



Kent USA LA Series Lathe Manual

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PREFACE

We take this opportunity to thank you for your purchase of a Large Swing Lathes. This manual has detailed explanation of every part of the lathe, and machine structure. We request that you read through this manual before you actually use your machine, in order to familiarize yourself with its function and capabilities and to keep the machine in its best operating condition.

We try our best to make this manual complete and clear; however, due to the fast improvement of the modern technology, there may be some mistakes in this manual. We would appreciate that you advise us of these mistakes. If you still have question, you can contact or your dealer, thank you!!

SPECIFICATION

MODEL LA34120	
Bed width	510mm
Bed way	3 V ways & 1 flat way
Between centers	3000mm
Swing over bed	870mm
Swing over cross slide	620mm
Spindle bore	6 " (Ø 153mm)
HEADSTOCK	
Spindle nose	A2-11
Center height	440mm
Spindle center	MT#6
Spindle motor	30HP
Spindle speed	5~670rpm
TOOL POST	
Tool size	1-1/4 "
Turret mode	4 Way tool post
TAILSTOCK	
Quill diameter	Ø125mm
Tailstock Body movement	By carriage
Tailstock center	MT#6
Quill traverse	150mm
Quill movement	By hand wheel
STANDARD ACCESSORIS	
Lubrication pump	25W
Coolant pump	1/8 HP
FEED	
X-stroke	500mm
Z-stroke	3000mm
Voltage / Hertz	220V / 440V 60HZ

*Design and specifications are subject to change without notice

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A. INSTALLATION

A1.1 General

The purpose of this manual is to make the user fully understand this machine's parts, functions, and all the safety precautions, then user can decide the work piece's material, dimension, and tool to running this machine smoothly and do a good job.

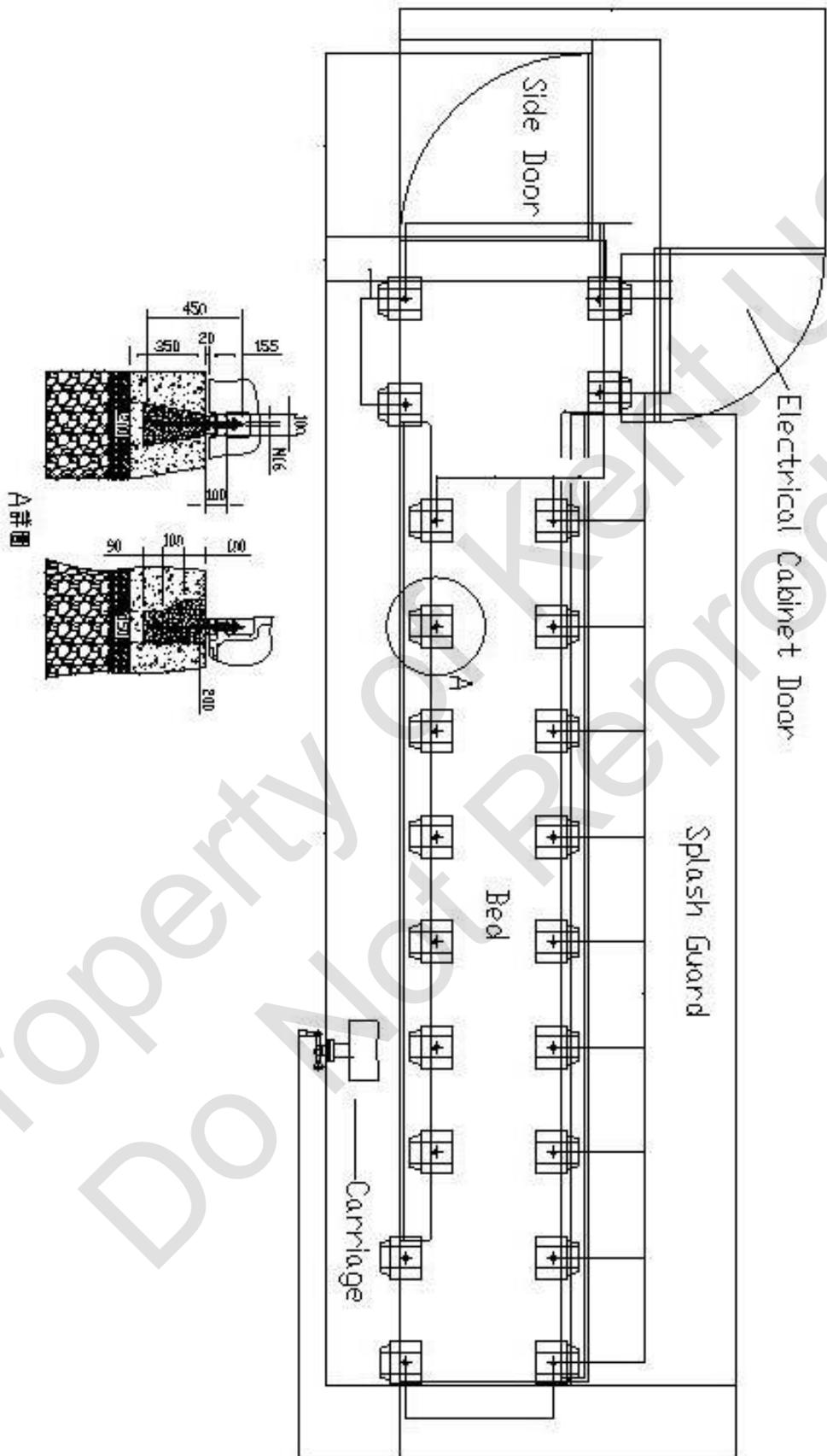
A1.2 Location of the installation

In order to keep the machine stable, and keep good precision, the foundation is very important and necessary. The foundation diagram is as following:

Allow enough space for maintenance, opening the electrical cabinet, move the cart...etc. So, arrange the machine space plan before set up the machine.

Keep the environment around the machine clean, and prevent the sunshine on the machine directly. Keep machine away from the heater and do not connect the unstable current to the machine. And the foundation will affect the precision, so, good and steady foundation is very important.

A1.3 Foundation drawing



REFERENCE DRAWING OF FOUNDATION 1/1

B. OPERATIONAL

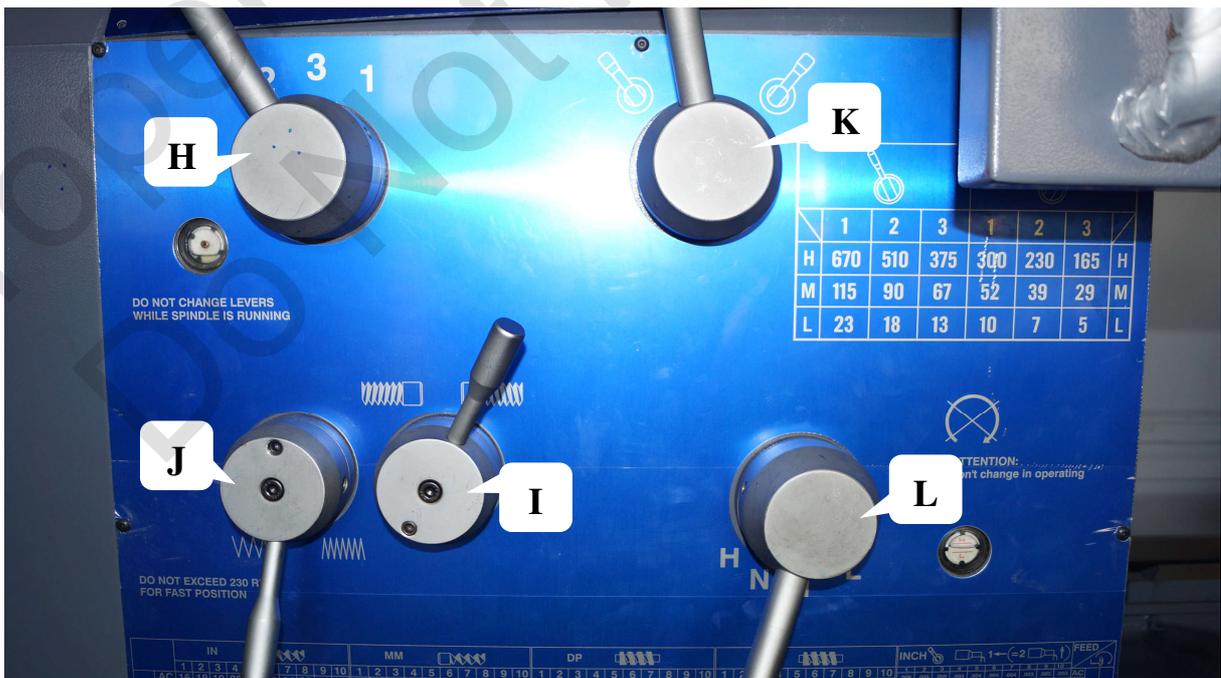
B1. CONTROL PANEL SYMBOL

- A . Power switch
- B . Power Lamp
- C . Spindle Brake
- D . Coolant switch

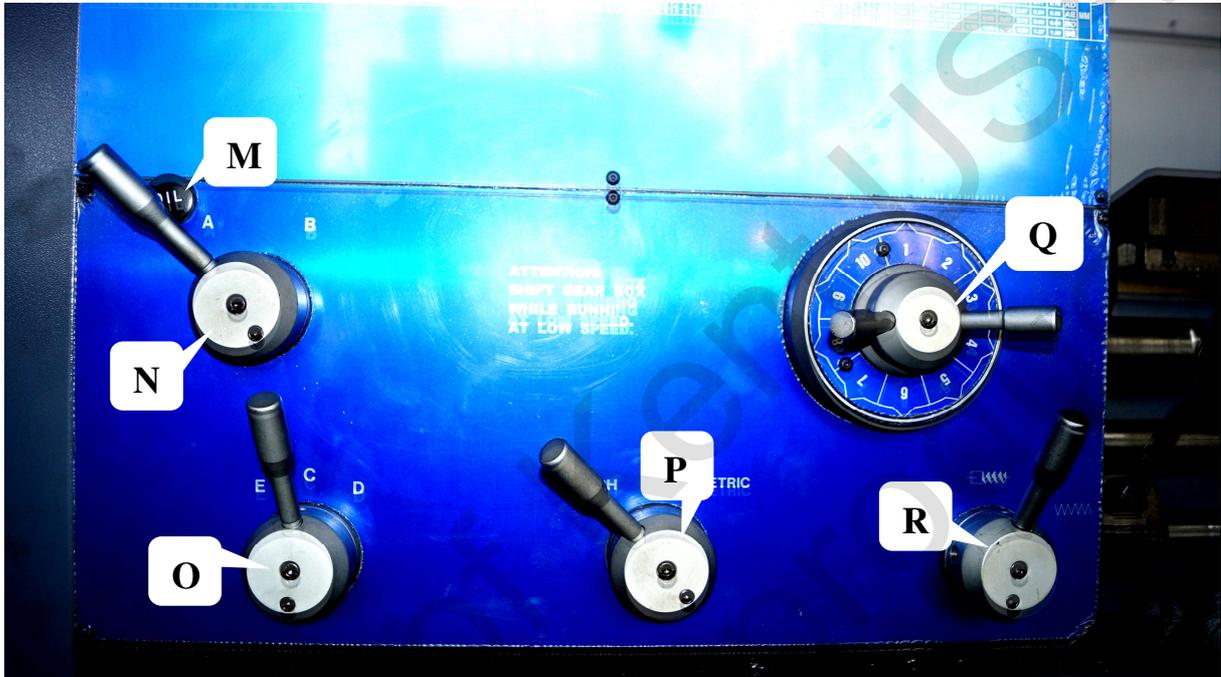
- E . Low Way Lubrication
- F . Jog button.
- G . Emergent stop



- H . Gear change lever .
- I . Left hand and right hand thread change lever .
- J . Right side is normal thread , left side is rough thread change lever
(if spindle rpm over 230 , please don't use left side gear.)
- K . High and low gear lever .
- L . Gear change lever.



- M . gear box oil refill plug .
- N . feed thread option lever .
- O . feed thread option lever .
- P . Inch.metric thread optional lever .
- Q . feed optional panel .
- R . MT/PT thread , normal thread, feed change lever .

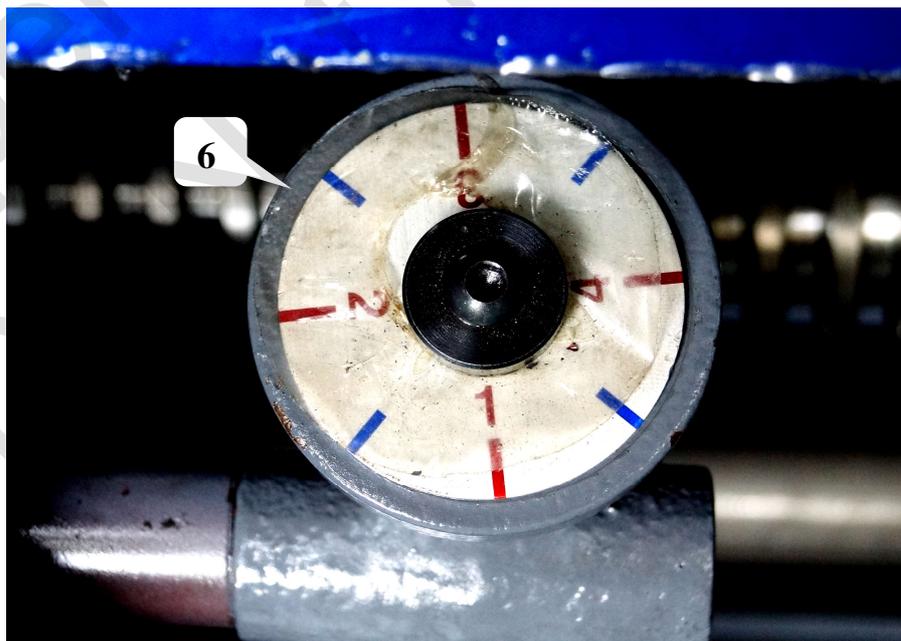
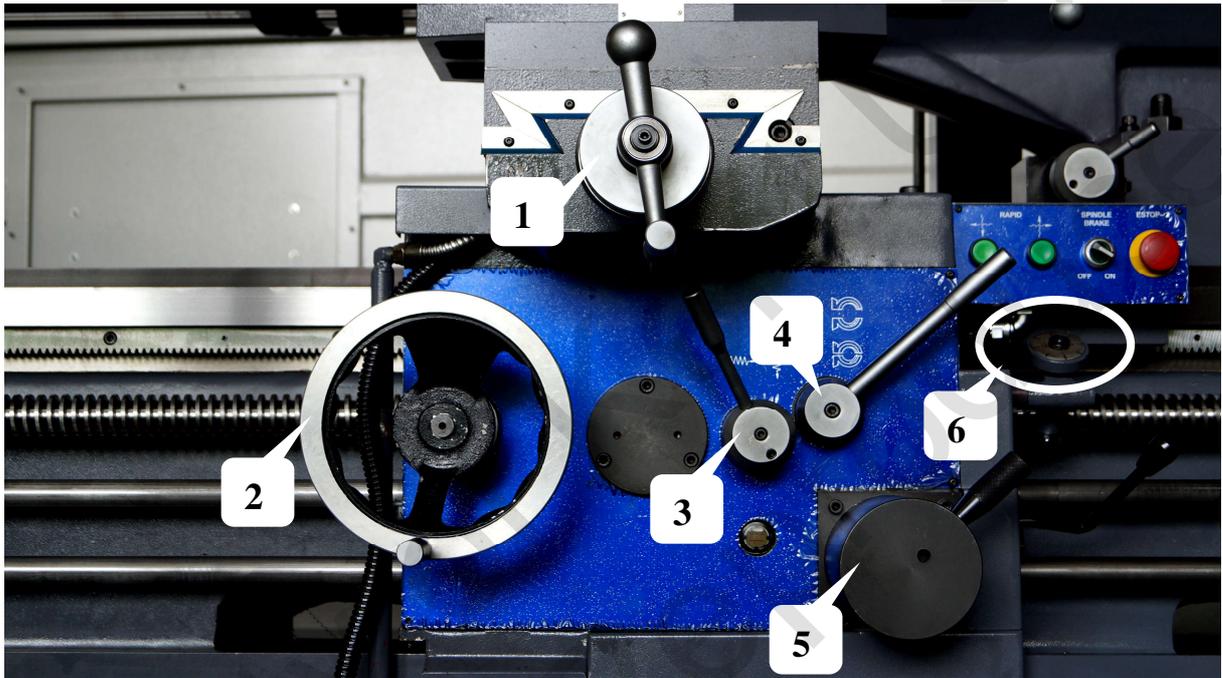


TYPE A

- A . Axis feed direction.
- B . Axis feed direction.
- C . Spindle Brake.
- D . Emergent stop.



- 1 . Manual X axis feed handle.
- 2 . Manual Z axis feed handle wheel.
- 3 . X.Z axis conversion.
- 4 . Thread change lever.
- 5 . X.Z axis feed auto change lever.
- 6 . Thread indicator.

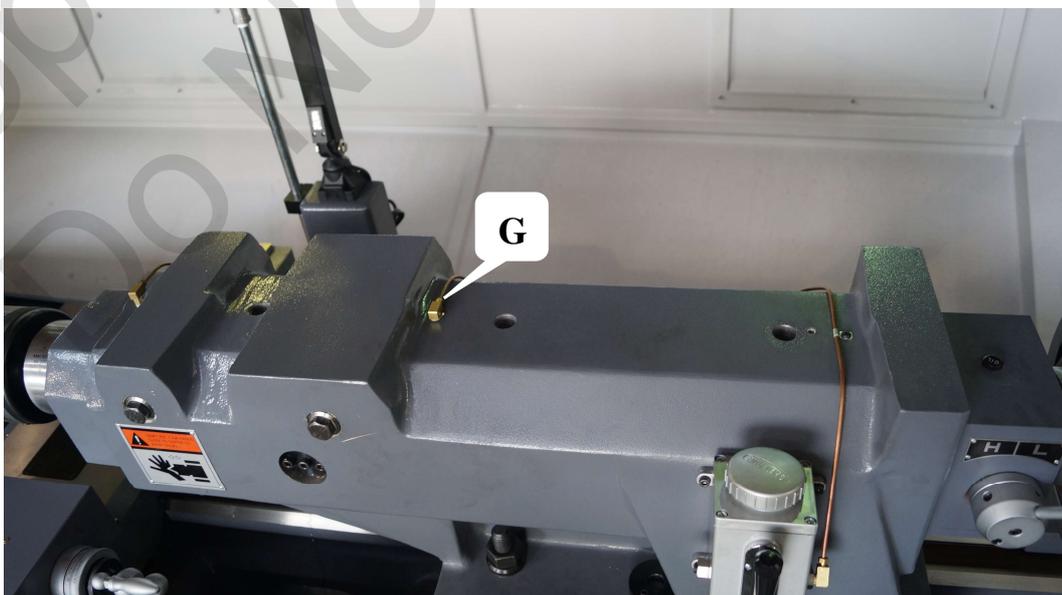
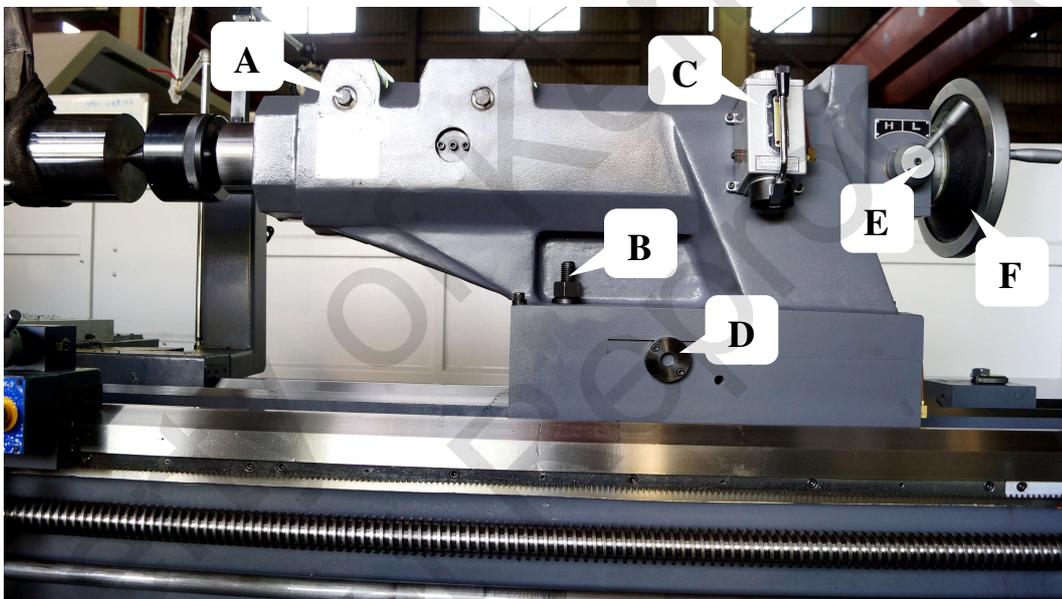


※Please see P36 attachment for thread and feed chart.

B2. TAILSTOCK OPERATING INSTRUCTION

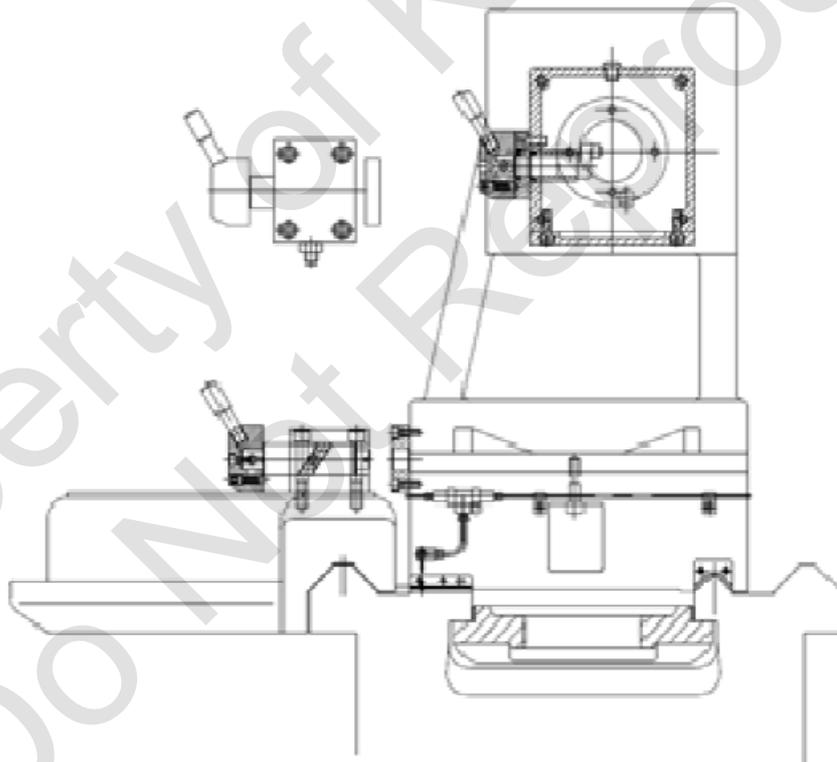
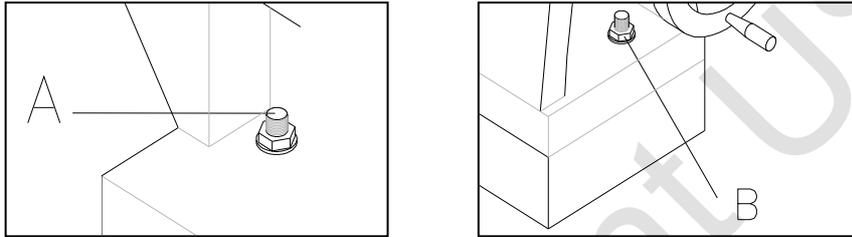
B2.1 Manual tailstock

- A . The quill of tailstock lock bolt
- B . Tailstock body lock bolt
- C . Manual oiler
- D . Tailstock body wedge and adjustment screw
- E . Lever between high and low feed
- F . Hand wheel for quill.
- G . There are the holes of tailstock quill for oil filling. (Use oil R32)



B2.2 Manual tailstock moving procedure

1. Loosen the bolt "A" , "B" at the tailstock . (See following figure) .
2. Rotate hand wheel , to make tailstock forward or backward .
3. Move the Z-axis to suitable position for working process.
4. Tighten the bolts "A" , "B" at the tailstock .

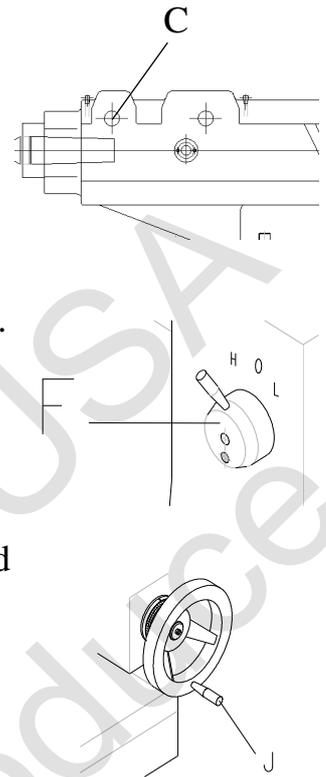


Above is manual insert, need insert tailstock body to hole position, in order to travel tailstock body.

※before move tailstock body need to notice tailstock body fix screw has loose. To avoid make manual insert broken.

B2.3 Manual tailstock use

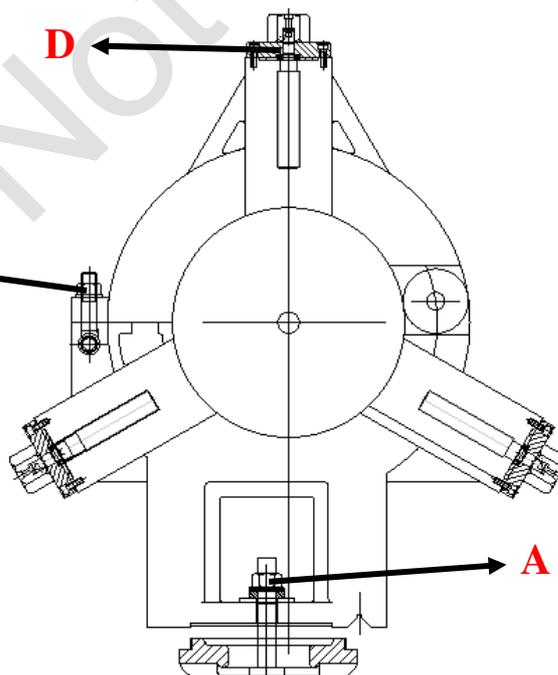
1. Counterclockwise rotate handle "C" to loosen the quill.
(See following figure, clockwise to tighten the quill).
2. Rotate the handle "F" to choose the quill moving speed.
("H" : high speed , "O" : neutral , "L" : low speed)
3. Rotate hand wheel "J" ccw to make quill backward, and rotate hand wheel "J" cw to make quill forward .



B3.Steady rest operating procedure

B3.1 Procedure

- 1.Lock the "A" nut fixing on the bed.
- 2.Lock the "B" nut fixing the steady rest.
- 3.Rotate knob "D" to support the workpiece and adjust the workpiece on the center. (See following figure.)



B4. SAFE SWITCH AND CONTROL

B4.1 Side door safe switch

The construction of side door safe switch is showed as below picture. If the door is open, the machine can not operate; if door is closed the machine can continue operating.

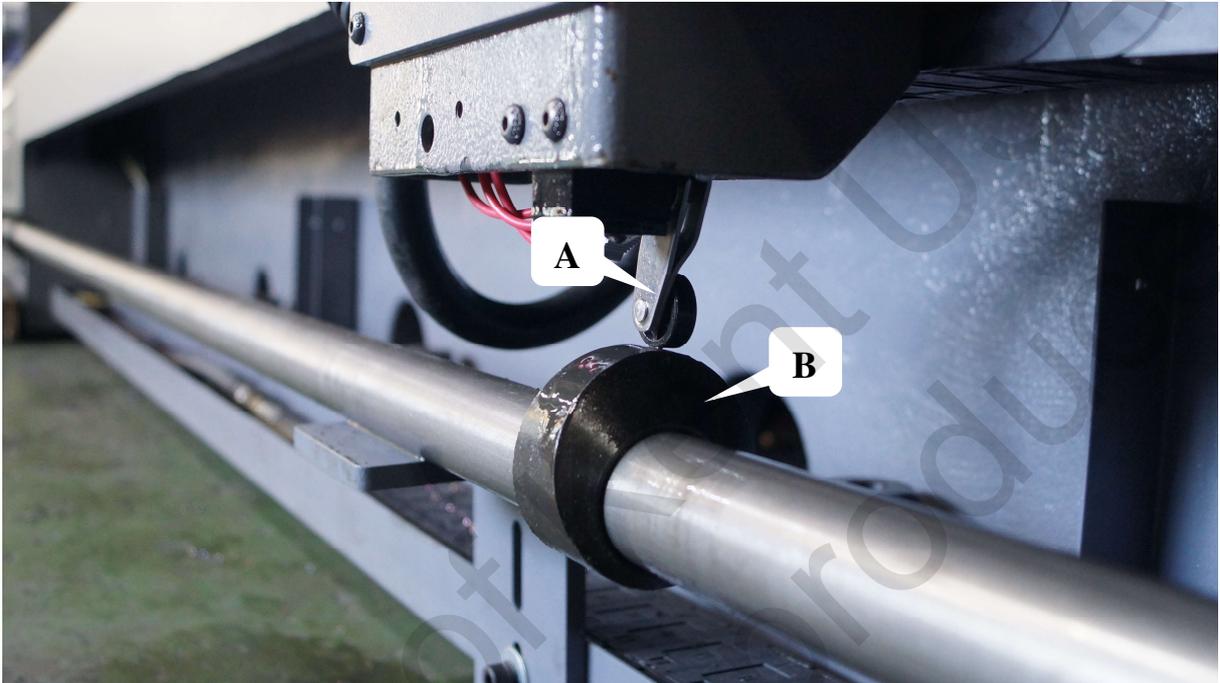


B4.2 Auto feed limited switch

A : Switch

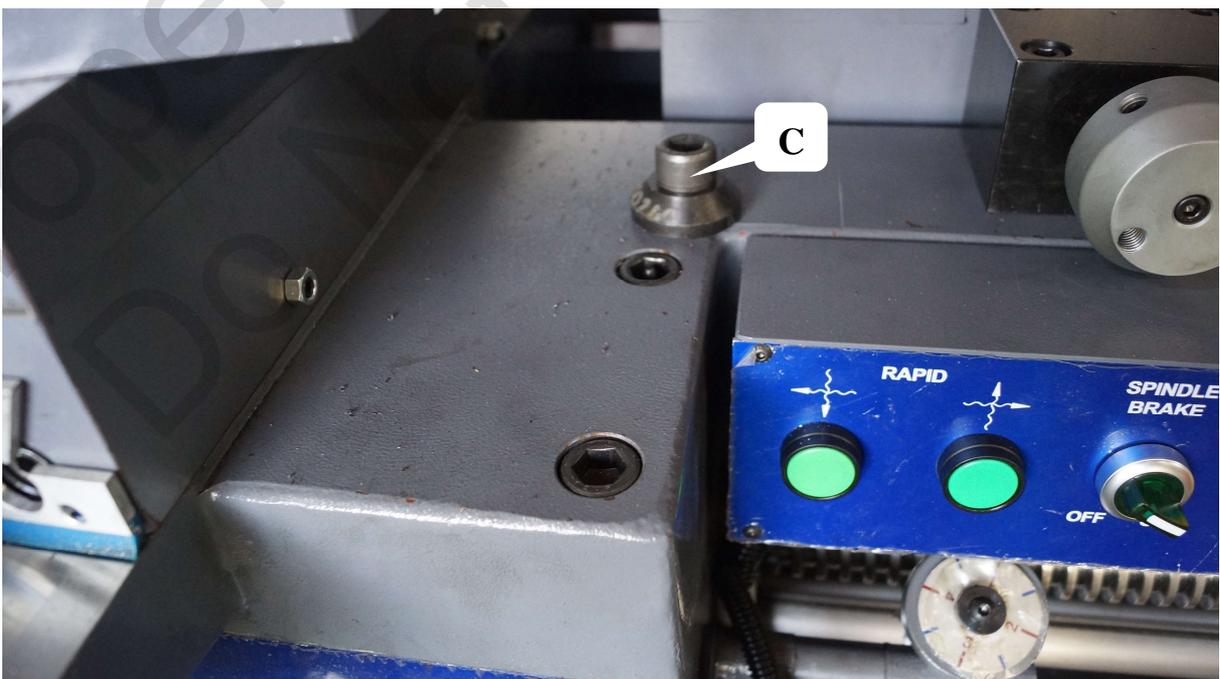
(when lathe do auto feed and "A" touch "B" the auto feed will stop immediately) .

B : Adjustable stop circle dog.



B4.3 Z-axis lock

C: When the C is locked, the Z axis cannot move.



B4.4 Oil indicator

H : This indicator show the oil flow in headstock.

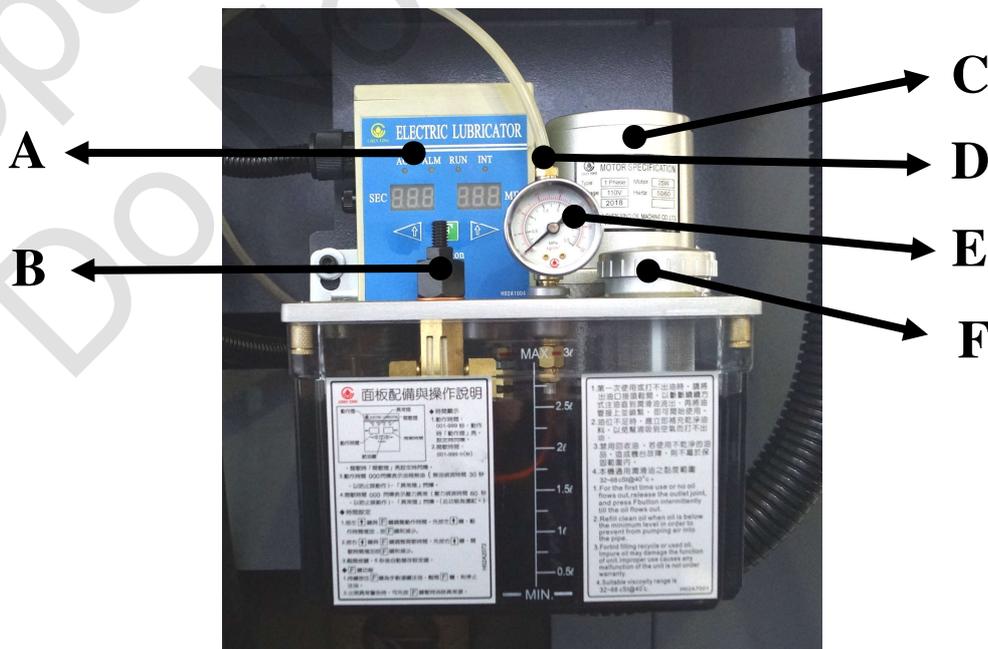
I : This indicator show in head stock whether the oil is enough.



B4.5 Bed way lubrication system

B4.5.1 Auto oil injector operation

- A . Control box B . Adjust valve C . Motor
D . Oil Outlet E . Pressure Gauge F . oil inlet



B4.5.2 Operation

1. Please connect to the applicable power supply (please check the specifications on the motor).
2. This oiler is used for timing control action and intermittent time, and is used with straight-through (open) distributor or proportional joint.
3. After the oil pipe is connected, the discharge amount can be adjusted by the pressure regulating valve and rotated counterclockwise. The smaller the pressure in the pressure gauge is, the larger the discharge amount is. When the clockwise rotation is performed, the pressure in the pressure gauge is larger, and the discharge amount is smaller.
4. When this type of oiling machine is equipped with 25W motor, the pressure range is 0~12kg/cm², the discharge volume is 0~250cc/min; when it is matched with 60W motor, the pressure range is 0~30kgf/cm², and the discharge volume is 0~600cc/min.

※ Time display:

1. Action Time:001~999 sec. The light of ACT indicator flickers during the setting and remains on during the operation.
2. Interval Time:001~999 min(sec). The interval indicator flickers during the setting and remains on during the interval.
3. When the ACT indicator 000 flickers , it means oil is below the minimum level. (It will detect the oil level for 30 seconds to avoid false alarm.)And ALm indicator keeps flickering.
4. When the interval indicator flickers "000" , is means the pressure is abnormal . (It will detect the pressure for 60 seconds to avoid false alarm.) And ALM indicator flickers.(This function is optional.)

B4.5.3 Auto Oil Injector Setting and Remarks

※ Time Setting:

1. Press the left "↑" button and "F" button for adjusting the action time. Press the left ↑ button to increase action time and press "F" button to decrease it.
2. Press the right "↑" button and "F" button for adjusting the interval time. Press the right "↑" button to increase interval time and press "F" button to decrease it.
3. It memorizes the setting after releasing the button for 5 seconds.

※Function of "F" button :

1. Press "F" button to continue feeding oil manually. Release "F" button to stop oil feeding.
2. When alarm goes off , press "F" button to turn it off.

※ Remarks:

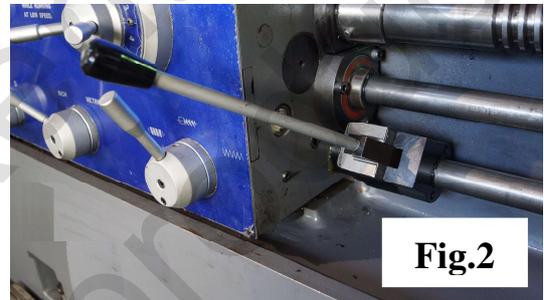
1. Please turn off power during assembling or repairing this injector.
2. When first using this injector or there is no oil flow out, please refill oil into empty oil pipes to make sure there is lubricant flow out and then connect end joint or turning the adjust valve in CCW direction to end to release air inside oil pipe for trying again later.
3. Refill clean oil when oil is below the minimum level in order to prevent from pumping air into the pipe.
4. When oil level is lower than normal oil level, please refill same oil immediately and make sure it not higher than the max. oil level.
5. Forbl'd filling recycle or used oil. Impure oil may damage the function of unit. Improper use causes any malfunction of the unit is nit under warranty.
6. Oil selection range is 32~68cSt@40°C(Use R32)
7. Every half an year, please clean all oil filter and outlet joints to ensure smooth oil supply.

B4.6 Electrical Magnetic Brake Disc / use method

When running the brake system to stop the spindle, first turn the knob of "Fig. 1" and "Fig. 2" to the middle to stop the motor, then switch the "**SPINDLE BRAKE**" knob to ON until the spindle Stop turning

※Do not Press the knob on brake, this action is easy to damage the electromagnetic brake.

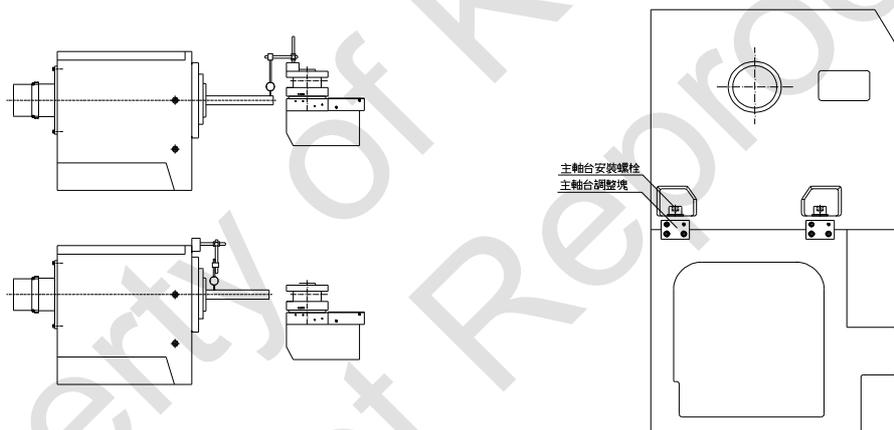
(When the button light is on "Fig. 3", it just means that the brake function has been started. To run a brake, the spindle motor needs to be stopped then running the brake system.)



C1. HEADSTOCK ADJUSTMENT

C1.1 Headstock adjustment

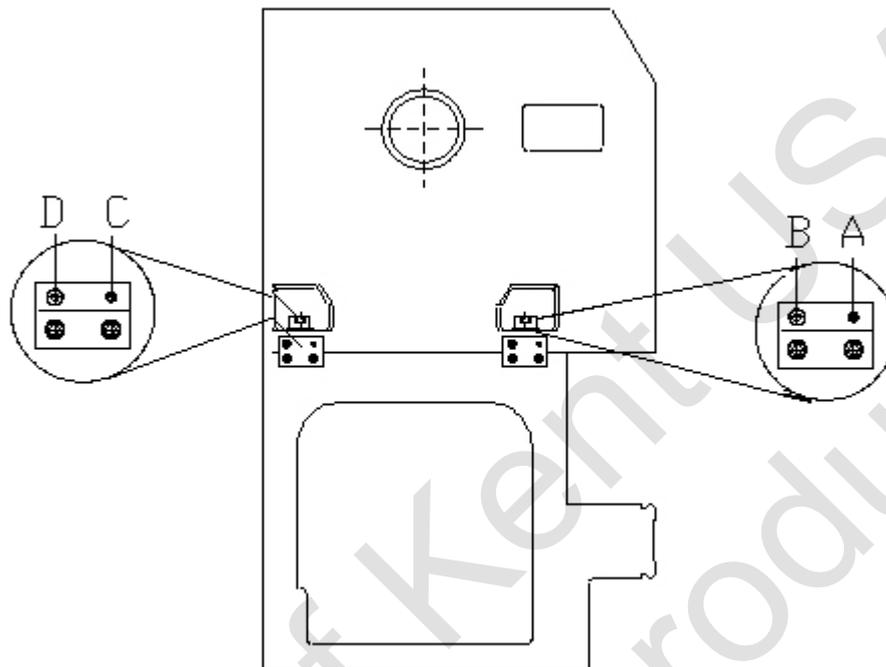
- A. When do external diameter cutting, the finish become taper precision range (300mm long/ 0.015mm) workpiece .
- B. When do external facing cutting, the finish become convex precision range (300mm long/ 0.01mm) workpiece .
- C. Put a test bar (300mm long) in spindle. Equip a indicator on tool post and make carriage move to - Z direction and check the variation.
- D. If the variation is too much. Loosen the headstock screws then move headstock. To check up the parallel if spindle and Z - axis.
- E. Lock the headstock screws and checkup the variation again.



To measure the erroneous data by indicator the loosen the found M30 nuts.

A、C : M5 screw

B、D : M8 hexagonal screw



A、C : M5 screw

B、D : M8 hexagonal screw

1. View from this side, you need to move the headstock to the right side :

step1. Loose A、D screw ◦

step2. Tighten the B screw CW (The tightening force is according to the front side indicator)

step3. Tighten the C screw CW (C、B should be match with each other)

step4. If the value of indicator is standard, you can tighten the 4 pcs M30 screw.

step5. Measure it again and tighten the A, D screw when everything is correct.

2. If you want to move the headstock to the left side, please refer following steps :

step1. Loose B, C screw

step2. Tighten the D screw CW (The tightening force is according to the front side indicator)

step3. Tighten the A screw CW ◦ (C、B should be match with each other)

step4. If the value of indicator is standard, you can tighten the 4 pcs M30 screw.

step5. Measure it again and tighten the B, C screw when everything is correct. ◦

C2. ADJUST THE TAILSTOCK

C2.1 Adjust the tailstock

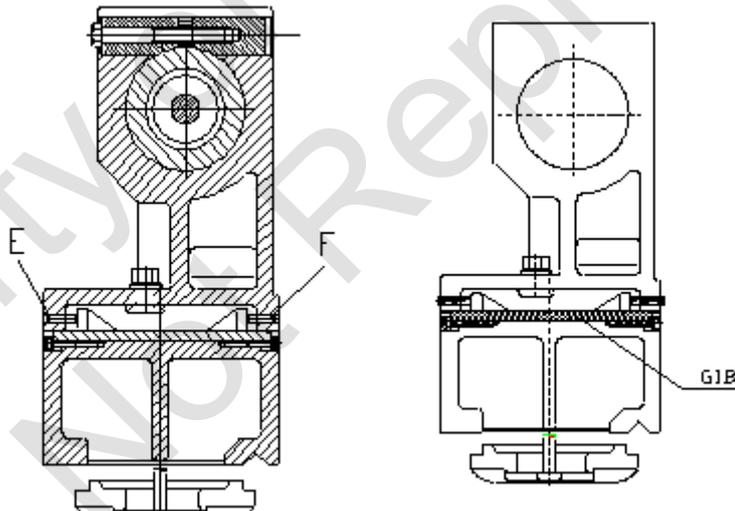
If cut long workpiece and it need steady rest to support, if the cutting result cant reach the requested linearity. It needs to adjust tailstock.

Adjusting steps:

1. Loosen the nuts "A" and "B".



2. To view from the end of tailstock. Turn screw in the direction of ccw and turn screw to the direction of cw to make tail stock move right.



C3. THE ADJUSTMENT OF BELTS TENSION

The tension of the belt which in the center of spindle motor and spindle. If press 4.6 kg pressure. The elastic distance should be about 10.9 mm.

1. If the belt is loose :

Step1. Loose the "A" nut firstly.

Step2. Tighten the "B" nut (because there is two motor bracket, you need to make sure the tension of each belt should be same when you tight the nut).

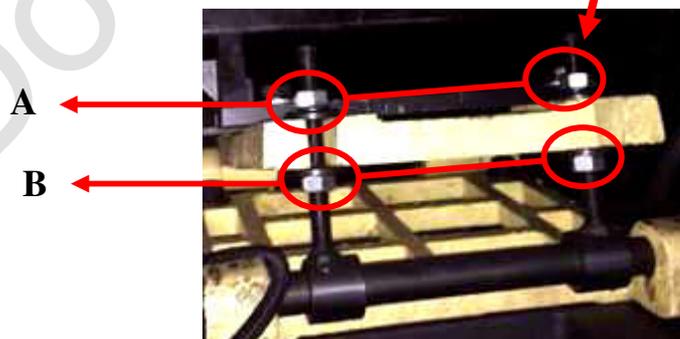
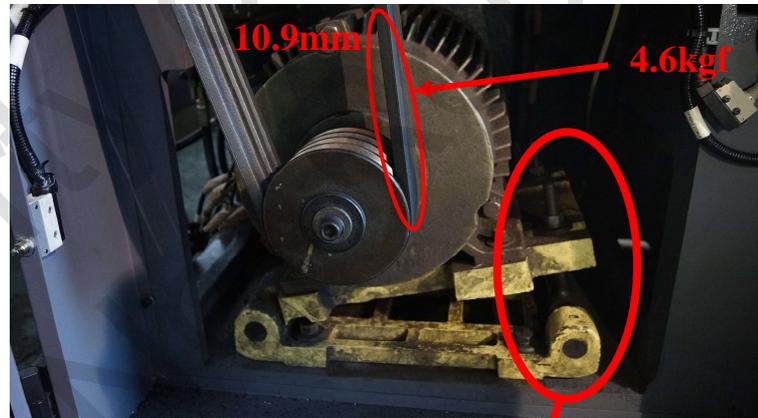
Step3. You can start the spindle low, middle, and high speed to test the belt and to see whether the belt is vibrates abnormally.

2. If the belt is tight :

Step1. Clockwise rotation to loose the "B" nut firstly

Step2. Clockwise rotation to tighten the "A" nut.

Step3. You can start the spindle low, middle, and high speed to test the belt and to see whether the belt is vibrates abnormally.



D1. MACHINE MAINTENANCE

D1.1 Notice for maintenance

1. Keep machine away from directly sunshine and heat, because they may cause precision error.
2. Install the machine at the dry and suitable ventilation place.
3. Keep machine away from crank and electrical welding machine.
4. Keep machine away from the cooling tower.
5. Do not use unknown or bad quality lubrication oil.
6. Don't use hammer to hit the work piece when loading the work piece.
7. Clean and shut down the main power when job is finished.

D1.2 Checking and maintenance plan

Checking items before turn on the power.
Hydraulic pressure gage.
Oil level meter.
All the button and switch on the control panel.
X, Z slide way and ball screw.
Maintenance item before turn off the power.
Clean chips.
Pressure checking and adjusting, if necessary.
Fill hydraulic oil and coolant, if necessary.
Clean machine guard.
Fill lubrication oil, if necessary.

1. Checking items before turn on the power.
 - A. Checking the hydraulic oil pressure and oil level for all kind of oil. Filling the specified oil if it's lower than standard level. (See the oil list)
 - B. Checking all the button and switch on the controller panel:
Inspecting all the button and switch to make sure there is no any damage to prevent any accident. Read and fully understand all the function of these switches before operating this machine. (See chapter 4 for control panel function)
2. Maintenance items after shut down the main power.
 - A. Chip cleaning: Even most of the chip will be brought out by conveyor, but may be some of the chip will stay in the corner and it might affect machine operating, so clean all the chips in the machine.
 - B. Apply lubrication oil on the slide way after cleaning chips to prevent corrosion.

CHECKING ITEMS

ITEM \ TIME	84hr	360hr	1080hr	2160hr	4320hr
Spindle precision checking					√
X , Z axes precision checking				√	√
Checking all the electrical connector, switch, button, and plug.			√	√	√
Belt tension		√	√	√	√

Note : The time is actual machine running time .

- A. Checking and record the machine precision for every season , and if the precision is out of standard , please call the dealer , agent that close to you for inspection and adjusting .
- B. If the machining precision of work piece geometry was out the standard of the tolerance, please call the dealer or agent that close to you for inspection and adjusting.
- C. Do not do any inspection or adjusting if there is any unknown condition, and please call the dealer or agent that close to you.

D1.3 Cleaning item

ITEM \ TIME	84hr	360hr	1080hr	2160hr	4320hr
CNC (The filter in the controller cabinet)		√	√	√	√
Coolant tank		√	√	√	√
Hydraulic oil tank				√	√

Note : The time is actual machine running time .

1. CNC The filter in the controller cabinet.

Clean the filter in the controller cabinet weekly, if the operating environment is dusty then the cleaning period should be reduce.

The propose is to prevent the dust stick with the connector to cause any abnormal.

2. The coolant tank.
The lubricator oil for X, Y-axis may flow into coolant tank, and it will make the coolant become contaminated. And the fallen chip from cutting will stop the coolant flow in the tank; also will make the coolant contaminated. So, the filter in the coolant tank and tank has to be clean periodical.
3. Cleaning method.
 - a. Pull the cover of the coolant tank, and pull out the filter.
 - b. Clean the coolant tank filter. And clean the entire chip at the filter location in the tank.
 - c. Put back the filter and the tank cover.
4. Coolant tank cleaning procedure.
 - a. Disconnect the coolant hose and coolant pump power line.
(Disconnect the chip conveyer power line beneath the power cabinet, if chip conveyer is installed)
 - b. Move the coolant tank out from the machine. Remove the chip tank or chip conveyer, and pull out the tank cover and filter, Remove the drain plug, clean the coolant tank and filter.
 - c. Install all the disassembly parts by opposite sequence, and push back the coolant tank.
 - d. Connector the oil-water separator, and connect the pump power line.
Fill up the coolant about 70% of the volume.
 - e. Clean the coolant tank everyday. Caution: Turn off the main power before clean the coolant tank.
5. Hydraulic oil tank.
 - a. The hydraulic oil tank is located at the rear of the machine. Clean and maintenance the hydraulic system periodically.
 - b. Loosen the drain plug to leak all the oil.
 - c. Loosen all the bolts on the cover, and remove the cover.
 - d. Clean the bottom of the oil tank.
 - e. Clean the filter by using the high-pressure air. (Do not use acid cleaner.)
 - f. Clean the filter by using hydraulic oil.
 - g. Install the filter, cover, and fill cab.
 - h. Fill up the new hydraulic oil. (About 21.1 gallons)

EXCHANGE ITEM.

ITEM \ TIME	84hr	360hr	1080hr	2160hr	4320hr
Exchange hydraulic oil					√
Exchange the coolant)		√	√	√	√

Note: The time is actual machine running time.

Exchange the hydraulic oil Clean the oil tank before refill the new oil.
Please see page 87 suitable oil.

D1.4 Cutting Water maintenance

Fill up the lubrication oil tank for X, X-axis ball screw and slide way.
X, Z-axis central lubrication system.

- a. The transmission system of the X, Z-axis is connected to a 10mm pitch ball screw to make saddle moving on the slide way. And the purpose of the lubrication system is to reduce the friction and temperature.
- b. If the friction is too high, reduce the time period of pumping the lubrication oil to prevent temperature goes high.
- c. See oil list Page 13 for X, Z-axis ball screw.
The conditions when lubrication oil is not enough.
- d. Because this machine is more heavy-duty model, and the cutting time usually is longer. If the lubrication oil level is too low, the alarm will be warning and hold the machine. When the tank is filled up, the machine will keep going by press the Cycle Start pushbutton.
Machine leveling.
- e. It's very important to keep machine's leveling. Adjusting the leveling after 3 month for new machine. And then change to one time every year.

D1.5 Oil maintenance

1. If the oil in the coolant become milk color, it's necessary to remove the water from the oil.
2. The hydraulic oil will damage the machine when the oil is too dirty, and exchange new oil periodically.
3. Keep the filter at the suction side of the pump clean, and doing maintenance periodically.
4. The wear out wash the main reason of leakage, change a new washer if it's leaking.
5. Turn on the switch of the hydraulic oil bypass line to let the air out. It can prevent the noise and vibration.

D1.6 Recommend oil

BRAND \ TYPE	G68	HL32
Mobil oil	Mobil Vactra oil NO.2	Mobil DTE oil Light
Shell oil	Shell Tonna oil T68	Teresso 32
Esso Standard oil	Febis K68	Shell Terrus oil C32
Mitsubishi oil	Diamond Slideway 68	Diamond Lube R032
Nippon oil	Uniway 68	FBK oil R032
Kyodo oil	Kyoseki Slidus 68	Kyoseki RIXT Turbine 32
Idemitsu oil	Daphny Multiway 68C	Daphny Hydraulic Fluid32
Showa oil	Shows A-R68	Shows J-H32
CPC	Slideway oil 68	Hydraulic R32 Hydraulic R32AW

Note: Please use the above recommend oil . Do not use the wrong oil.

Note:

Spindle gear box use: HL32.

A track use: G68.

Tailstock: G68.

Lubrication pump: G68.

Headstock: HL32.

Quill pressure gage: G68.

D1.7 Oil list

Lubrication	Spindle gear in headstock	Slide way and ball screw	Hydraulic system
Oil characteristics	Viscosity ISO VG32 Viscosity degree 95 Anti-corrosion, anti-foaming. Anti-emulsification, anti-oxidation.	(Viscosity) ISO VG682 (Viscosity degree) 100 Anti-corrosion, anti-foaming. Anti-emulsification, anti-oxidation.	(Viscosity) ISO VG32 (Viscosity degree) 95 Anti-corrosion, anti-foaming. Anti-emulsification, anti-oxidation.
Lubrication Way	Cycling	Central lubrication	Cycling
Period	Exchange once per year	Fill up all the time	Exchange once per year
Tank volume	13.2 - 15.8 Gallons	1.05 Gallons	21.1 Gallons
Recommend oil	Brand Mobil oil Shell oil Esso Standard oil Mitsubishi oil Nippon oil Kyodo oil I de mitsu oil Showa oil	Brand Mobil oil Shell oil Esso Standard oil Mitsubishi oil Nippon oil Kyodo oil I de mitsu oil Showa oil	Brand Mobil oil Shell oil Esso Standard oil Mitsubishi oil Nippon oil Kyodo oil I de mitsu oil Showa oil

E1. THE CUTTING CONDITION FOR HARD MATERIAL

E1.1 Cutting condition for the drill

Material	Symbol	Feed Rate 0.2-0.5 mm/rev		Feed Rate 0.05-0.2 mm/rev	
		Cutting Speed Ft / min	Tool	Cutting Speed Ft / min	Tool
Construction Carbon Steel	S20C - S30C	459 - 590	P20	492 - 754	P10
	S35C - S45C	328 - 459		393 - 623	
	S50 C	229 - 328		262 - 459	
Steel Bar	S20CD - S50CD	229 - 328		262 - 459	
Alloy Steel	SCN1 - SCN3	229 - 328	P10	262 - 459	
Stainless Steel	SUS24	196 - 328	M10	262 - 459	M10
	SUS27 - SUS33	131 - 229	M20	262 - 459	
Heat Resisting Steel	SEH1 - SEH5	131 - 229	P40	229 - 328	
Malleable Carbon Steel	SF40 - SF50	459 - 590	P20	492 - 754	P10
	SF55 - SF60	328 - 459	P30	393 - 623	
Cast Steel	SC42 - SC49	328 - 393	P20	393 - 590	P10
Alloy Cast Steel	SCA1 - SCA23	196 - 328		229 - 393	
	SCA31	164 - 262		229 - 328	
	SCA41 - SCA24	196 - 328		229 - 393	
Stainless Cast Steel	SCS1 - SCS15	164 - 262	M20	229 - 459	M20
Heat Resisting Cast Steel	SCH1 - SCH2	196 - 295		229 - 393	
	SCH11 - SCH13	164 - 262	196 - 328		
Gray Cast Steel	FC20	229 - 360		262 - 426	
	FC25 - FC30	196 - 328		262 - 426	
Copper Bronze Cast	BC2 - BC7	328 - 656	K10	656 - 1148	K10
Aluminum	AC3A - F	656 - 1312		984 - 1640	
Alloy Cast	AC4A-F-AC7B-T4	2624 - 2952		2624 - 3937	
Wood		984 - 1968	K10,K20	1148 - 1968	K10 , K20

CUTTING CONDITION OF THE DRILL FOR THESE MATERIAL

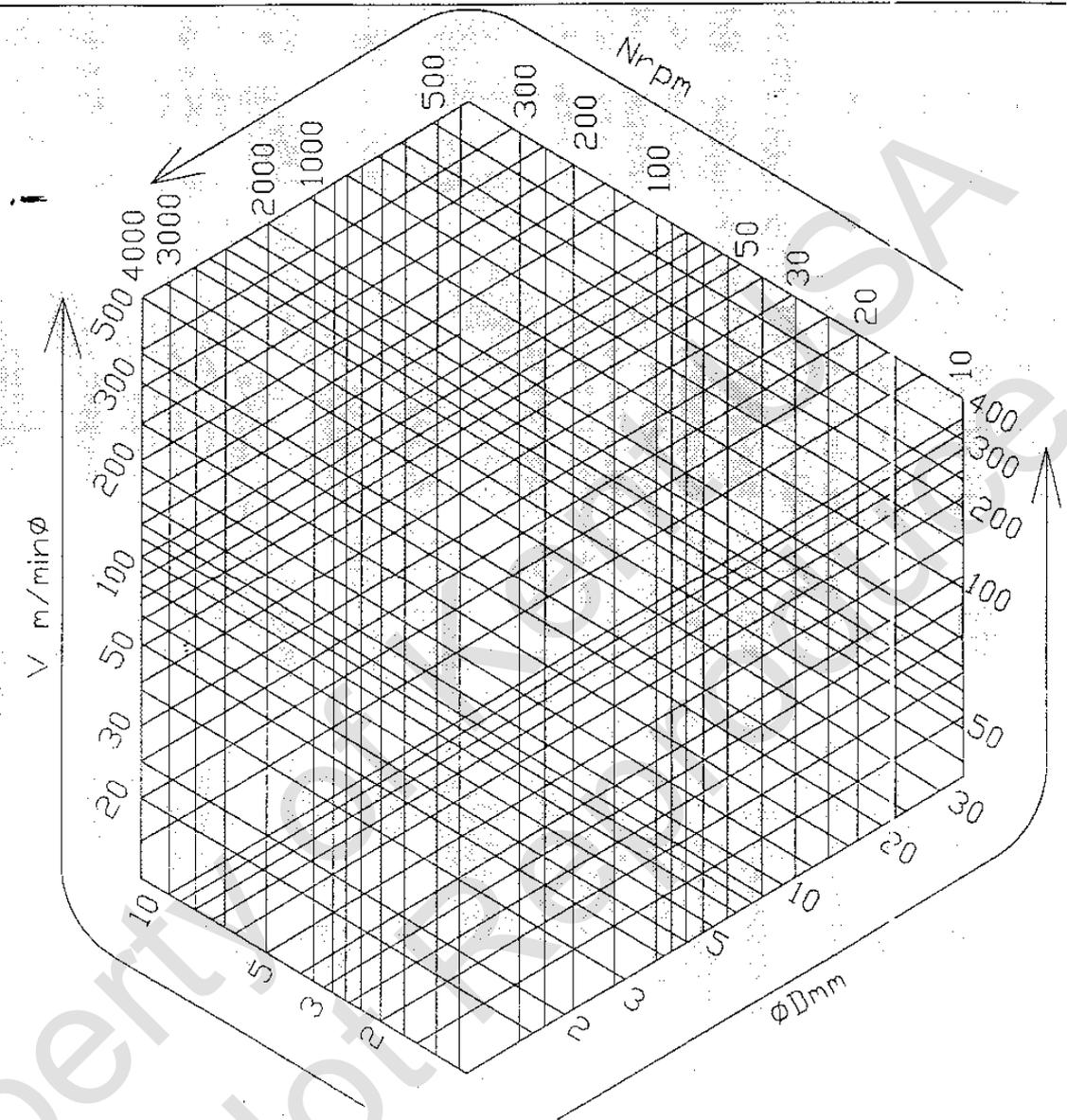
Material		Cutting Speed Ft/min
Carbon Steel	0.4C >	78.7 - 108.2
	0.4C - 0.7C	59 - 78.7
	0.7C <	39.3 - 59
Alloy Steel	60 kg/mm ²	49.2 - 59
	60 - 80 kg/mm ²	29.5 - 49.2
	80 kg/mm ²	16.4 - 29.5
Stainless Steel	Martensitic	32.8 - 65.6
	Ferritin	49.2 - 59
	Austenitic	16.4 - 49.2
Manganese	12 - 14%	11.48 - 14.7
Plastic		98.4 - 295.2

Material	Cutting Speed Ft/min
Aluminum Alloy	196.8 - 295.2
Copper Bronze	147.6 - 246
Magnesium, Magnesium Alloy	73.8 - 147.6
Manganese Sodium Alloy	196.8 - 393.7
Nickel Steel	29.5 - 49.2
Blister Steel	29.5 - 49.2
Zinc Alloy	147.6 - 262.4
Brass	147.6 - 295.2
Gunmetal	196.8 - 246
Tool Steel	26.2 - 72.1
Nimonic	19.6 - 29.5

STANDARD FEED RATE OF THE DRILLING

Drill Diameter	Feed rate in/rev	
	Steel	Stainless Steel
1.6 - 3	0.127 - 0.1524	0.127 - 0.2032
3 - 4	0.127 - 0.254	0.1524 - 0.381
4 - 5.5	0.2032 - 0.381	0.254 - 0.5842
5.5 - 8	0.254 - 0.5842	0.254 - 0.762
8 - 11	0.381 - 0.635	0.4826 - 0.889
11 - 14.5	0.508 - 0.762	0.635 - 1.143
14.5 - 17.5	0.5842 - 0.8382	0.7112 - 1.524
17.5 - 20.5	0.635 - 0.9144	0.7874 - 1.3462
20.5 - 24	0.7112 - 0.9652	0.8636 - 1.4224
24 - 28.5	0.762 - 1.016	0.9652 - 1.524
28.5 - 38	0.889 - 1.2446	1.1176 - 1.7272
38 <	1.016 - 1.27	1.27 - 1.778

E1.2 Cutting speed



$$V = \frac{\pi \cdot D \cdot N}{1000}$$

V = Cutting speed (m/min)

D = Diameter (mm)

N = Spindle speed (rpm)

E2. ELECTRIC MANUAL

電路圖ELECTRIC DIAGRAM

機台號碼 MACHINE NO. : LA203406009

機台型號 MACHINE MODEL: LA-34120

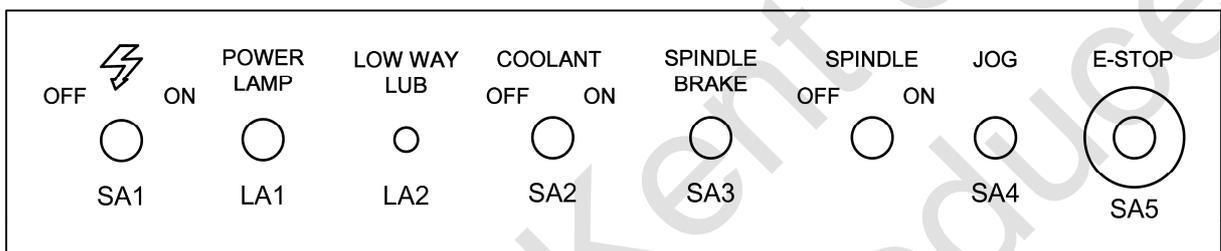
圖 號 DIAGRAM NO. : G900

審 查 CHECKED : 張瑞良 2019.05.22
17:18:15
+08'00'

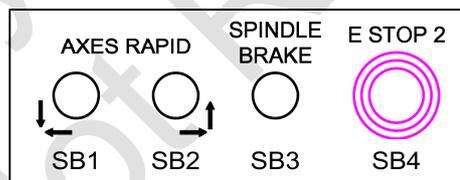
製 圖 DRAWN :

電路圖 1/4
ELECTRIC MANUAL 1/4

CONTROL PANEL FOR HEADSTOCK

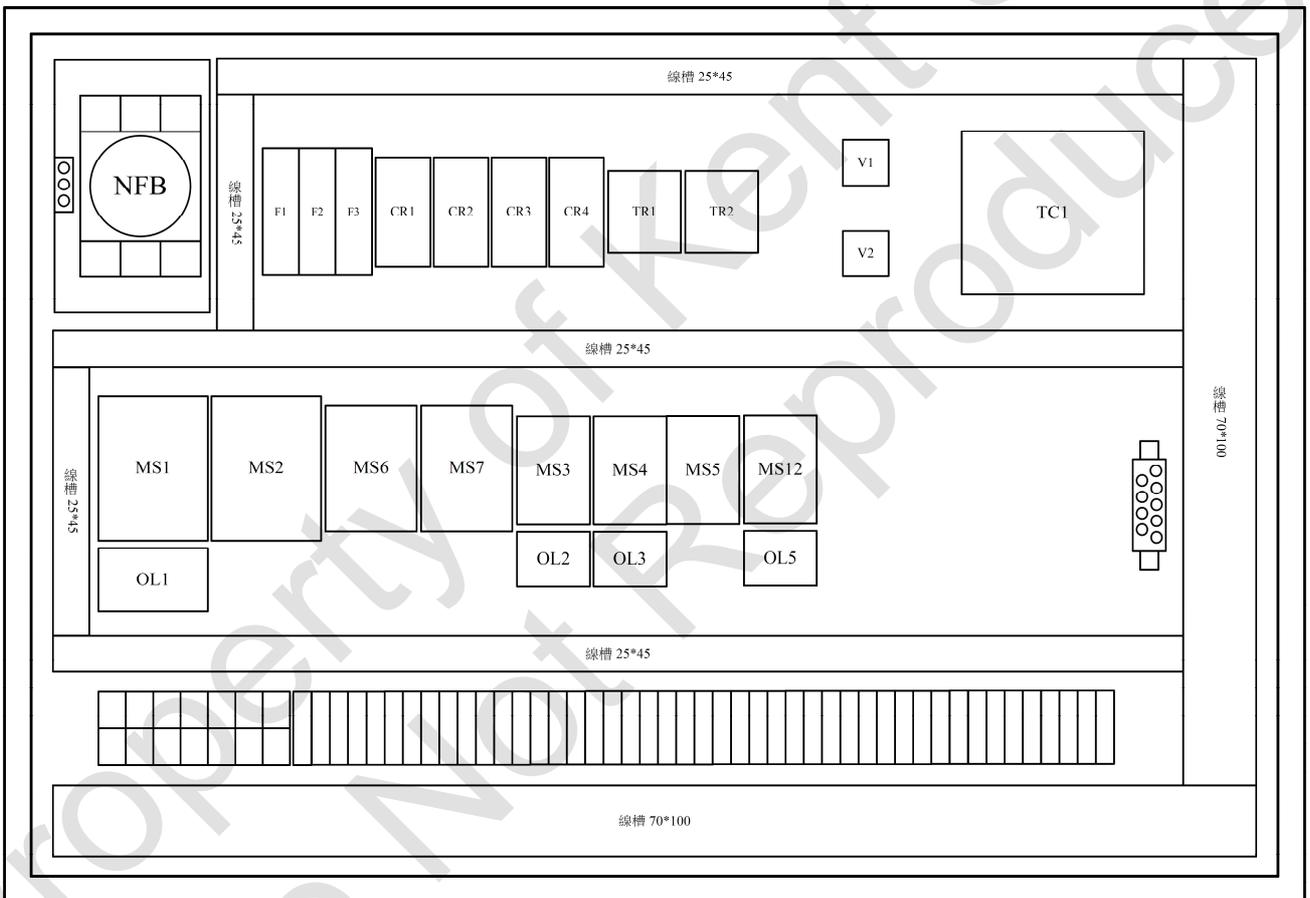


CONTROL PANEL FOR CARRIAGE

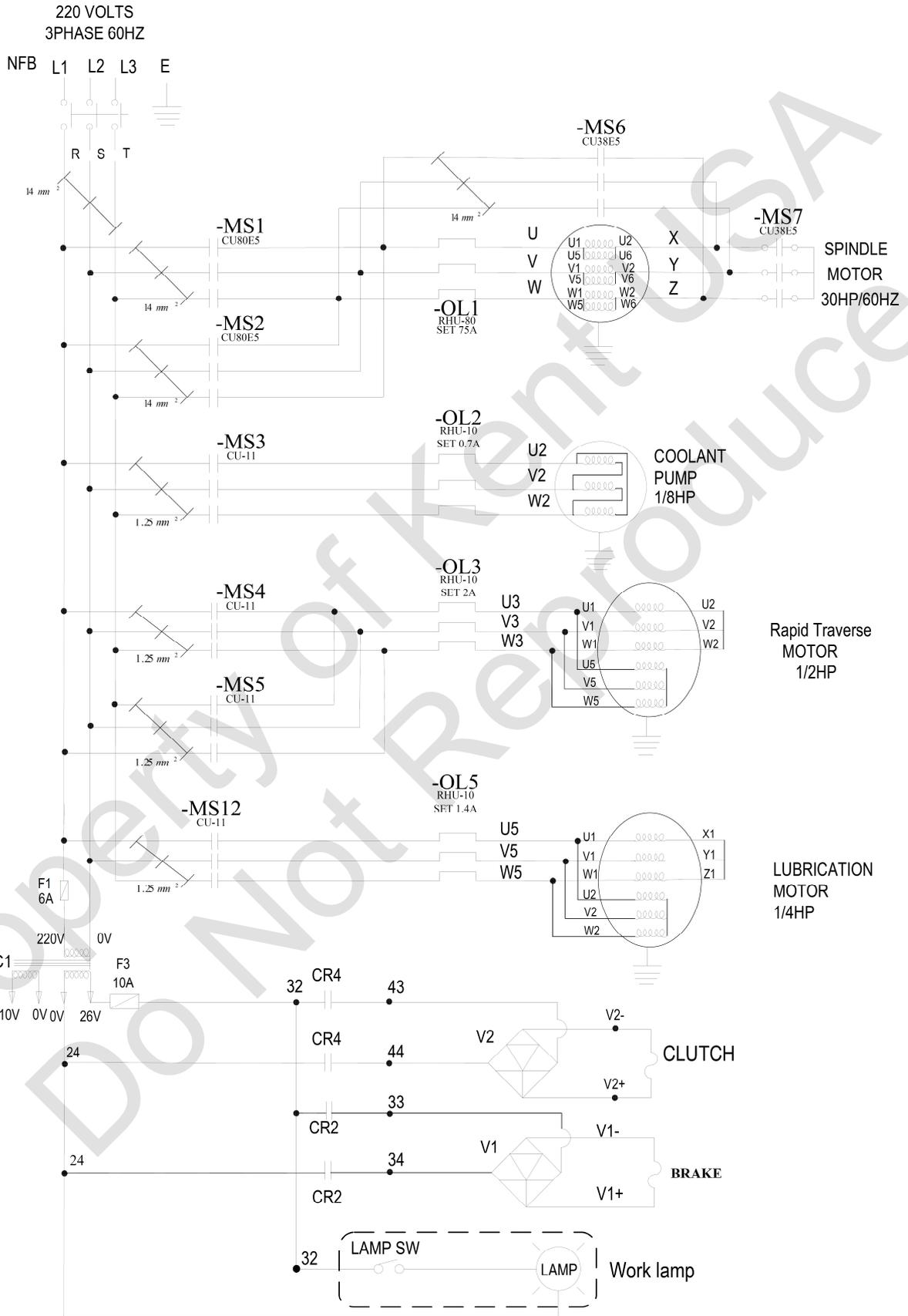


電路圖2/4

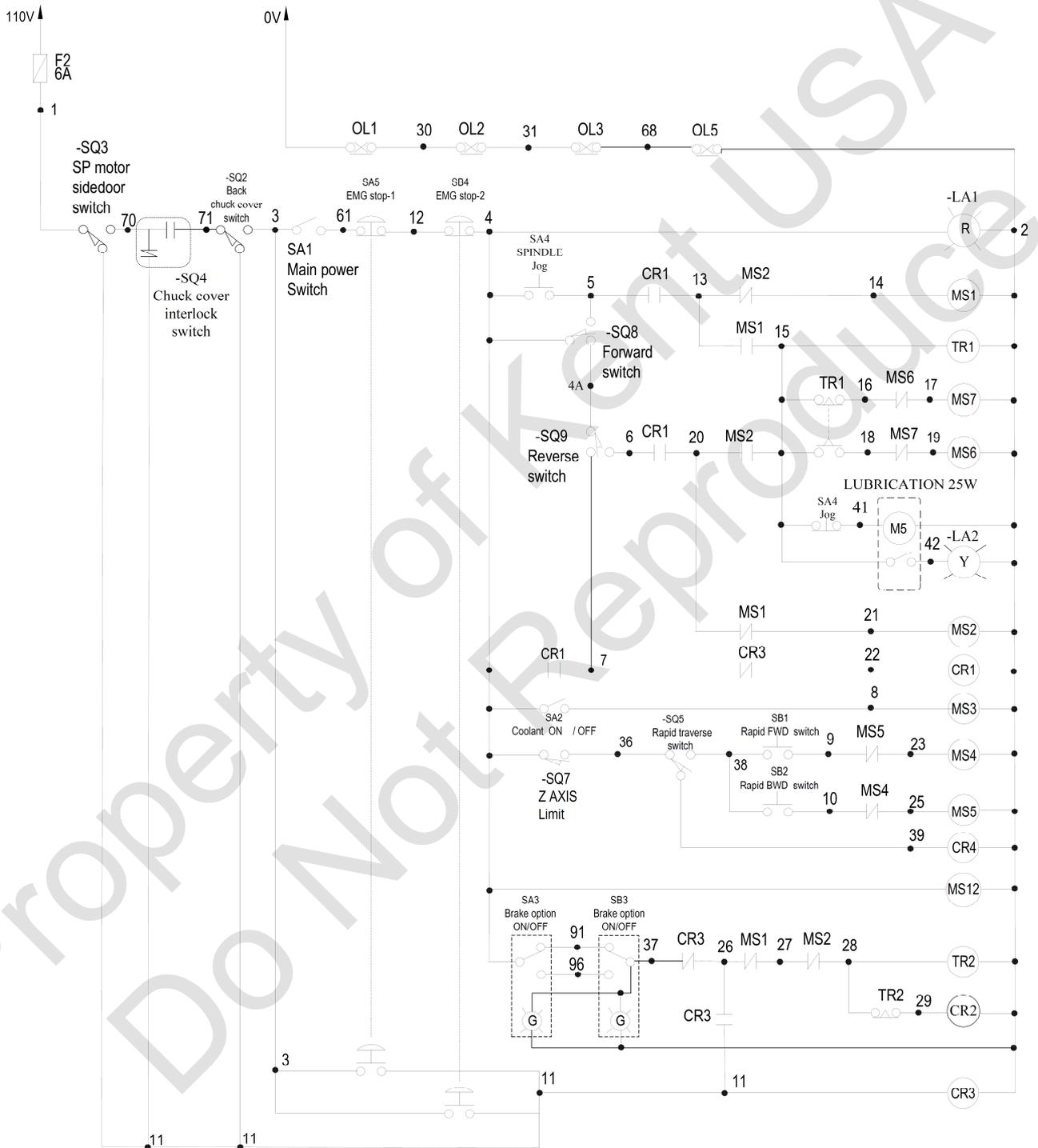
ELECTRIC MANUAL 2/4



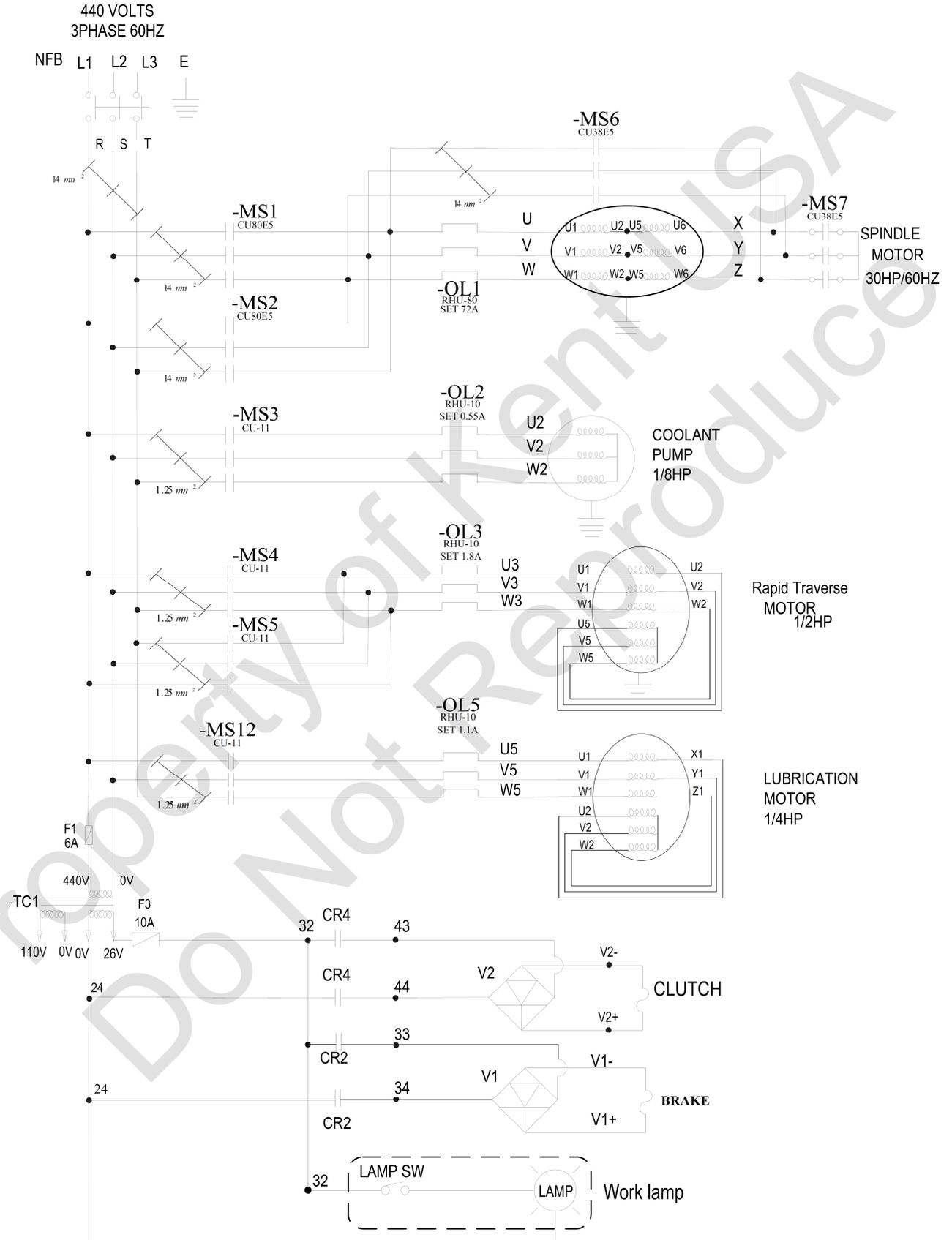
ELECTRIC MANUAL 3 / 4



ELECTRIC MANUAL 4 / 4



ELECTRIC MANUAL 3 / 4 (OPTION)



E3. MAINTENANCE TIME

E3.1 Daily maintenance

1. Check the oil level and lubrication level, supply the oil when the level is low.
2. Keep the machine clean after the operation is finished and to do anti-rust process for slide way everyday.
3. If the machine's temperature goes abnormal high stop the machine immediately and checking.
4. During machine running, if the electrical connector, switch, plug were loose, or there were fire spark, high temperature, then the machine has to be stopped immediately and checking.

E3.2 Weekly maintenance

1. Washing air filter (4 Pcs) by cleaner. Keep the filter clean.
2. Make the spindle rotating and check to see if it make noise or not?
3. Check over the hydraulic oil, and central lubrication system.
4. Make sure the turret rotate smoothly.

E3.3 Six - month maintenance

1. Check over all the screws and bolts to make sure they are not loose.
2. Check over all the electrical connector, plug, switch to make they are not abnormal.

E3.4 Annual maintenance

1. Check over all the switch on the control panel.
2. Clean all the connector of the relay in the electrical cabinet by industrial alcohol.
3. Check over the chain of the counter balance.
4. Clean the coolant tank and replace new coolant.
5. Clean the hydraulic oil tank and replace new hydraulic oil, and check over pressure setting device.
6. Re-correct the level of machine for the precision of this machine.

E3.5 Maintenance caution item

1. If the fuse F4 - F6 of the AC servo motor controller were burned, then fuse F1-F3 must be burned, too! Remember exchange F1-F3 at the same time.
2. Shut down the main power before take off any PC board in the controller cabinet, otherwise it might cause motor lose control to make damage.

F. SAFETY PRECAUTIONS

In order to prevent any accident on the operator and keep machine running normally, here are some precautions have to be followed when operating the machine.

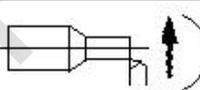
1. Use the safety equipment, such as safety glasses to protect the eyes, and also safety shoes.
2. Operator should wear suitable working cloth instead of wearing the loose fitting clothing when operating the machine.
3. If the operator has long hair, he has to put on the hat to prevent the hair be rolled into the machine.
4. Do not put on the gloves when operating the machine.
5. There should have enough light on the machine, and keep the environment clean around the machine.
6. Do not use compressed air to clean chip and dust that close to the NC controller cabinet either leave the tool or workpiece on the machine.
7. Do not shift the limit switch of all axes or other safety mechanism.
8. The location of “Emergency Stop” push-button should be well known so that it can be easily operated in case the accident occurs.
9. Do not expose any part of your body into the moving range of the machine during operation.
10. Cleaning the chip is permitted only when the machine is stopped and using iron hook instead of your own hands without any tool.
11. The machine has to be stopped when adjusting the coolant nozzle or tools is needed.
12. When daily job is done, please clean the machine and apply anti-rust oil on the sliding surface, then shut down the main power.
13. All axes’ zero return is necessary when first turning on the machine or the “Emergency Stop” is pressed.
14. Do not remove the travel limit switch or safety interlock, either changing the circuit connection.
15. Clean the filter of the electrical cabinet monthly.
16. Do not try to touch any device in the high voltage cabinet before you fully understand these devices.
17. Do not changing any parameter setting in the NC controller, otherwise the incorrect changing will cause the abnormal.
18. To prevent the chip or dirty get into the NC controller or high voltage cabinet, otherwise it might cause the breakdown.

G. ATTACHMENTS

G1.1 THREAD / FEED CHART

		IN 										MM 									
		1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10
	AC	16	18	19	20	22	23	24	26	28	30	1			1.25			1.5		1.75	
	AD	8	9	9 $\frac{1}{2}$	10	11	11 $\frac{1}{2}$	12	13	14	15	2	2.25		2.5	2.75		3	3.25	3.5	3.75
	AE	4	4 $\frac{1}{2}$	4 $\frac{3}{4}$	5	5 $\frac{1}{2}$	5 $\frac{3}{4}$	6	6 $\frac{1}{2}$	7	7 $\frac{1}{2}$	4	4.5	4.75	5	5.5	5.75	6	6.5	7	7.5
	BD	2	2 $\frac{1}{4}$	2 $\frac{3}{8}$	2 $\frac{1}{2}$	2 $\frac{3}{4}$	2 $\frac{7}{8}$	3	3 $\frac{1}{4}$	3 $\frac{1}{2}$	3 $\frac{3}{4}$	8	9	9.5	10	11	11.5	12	13	14	15
	BE	1	1 $\frac{1}{8}$	1 $\frac{3}{16}$	1 $\frac{1}{4}$	1 $\frac{5}{8}$	1 $\frac{7}{16}$	1 $\frac{1}{2}$	1 $\frac{5}{8}$	1 $\frac{3}{4}$	1 $\frac{7}{8}$	16	18	19	20	22	23	24	26	28	30
	BD	$\frac{1}{2}$	$\frac{9}{16}$	$\frac{19}{32}$	$\frac{5}{8}$	$\frac{11}{16}$	$\frac{23}{32}$	$\frac{3}{4}$	$\frac{13}{16}$	$\frac{7}{8}$	$\frac{15}{16}$	32	36	38	40	44	46	48	52	56	60
	BE	$\frac{1}{4}$	$\frac{9}{32}$	$\frac{19}{64}$	$\frac{5}{16}$	$\frac{11}{32}$	$\frac{23}{64}$	$\frac{3}{8}$	$\frac{13}{32}$	$\frac{7}{16}$	$\frac{15}{32}$	64	72	76	80	88	92	96	104	112	120

		DP 										MP 									
		1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10
	AC	64	72	76	80	88	92	96	104	112	120	0.25						0.375			
	AD	32	36	38	40	44	46	48	52	56	60	0.5			0.625			0.75		0.875	
	AE	16	18	19	20	22	23	24	26	28	30	1	1.125		1.25	1.375		1.5	1.625	1.75	
	BD	8	9	9 $\frac{1}{2}$	10	11	11 $\frac{1}{2}$	12	13	14	15	2	2.25	2.375	2.5	2.75	2.875	3	3.25	3.5	3.75
	BE	4	4 $\frac{1}{2}$	4 $\frac{3}{4}$	5	5 $\frac{1}{2}$	5 $\frac{3}{4}$	6	6 $\frac{1}{2}$	7	7 $\frac{1}{2}$	4	4.5	4.75	5	5.5	5.75	6	6.5	7	7.5
	BD	2	2 $\frac{1}{4}$	2 $\frac{3}{8}$	2 $\frac{1}{2}$	2 $\frac{3}{4}$	2 $\frac{7}{8}$	3	3 $\frac{1}{4}$	3 $\frac{1}{2}$	3 $\frac{3}{4}$	8	9	9.5	10	11	11.5	12	13	14	15
	BE	1	1 $\frac{1}{8}$	1 $\frac{3}{16}$	1 $\frac{1}{4}$	1 $\frac{5}{8}$	1 $\frac{7}{16}$	1 $\frac{1}{2}$	1 $\frac{5}{8}$	1 $\frac{3}{4}$	1 $\frac{7}{8}$	16	18	19	20	22	23	24	26	28	30

INCH 										FEED 									
1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10
.006	.005	.005	.004	.004	.004	.004	.003	.003	.003	AC									
.012	.010	.010	.009	.008	.008	.008	.007	.006	.006	AD									
.024	.021	.020	.019	.017	.016	.016	.014	.013	.012	AE	IN								
.048	.042	.040	.038	.035	.033	.032	.029	.027	.025	BD									
.096	.084	.080	.076	.070	.067	.064	.059	.054	.051	BE									
0.15	0.13	0.12	0.12	0.11	0.10	0.10	0.09	0.08	0.08	AC									
0.30	0.27	0.25	0.24	0.22	0.21	0.20	0.18	0.17	0.16	AD									
0.60	0.54	0.50	0.48	0.44	0.42	0.40	0.37	0.34	0.32	AE	MM								
1.21	1.08	1.01	0.97	0.89	0.85	0.81	0.75	0.68	0.64	BD									
2.43	2.16	2.03	1.95	1.79	1.70	1.63	1.50	1.37	1.29	BE									