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1. Safety instructions

DO NOT START MOTOR UNTIL YOU HAVE READ AND UNDERSTOOD THIS SAFETY SECTION AND THE SECTION ON STARTING PROCEDURE.

BE A CAREFUL OPERATOR

READ THIS USAGE INSTRUCTION SERIOUSLY TO KNOW WHAT YOU ARE DOING. MOST ACCIDENTS OCCUR DUE TO PEOPLE'S FAILURE TO FOLLOW THE SIMPLE, FUNDMENTAL SAFETY RULES OR PRECAUTIONS, AND REGARDLESSNESS OF THE CARE USED IN THE DESIGN AND CONSTRUCTION OF THE TUBE END FINISHING MACHINE.

THERE ARE MANY POINTS THAT CANNOT BE COMPLETELY GUARDED; THEREFORE, A CAREFUL OPERATOR IS THE BEST INSURANCE AGAINST ACCIDENTS.

NEVER PLACE YOUR HANDS, FINGERS OR ANY PARTS OF YOUR BODY INTO THE DANGEROUS AREAS OF THE END FINISHING MACHINE UNLESS THE MOTOR HAS BEEN TURNED OFF AND THE MAIN POWER SWITCH IS IN THE OFF POSITION AND TAGGED.

DANGEROUS AREAS OF THE END FINISHING MACHINE ARE:

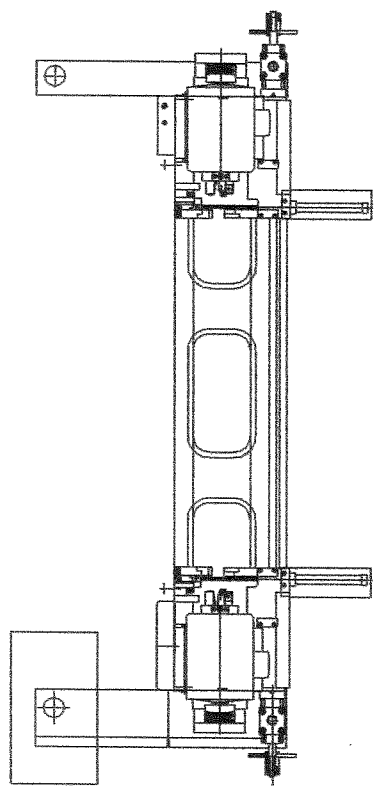
1. AREA DEFINED BY THE TOTAL TRAVLLING OF THE CUTTING HEAD
2. VISE AND JAW TRAVELLING AREA
3. AUTOMATIC CYLINDER STROKE AREA
4. WORK AREA AHEAD OF THE MACHINE
5. CUTTING CHIPS WILL FLY AWAY AROUND THE MACHINE. SO YOU HAVE TO WEAR THE SAFETY GLASSES DURING OPERATING THE MACHINE.

WARNING

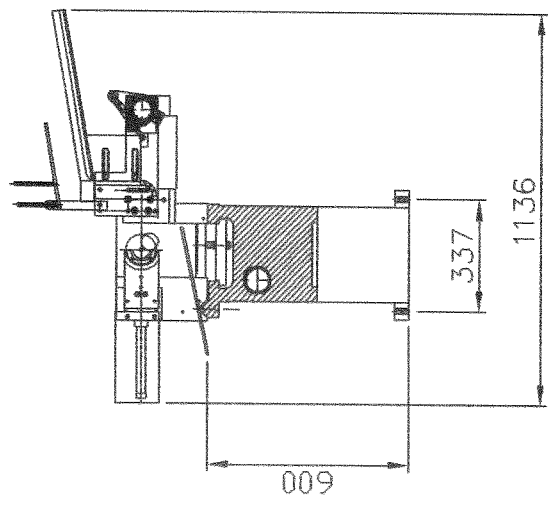
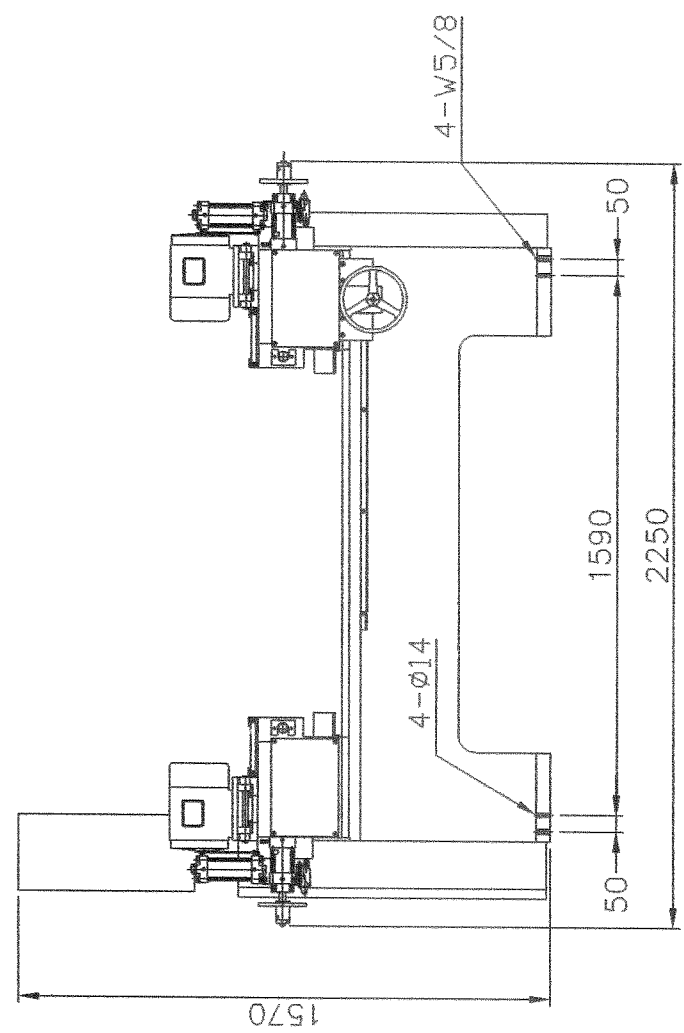
HIGH VOLTAGE WILL PRESENT IN THIS MACHINE. TURN THE MAIN POWER OFF BEFORE CHANGE TOOLS OR PERFORM SERVICE OPERATIONS.

2. Machine outline & specifications

DEF-FA/52 Rack Type	
Item	Specifications
Spindle motor	2HP x 4P For both right head and left head
Spindle RPM	1394/2591 RPM (60Hz)
Working Functions & Capacity	Standard Functions a. Tube inside & outside edge chamfering & facing. Tube O.D. $\phi 15 \sim \phi 52 \text{mm}$, 3mm max. wall thickness. b. Bar out-edge chamfering. Bar O.D. $\phi 9 \sim \phi 30 \text{mm}$, C4 chamfer Bar O.D. $\phi 30 \sim \phi 52 \text{mm}$, C2 chamfer c. Work piece length : c-1. Standard type : 150mm to 1000mm c-2. Extension type : 150mm to 1500mm c-3. Extension type : 150mm to 2000mm
	Optional Functions d. Tube inside & outside edge chamfering & facing with special tool seats Tube O.D. $\phi 9 \sim \phi 13 \text{mm}$ e. With special tool's head & tool seat Bar out-edge chamfering & centering.
Standard Accessories	a. One piece standard tool head. (E2A018) b. One set chamfering jaws (for one O.D. size) c. Tool seats E2A021/E2A031/E2A032/E2A034/E2A035 /E2A036, for tube $\phi 15 \sim \phi 52 \text{ mm(O.D.)}$
Optional Accessories	d. Tool seats E2A019/E2A021/E2A042 for tube $\phi 9 \sim \phi 15 \text{ mm(O.D.)}$ e. Tool head E2K124 & tool seat E2K125 for Bar end centering. f. Oil mist system. g. Different size clamping jaws.
Pressure air	6-8 kg/cm ² , 120ml/min
Weight	1260 KG
Dimensions W x D x H cm	220 x 110 x 164

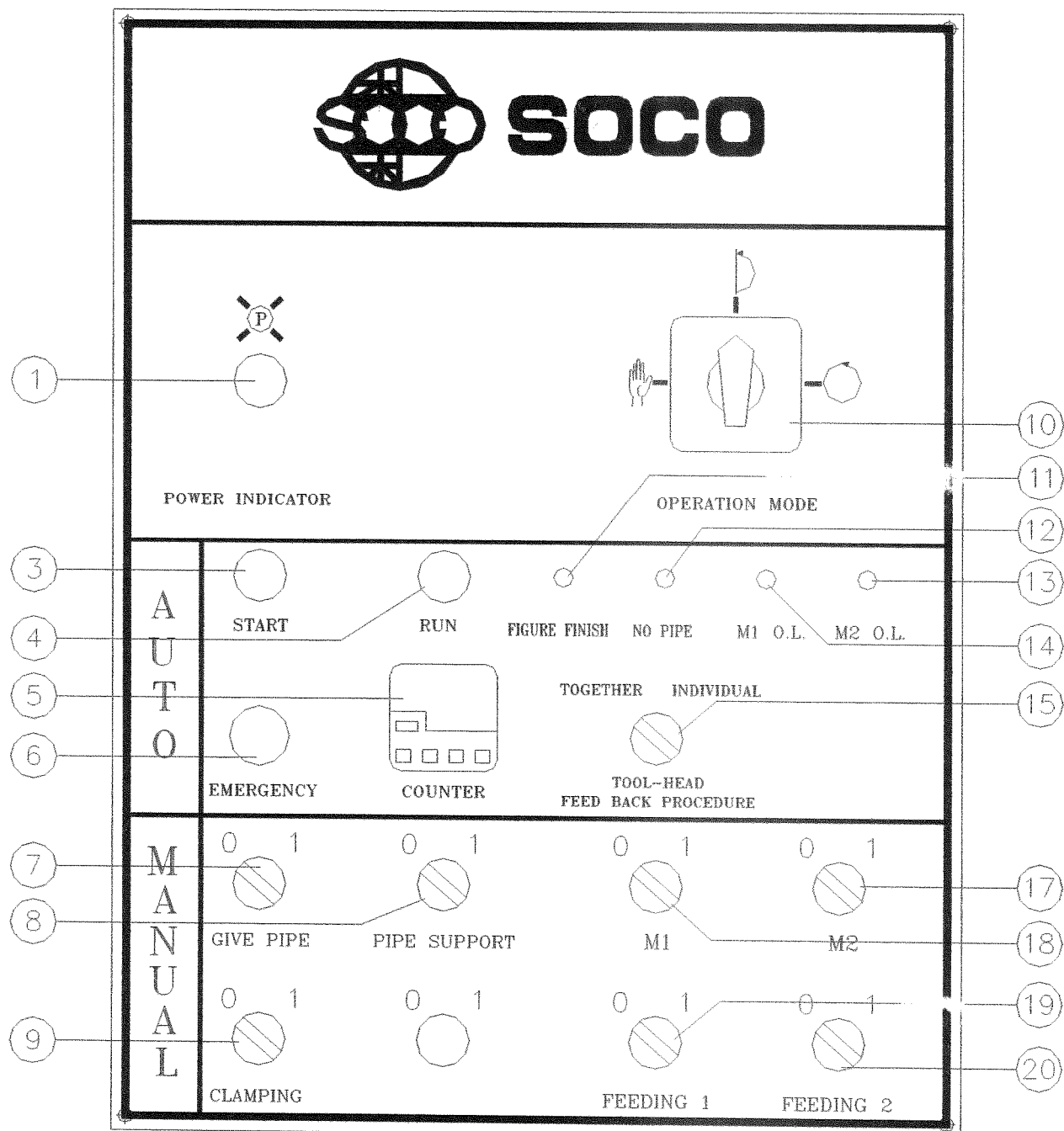


1000mm



DEF-FA/52 RACK TYPE OUTLINE

3. Function description for each unit on control panel



Item	Name and Description
1	Power indicator.
2	
3	Start button and indicator. When Item 10 operation mode switch has been set to  or  position, push this button will start semi-auto or auto-cycle operation.
4	Operation indicator. It is bright to show the semi-auto or auto-cycle operation in normal condition.
5	Counter, showing the number of output worked pieces.
6	Emergency stop button.
7	Manual switch to start or stop the tube transfer motor.
8	Manual switch for pipe support.
9	Manual switch for clamp arm, close or release.
10	Operation mode switch for manual operation, semi-auto cycle operation and auto-cycle operation.
11	Figure finish indicator. When the number of worked pieces reaches to the number set in the counter, the machine will automatically stop and this indicator will brighten.
12	No pipe indicator. When it is bright means there are no work pieces in the machine.
13	Right head motor overload indicator.
14	Left head motor overload indicator.
15	Tool-head feed back procedure select switch.
16	
17	Manual switch for right head motor on/off.
18	Manual switch for left head motor on/off
19	Manual switch for left head feeding or return.
20	Manual switch for right head feeding or return.

NOTICE:

1. Switch of item 7~9 & 17~20 belong to the manual operating area. They are designed for the purpose of testing & adjusting the machine. It is necessary the Item 10 operation mode switch be set to the left (hand) position before those switches in manual operation area become operable.
2. If any red indicators of item 11~14 turn to bright, it means there is an abnormal condition in the machine. It needs to solve the problem which cause the red indicator bright before the machine can be operated normally again.

4. ADJUSTING TWO HEADS' DISTANCE

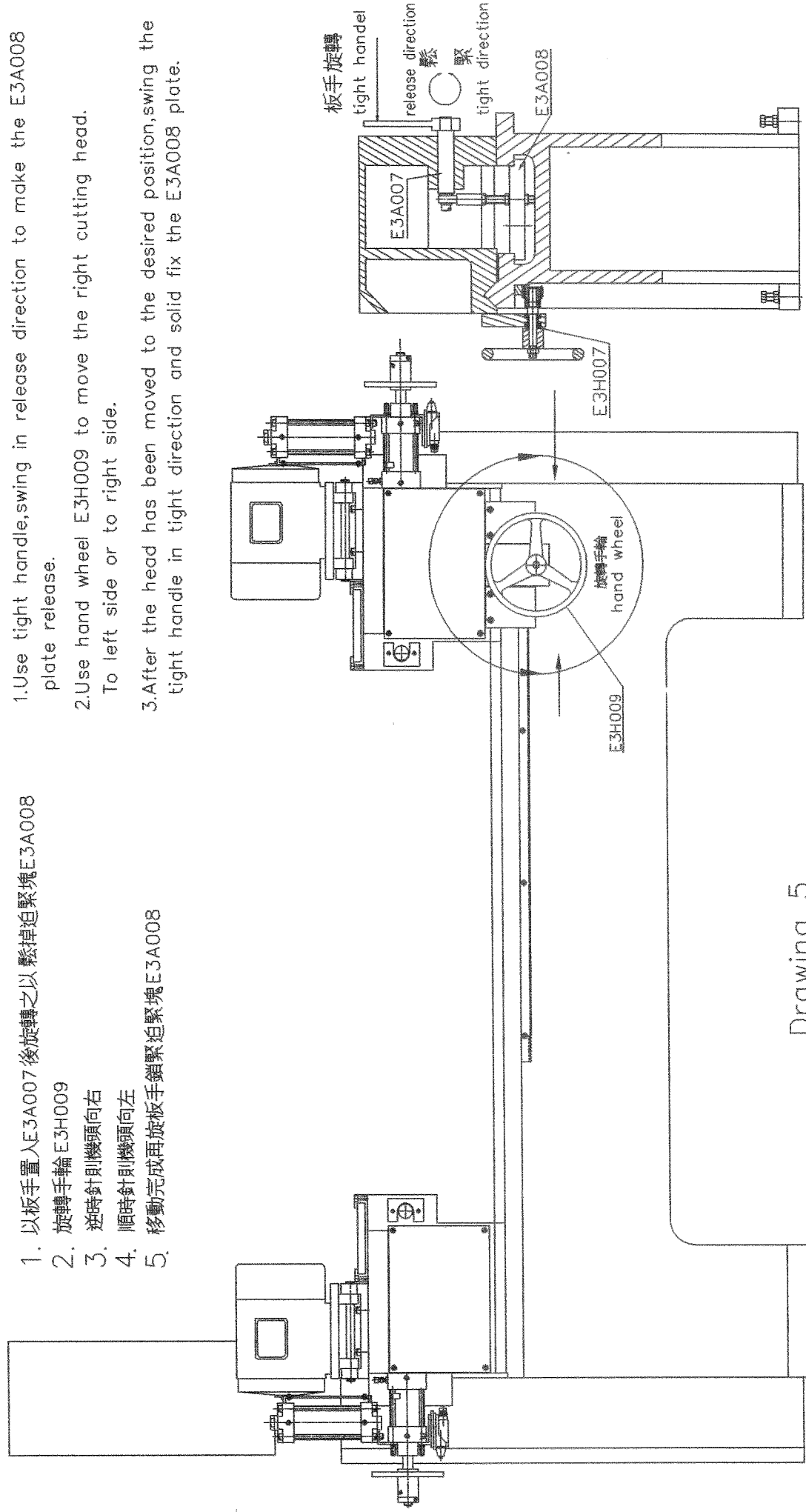
- 4-1) Use the descriptions of drawing 5 and drawing 6 to set up distance between right head and left head.
- 4-2) Put two tubes out guide plate on the machine bed in proper position. To make sure the finished tubes can drop out smoothly.

移動右機頭之步驟：

1. 以板手置入E3A007後旋轉之以鬆掉緊塊E3A008
2. 旋轉手輪 E3H009
3. 逆時針則機頭向右
4. 順時針則機頭向左
5. 移動完成再旋板手鎖緊迫緊塊 E3A008

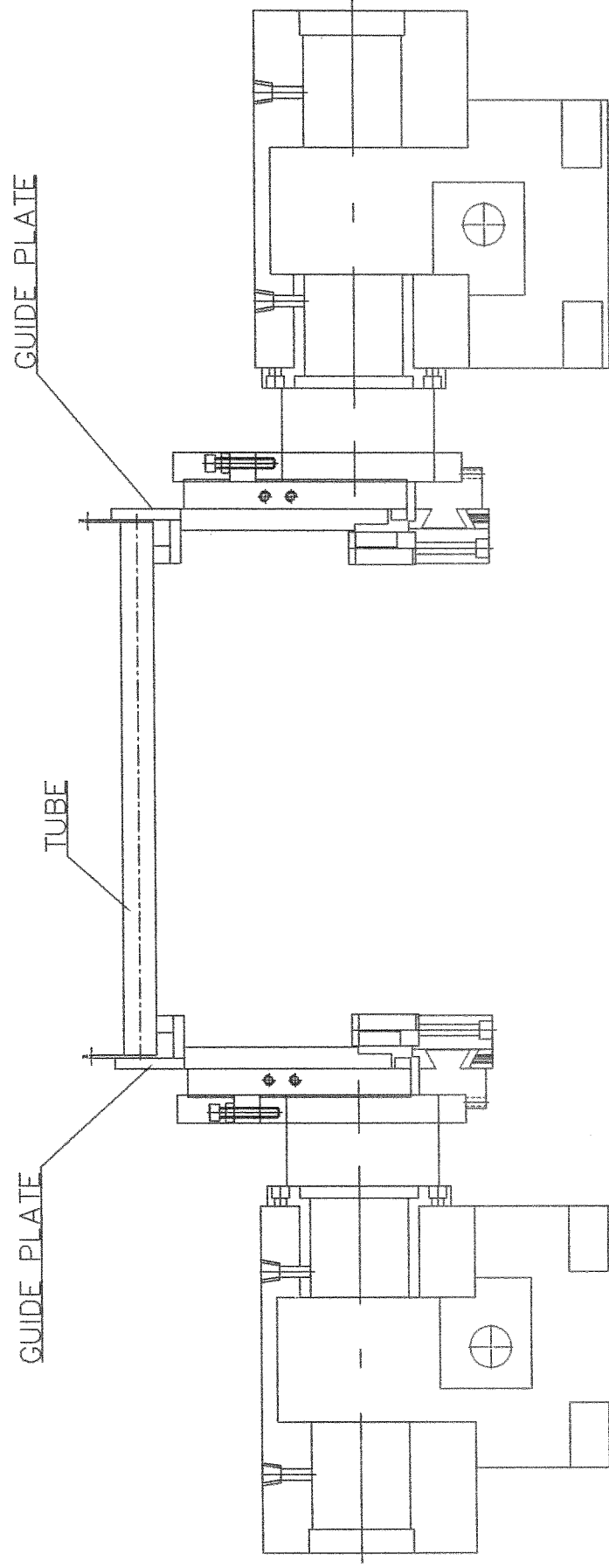
moving right cutting head:

1. Use tight handle, swing in release direction to make the E3A008 plate release.
2. Use hand wheel E3H009 to move the right cutting head. To left side or to right side.
3. After the head has been moved to the desired position, swing the tight handle in tight direction and solid fix the E3A008 plate.



Drawing 5

Keep each tube end has 1 to 2 mm
clearance to tube guide plate



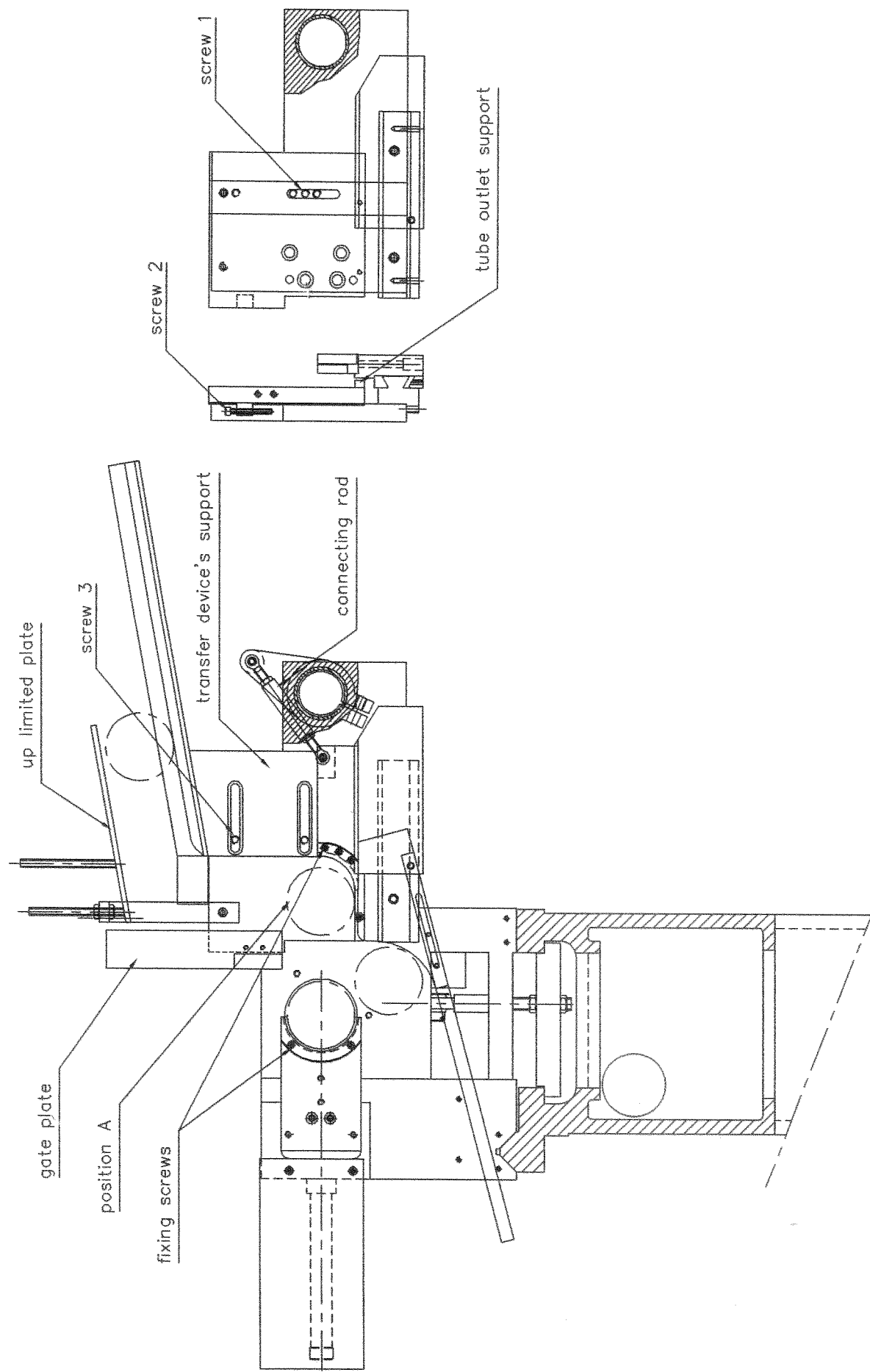
Drawing 6

5. REPLACE THE CLAMPING JAWS

- 5-1) The I.D. of clamping jaws should be the same as the O.D. of the working piece, which is going to be chamfered. Make sure the 4-piece jaws have the same and correct I.D.
- 5-2) When change different size jaws, release fixing screws, (refer to diagram 7), and replace new jaws.
- 5-3) Screw in those fixing screws, but do not tight them.
- 5-4) Set the function switch to hand position on the control panel.
- 5-5) Take one piece working tube, put it into the front jaws.
- 5-6) Turn item 9 clamping arm switch to 1 position on the control panel. The clamping arm will push the rear jaws forward and clamp the working tube.
- 5-7) Now, tight those fixing screws.
- 5-8) Check the connecting rod to see whether it is movable? If it is movable, please release its nut and turn the rod till it can't be moved. Then tight its nut.

CAUTION!!

BE CAREFUL! DO NOT PUT YOUR HAND INTO THE CLAMPING JAWS' AREA.



drawing 7

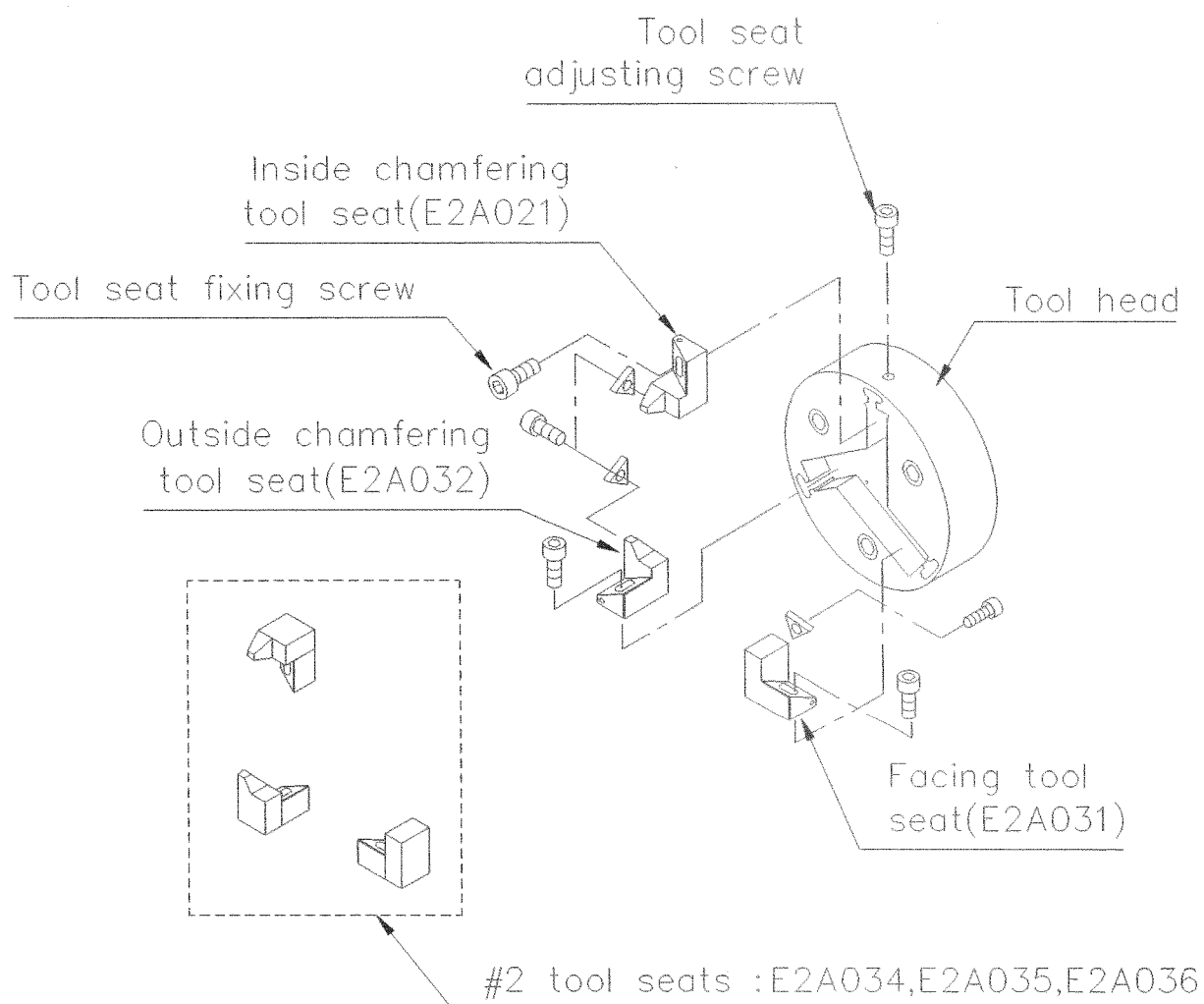
6. Adjust cutting bits' position in tool head

In case you want to adjust the cutting tools' position. please be very pertinacious to do it. Please refer to the drawing below.

- a) Release 3 tool seats' fixed screws.
- b) Take one piece working tube, put it against the front clamp jaw, and move it approach the tool head to check the 3 tool bits' position.
- c) Turn the tools' adjusting screws counterclockwise will move the tool bits forward to the center of the tool head, and turn the screws clockwise will move the bits backward.
- d) Set the facing tool first, then set the outside chamfering tool, then the inside chamfering tool.
- e) After fix the tool seats and tool bits, use manual operating function to clamp the working tube, start the motor, feeding the cutting head, do chamfer, then return the cutting head. Check the chamfering result. Repeat a) to e) steps till you get good working result.
- f) There are six standard tool seats will be provided with the machine. Please refer to the drawing below to understand the mark for each tool seat. To chamfer different size tube, we have a suggesting combination of the seats for reference:
Ø15(O.D.)~Ø38(O.D.) : use A+B+C combination.
Ø38(O.D.)~Ø52(O.D.) : use A+D+E combination.
Ø47(O.D.)~Ø92(O.D.) : use D+E+F combination.
The sequence of the seats in counterclockwise is: facing tool seat->inside chamfering tool seat->outside chamfering tool seat.
- g) The optional accessories E2A019 & E2A042 are used to combine with seat E2A021 to chamfer tube from Ø9(O.D.) to Ø15(O.D.). Please notice when use this combination to do chamfer, the sequence of the seats in counterclockwise is different from mentioned above. It should be: facing tool seat->outside chamfering seat->inside chamfering seat.
- h) If the tool bits are worn, the tool head will vibrate during operation. So it is necessary to check and replace new tool bits when the above situation happens.

NOTE !!

1. Each tool bit has 3 cutting edges can be used.
2. Standard tool bits and tool seats are for 30 degrees chamfering, you can order special tool seats and tool bits.



STANDARD ACCESSORIES			
PART NO.	MARK	PART NO.	MARK
E2A021	A	E2A034	D
E2A031	B	E2A035	E
E2A032	C	E2A036	F
OPTIONAL ACCESSORIES			
E2A019	R	E2A042	P

7.AJUST THE TUBE TRANSFER DEVICE FOR DIFFERENT SIZE WORKING TUBE. (REFER TO DRAWING 7)

- (1) Put one piece working tube in A position. (refer to drawing 7)
- (2) Release screw 1, adjust screw 2 (drawing 7), Let the tube outlet support can move up or down. According to the center line of the front clamp jaws, adjust the tube outlet support's height, let the tube in position A, has its center line as high as the front clamp jaw's center line. Fix the screw 1.
- (3) Release the gate plates' fixing screw, adjust the gate plates, let the gate has 2 mm more than the working tube's O.D. Fix the screw.
- (4) Adjust the transfer device's support, let the working tube just can stay in the position, which between this support and guide plate. Fix the screw 3.
- (5) Adjust the up limited plate, let it has 3mm clearance to the top of the working tube.

NOTE :

- (1) Before adjusting the tube transfer device, please make sure the two cutting heads' distance has already been set properly.
- (2) The height of both tube transfer devices (the right side and the left side), need to be adjusted to the same to ensure the working tubes can be transferred smoothly.

8. ADJUST CUTTING HEAD'S FEEDING SPEED

- (1) Different feeding speed for different tube size and different tube wall thickness. Normally, fast speed for light tube or non-ferrous material. Slow speed for heavy wall tube or hard material.
- (2) Each head has two-step feeding speed during the whole stroke, first step is fast and cannot be adjusted. It has 15mm stroke from the beginning. The 2nd step is adjustable and is at the last 20mm stroke. This speed can be adjusted by turning the air flow valve (refer to drawing 11,item 5).

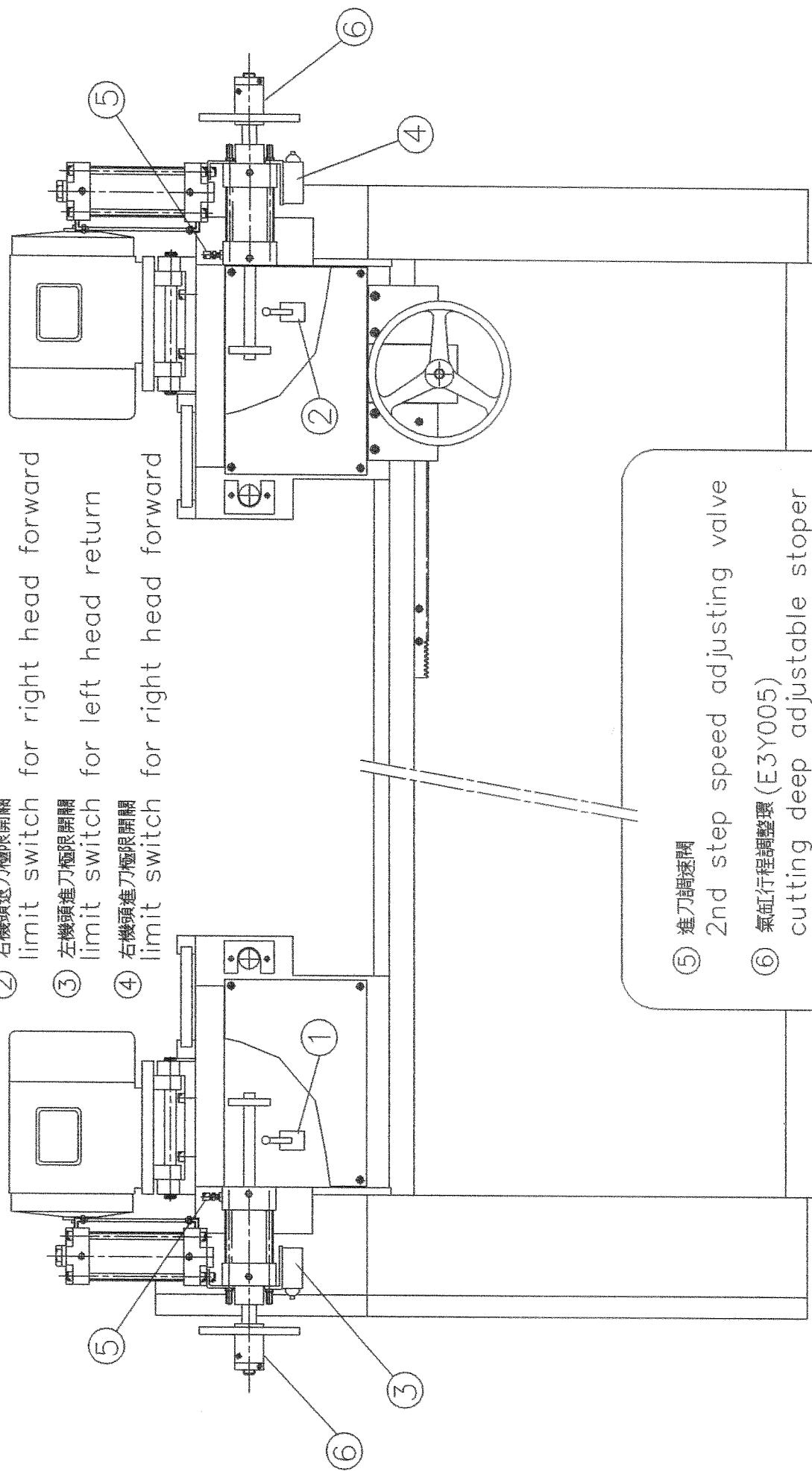
9. ADJUST CUTTING STROKE

We have pre-set the cutting stroke of each head before delivery. But if necessary, it can be re-adjusted. For more deep cutting stroke, just release the screw nut of the stopper (item 6 of drawing 11) and turn it counterclockwise. For short cutting stroke, turn the stopper clockwise.

NOTE :

When adjusting the cutting stroke, do not turn the stopper too much at a time.

- ① 左機頭退刀極限開關
limit switch for left head forward
- ② 右機頭退刀極限開關
limit switch for right head forward
- ③ 左機頭進刀極限開關
limit switch for left head return
- ④ 右機頭進刀極限開關
limit switch for right head forward



- ⑤ 進刀調速閥
2nd step speed adjusting valve
- ⑥ 氣缸行程調整環 (E3Y005)
cutting deep adjustable stoper

10. MAINTENANCE

(1) EVERY DAY

- (a) Check the power cable to ensure it has been connected properly.
- (b) Check the air line to ensure it has been connected properly.
- (c) Drain water out of the air treated unit.
- (d) Clean and oil the sliding way of vise and the machine bed.

(2) EVERY WEEK

- (a) Add oil R32 to every oil cups.
- (b) Add oil R32 to the oil cup of the air treated unit.

Note : Use Mobil Vactra 2 for the supplement to lubricator.