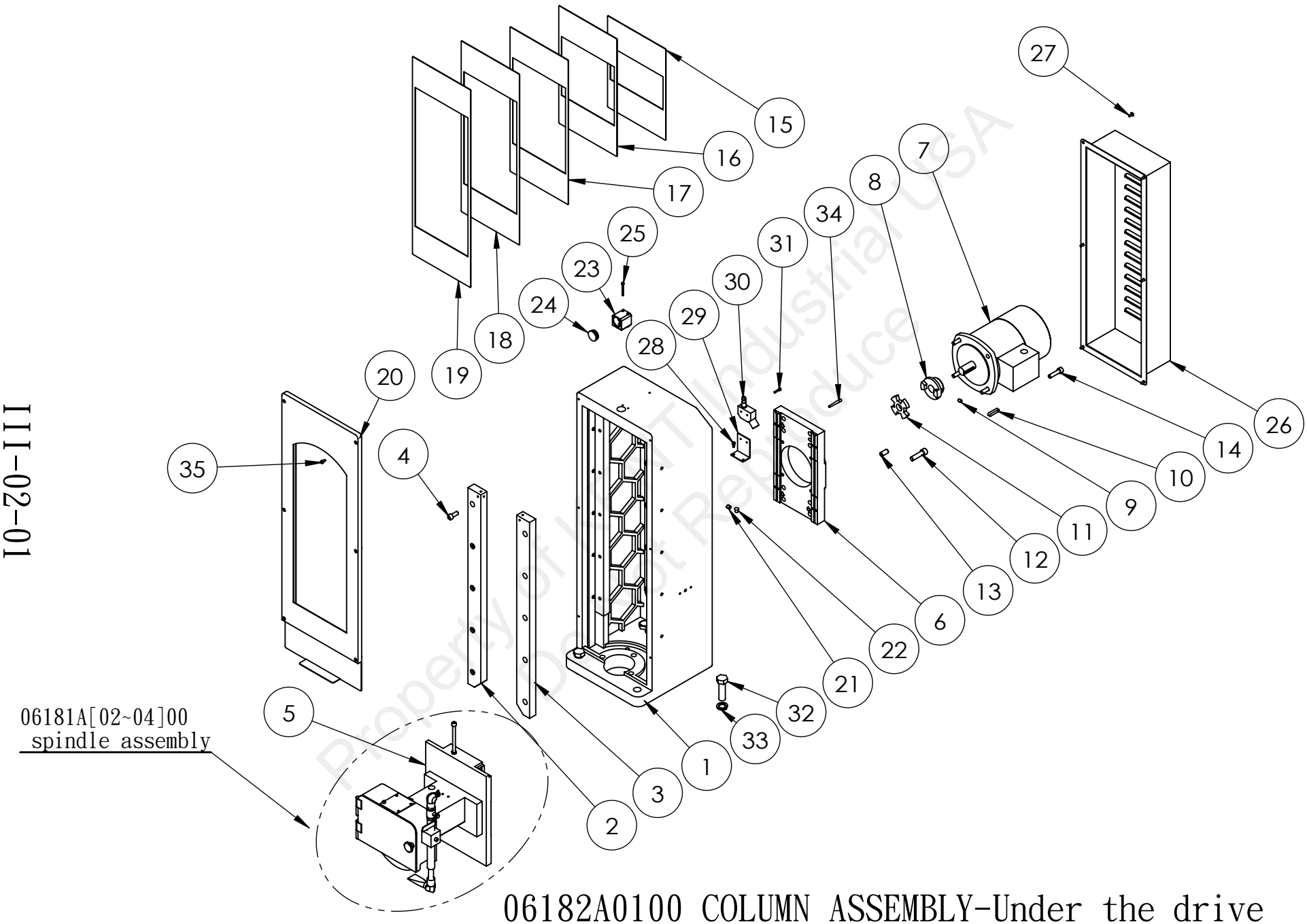

06182A0100 COLUMN ASSEMBLY-Under the drive

06182A0100 COLUMN ASSEMBLY-Under the drive				
NO.	PART NO.	DESCRIPTION	Q,TY	NOTE[SPEC.]
1	0618201300	column	1	
2	06182012A0	vertical rail [L]	1	
3	06182012B0	vertical rail [R]	1	
4	BH00101530	hex. screw	10	M10x1.50Px30L
5	06181A(02~04)00	spindle seat assembly	1	
6	0618201500	motor board	1	
7	MS01202238	spindle motor	1	(2HP OR 3HP)
8	0618101100	motor coupling	1	
9	BHU0081210	Inner hex. headless screw	3	M8-10L
10	KEYD080840	key	1	8X8X40
11	0618101200	plum blossom connector	1	
12	BH00121745	hex. screw	8	M12x1.75Px45L
13	BHU0121725	Inner hex. headless screw	4	M12-25L
14	BH00101540	hex. screw	4	M10x1.50Px40L
15	0618200400	front cover	1	
16	0618200500	front cover	1	
17	0618200600	front cover	1	
18	0618200700	front cover	1	
19	0618200800	front cover	1	
20	0618200300	column front cover plate	1	
21	BHU0101510	Inner hex. headless screw	10	M10-10L
22	HP000HP09B	plug head	10	HP-09-B
23	0618202300	oil mirror seat	1	
24	OLG0000029	oil mirror	1	ϕ29
25	BH00040740	hex. screw	2	M4x0.7Px40L
26	0618201600	column rear cover plate	1	
27	BRC0050812	cross round head screw	6	M5Xx0.8Px12L
28	BH00050810	hex. screw	2	M5x0.8Px10L-for 3A~ASD
29	3060211900	upper limit switch seat	1	for 3A~ASD
30	SL00AM1307	limit switch	1	AM-1307-for 3A~ASD
31	BH00040720	hex. screw	2	M4x0.7Px20L-for 3A~ASD
32	NH01034212	outer hexagonal Screws	4	BH 3/4-10NC-2.5''L
33	WS00000N34	spring washers	4	3/4''
34	P1NT006050	tapper pin	2	6#50L
35	BH00050810	hex. screw	6	M5x0.8Px10L

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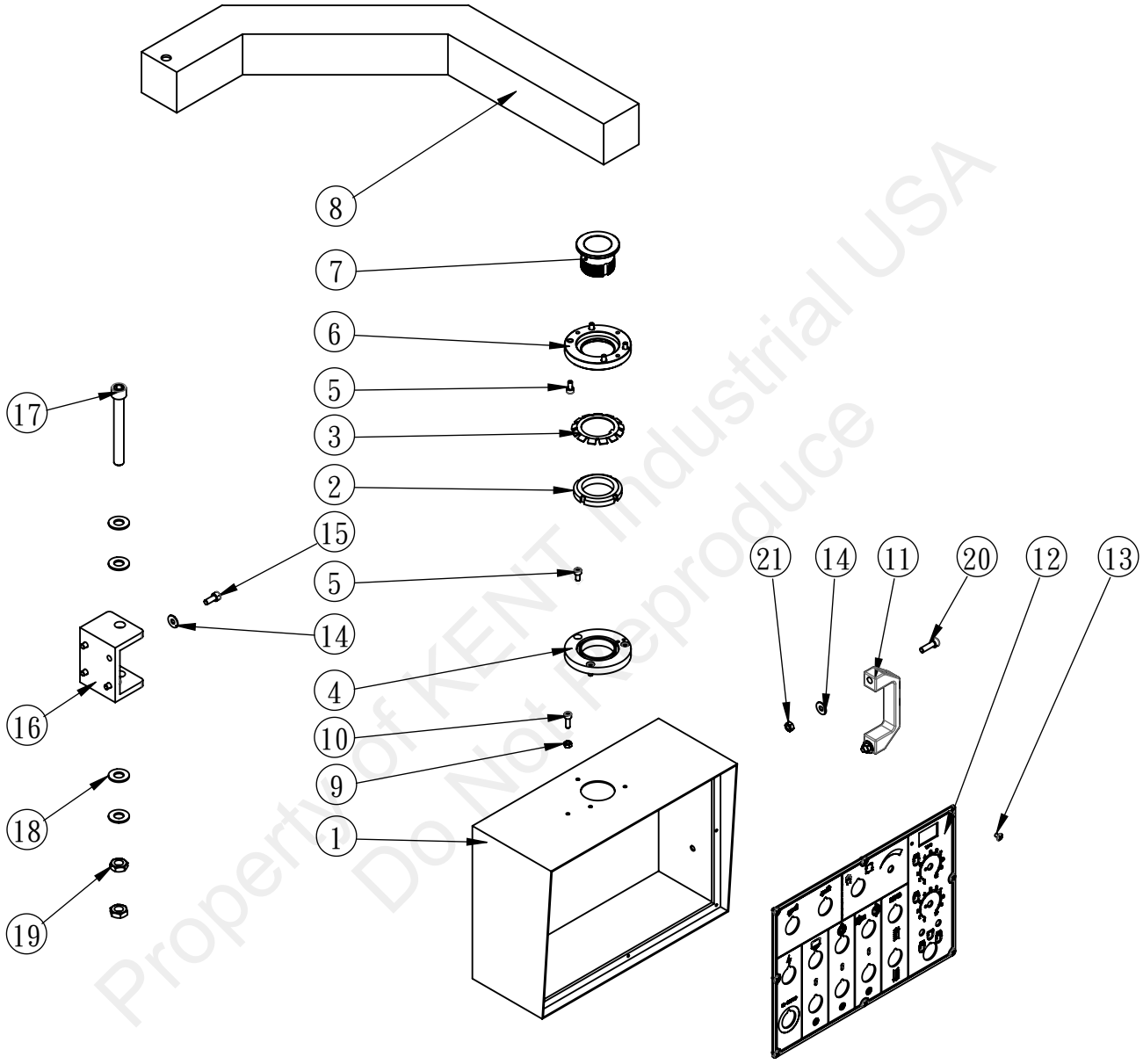

06182A0500 operation box(1A~3A,CII)

06182A0500 moveable operation box set				
NO.	PART NO.	DESCRIPTION	Q,TY	NOTE[SPEC.]
1	0618202200	operating box	1	
2	AN08M40P15	bearing nuts	1	AN08 (M40x1.5 P)
3	AW08000M40	washer	1	AW08
4	0618502100	operating box fixed seat	1	
5	BH00050810	inner hex. Screw	7	M5x0.8Px10L
6	0618202600	operation box fixed ring	1	
7	0618502000	operating box shaft	1	
8	061820220A	operating arm	1	
9	NH000000M5	hex. Nut	2	M5x0.8Px8Wx4.7H
10	BH00050816	inner hex. Screw	2	M5x0.8Px16L
11	HA01121194	operating box handle	1	[1211-94]
12	0618504800	electrical panel	1	
13	BRC0040708	cross round head screw	8	M4X0.7Px8L
14	WP00061602	washer	6	6x16x2
15	BH00061016	inner hex. Screw	4	M6x1.0Px16L
16	061820220B	operating arm bracket	1	
17	BH00121710	inner hex. Screw	1	M12x1.75Px100L
18	WP00122502	washer	4	12x25x2
19	NH00000M12	hex. Nut	2	M12x1.75Px19Wx7H
20	BH00061020	inner hex. Screw	2	M6x1.0Px20L
21	NH000000M6	hex. Nut	2	M6x1.0Px10Wx6H
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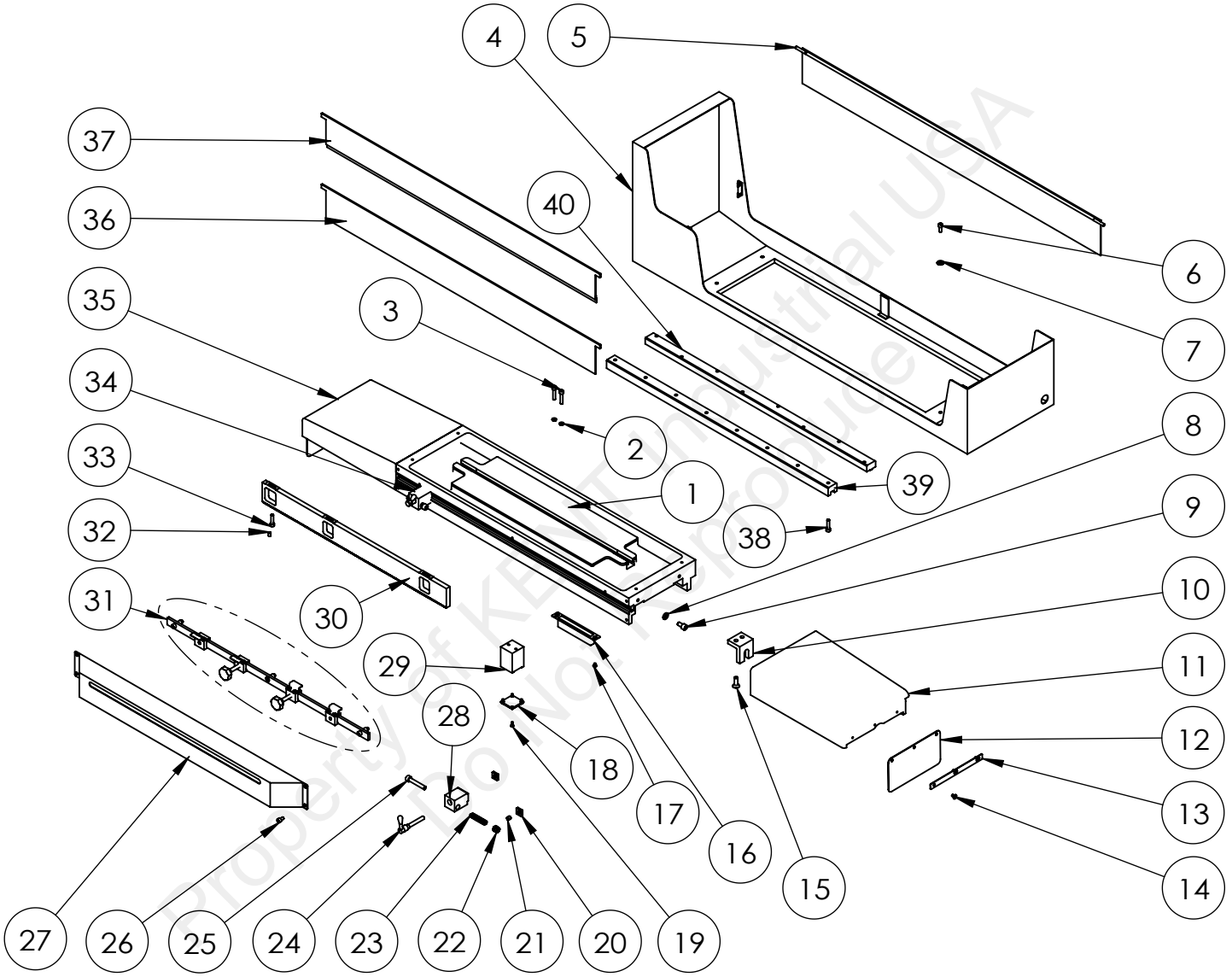

06183A0100 TABLE ASSEMBLY(ball way type)

06183A0100 TABLE ASSEMBLY(ball way type)				
NO.	PART NO.	DESCRIPTION	Q,TY	NOTE[SPEC.]
1	0618300300	table	1	ball way type
2	0618402000	copper gasket	2	M6x1.0Px10L*Inner hex. headless screw*for hidraulic
3	BH00061030	hex. screw	2	M6x1.0Px30L
4	0618300100	splash guard	1	
5	06183002C0	coolant guarding board(rear C)	1	
6	BH00061016	hex. screw	4	M6x1.0Px16L
7	WP00061602	washer	4	6x16x2
8	WP00081602	washer	4	8x16x2
9	BH00081216	hex. screw	4	M8x1.25Px16/30L*for hidraulic
10	06183035M0	cylinder rack	2	for hidraulic
11	0618301900	cover	1	0618302200* table wing R
12	0618301800	Cover film	2	
13	0618301700	cover tabletting	2	
14	BRC0050808	cross round head screw	6	M5Xx0.8Px8L
15	BHP0081220	Flat head hexagonal screws inner	4	M8x1.25Px20L*for hidraulic
16	06183032M0	water head	1	
17	BRC0040708	cross round head screw	2	M4X0.7Px8L
18	0618402100	timing belt fixing board	1	
19	BPC0040708	phillips flat-head screws	4	
20	0618302600	fixing nut	4	
21	BHU0081208	Inner hex. headless screw	2	M8-8L
22	NH000000M8	nut	4	M8x1.25Px12Wx6H
23	SC00854516	spring	2	
24	HF00450850	adjusting knob	2	45R-8M-50L
25	BH00081250	hex. screw	2	M8x1.25Px50
26	BH00061010	hex. screw	4	M6x1.0Px10L*for hidraulic
27	0618304100	longitudinal travel adjustor cover	1	for hidraulic
28	06183020A0	adjustment of block right	1	
29	0618300900	timing belt seat	1	06183009V0* ーVー平手動用
30	0618303300	left and right rows of teeth	1	for hidraulic
31	06183A1000	adjustment seat of left and right	1	for hidraulic
32	BHU0061010	Inner hex. headless screw	6	M6-10L*for hidraulic
33	BH00061025	hex. screw	3	M6x1.0Px25L*for hidraulic
34	0618302000	adjustment of block left	1	
35	0618301900	cover	1	0618302100* table wing L
36	06183002B0	coolant guarding board(frant B)	1	
37	06183002A0	coolant guarding board(frant A)	1	
38	BH00061025	hex. screw	16	M6x1.0Px25L
39	0618300500	convex table rail	1	
40	0618300400	concave table rail	1	

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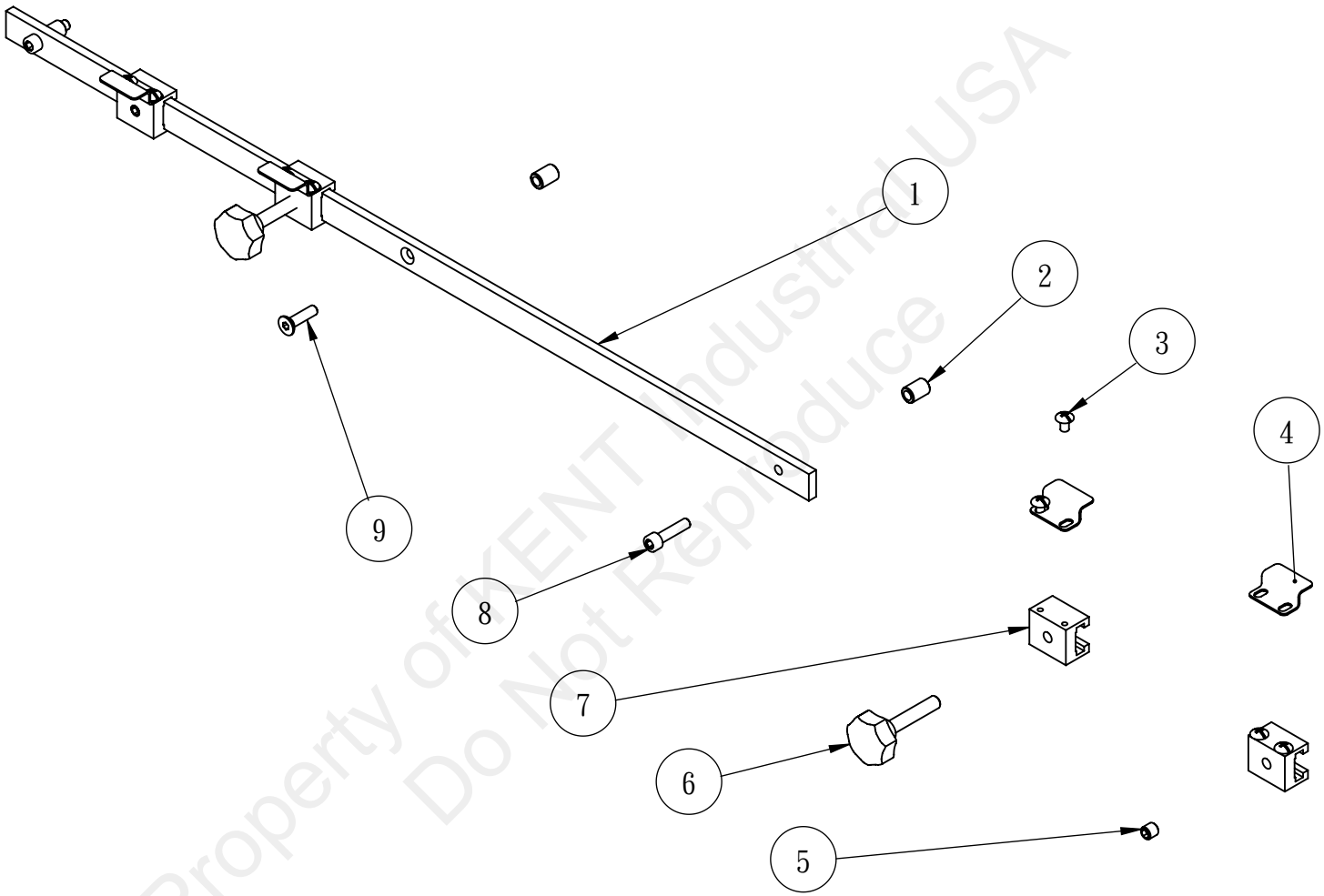

06183A1000 left and right of adjustment seat

06183A1000 adjustment seat of left and right				
NO.	PART NO.	DESCRIPTION	Q,TY	NOTE[SPEC.]
1	0618303600	Left and right adjustment-way track	1	
2	0618303800	track pad	3	
3	BRC0050808	cross round head screw	8	M5Xx0.8Px8L
4	0618304000	sensor chip	4	
5	BHU0081208	Inner hex. headless screw	2	M8-8L
6	SS0000M840	hand knob	2	M8x40L
7	0618303700	transfer block	4	
8	BH00061025	inner hex. Screw	2	M6x1.0Px25L
9	BHP0060120	Inner hex. flat head screw	1	M6x1.0Px20L
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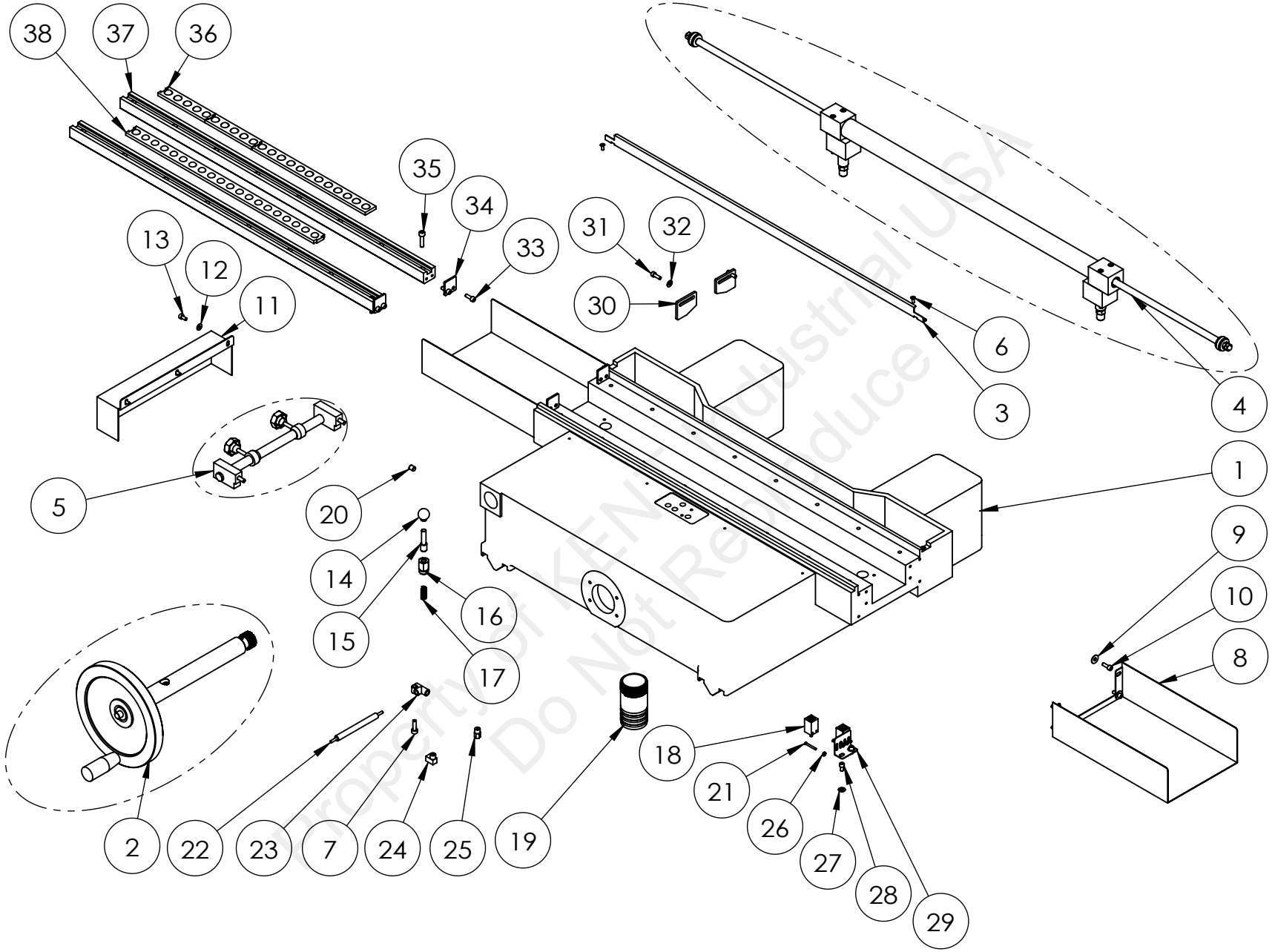

06184A0300 hydraulic SADDLE ASSEMBLY(ball type)

06184A0300 hydraulic SADDLE ASSEMBLY(ball type)				
NO.	PART NO.	DESCRIPTION	Q,TY	NOTE[SPEC.]
1	06184010B0	saddle	1	
2	06184A0700	longitudinal handwheel assembly	1	
3	0618401200	dust proof bar(Rear)	1	
4	06184A0500	cylinder assembly	1	R1-25x560A
5	06184A0900	front and rear adjustment assembly	1	
6	BPC0040708	flat head screw	2	M4x0.7Px8L
7	BH00061020	hex. screw	1	M6x1.0Px20L
8	0618405500	dust proof plate	2	
9	WP00061602	washer	8	6x16x2
10	BH00050816	hex. screw	8	M5x0.8Px16L
11	0618504000	stroke cover	1	
12	WP00051201	washer	3	5x12x1
13	BH00050810	hex. screw	3	M5x0.8Px10L
14	NYB0025014	plastic round ball	1	
15	3060404800	drawbars	1	
16	3060404900	drawbars seats	1	
17	3060404600	compression springs	1	
18	SPC0DC35NC	proximity switches	2	TL-B5NE1
19	CONA14T90E	pipe	1	
20	BHU0081210	Inner hex. headless screw	2	M8-10L
21	BRC0030525	cross round head screw	4	M3x0.5Px25L
22	HO000040250	outer wire hose	1	ϕ4-250MM
23	JUNC03M084	three-way pipe	1	
24	ELAM8P1804	right angle connector	1	ϕ4-PT18/PH-401
25	STRM8P1804	direct head	1	ϕ4-PT18/PD-401
26	NH000000M3	nut	4	M3x0.5Px6Wx2.5H
27	WP00051201	washer	2	5x12x1
28	BH00050810	hex. screw	2	M5x0.8Px10L
29	0618404700	switch seat	1	
30	0618503900	limit blocks	2	
31	BH00050816	hex. screw	2	M5x0.8Px16L
32	WP00051201	washer	2	5x12x1
33	BH00050816	hex. screw	8	M5x0.8Px16L
34	0618400800	protecction plate	4	
35	BH00061025	hex. screw	16	M6x1.0Px25L
36	0618422500	steel ball rail(R)	1	22pcs*Φ 5/8"
37	0618400900	saddle guideway concave	2	
38	0618420500	steel ball rail(F)	1	20pcs*Φ 5/8"

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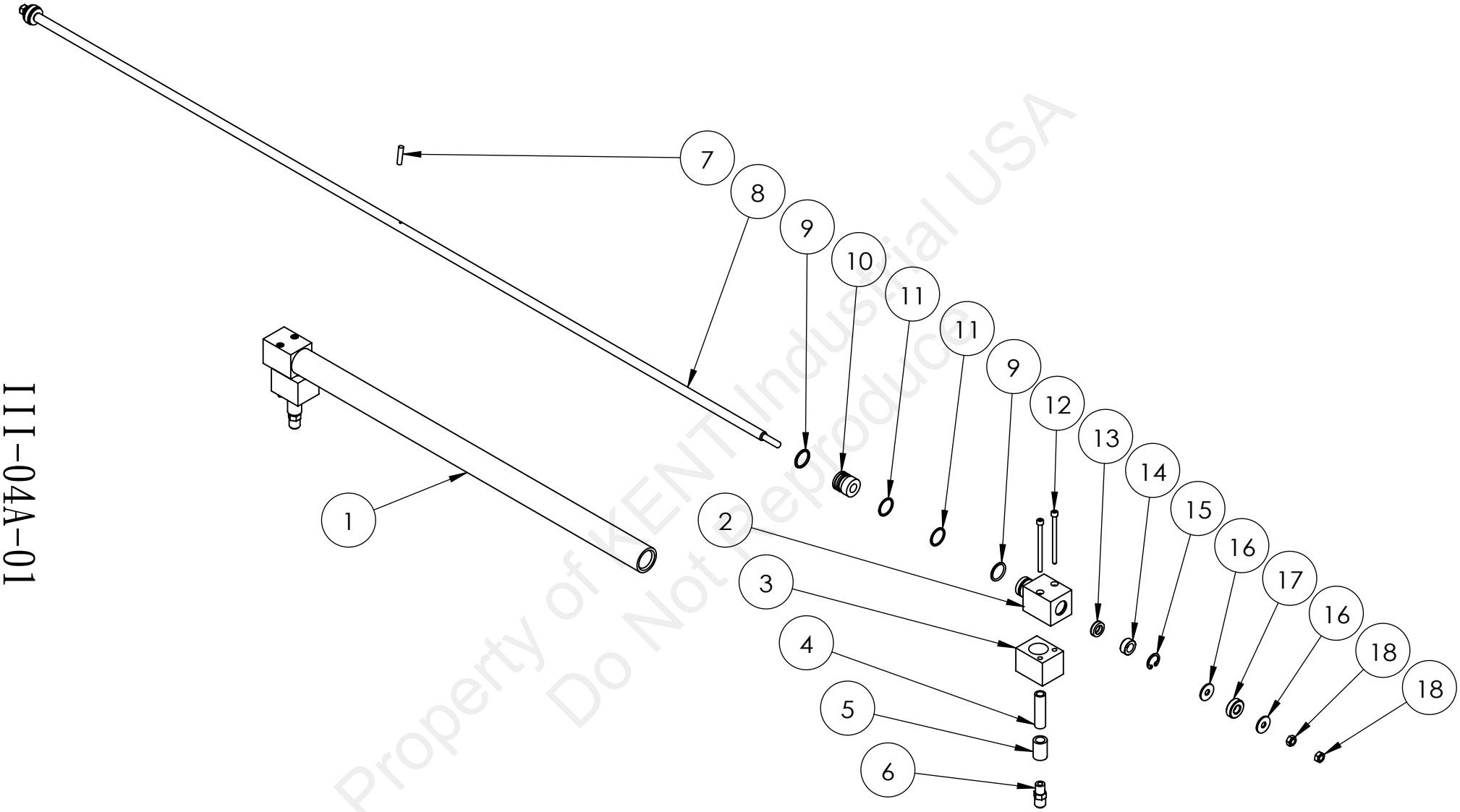

06184A0500 cylinder assembly

06184A0500 cylinder assembly				
NO.	PART NO.	DESCRIPTION	Q,TY	NOTE[SPEC.]
1	06184001R1	hydraulic cylinder tube	1	
2	06184004R1	hydraulic bar fixed seat	2	
3	0618401100	piston rod seat of plate	2	
4	CONB14T045	directly pipe joints	2	
5	COND14T14T	iron connector	2	
6	CON114T38H	direct joints	2	
7	P1NT003025	taper pins	1	
8	06184002R1	piston bar	1	
9	RG00000P21	O-ring	3	P21 ϕ20.8xϕ2.4
10	06184003R1	piston	1	
11	BR00000B21	back off the ring	2	ϕ21xϕ25xt 1.25
12	BH00050875	hex. screw	4	M5x0.8Px75L
13	SE00USI012	oil Seal	2	USI 12 12X20X5
14	06184005R1	copper pads	2	
15	CL01000020	inner buckles	2	R20
16	WP00082302	washer	4	8x23x2
17	0618410600	cushioning washer	2	
18	NH000000M8	nut	4	M8x1.25Px12Wx6H
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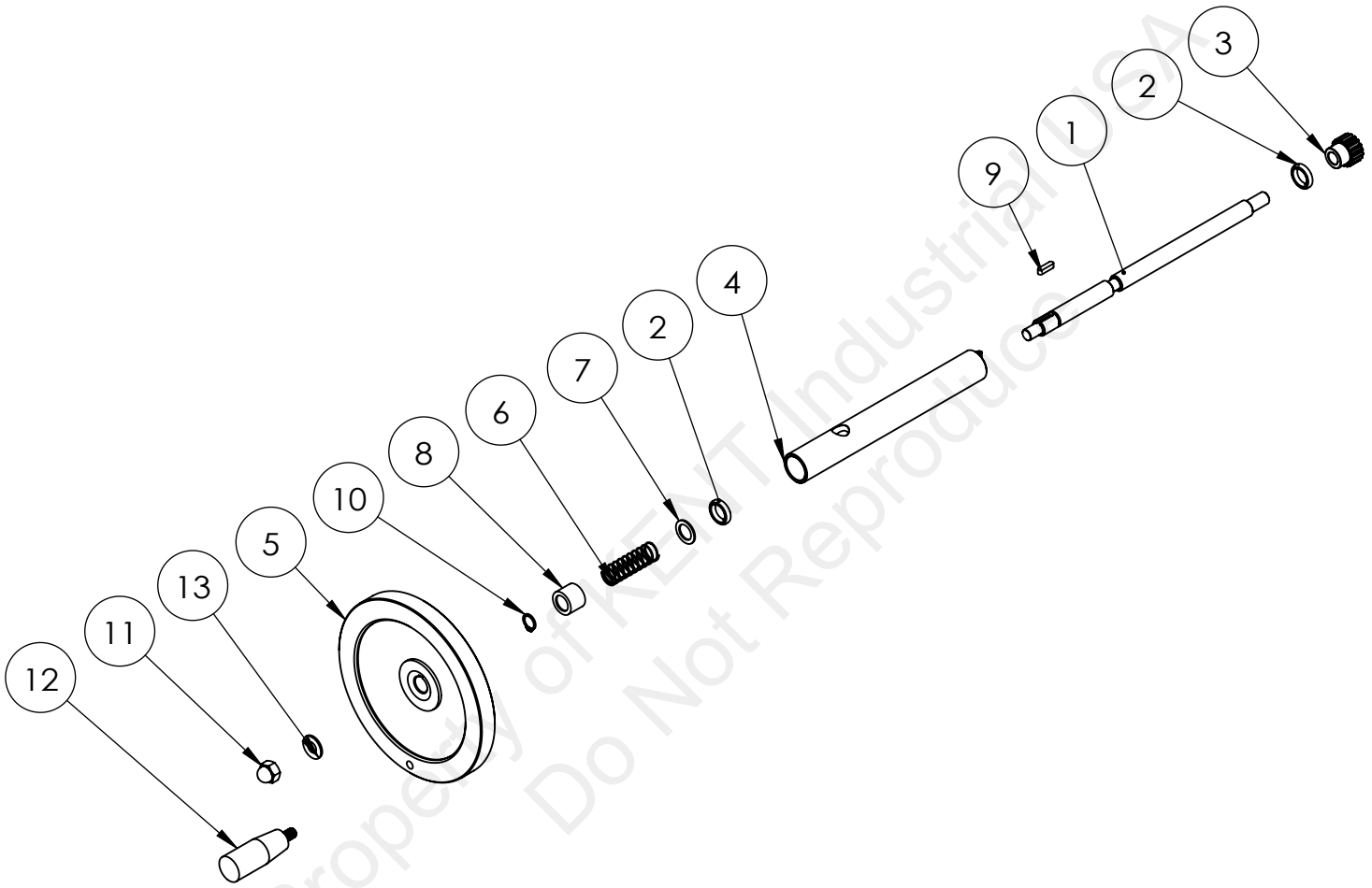

06184A0700 LONGITUDINAL HANDWHEEL ASSEMBLY[1A~ASD/CII]

06184A0700 LONGITUDINAL HANDWHEEL ASSEMBLY[1A~ASD]				
NO.	PART NO.	DESCRIPTION	Q,TY	NOTE[SPEC.]
1	0618402600	transmission shaft	1	
2	B0006803ZZ	bearing	2	(17x26x5)
3	0618401500	bearing	1	
4	0618402700	shaft housing	1	
5	WH00KRA200	handwheel	1	KRA200
6	SC00208010	spring	1	
7	0618406100	spring washers	1	
8	0618406000	spring seat	1	
9	KEYD050520	key	1	5X5X20
10	CL00000015	outer buckles	1	S15
11	NE00000M12	nut	1	M12
12	HE00G90M10	handle	1	
13	WP00122502	washer	1	12x25x2
14	PINS005025	pin	1	ϕ5x25
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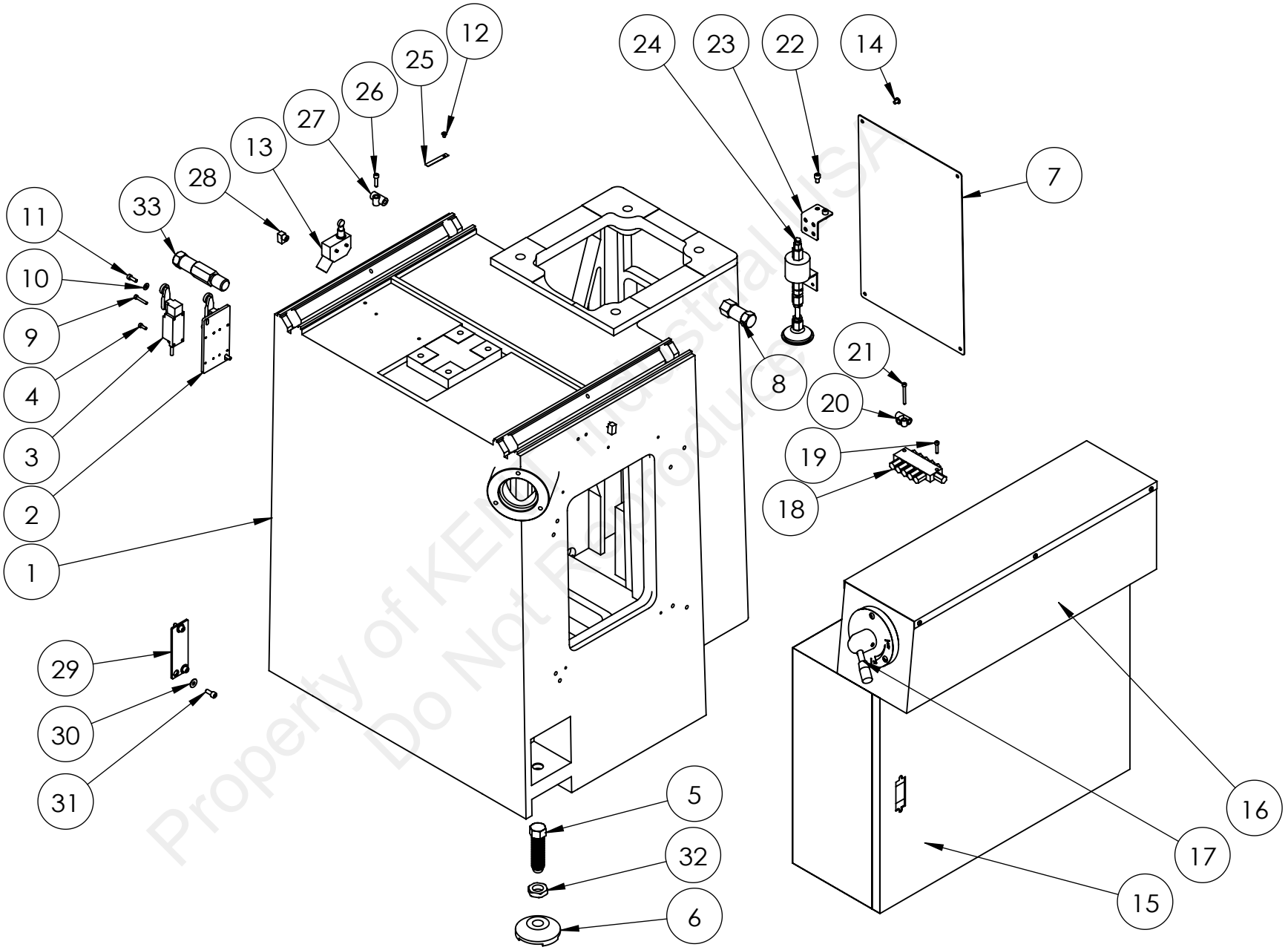

06185A0200 BASE ASSEMBLY(hydraulic)

06185A0200 BASE ASSEMBLY(hydraulic)				
NO.	PART NO.	DESCRIPTION	Q,TY	NOTE[SPEC.]
1	06185013A0	base	1	06185013B0
2	0618500100	switch fixed plate	1	
3	SL00AZ8104	limit switch	1	AZ8104
4	BH00040712	inner hex. Screw	4	M4x0.7Px12L
5	0618502400	foundation bolts	3	
6	0618501200	foundation seats	3	
7	0618504300	side cover	0	
8	0618504900	lifting bolt (S)	1	
9	BH00040725	inner hex. Screw	4	M4x0.7Px25L
10	WP00051201	washer	2	5x12x1
11	BH00050816	inner hex. Screw	2	M5x0.8Px16L
12	BRC0040708	cross round head	4	M4X0.7Px8L
13	SL00AM1307	limit switch	1	AM-1307
14	BRC0050808	cross round head	8	M5Xx0.8Px8L
15	0618A04200	electrical box set	1	0618A042C0(CII/ASD)
16	0618A40000	throttle seat group	1	
17	08185A1200	throttle body group	1	
18	CBRMCB5064	oil distributor	1	入口φ6 出口φ4
19	BH00040720	inner hex. Screw	1	M4x0.7Px20L
20	JUNC03M084	three - way pipe	1	
21	BH00040740	inner hex. Screw	1	M4x0.7Px40L
22	BH00061010	inner hex. Screw	4	M6x1.0Px10L
23	0618505000	pump fixed plate	1	
24	EL10110110	electromagnetic pump	1	EL1-110V 110L
25	0618500300	oil scraping piece	4	
26	BH00050820	inner hex. Screw	1	M5x0.8Px20L
27	JUNC02M084	fixed double connector	1	Φ4
28	ELAM8P1804	right angle connector	2	φ4-PT18 PH-401
29	0618401400	fixed piece	1	
30	WP00061602	washer	3	6x16x2
31	BH00061016	inner hex. Screw	3	M6x1.0Px16L
32	0618502500	foundation nuts	3	
33	06185049L0	lifting bolt (L)	1	
34				
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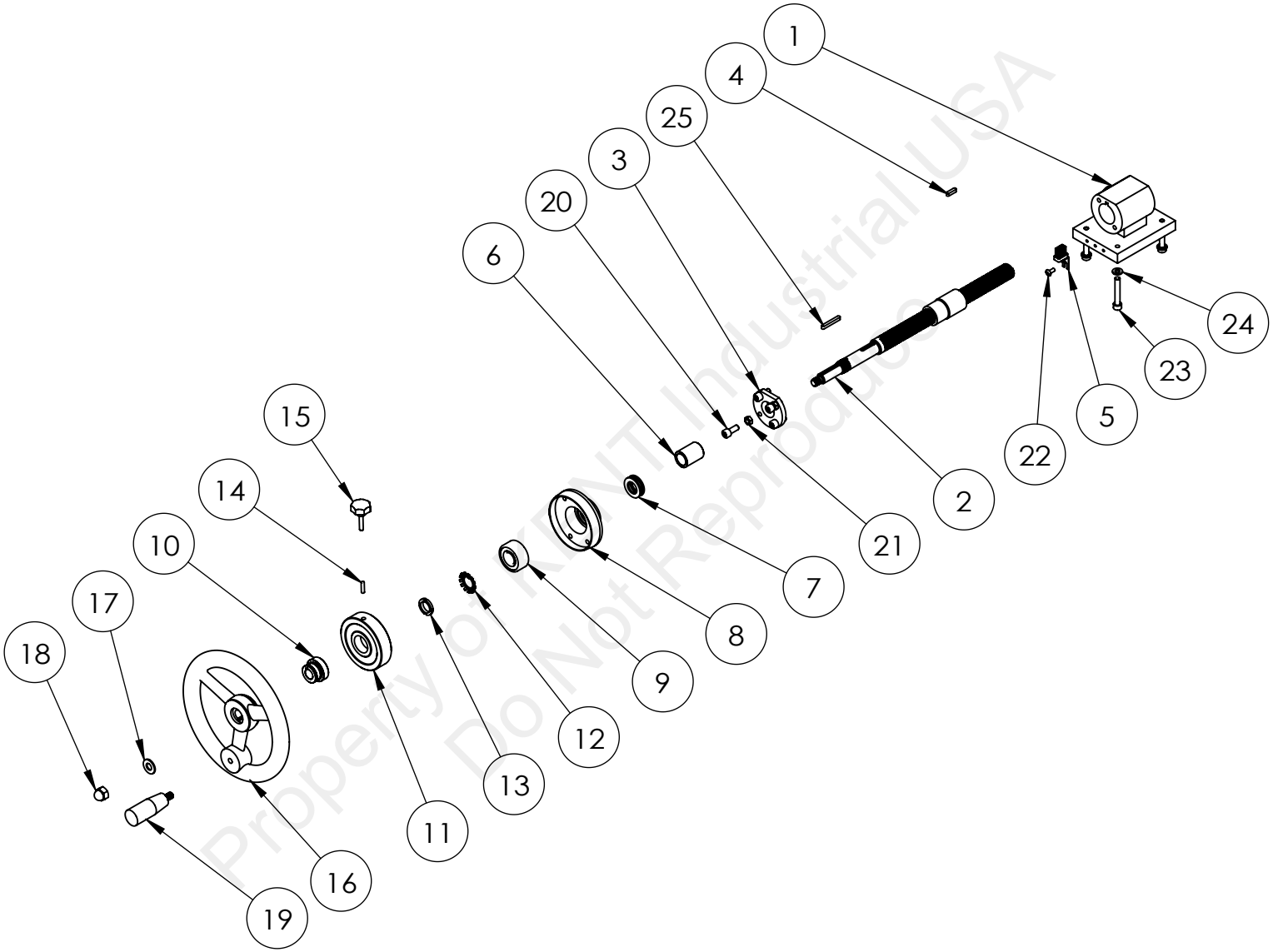
III-05A-01



06185A0500 CROSSFEED SCREW FIXING SOCKET ASSEMBLY

06185A0500 CROSSFEED SCREW FIXING SOCKET ASSEMBLY				
NO.	PART NO.	DESCRIPTION	Q,TY	NOTE[SPEC.]
1	06185011A0	crossfeed screw fixing socket	1	
2	06185008C0(MM)	crossfeed screw	1	06185008N0(IN)
3	0618500900	crossfeed nut adjusting ring	1	
4	KEYD050520	key	1	5X5X20
5	0618501500	brush retainer	1	
6	0618402500	shaft sleeve	1	
7	B000051104	thrust bearing	1	51104(20x21x35x10)
8	0618400700	crossfeed indication ring	1	
9	B0005204ZZ	bearing	1	5204ZZ (20x47x20.6)
10	0618405400	crossfeed indication ring sleeve	1	
11	06184004M0(MM)	crossfeed graduation ring	1	06184004N0(IN)
12	AW04000M20	washer	1	AW04
13	AN04M20P10	bearing nuts	1	AN04 (M20x1.0P)
14	P1N0005020	pin	1	5X20L
15	SS0000M630	hand knob	1	M6x30L
16	WH00KSP200	handwheels	1	KSP200
17	WP00122502	washer	1	12x25x2
18	NE00000M12	nut	1	M12
19	HE00G90M10	dianmu handles	1	
20	BH00081220	hex. screw	4	M8x1.25Px20
21	NH000000M8	nut	2	M8x1.25Px12Wx6H
22	BRC0050812	cross round head screw	1	M5Xx0.8Px12L
23	BH00081250	hex. screw	4	M8x1.25Px50
24	WP00081602	washer	4	8x16x2
25	KEYD050540	key	1	5X5X40L
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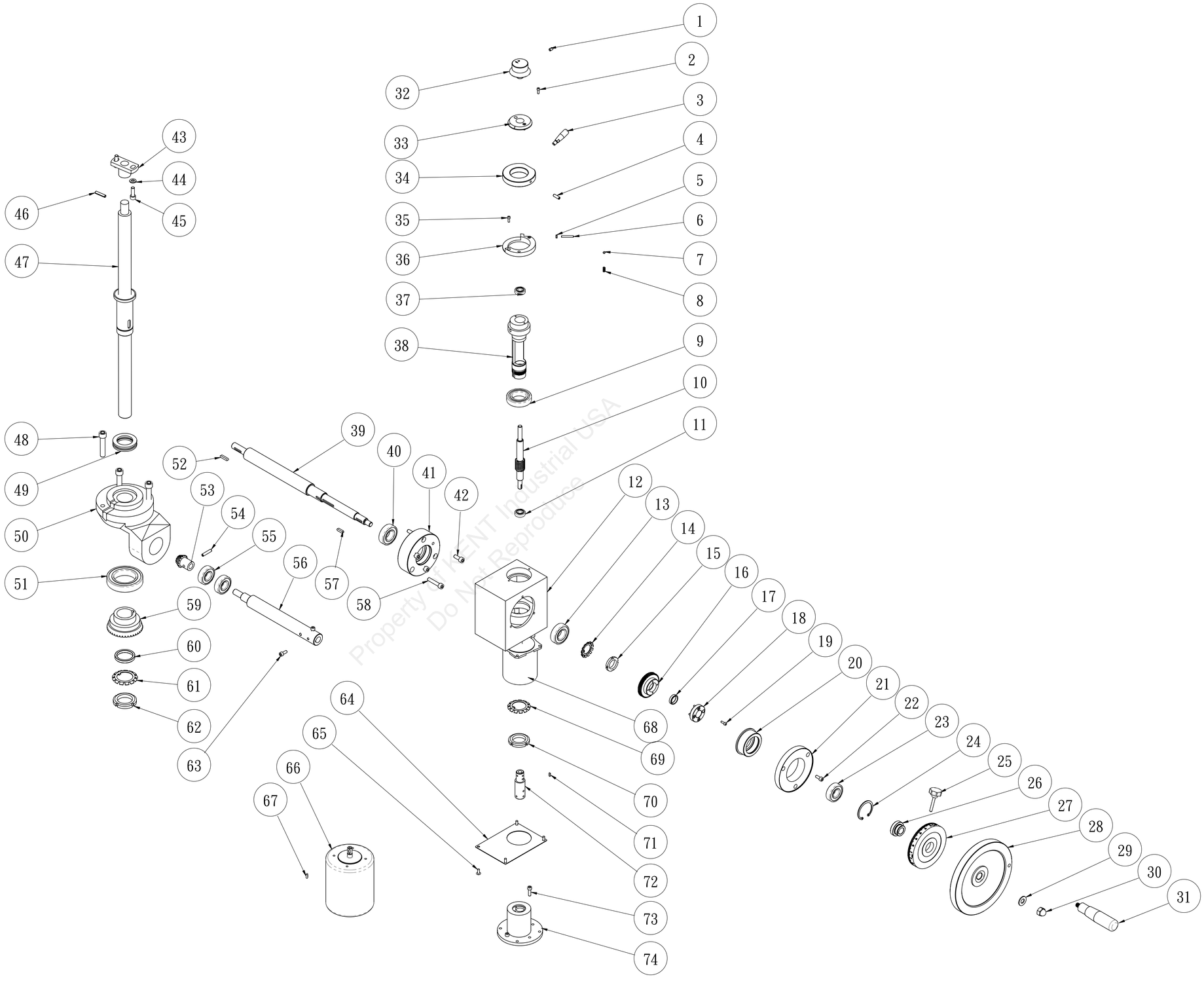
III-05A-02				

III-05E-01



06185A0900 micro vertical feed case assembly

06185A0900 micro vertical feed case assembly				
NO.	PART NO.	DESCRIPTION	Q,TY	NOTE[SPEC.]
1	BHU0061010	inner hex. headless	1	M6-10L
2	BH00040712	inner hex. screw	2	M4x0.7Px12L
3	06184C1300	micro crossfeed handle	1	
4	BHU0061020	inner hex. headless	1	M6-20L
5	NH000000M4	nut	1	M4x0.7Px7Wx3.2H
6	BHU0040730	inner hex. headless	1	M4-30L
7	SB00000005	steel ball	1	
8	SC00503006	spring	1	
9	B0006000ZZ	bearing	1	6000ZZ(10x26x8)
10	06185D0202	micro lifting bar(mm)	1	
11	B0006007ZZ	bearing	1	6007ZZ(35x62x14)
12	06185D0700	micro lifting case	1	
13	B0006205ZZ	bearing	1	6205ZZ(25x52x15)
14	AW05000M25	washer	1	AW05
15	AN05M25P15	bearing nuts	1	AN05 (M25x1.5P)
16	06185D0201	micro lifting gear(mm)	1	
17	RG0300SC20	sleeve	1	SC-20
18	06185D1000	fixing ring	1	
19	BH00040712	inner hex. screw	4	M4x0.7Px12L
20	06185D1700	ring seat	1	
21	0618500500	vertical indication ring	1	
22	BH00061016	inner hex. screw	3	M6x1.0Px16L
23	B00006204Z	bearing	1	6204Z(20x47x14)
24	CL01000047	inner buckles	1	R47
25	SS0000M640	hand knob	1	M6x40L
26	0618501800	indication ring sleeve	1	
27	06185004C0	vertical graduation ring	1	06185004N0(IN)
28	WH00KRA200	handwheels	1	KRA200
29	WP00122502	washer	1	12x25x2
30	NE00000M12	nut	1	M12
31	HA00R90M10	handle	1	FR90-M10
32	06184C01C0	graduation ring(mm)	1	06184C01N0(IN)
33	06184C0300	indication ring	1	
34	06184C0500	moving ring	1	
35	BH00040712	inner hex. screw	2	M4x0.7Px12L
36	06184C0600	angle ring	1	
37	B0006000ZZ	bearing	1	6000ZZ(10x26x8)
38	06184C0400	eccentric shaft	1	

06185A0900 micro vertical feed case assembly				
NO.	PART NO.	DESCRIPTION	Q,TY	NOTE[SPEC.]
39	06185D1200	hand lifting axle	1	
40	B0006205ZZ	bearing	1	6205ZZ(25x52x15)
41	06185D1600	micro box seat	1	
42	BH00081220	inner hex. Screw	3	M8x1.25Px20
43	0618501300	vertical screw top seat	1	
44	WP00081602	washer	2	8x16x2
45	BH00081225	inner hex. screw	2	M8x1.25Px25L
46	P1NS006030	pin	1	6x30
47	06185011C0	vertical screw(mm)	1	06185011N0(IN)
48	BH00121760	inner hex. screw	3	M12x1.75Px60L
49	B000051108	thrust bearing	1	51108(40x42x60x13)
50	0618201000	vertical screw nut seat	1	
51	B00006011Z	bearing	1	6011Z(55x90x18)
52	KEYD050525	key	1	5x5x25L
53	06182009C2	vertical gear(mm)	1	06182009N2(IN)
54	P1NS006030	pin	1	6x30
55	B00006204Z	bearing	2	6204Z(20x47x14)
56	06185D1400	gear shaft	1	
57	KEYD050520	key	1	5X5X20
58	BH00081240	inner hex. screw	3	M8x1.25Px40
59	06182014C1	vertical gear(mm)	2	06182014N1(IN)
60	0618502300	spacer	1	
61	AW08000M40	washer	1	AW08
62	AN08M40P15	bearing nuts	1	AN08 (M40x1.5P)
63	BH00061016	inner hex. screw	2	M6x1.0Px16L
64	06185D0800	cover board	1	
65	BRC0050812	cross round head screw	4	M5Xx0.8Px12L
66	MU01102200	lifting motor	1	CP-414 ,0.25HP 4P-3A
67	KEYD040412	key	1	4X4X12
68	B0006007ZZ	bearing	1	6007ZZ(35x6 2x14)
69	AW07000M35	washer	1	AW07
70	AN07M35P15	bearing nuts	1	AN07 (M35x1.5P)
71	KEYD030310	key	1	3X3X10
72	06185D18C2	motor shaft-ASD	1	06185D1800- 3A
73	BH00061020	inner hex. screw	4	M6x1.0Px20L
74	06185D19AS	motor seat(ASD)	1	
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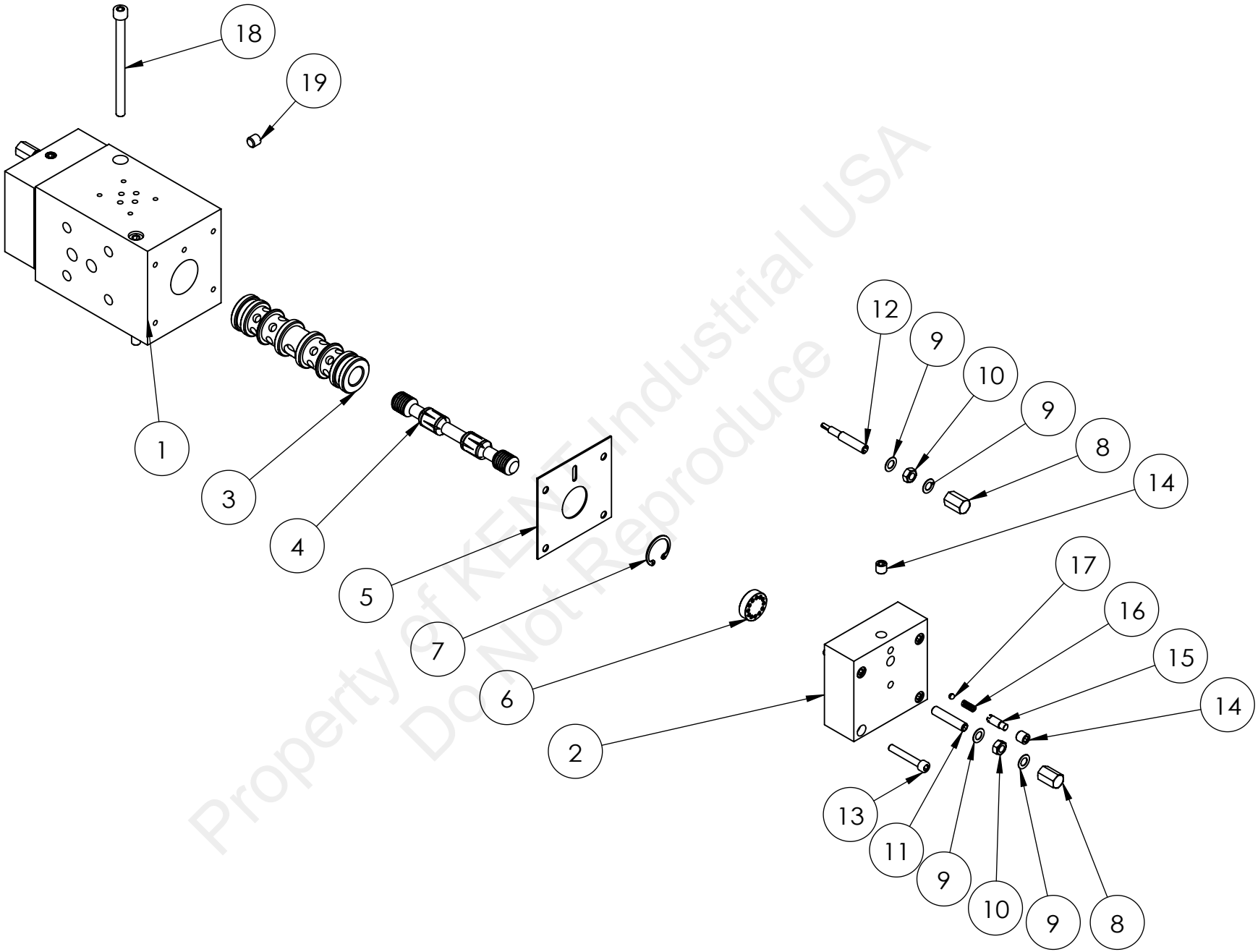

08186A0200 TABLE REVERSING ARRANGMENT ASSEMBLY[1A~ASD/CII]

08186A0200 TABLE REVERSING ARRANGMENT ASSEMBLY[1A~ASD/CII]				
NO.	PART NO.	DESCRIPTION	Q,TY	NOTE[SPEC.]
1	0818602000	reversing body	1	
2	30606004A0	reversing body cover	2	
3	3060600200	reversing body sleeve	1	
4	3060600300	reversing body shaft	1	
5	3060600600	sponges spacer	2	
6	3060600500	buffering sleeve	2	
7	CL01000028	Inner buckles	2	R28
8	3060600800	hexagonal nut	4	
9	3060601200	copper spacer	8	
10	NH000000M8	nut	4	M8x1.25Px12 Wx6H
11	BHU0081240	Inner hex. headless screw	2	M8-40L
12	3060601100	adjustment screws	2	
13	BH00061040	hex. screw	8	M6x1.0Px40L
14	PLUG000018	hexagon plugs	4	
15	3060601000	spring seats	2	
16	SC00542003	compression springs	2	
17	SB00000005	steel balls	2	Φ5
18	BH00081211	hex. screw	2	M8x1.25Px110
19	PLUG000018	hexagon plugs	1	
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