



OPERATION MANUAL

CGS-618M Surface Grinder

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I . INSTALLATION OF MACHINE

1. DIMENSION & FLOOR REQUIREMENT:

The minimum space for machine:

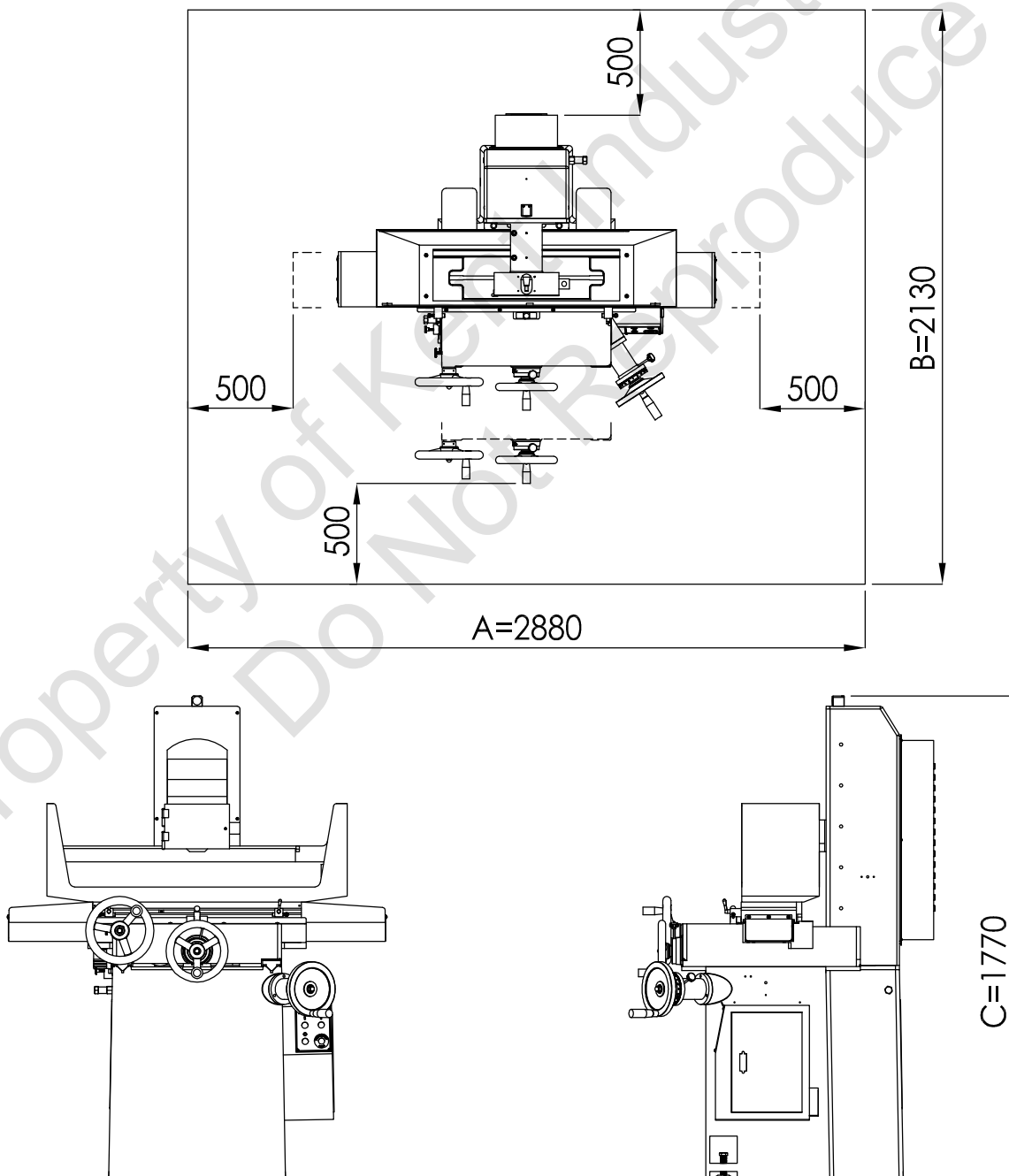
For your convenience to operate, please take the walkway into consideration. Therefore, the ideal space for machine should be:
CB-618ASD:

A - 2880MM (115")

B - 2130MM (85")

C - 1770MM (70")

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/m².
- (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°C; However, if you're doing very precise grinding, please keep the temperature around 20°C.
- (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.

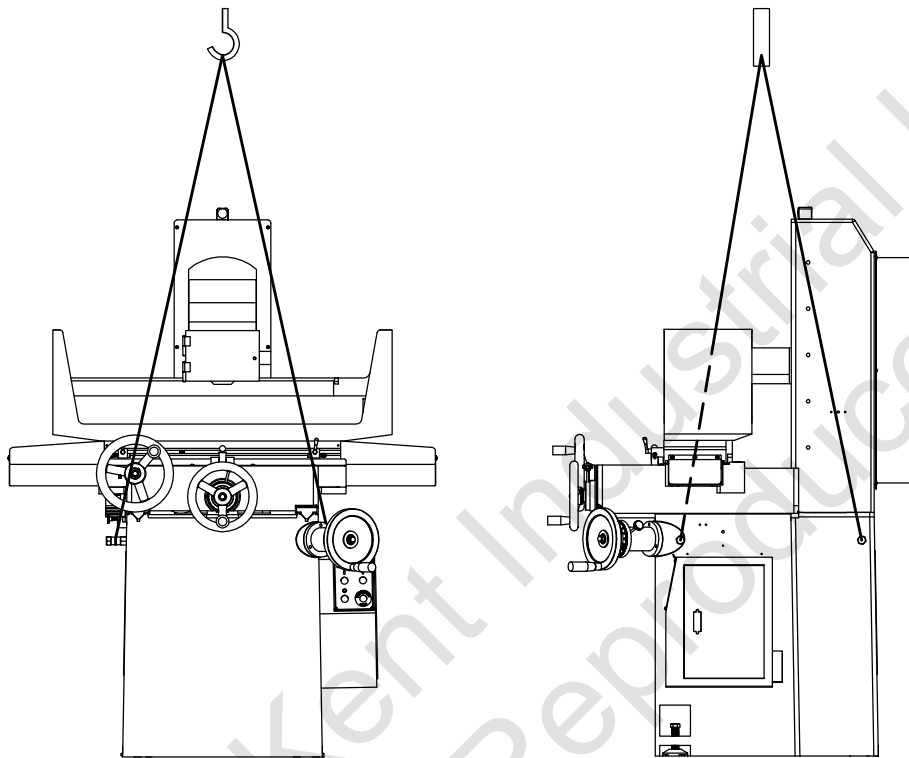
I . INSTALLATION OF MACHINE

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.)

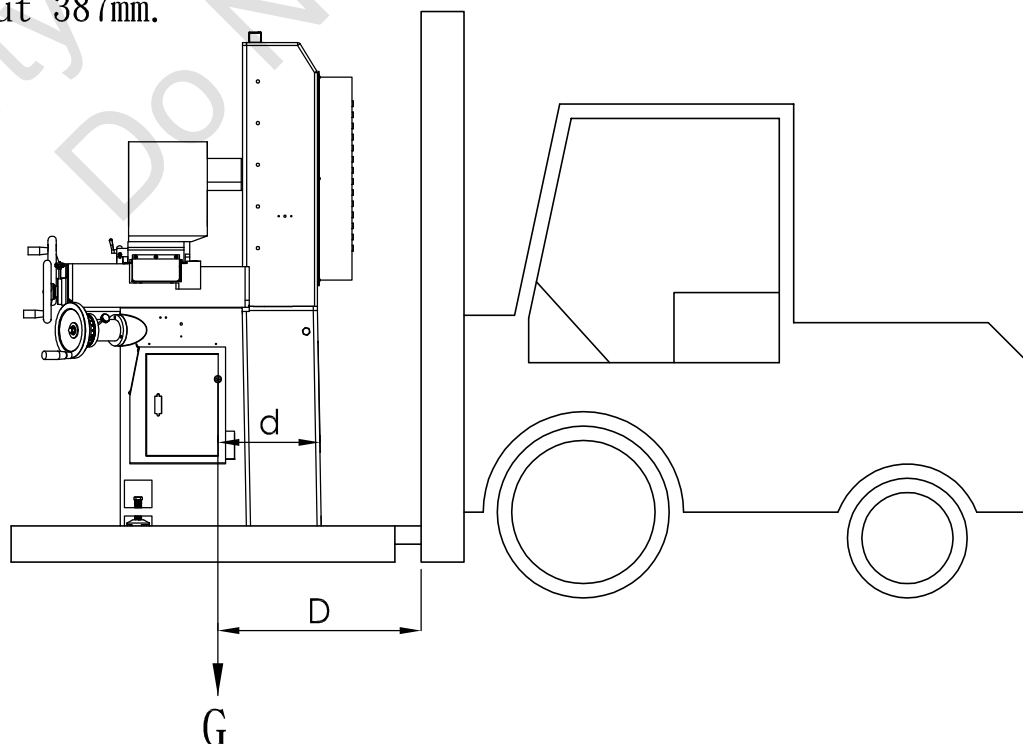


(2) FORK LIFTING: Use the fork lift for transportation.

D: Distance the shorter the better.

G: Center of gravity.

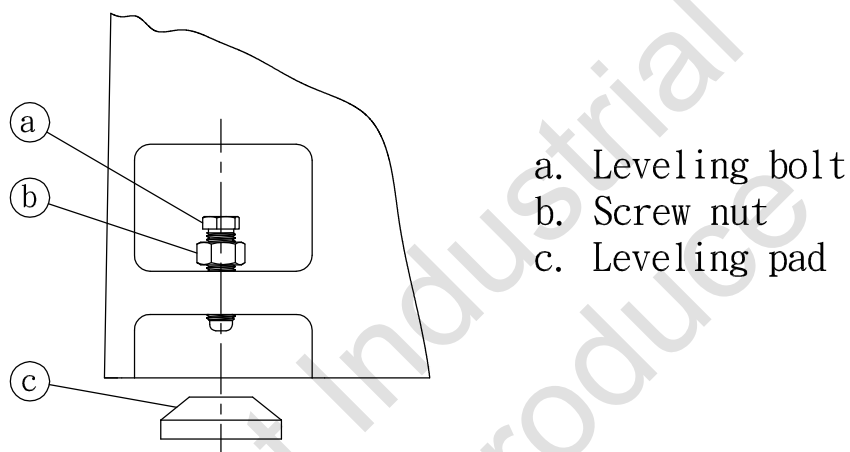
d: About 387mm.



I . INSTALLATION OF MACHINE

5. LEVELING BOLT & PAD

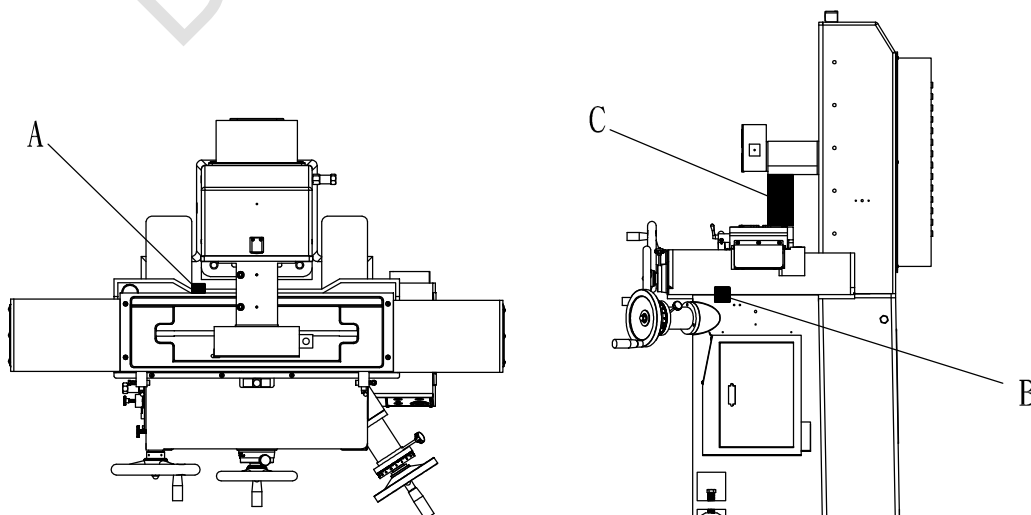
- (1) Lock the leveling bolts and nuts onto the basement, and put the leveling pads under the machine. Lay down the machine carefully and adjust the leveling bolt to set at the center of the leveling pad.
- (2) Follow the above to locate every leveling bolt on each pad, but leave the nuts un-tightened.



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

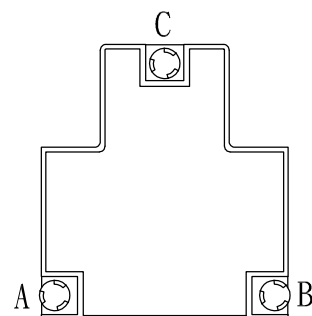
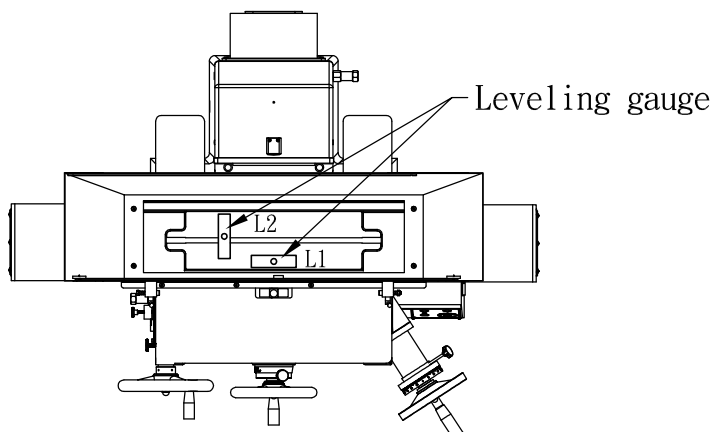
7. REMOVE DESICCANT & CLEAN THE ANTI-RUST OIL:

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:

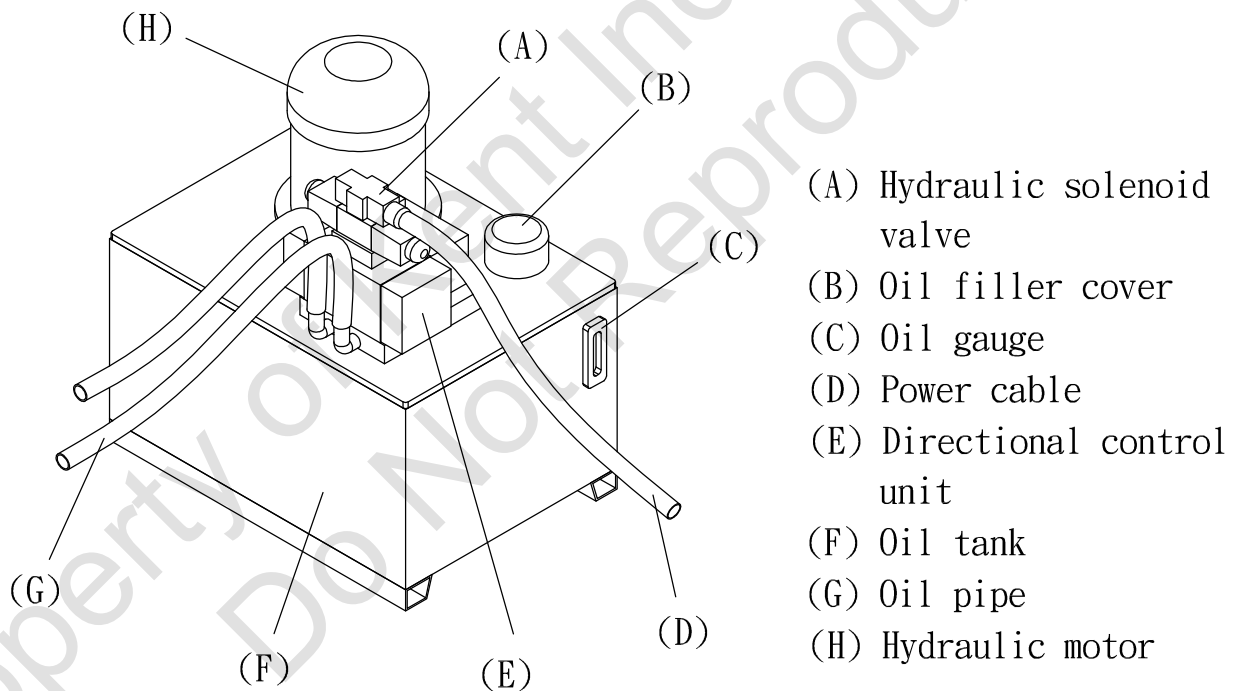
- (1) Necessary tools: Leveling gauge x 2 sets (Tolerance: 0.02mm);
Spanner x 2 sets (M20).
- (2) Clean up the table surface or magnetic chuck, and put 2 sets of leveling gauge on by crosswise and longitudinal direction (L1 & L2).
- (3) First, adjust the leveling bolts A & B to set the leveling bubble 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 13 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.



I . INSTALLATION OF MACHINE

(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

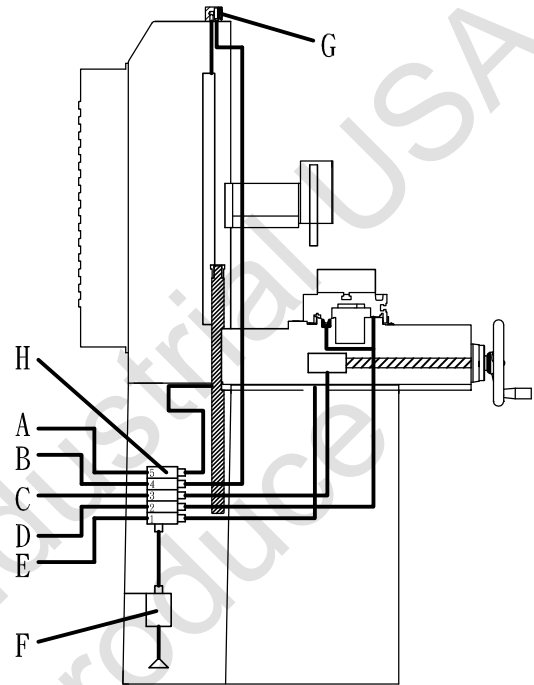
(4)Oil capacity: 4 liters.

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 and 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

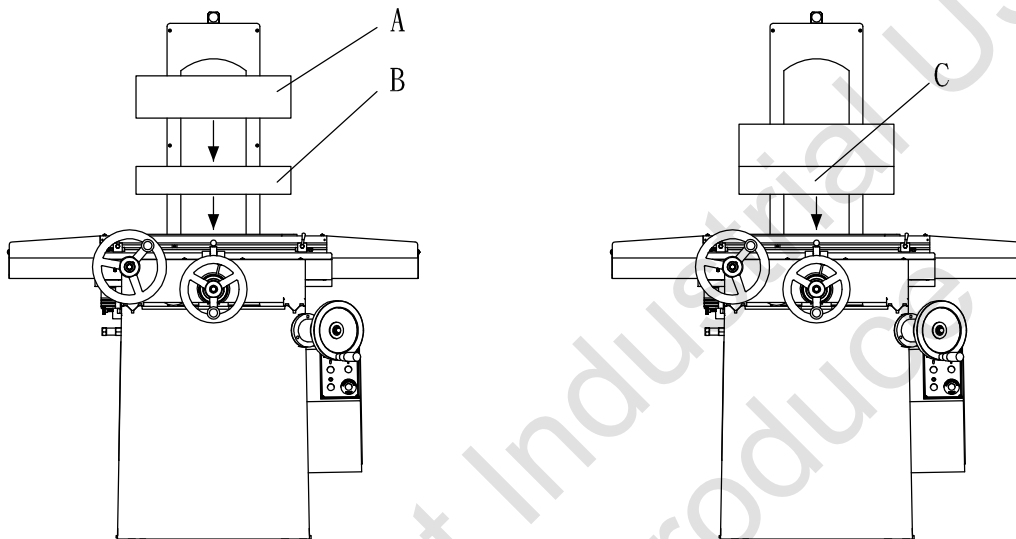
2. SAFETY PRECAUTIONS FOR OPERATING MACHINE:

- 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.

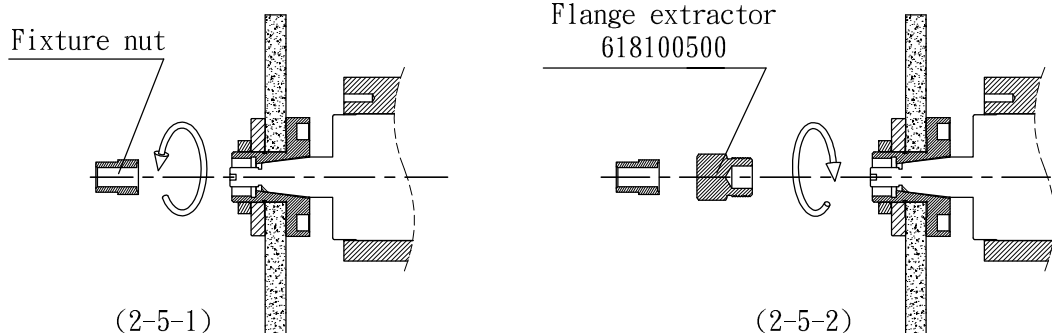
II. SAFETY PRECAUTIONS

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 the flange extractor to draw out the wheel & flange set from the spindle. (2-5-2)

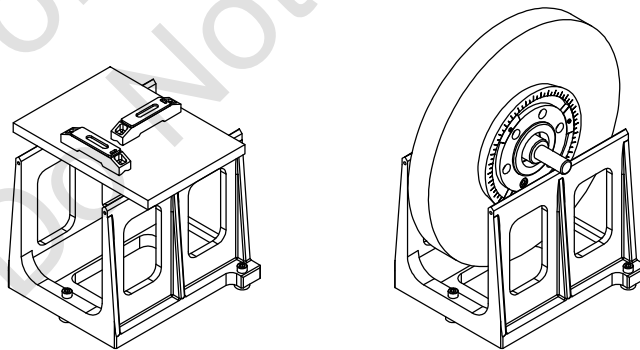


II. SAFETY PRECAUTIONS

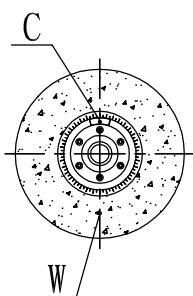
7. GRINDING WHEEL BALANCING ADJUSTMENT:

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.

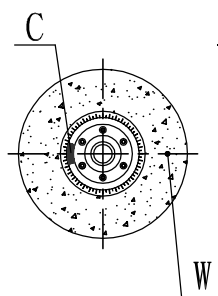
- (1) Put the balancing stand on a steady table or ground, and use the leveling gauge to adjust the levelness of the balancing stand. (2-6-1)
- (2) Let the wheel roll freely on the stand to find out its gravity center "W" and mark it on the wheel. (2-6-2)
- (3) Insert a balancing block into the opposite 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)



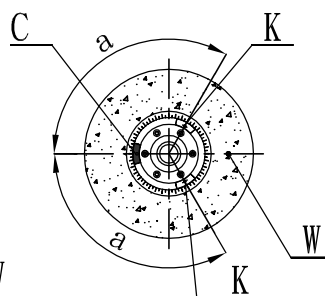
(2-6-1)



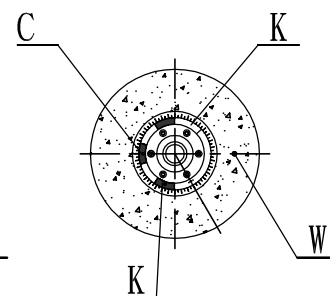
(2-6-2)



(2-6-3)



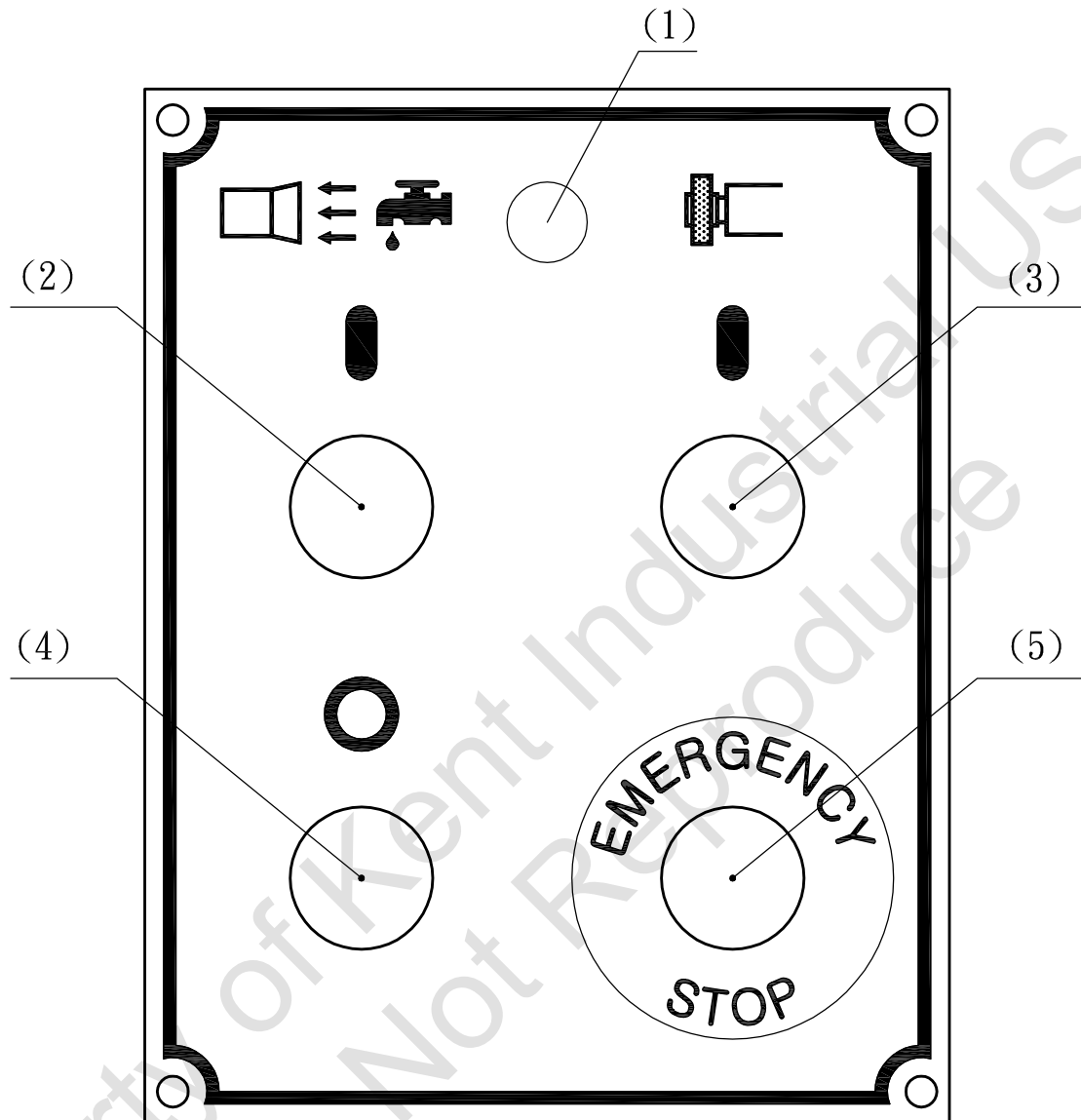
(2-6-4)



(2-6-5)

II. SAFETY PRECAUTIONS

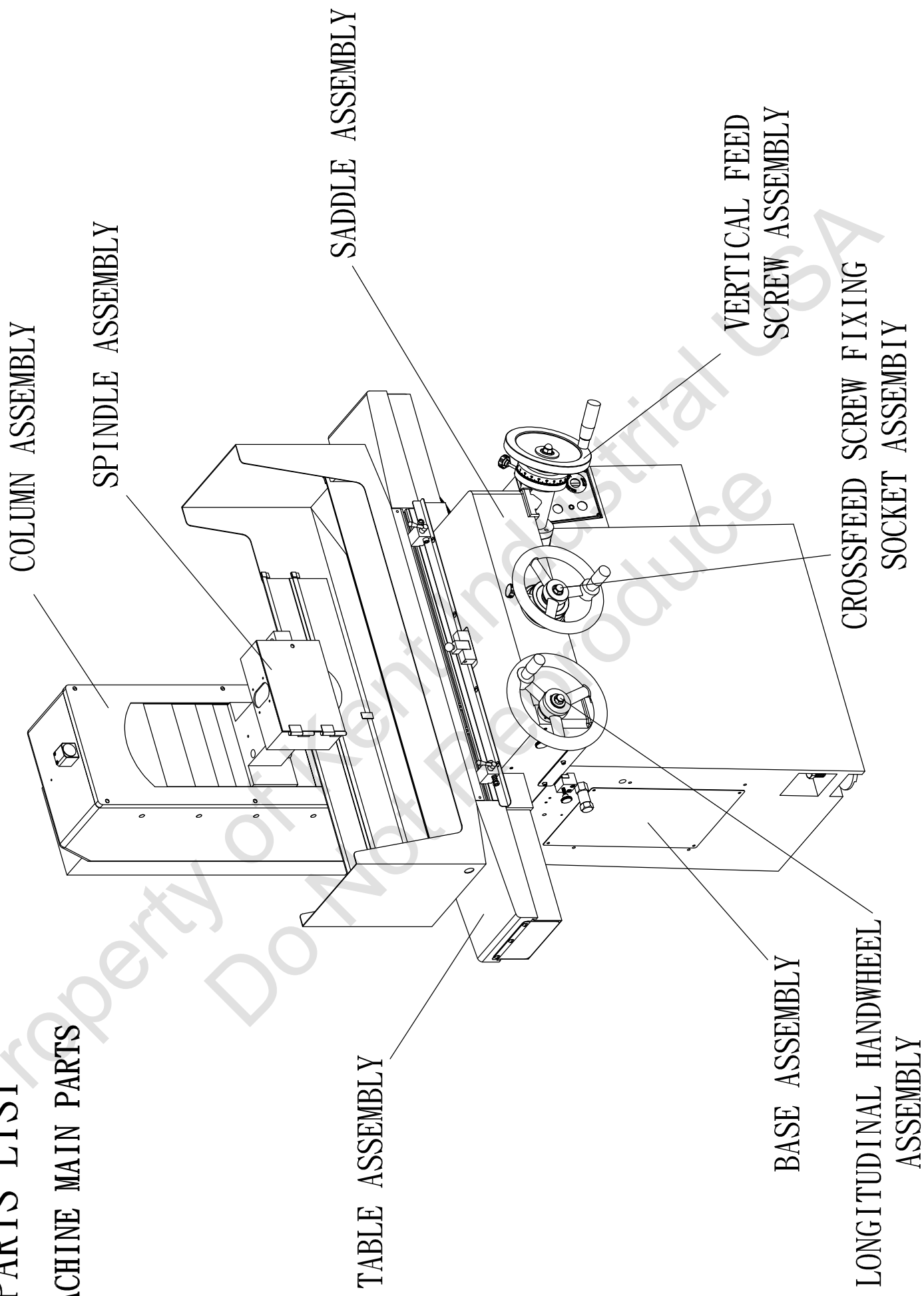
8. CONTROL PANEL (MANUAL TYPE)

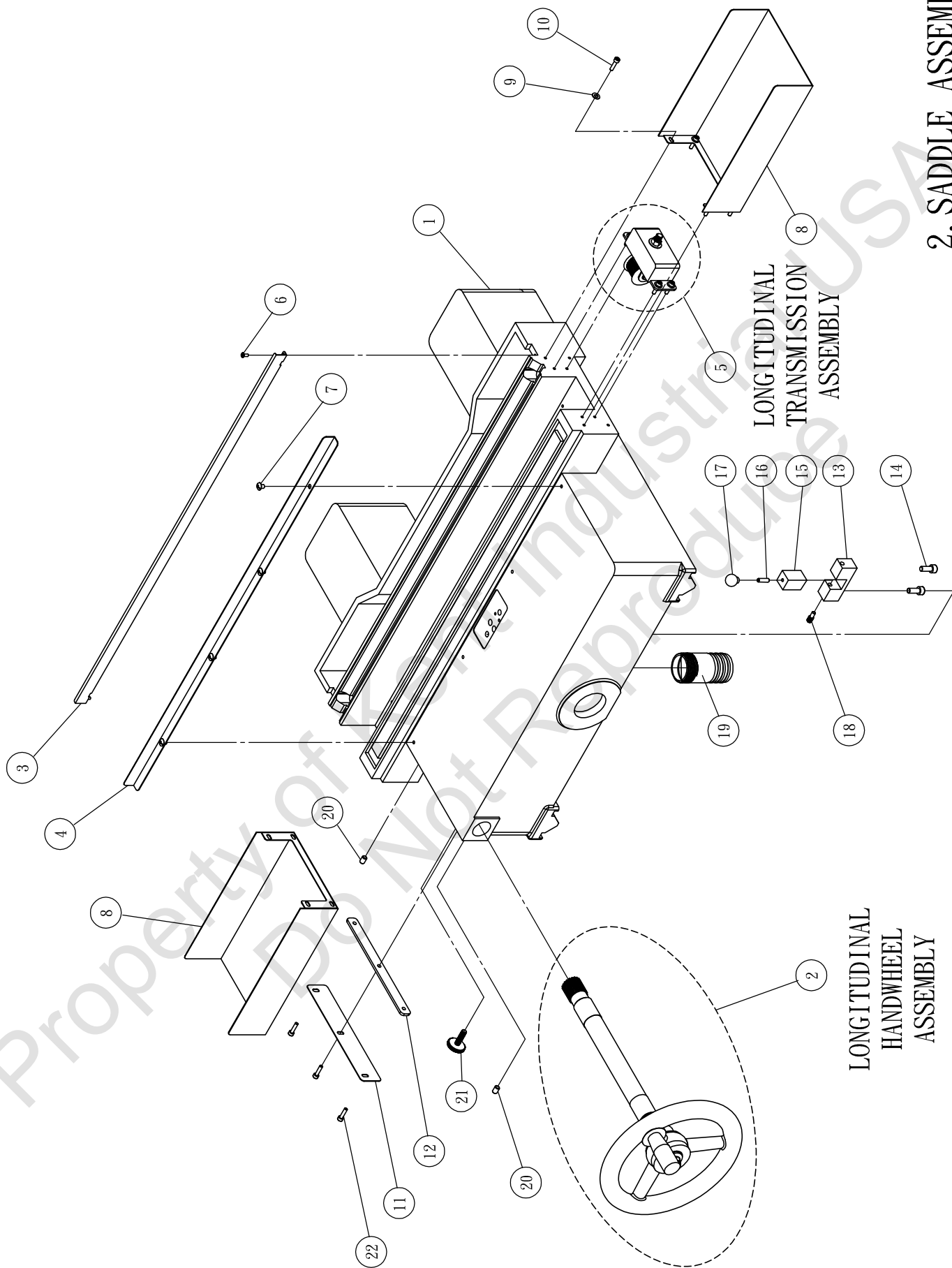


- (1) Power supply indication light: With the light on, it means the power supply is normal.
- (2) Coolant on button: Press this button, with the light on, it means the coolant system is activated.
- (3) Spindle on button: Press this button, with the light on, it means the spindle is activated.
- (4) Coolant off button: Press this button, the coolant system will stop running.
- (5) Emergency stop button: Press this button will shut down all the functions in the machine.

III. PARTS LIST

1. MACHINE MAIN PARTS



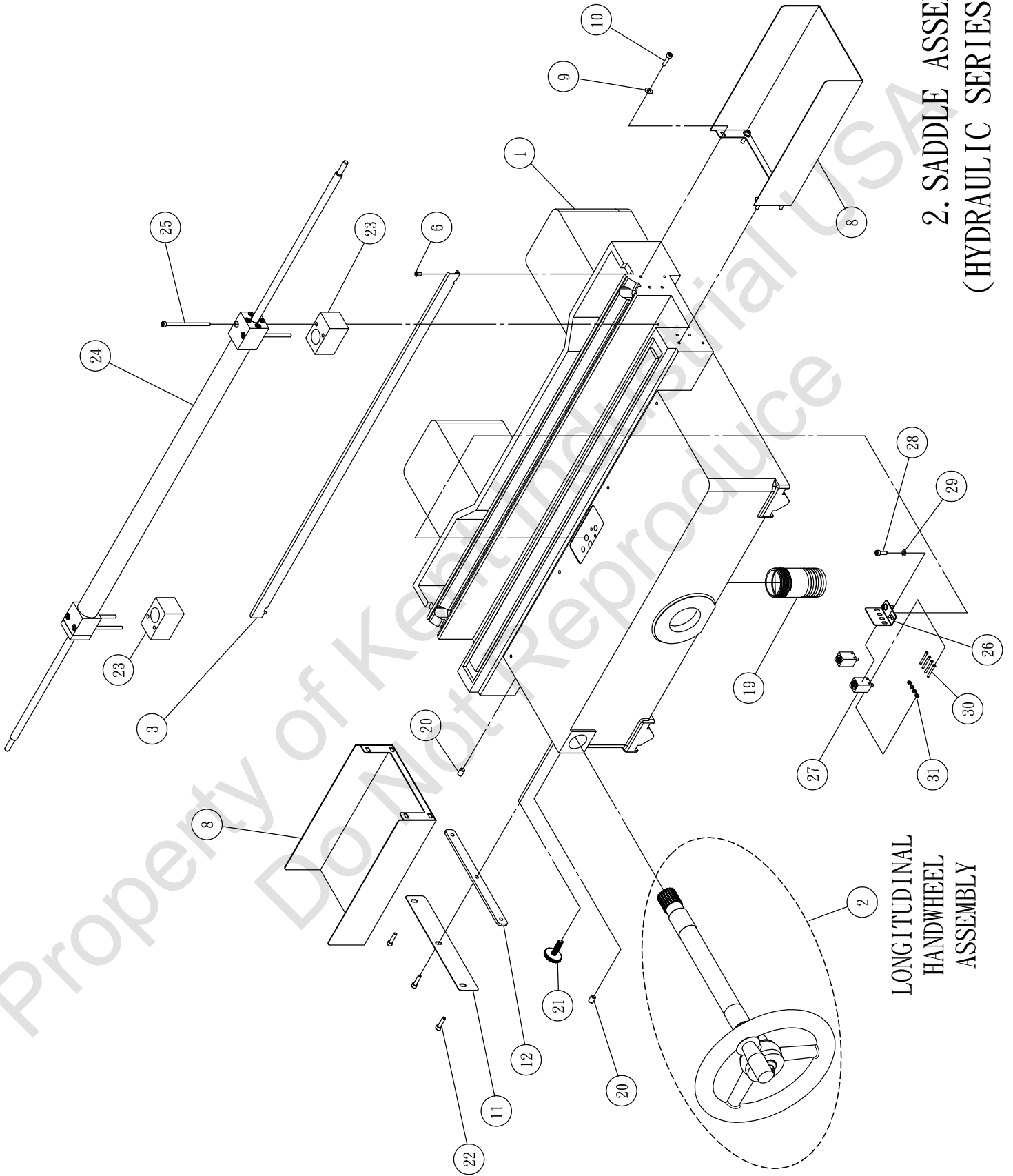


2. SADDLE ASSEMBLY (BELT TYPE)

SADDLE ASSEMBLY(BELT TYPE)

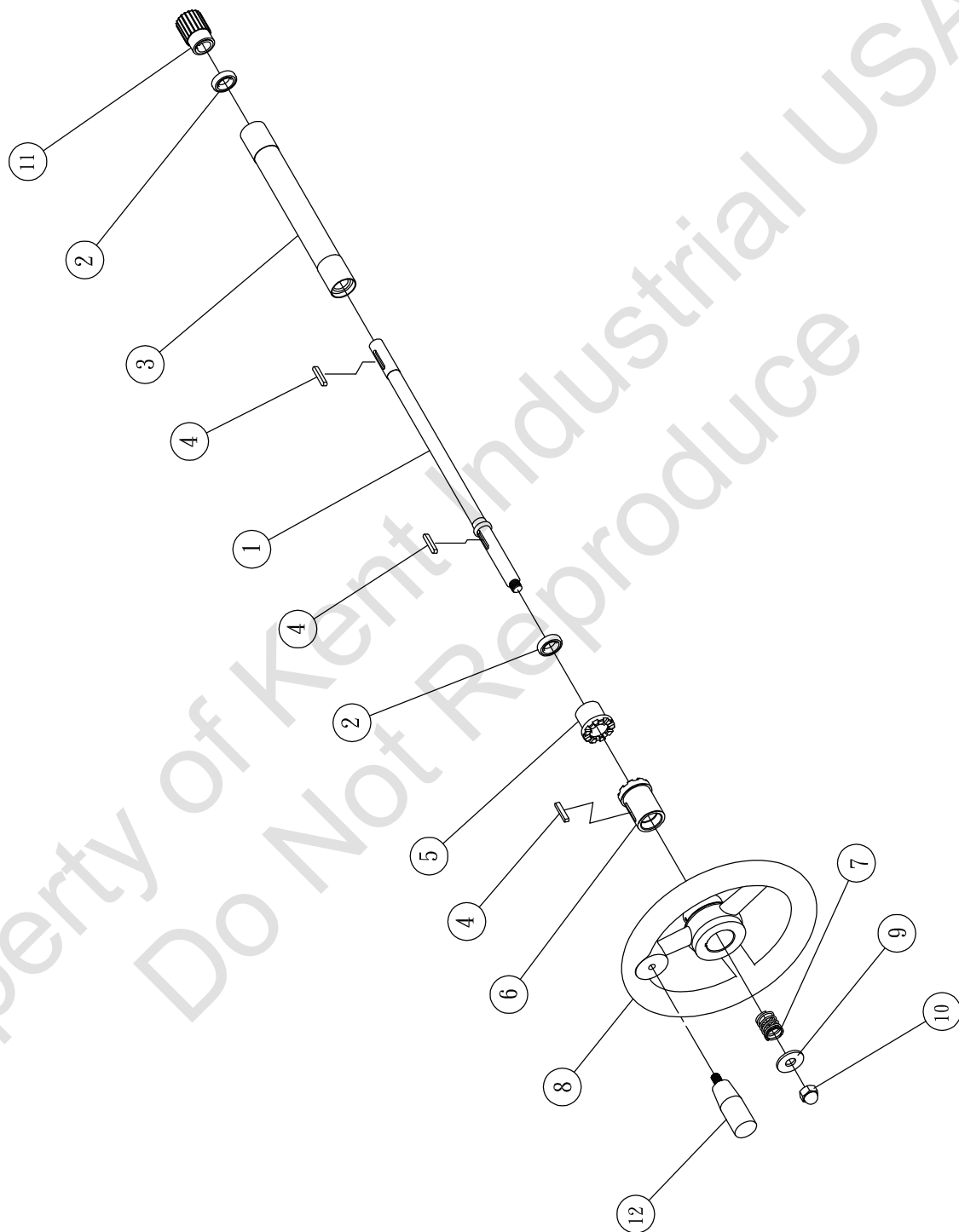
NO.	DRAWING NO. /SPEC.	DESCRIPTION	Q/TY	NOTE
1	618-01-010A	Saddle	1	
2		Longitudinal Handwheel Assembly	1set	
3	NB618-06-12	Dust proof bar(Rear)	1	
4	NB618-06-11	Dust proof bar(Front)	1	
5		Longitudinal Transmission Assembly	1set	
6	M4x0. 7Px8L	Flat head screw	2	
7	M6x1. 0Px8L	Cross round head screw	4	
8	NB618-06-07	Dust proof plate	2	
9	6. 5x13x1	Washer	4	
10	M5x0. 8Px20L	Inner hexagonal screw	7	
11	618-01-027	Crossfeed locking bar (Outer)	1	
12	618-01-028	Crossfeed locking bar (Inner)	1	
13	618-01-024	Longitudinal travel fixing seat	1	
14	M8x1. 25Px20L	Inner hexagonal screw	2	
15	618-01-022	Longitudinal travel fixing block	1	
16	M6x20L	Inner hexagonal headless screw	1	
17	618-01-021	Plastic round ball	1	
18	618-01-025	Pin	1	
19	618-01-026	Pipe	1	
20	M5x12L	Inner hexagonal headless screw	2	
21	618-01-011	Handwheel handle	1	
22	M5x0. 8Px20L	Inner hexagonal screw	3	

2. SADDLE ASSEMBLY (HYDRAULIC SERIES 1A~ASD)



SADDLE ASSEMBLY(HYDRAULIC SERIES 1A~ASD)

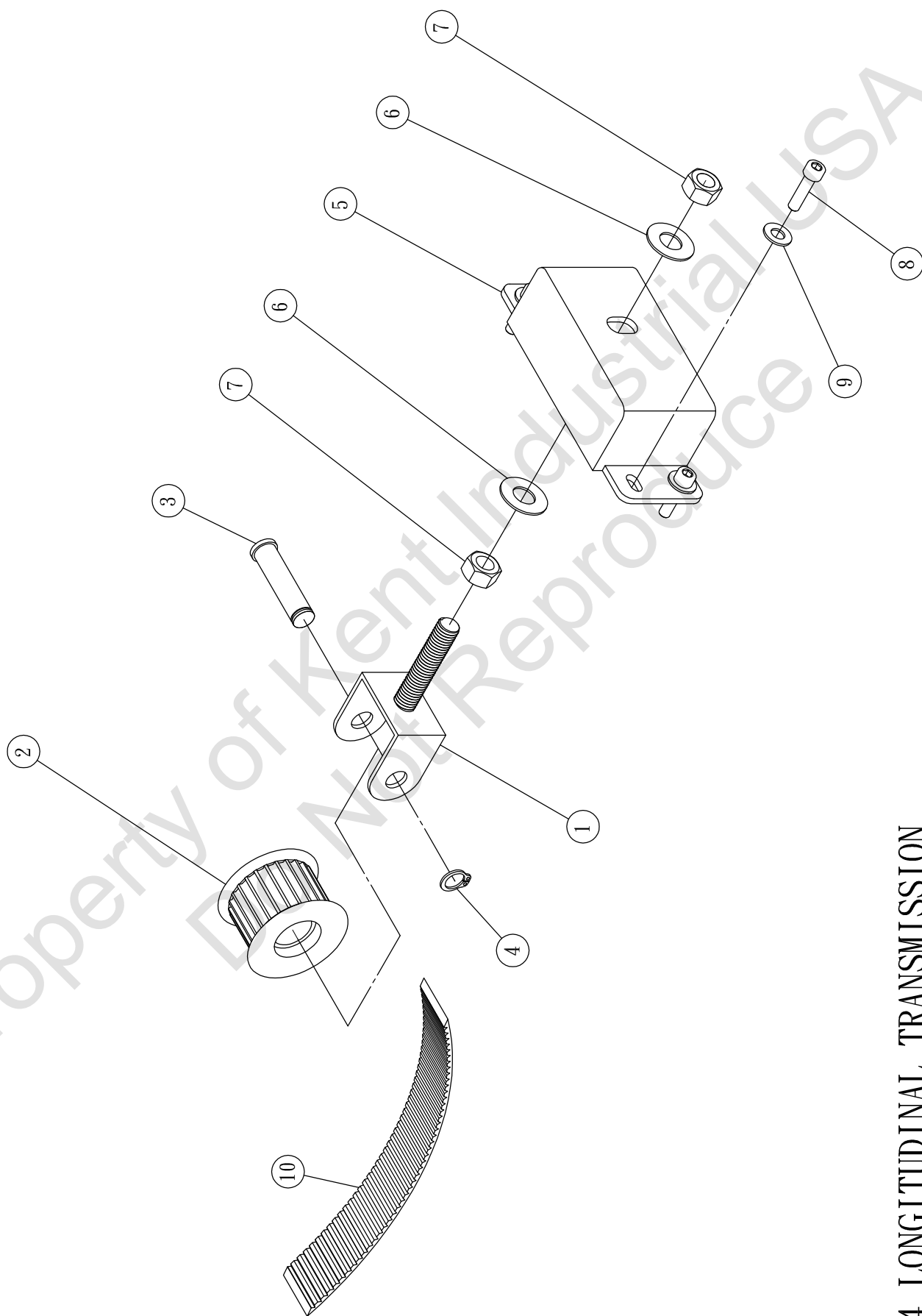
NO.	DRAWING NO. /SPEC.	DESCRIPTION	Q/TY	NOTE
1	618-01-010A	Saddle	1	
2		Longitudinal Handwheel Assembly	1set	
3	NB618-06-12	Dust proof bar(Rear)	1	
6	M4x0. 7Px8L	Flat head screw	2	
8	NB618-06-07	Dust proof plate	2	
9	6. 5x13x1	Washer	4	
10	M5x0. 8Px20L	Inner hexagonal screw	7	
11	618-01-027	Crossfeed locking bar (Outer)	1	
12	618-01-028	Crossfeed locking bar (Inner)	1	
19	618-01-026	Pipe	1	
20	M5x12L	Inner hexagonal headless screw	2	
21	618-01-011	Handwheel handle	1	
22	M5x0. 8Px20L	Inner hexagonal screw	3	
23	618401100	Cylinder fixing block	2	
24	R1-25x560A	Cylinder set	1	
25	M5x0. 8Px90L	Inner hexagonal screw	4	
26	618-01-047	Switch fixing seat	1	
27	TL-B5NE1	Longitudinal proximity switch	2	
28	M5x0. 8Px15L	Inner hexagonal screw	2	
29	5x10x1	Washer	2	
30	M3x0. 5Px25L	Cross round head screw	4	
31	M3x0. 5Px6Wx2. 5H	Nut	4	



3. LONGITUDINAL HANDWHEEL ASSEMBLY

LONGITUDINAL HANDWHEEL ASSEMBLY

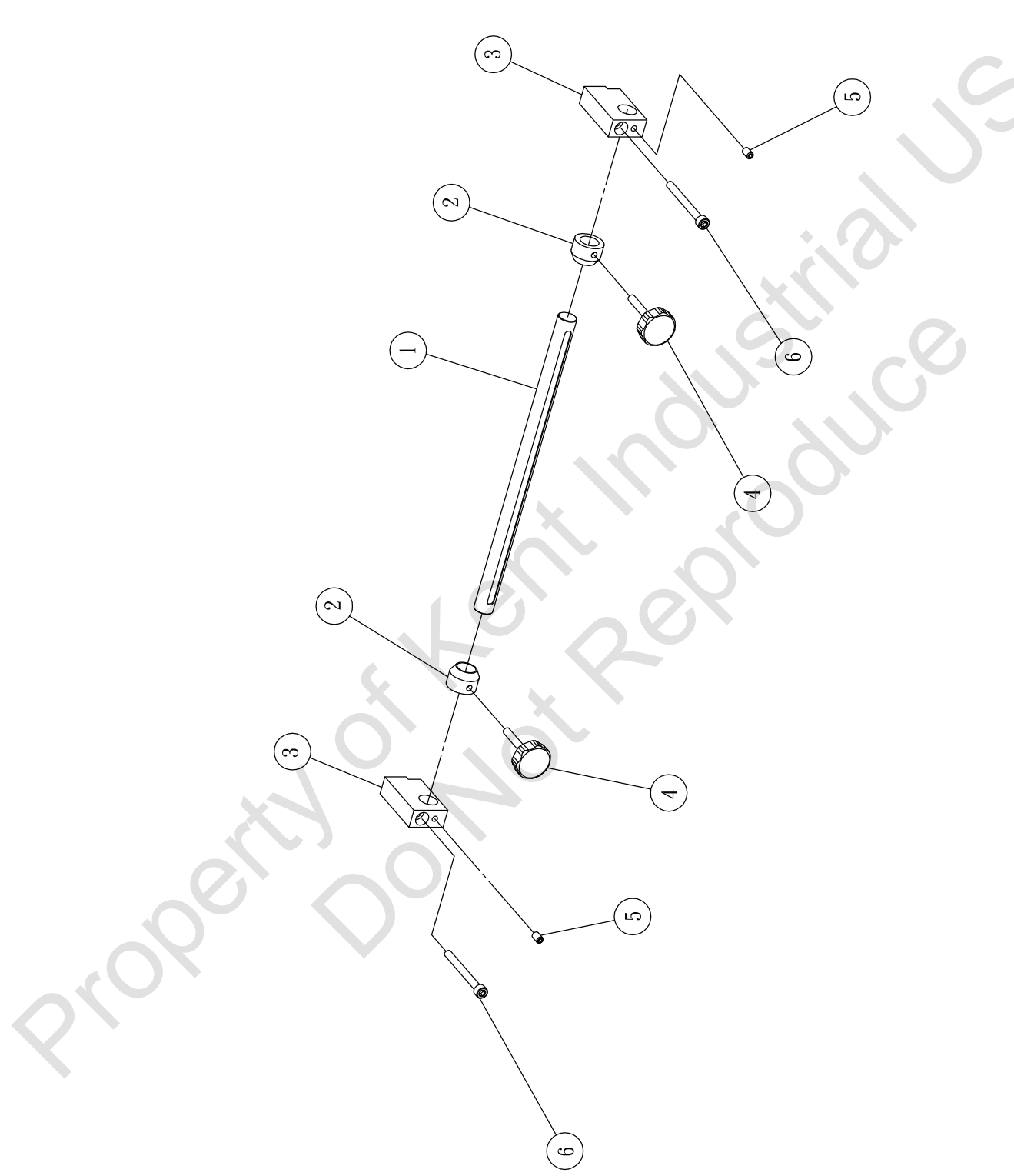
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4. LONGITUDINAL TRANSMISSION
ASSEMBLY

LONGITUDINAL TRANSMISSION ASSEMBLY

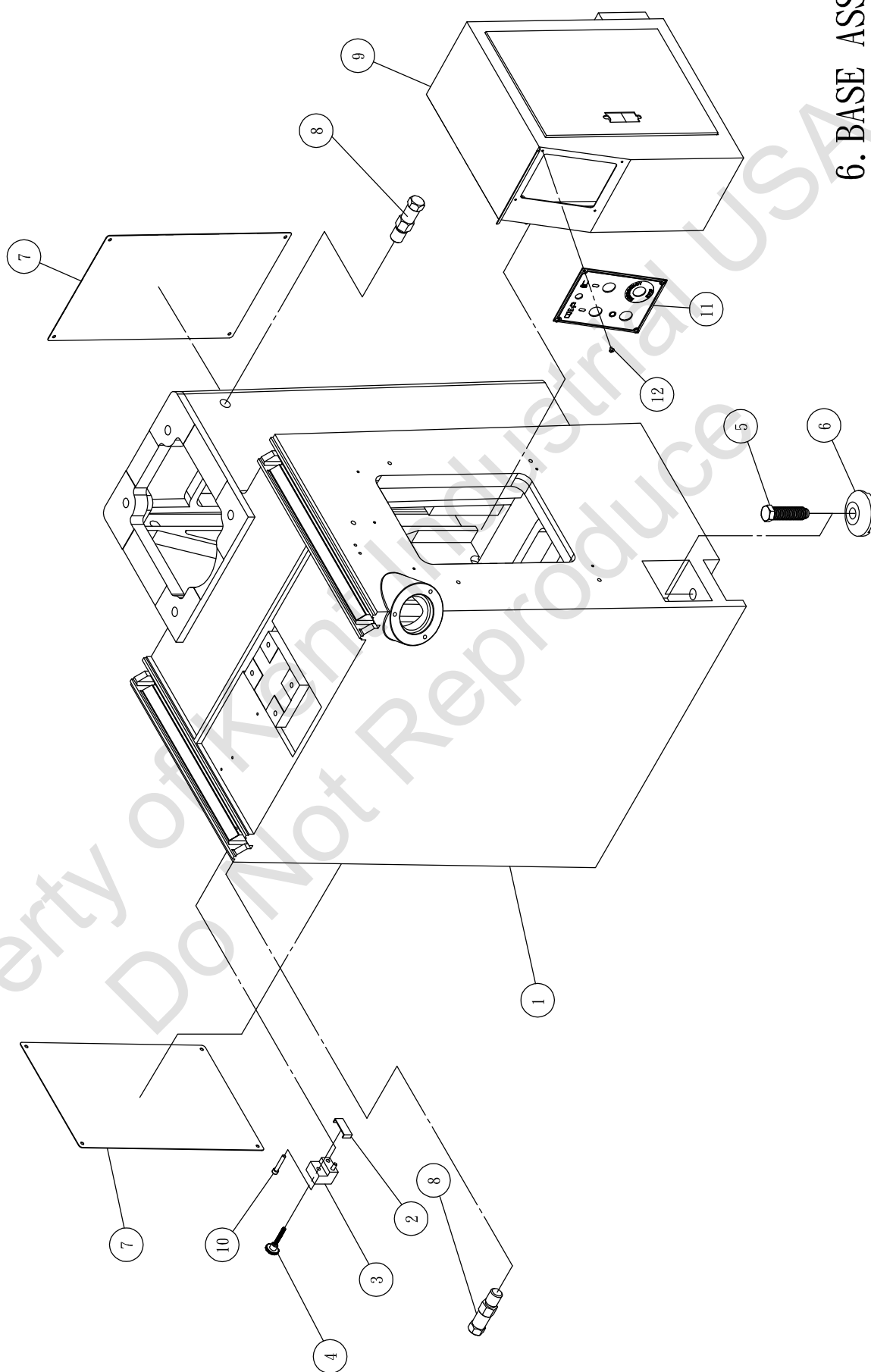
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5. CROSSFEED TRAVEL ADJUSTMENT ASSEMBLY
(HYDRAULIC SERIES 1A~ASD)

CROSSFEED TRAVEL ADJUSTMENT ASSEMBLY

[illegible]

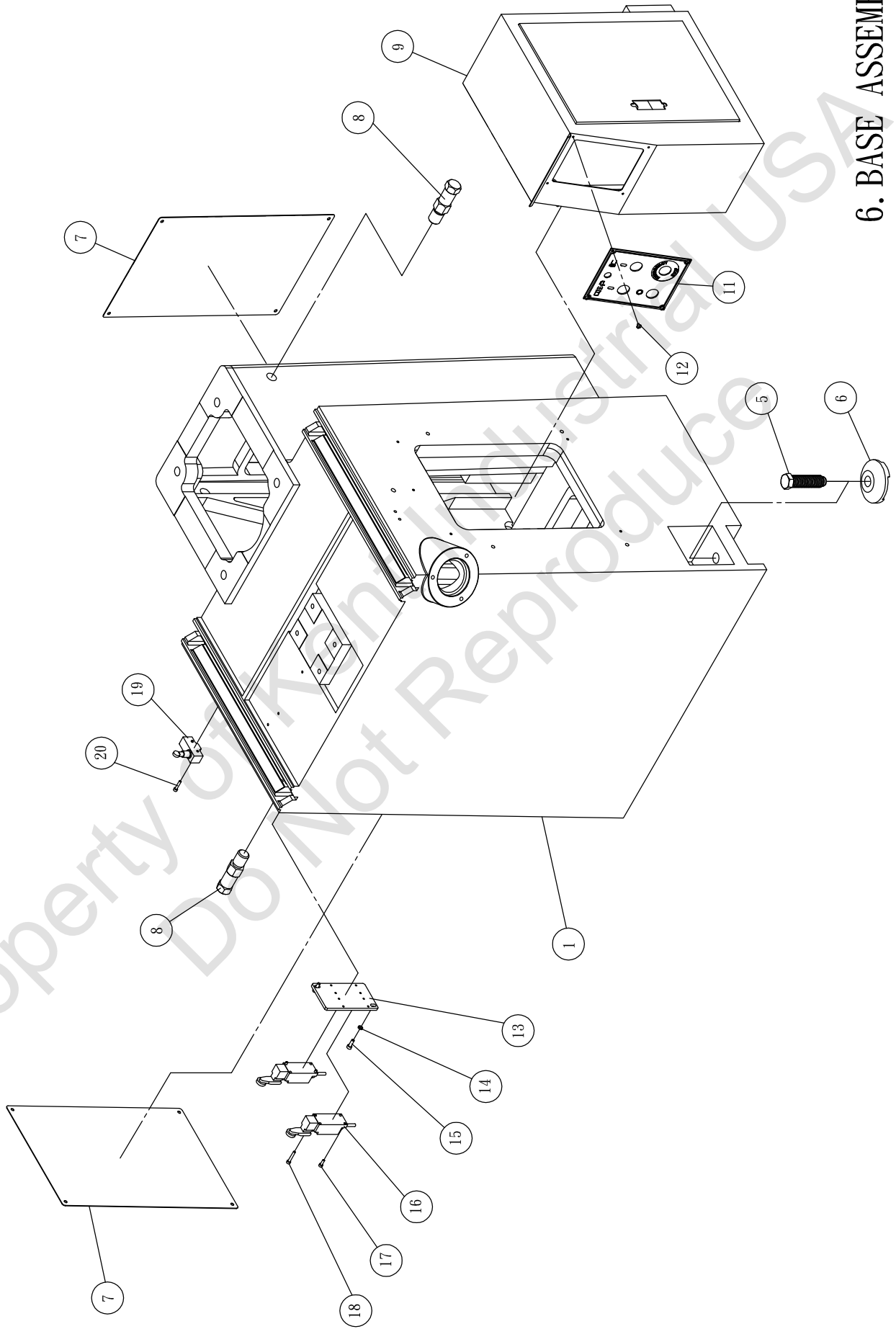


6. BASE ASSEMBLY

BASE ASSEMBLY

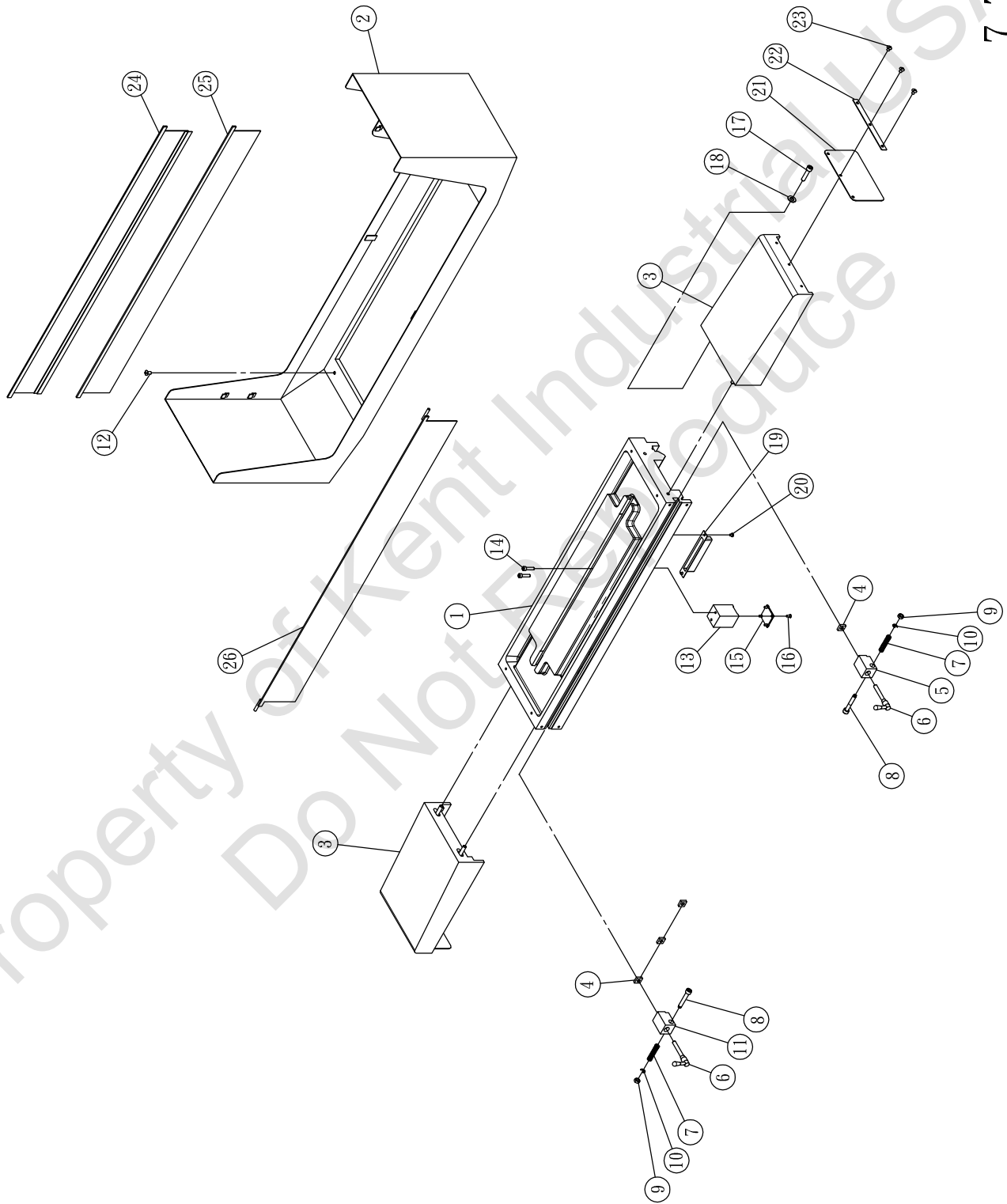
[illegible]

6. BASE ASSEMBLY (HYDRAULIC SERIES 1A~ASD)



BASE ASSEMBLY

[illegible]



7. TABLE ASSEMBLY

TABLE ASSEMBLY

NO.	DRAWING NO. /SPEC.	DESCRIPTION	Q/TY	NOTE
1	618-01-003A	Table	1	
2	618-01-001	Splash Guard	1	
3	NB618-06-019	Table wing	2	
4	618302600	Fixing nut	4	
5	618-01-020	Longitudinal travel adjusting block (Left)	1	
6	618-01-052	Adjusting knob	2	
7	618-06-018	Spring	2	
8	618-01-019	Fixing shaft	2	
9	M8x1.25Px12Wx6H	Nut	2	
10	Ø6	Ring	2	
11	618-01-020A	Longitudinal travel adjusting block (Right)	1	
12	M6x1.0Px12L	Cross head screw	4	
13	06183009V0	Timing belt seat	1	
14	M6x1.0Px25L	Inner hexagonal screw	2	
15	NB618-06-010	Timing belt fixing board	1	
16	M4x0.7Px8L	Flat head screw	4	
17	M8x1.25Px35L	Inner hexagonal screw	4	
18	10x20x2L	Washer	4	
19	MPG-01-032	Coolant guiding block	1	
20	M4x0.7Px6L	Cross round head screw	2	
21	NB618-06-018	Rubber plate	2	
22	NB618-06-017	Fixing bar	2	
23	M6x1.0Px8L	Cross round head screw	6	
24	618-01-002A	Coolant guarding board A (Rear)	1	
25	618-01-002B	Coolant guarding board B (Rear)	1	
26	618-01-002C	Coolant guarding board C (Front)	1	

7. TABLE ASSEMBLY (HYDRAULIC SERIES 1A~ASD)

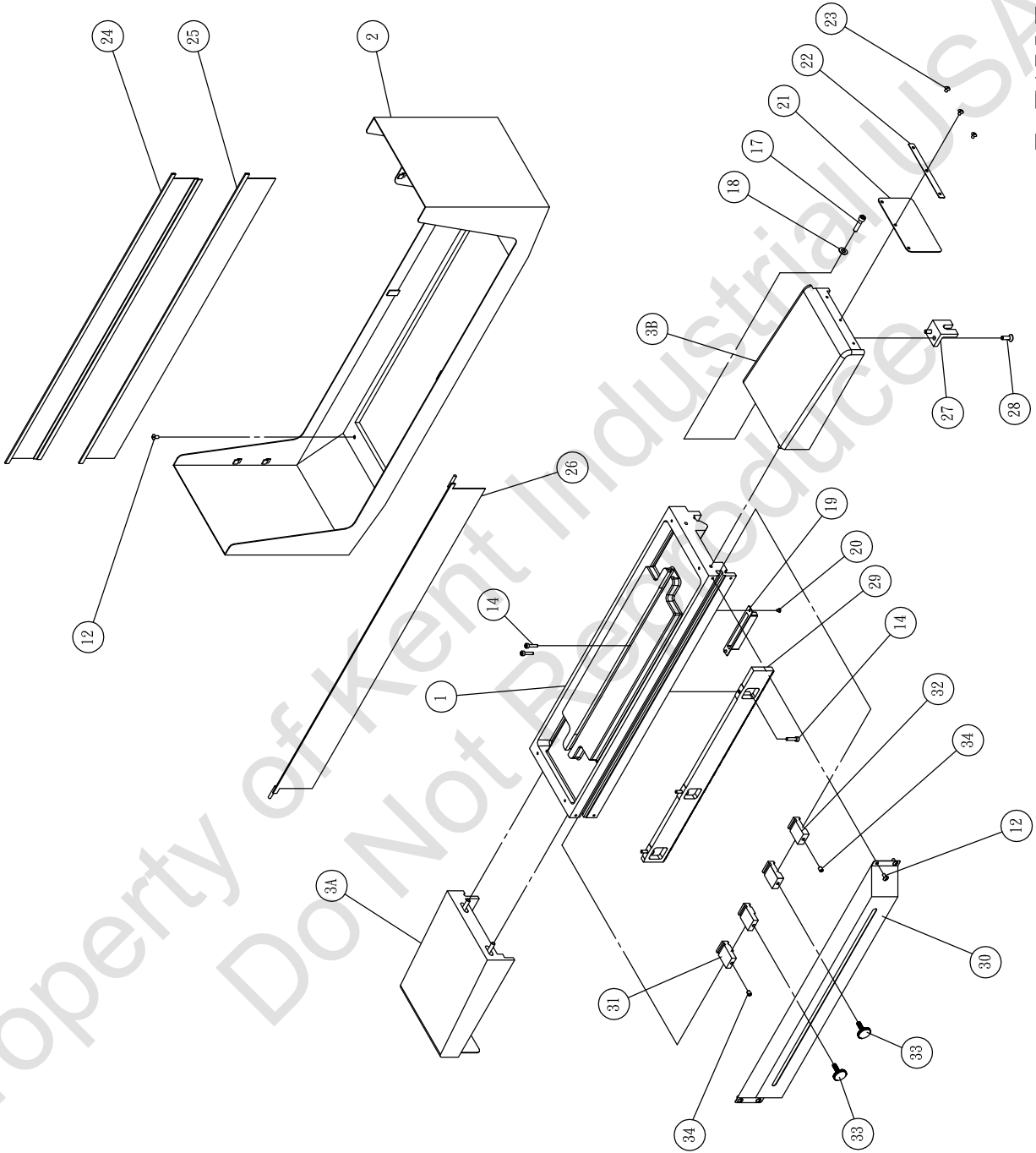
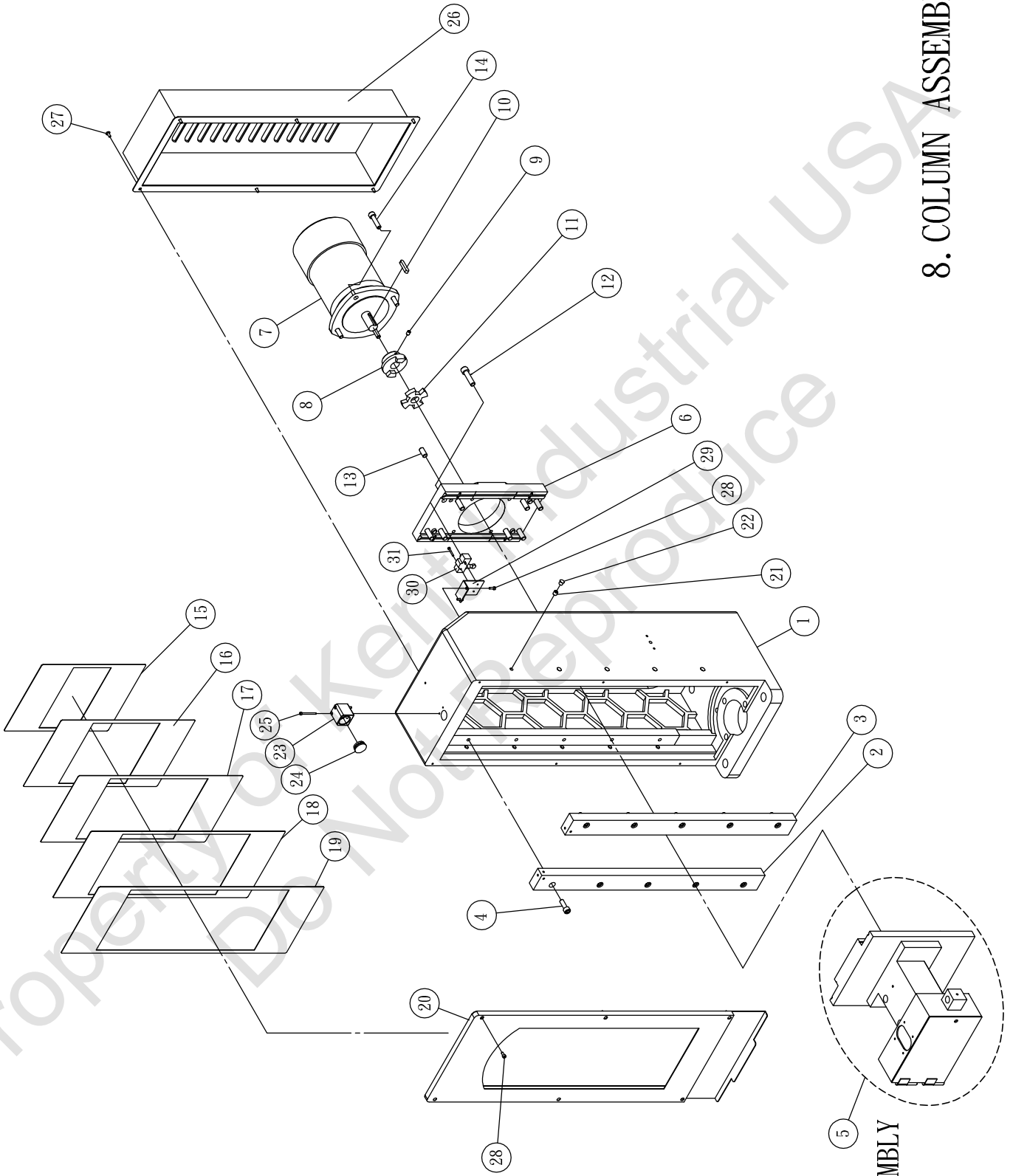


TABLE ASSEMBLY

NO.	DRAWING NO. /SPEC.	DESCRIPTION	Q/TY	NOTE
1	618-01-003A	Table	1	
2	618-01-001	Splash Guard	1	
3A	0618302100	Table wing (L)	1	
3B	0618302200	Table wing (R)	1	
12	M6x1.0Px12L	Cross head screw	8	
14	M6x1.0Px25L	Inner hexagonal screw	5	
17	M8x1.25Px35L	Inner hexagonal screw	4	
18	10x20x2	Washer	4	
19	MPG-01-032	Coolant guiding block	1	
20	M4x0.7Px6L	Cross round head screw	2	
21	NB618-06-018	Rubber plate	2	
22	NB618-06-017	Fixing bar	2	
23	M6x1.0Px8L	Cross round head screw	6	
24	618-01-002A	Coolant guarding board A (Rear)	1	
25	618-01-002B	Coolant guarding board B (Rear)	1	
26	618-01-002C	Coolant guarding board C (Front)	1	
27	06183035M0	Cylinder rack	2	
28	M8x1.25Px20L	Flat head inner hexagonal screw	4	
29	618-01-033	Gear bar	1	
30	618-01-035A	Longitudinal travel adjustor cover (Hydraulic)	1	
31	618-01-034	Sensor block (L)	2	
32	618-01-034A	Sensor block (R)	2	
33	618-01-011	Fixing knob	2	
34	M8-10L	Inner hexagonal headless screw	2	

8. COLUMN ASSEMBLY



SPINDLE ASSEMBLY

COLUMN ASSEMBLY

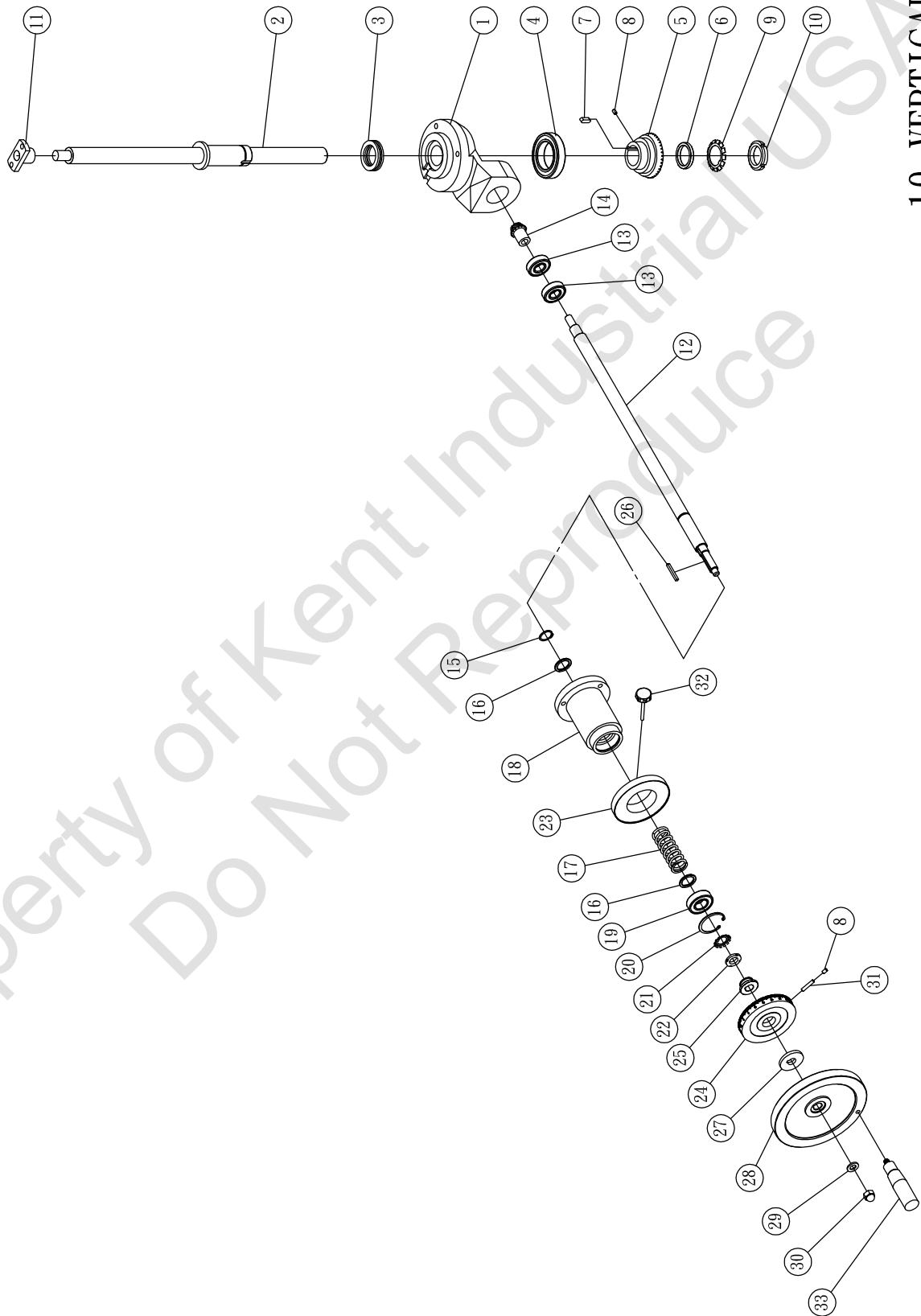
NO.	DRAWING NO. /SPEC.	DESCRIPTION	Q/TY	NOTE
1	618-02-013	Column	1	
2	618-02-012A	Vertical rail (L)	1	
3	618-02-012B	Vertical rail (R)	1	
4	M10x1.5Px30L	Inner hexagonal screw	10	
5		Spindle assembly	1set	
6	618-02-015	Motor fixing board	1	
7		Motor	1	
8	618-04-011	Coupling	1	
9	M8-10L	Inner hexagonal headless screw	3	
10	8x8x40	Pin	1	
11	618-04-012	Rubber coupling	1	
12	M12x1.75Px45L	Inner hexagonal screw	8	
13	M12-25L	Inner hexagonal headless screw	4	
14	M10x1.5Px50L	Inner hexagonal screw	4	
15	618-02-004	Dust proof sheet	1	
16	618-02-005	Dust proof sheet	1	
17	618-02-006	Dust proof sheet	1	
18	618-02-007	Dust proof sheet	1	
19	618-02-008	Dust proof sheet	1	
20	618-02-003C	Front cover plate	1	
21	M10-10L	Inner hexagonal headless screw	10	
22	618-02-014	Plug	10	
23	618-02-023	Lubrication oil gauge	1	
24	Ø29	Lubrication oil gauge glass	1	
25	M4x0.7Px45L	Inner hexagonal screw	2	
26	618-02-016	Rear cover plate	1	
27	M5x0.8Px12L	Cross round head screw	6	

COLUMN ASSEMBLY

[illegible]

SPINDLE ASSEMBLY

NO.	DRAWING NO. /SPEC.	DESCRIPTION	Q/TY	NOTE
1	CB1224-120	Spindle	1	
2	618-04-011	Motor coupling	1	
3	8x7x25	Pin	1	
4	M8-10L	Inner hexagonal headless screw	3	
5	618-02-009	Spindle housing	1	
6	618-02-010A	Spindle fixing ring A	2	
7	618-02-010B	Spindle fixing ring B	2	
8	M10x1.5Px60L	Inner hexagonal screw	2	
9	M6-20L	Inner hexagonal headless screw	3	
10	M6-10L	Inner hexagonal headless screw	2	
11		Wheel flange	1	
12		Balancing block	3	
13	Ø6	Steel ball	3	
14		Inner hexagonal headless screw	3	
15		Grinding wheel	1	
16		Flange spacer	1	
17		Flange fixing ring	1	
18		Tightening nut	1	
19	618-02-001	Wheel guard	1	
20	618-02-001B	Wheel guard top cover	1	
21	M5x0.8Px10L	Inner hexagonal screw	4	



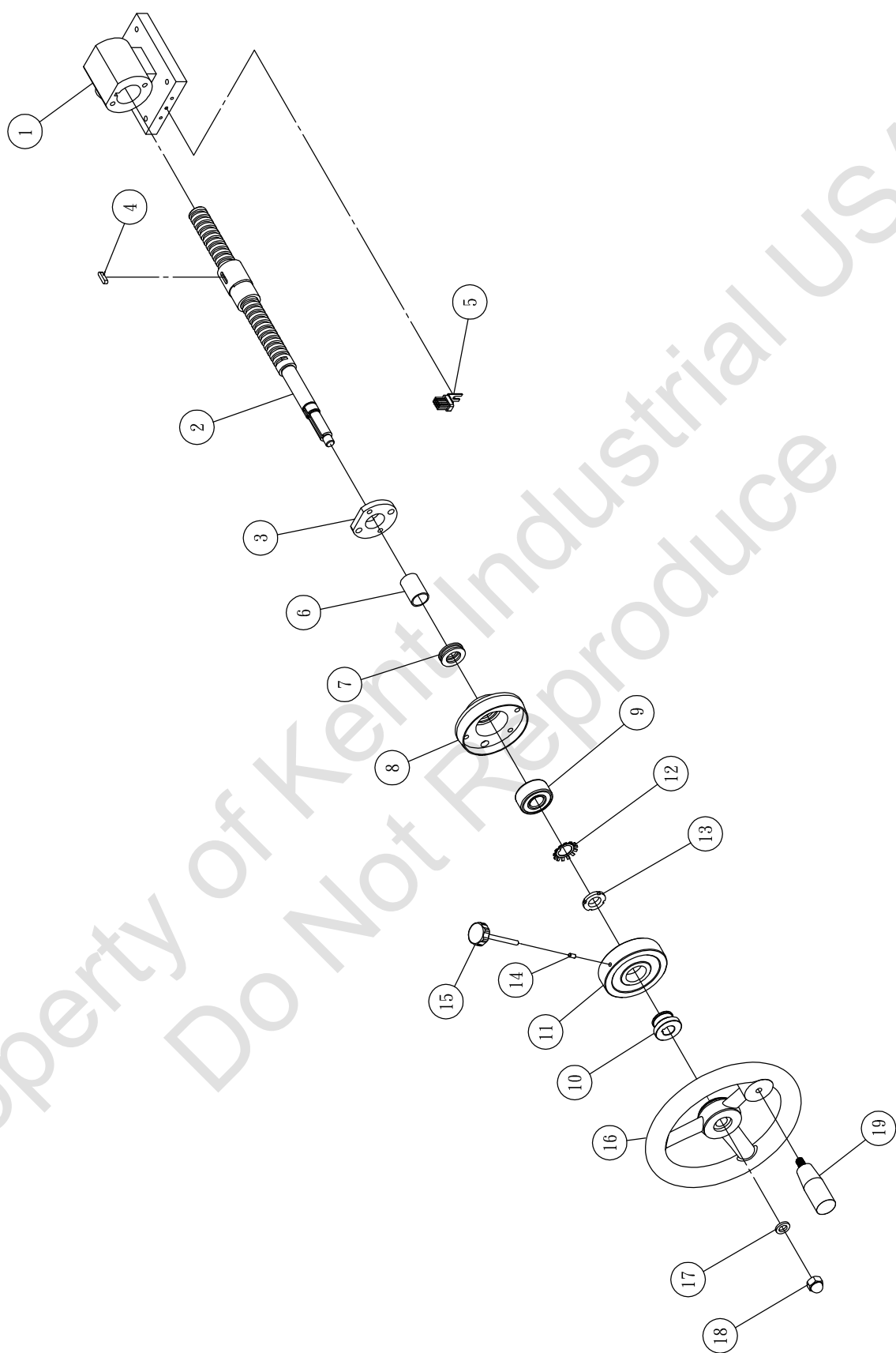
10. VERTICAL SCREW
ASSEMBLY

VERTICAL SCREW ASSEMBLY

NO.	DRAWING NO. /SPEC.	DESCRIPTION	Q/TY	NOTE
1	618-03-010	Vertical screw nut seat	1	
2	618-03-011	Vertical screw	1	
3	51108(40x42x60x13)	Bearing	1	
4	6011ZZ(55x90x18)	Bearing	1	
5	1900. 03. 14	Vertical gear	1	
6	618-03-020	Spacer	1	
7	7x7x22	Pin	1	
8	M6-10L	Inner hexagonal headless screw	2	
9	AW08	Serrate washer	1	
10	AN08(M40x1. 5P)	Nut	1	
11	618-03-013	Vertical screw top seat	1	
12	618-03-008	Vertical transmission shaft	1	
13	6204ZZ(20x47x14)	Bearing	2	
14	618-03-009	Vertical gear	1	
15	S25	snap ring	1	
16	618-03-020	Spacer	2	
17	618501500	Spring	1	
18	618-03-007	Vertical transmission shaft seat	1	
19	1205ZZ(25x52x15)	Bearing	1	
20	R52	Fixing ring	1	
21	AW04	Serrate washer	1	
22	AN04(M20x1. 0P)	Nut	1	
23	618-03-005	Vertical indication ring	1	
24	618-03-004	Vertical graduation ring	1	
25	618-03-018	Indication ring sleere	1	
26	5x5x45	Pin	1	
27	618-03-016	Spacer	1	

VERTICAL SCREW ASSEMBLY

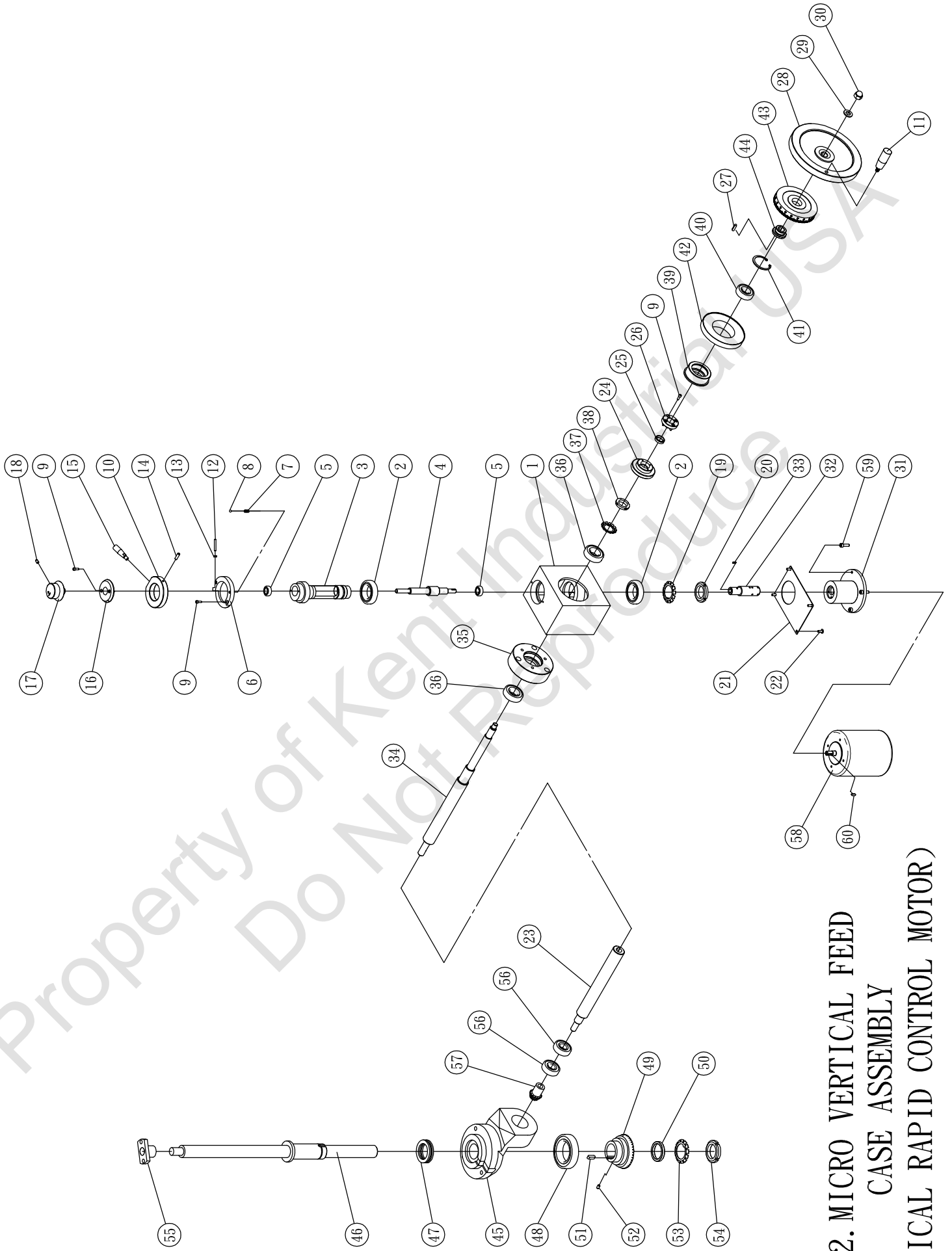
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11. CROSSFEED SCREW FIXING SOCKET ASSEMBLY

CROSSFEED SCREW FIXING SOCKET ASSEMBLY

NO.	DRAWING NO. /SPEC.	DESCRIPTION	Q/TY	NOTE
1	618-05-011A	Crossfeed screw fixing socket	1	
2	618-05-008	Crossfeed screw	1	
3	618-05-009	Crossfeed nut adjusting ring	1	
4	5x5x20	Pin	1	
5	618-05-015	Brush fixing pin	1	
6	618-05-019	Ring	1	
7	51104(20x21x35x10)	Bearing	1	
8	618-05-007	Crossfeed indication ring	1	
9	5204ZZ(20x47x20.6)	Bearing	1	
10	618-05-014	Crossfeed indication ring sleeve	1	
11	618-05-004	Crossfeed graduation ring	1	
12	AW04	Serrate washer	1	
13	AN04(M20x1.0P)	Nut	1	
14	5x30L	Pin	1	
15	M6x30L	Hand knob	1	
16	618-05-003	Handwheel	1	
17	12x20x3	Washer	1	
18	M12	Nut	1	
19	FG90-M10	Handle	1	



12. MICRO VERTICAL FEED
CASE ASSEMBLY
(VERTICAL RAPID CONTROL MOTOR)

MICRO VERTICAL FEED CASE ASSEMBLY (VERTICAL RAPID CONTROL MOTOR)

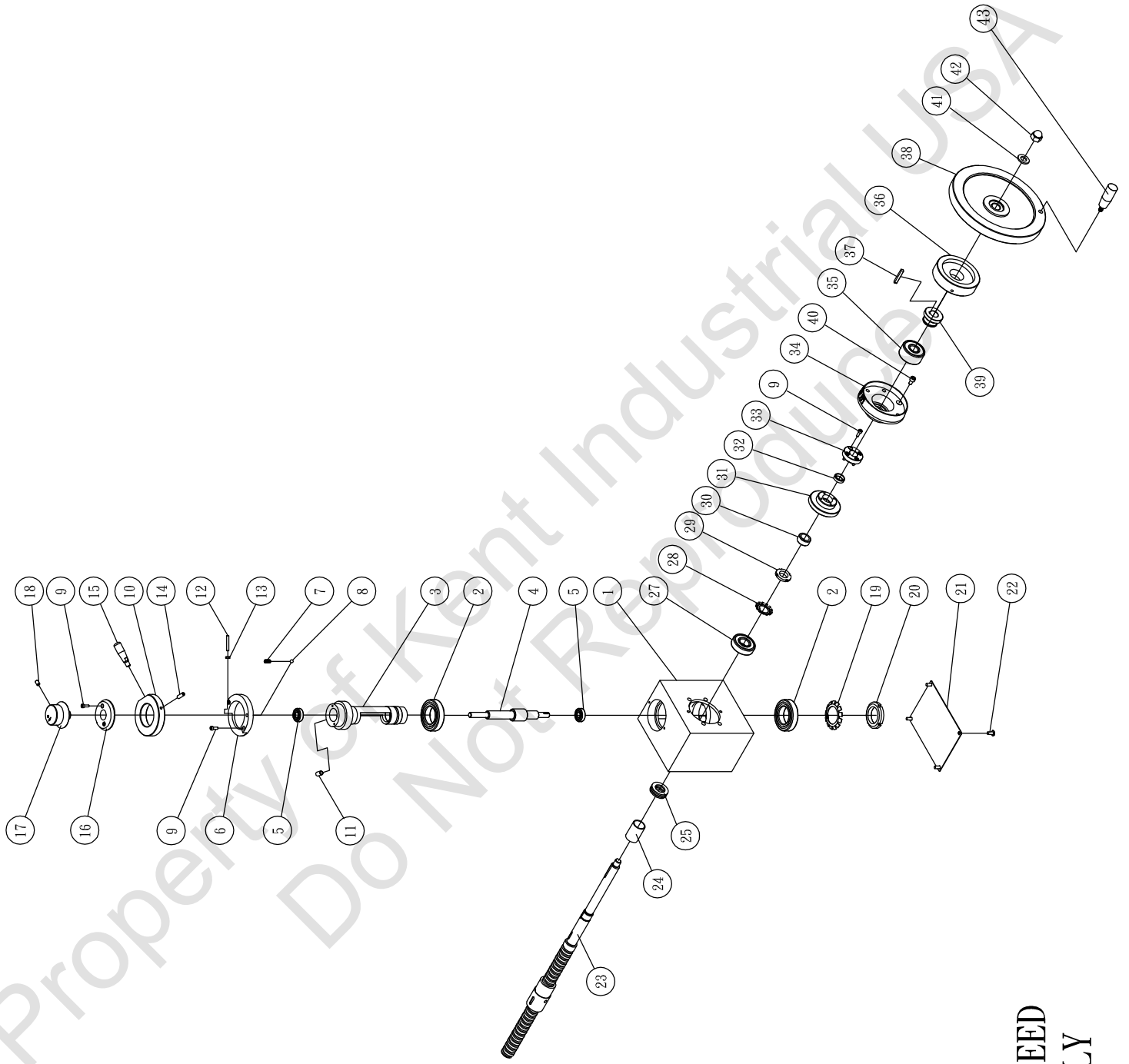
NO.	DRAWING NO. /SPEC.	DESCRIPTION	Q/TY	NOTE
1	CB618-D07	Micro Vertical feed Case	1	
2	6007ZZ(35x62x14)	Bearing	2	
3	CB618-C04	Micro vertical feed shaft	1	
4	CB618-D02	Micro vertical feed gear	1	
5	6000ZZ(10x26x8)	Bearing	2	
6	CB618-C06	Ring	1	
7	Ø6 ODxP3xØ0.6x18L	Spring	1	
8	Ø6	Steel ball	2	
9	M4x0.7Px12L	Inner hexagonal screw	1	
10	CB618-C05	Ring	1	
11	FR90-M10	Handle	1	
12	M4x0.7Px30L	Screw	8	
13	M4x0.7Px7Wx3.2H	Nut	1	
14	M6-20L	Inner hexagonal headless screw	1	
15	CB618-C13	Micro crossfeed handle	1	
16	CB618-C03	Micro vertical feed indication ring	1	
17	CB618-C01	Micro vertical feed graduation ring	2	
18	M6-10L	Inner hexagonal headless screw	1	
19	AW07	Serrate washer	1	
20	AN07(M35x1.5P)	Nut	1	
21	CB618-D08	Micro vertical feed case cover board	1	
22	M5x0.8Px12L	Cross round head screw	4	
23	CB618-D14	Vertical feed gear shaft	1	
24	CB618-D02	Micro vertical feed gear	1	
25	SC-20	Spacer ring	1	
26	CB618-D10	Micro vertical feed fixing ring	1	
27	5x5x20	Pin	1	

MICRO VERTICAL FEED CASE ASSEMBLY (VERTICAL RAPID CONTROL MOTOR)

NO.	DRAWING NO. /SPEC.	DESCRIPTION	Q/TY	NOTE
28	KRA200	Handwheel	1	
29	13x24x2.5	Washer	1	
30	M12	Nut	1	
31	CB618-D19-ASD	Vertical feed motor socket	1	
32	CB618-D18-C2	Vertical feed motor shaft	1	
33	3x3x10	Pin	1	
34	CB618-D12	Vertical feed handwheel shaft	1	
35	CB618-D16	Micro vertical feed case fixing seat	1	
36	6205ZZ(25x52x15)	Bearing	2	
37	AW05	Serrate washer	1	
38	AN05(M25x1.5P)	Nut	1	
39	CB618-D17	Micro vertical feed case fixing ring	1	
40	6204ZZ(20x47x14)	Bearing	1	
41	R47	Fixing ring	1	
42	618-03-005	Vertical feed indication ring	1	
43	618-03-004	Vertical feed graduation ring	1	
44	618-03-018	Indication ring sleeve	1	
45	618-03-010	Vertical screw fixing seat	1	
46	618-03-011	Vertical leadscrew	1	
47	51108(40x42x60x13)	Bearing	1	
48	6011ZZ(55x90x18)	Bearing	1	
49	618-03-014	Gear	1	
50	618-03-020	Spacer	1	
51	7x7x22	Pin	1	
52	M6-10L	Inner hexagonal headless screw	1	
53	AW08	Serrate washer	1	
54	AN08(M40x1.5P)	Nut	1	

MICRO VERTICAL FEED CASE ASSEMBLY (VERTICAL RAPID CONTROL MOTOR)

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13. MICRO CROSSFEED
CASE ASSEMBLY

MICRO CROSSFEED CASE ASSEMBLY

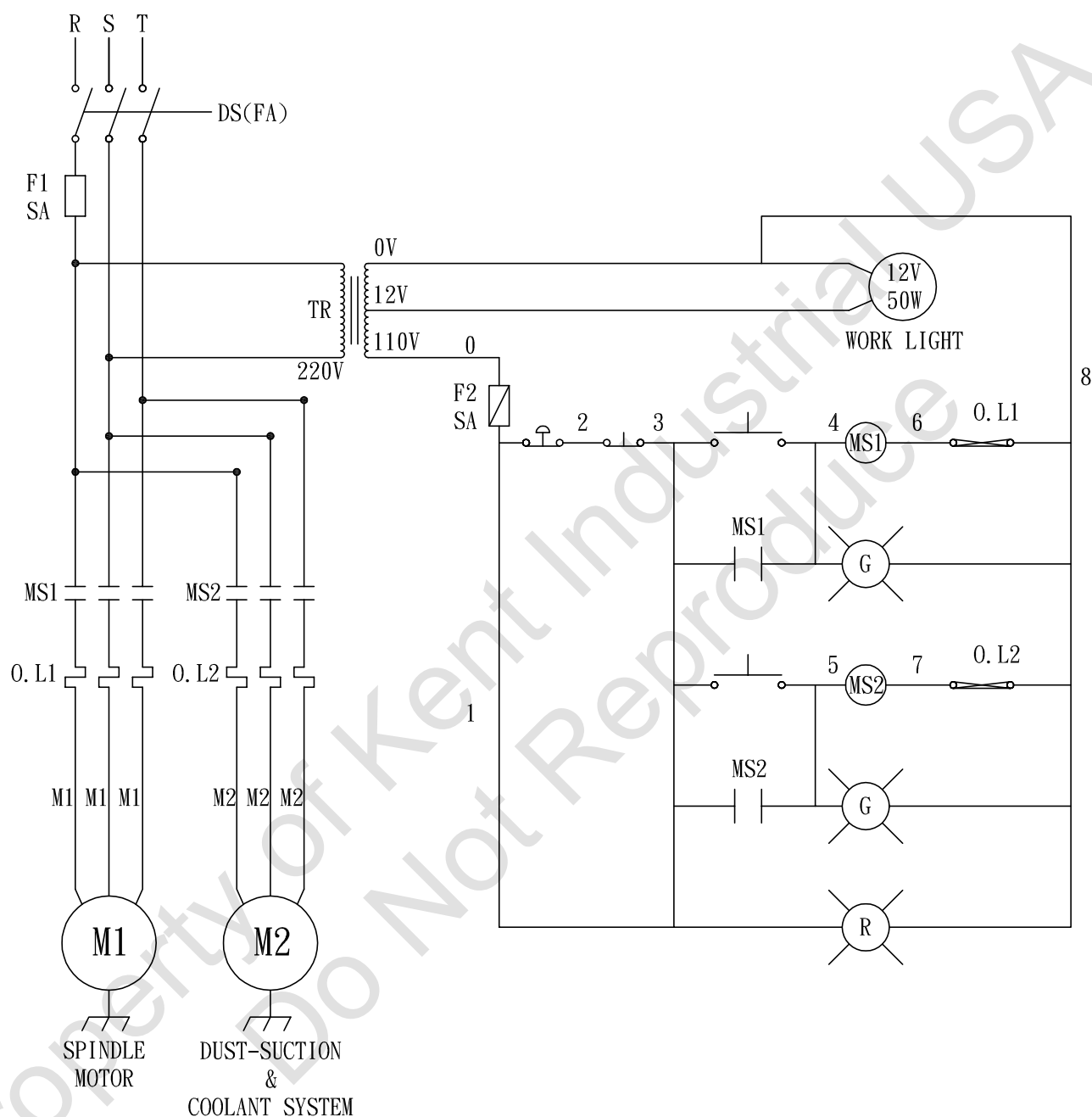
NO.	DRAWING NO. /SPEC.	DESCRIPTION	Q/TY	NOTE
1	CB618-C07	Micro Crossfeed Case	1	
2	6007ZZ(35x62x14)	Bearing	2	
3	CB618-C04	Shaft	1	
4	CB618-D02	Micro crossfeed gear	1	
5	6000ZZ(10x26x8)	Bearing	2	
6	CB618-C06	Ring	1	
7	Ø6 ODxP3xØ0.6x18L	Spring	1	
8	Ø6	Steel ball	1	
9	M4x0.7Px12L	Inner hexagonal screw	8	
10	CB618-C05	Ring	1	
11	M8-15L	Inner hexagonal headless screw	1	
12	M4x0.7Px30L	Screw	1	
13	M4x0.7Px7Wx3.2H	Nut	1	
14	M6-20L	Inner hexagonal headless screw	1	
15	CB618-C13	Micro crossfeed handle	1	
16	CB618-C03	Micro crossfeed indication ring	1	
17	CB618-C01	Micro crossfeed graduation ring	1	
18	M6-10L	Inner hexagonal headless screw	1	
19	AW07	Serrate washer	1	
20	AN07(M35x1.5P)	Nut	1	
21	CB618-C08	Micro crossfeed case cover board	1	
22	M5x0.8Px12L	Cross round head screw	4	
23	CB618-C12	Micro crossfeed ballscrew	1	
24	618-05-019	Ring	1	
25	51104(20x21x35x10)	Bearing	1	
26				
27	6204ZZ(20x47x14)	Bearing	1	

MICRO CROSSFEED CASE ASSEMBLY

[illegible]

IV. ELECTRICAL WIRING DIAGRAM

©. WIRING DIAGRAM:



M1	SPINDLE MOTOR
M2	COOLANT SYSTEM OR DUST SUCTION
MS1	MAGNETIC CONTACTOR OF SPINDLE MOTOR
MS2	MAGNETIC CONTACTOR OF COOLANT OR DUST SYSTEM
O. L1	OVERLOAD RELAY
O. L2	OVERLOAD RELAY

NOTE

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