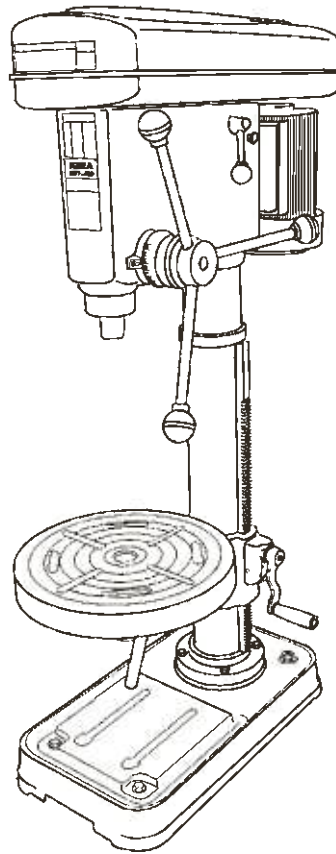


KIRA

Bench type Tapping & Drilling Machine KRT-420 INSTRUCTION MANUAL



▲ CAUTION



- ◆ *This instruction manual includes important information for using the KRT-420 properly and safely.
Be sure to read and understand this document before using the bench type tapping and drilling machine.*

KIRA CORPORATION




DOC1-5C-EOM10-3

PREFACE

Thank you for purchasing the Model KRT-420 KIRA Tapping & Drilling Machine. This instruction manual uses a number of illustrations to help your understanding. Be sure to read and understand the instruction manual before starting the KRT-420 operations. Place the manual in a location where it can be accessed whenever necessary.

SIGNAL WORDS

The signal words as used in this instruction manual and on the KRT-420 represent the following three levels of hazards:







 DANGER
◆ <i>Indicates an imminently hazardous situation which, if not a voided, will result in death or serious injury.</i>
 WARNING
◆ <i>Indicates a potentially hazardous situation which, if not avoided, could result in death or serious Injury.</i>
 CAUTION
◆ <i>Indicates a potentially hazardous situation which, if not avoided, many result in minor or moderate injury, or property damage to the equipment.</i>







NOTE

Indicates something that must be considered in handling the equipment.

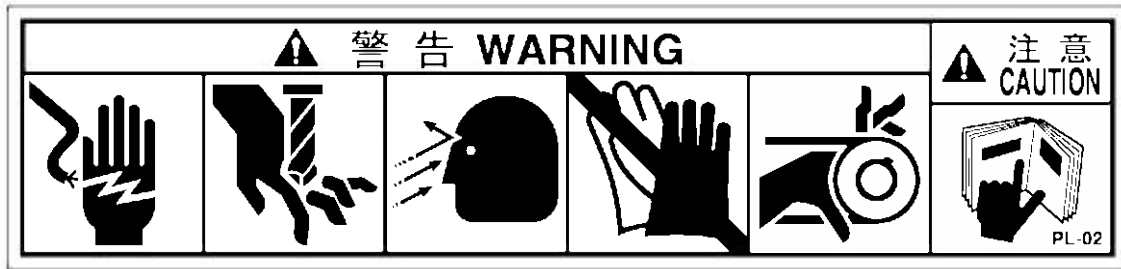
ICONS

This instruction manual uses the following icons to raise your attention:

Caution (including Danger and Warning)		Electric shock
		Injured by spindle or tool
		Flied out
		Caught in rotating part
		Fire
		Get caught in belt

Caution		Other general cautions
	Prohibition	
		Do not disassemble
		Do not wear gloves
Compulsion		Refer to instruction manual
		Ground

DESCRIPTION OF SIGNAL-WORD LABELS



[Risk of electrical shock]

High voltage runs in the electric control cabinet. Getting an electric shock may result in death.

Therefore, before opening the door on the electric control cabinet, be sure to shut off the main power.



[Warning of electrical shock label]

There might be had an electric shock because high voltage runs in the electric control cabinet if the control panel is opened carelessly or is attached with a wet hand.

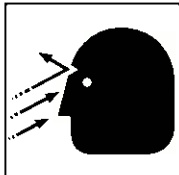
Don't open or remove the portion which is attached this label.



[Risk of injured by spindle]

The spindle has a sharp cutter that rotates at a high speed. Touching the spindle during its rotation results in serious injury like severing. Therefore, do not put your hand or foot close to the rotating spindle.

Even if the spindle stops, do not touch it with a bare hand.



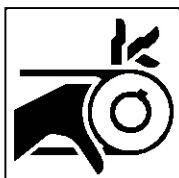
[Risk of eye injury]

"Chips / cutting oil / broken tools" are scattered during processing. There is a chance to injuring eyes or face. The protection glasses must be worn while operating machine.



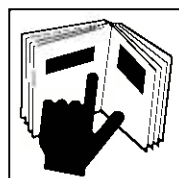
[Must not wear gloves while operating machine]

There is a chance to be injured by the rotating objects of machine pulls or rolls up the glove.



[Must not operating machine without covers]

There is a chance the rotating belt catches fingers or hands, if operate machine with opening cover etc. If the fingers or the hands are stuck in the belt, stop the machine immediately and turn off the main power. Then rotate the belt by hand in order to release the stuck fingers or hands. Turn off main power when open cover etc.



[Be sure to read and understand the contents of this manual before operating]

Improper operations may cause unexpected accidents or machine malfunctions. If the Instruction Manual is lost, please contact your dealer for purchasing new one.

LOCATIONS FOR STICKING SIGNAL-WORD LABELS

⚠ DANGER

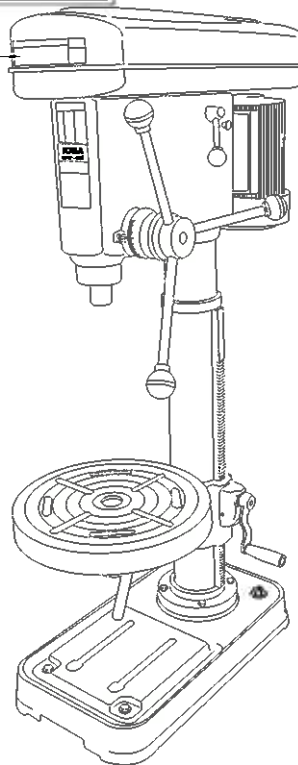
◆ Do not use the equipment when any of its signal-word labels is partially or totally broken, peeled off, or has a faded color. This may result in serious damage.

- * Two different kinds of warning label is stuck on the equipment.
- * If the warning label is broken, peeled, or discolored, contact your dealer with its label number.

LABEL No.: PL-02



【Model】 KRT- 420



POWER-SEAL-M

SAFETY PRECAUTIONS

⚠ DANGER



- ◆ The main power must be shut down, before opening the door on the electric control cabinet.
- ◆ Do not operate switches by a wet hands.

⚠ WARNING



- ◆ Do not touch the spindle or chips during the operation.
Especially the cutter is very sharp. Do not touch it, even if the spindle is not rotating.



- ◆ Do not approach all fours to belt while rotating, may be caught in the belt.
- ◆ Do not operate machine with opening cover etc.
- ◆ Be careful not to punch hand between pulley and belt while belt changing operation.
- ◆ Turn off main power when open cover etc.



- ◆ Do not wear the gloves during operation.
Your gloves and hands may get stuck in the rotating part of the machine.



- ◆ The KRT-420 may suddenly start moving after it temporarily stops during the operation.
Therefore, do not access the equipment without verifying its present state.

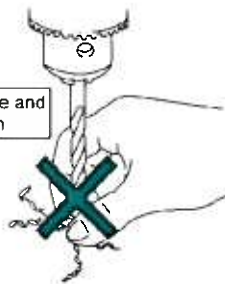


- ◆ If cutting oil attaches to your working wear, clean it off because it may catch fire.
- ◆ Exercise care in handling cutting oil. For example, in order to prevent fire occurring with cutting oil, do not use water-insoluble cutting oil when carrying out operation.
If the floor is made of wood, use sufficient care for fire because it is liable to catch fire. And please confirm the location of fire extinguisher before operation start.

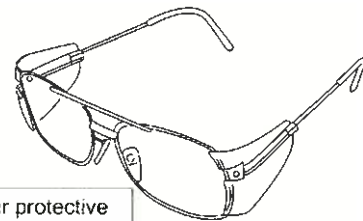


- ◆ To remove chip stuck on a tool, stop the spindle; checking that its rotation has completely stopped; and then brush off the chip while wearing protective glasses, and please do not touch cutting chips barehanded.

Not touching spindle and chip while operation

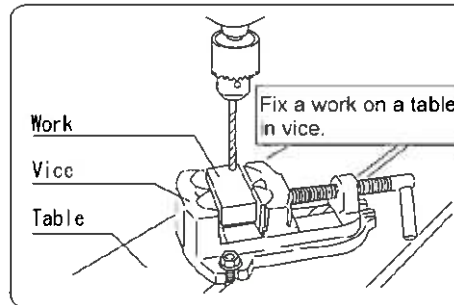


Wear protective glasses and work



 **WARNING**


- ◆ Be sure to fix the workpiece to the table using a vise, etc.
If machining is carried out without fixing the workpiece, it would be rotated or lifted up to cause very dangerous situation.



- ◆ Please be careful to the handling of a work. Letting it fall on your foot will result in a bone fracture or a similar injury.



- ◆ Be sure to ground the equipment.
But, do not connect the grounding to the gas pipe and steel frame which have insufficient grounding.



- ◆ Be sure to connect the wire of power to the power supply in which a leakage breaker is set.
- ◆ Do not install the drilling machine outdoors, in the location where is much moisture, where is splashed by water, or where is exposed to direct sunlight.
- ◆ Do not use the machine in the location where is flammable liquid or gas.



- ◆ Confirm the position of button to stop spindle rotation immediately.
- ◆ Stop the machine and shut off the power before "Maintenance & inspection" or "Changing tool, cutter or fixture".
If any hazardous situation may be predicted, also shut off the power.
- ◆ Set up the caution plate in a conspicuous place around the service panel and the control box while working in order to prevent somebody turns on the power suddenly.



- ◆ Install the tooling and the cutter firmly to the normal position by appropriate procedures. Loosely or too much tighten is dangerous. Follow the procedures mentioned in manual.



- ◆ Before turning ON the power, check that the maintenance tools such as chuck handle, wrench, center drift etc. have been removed.

 **CAUTION**


- ◆ Be sure to follow the instructions given in this document, including the operation guidelines.
- ◆ Do not use the KRT-420 for any purpose other than specified in manuals.
- ◆ Do not use the machine over cutting capacity.
- ◆ This model is vertical type, and install to strong working table etc to prevent overturning.



- ◆ Do not carry out disassembling or modifying by yourself.
- ◆ Use the KRT-420 at the specified frequency and voltage.



- ◆ Check no damage on covers and other parts before operation.
- ◆ Clean up the machine and wipe up the cutting oil around the machine after operations. Then add the lubrication oil to the designated points.
- ◆ Perform maintenance / inspection regularly.



- ◆ Making operations with wearing appropriate clothes, safety shoes, safety glasses and other protective equipment.

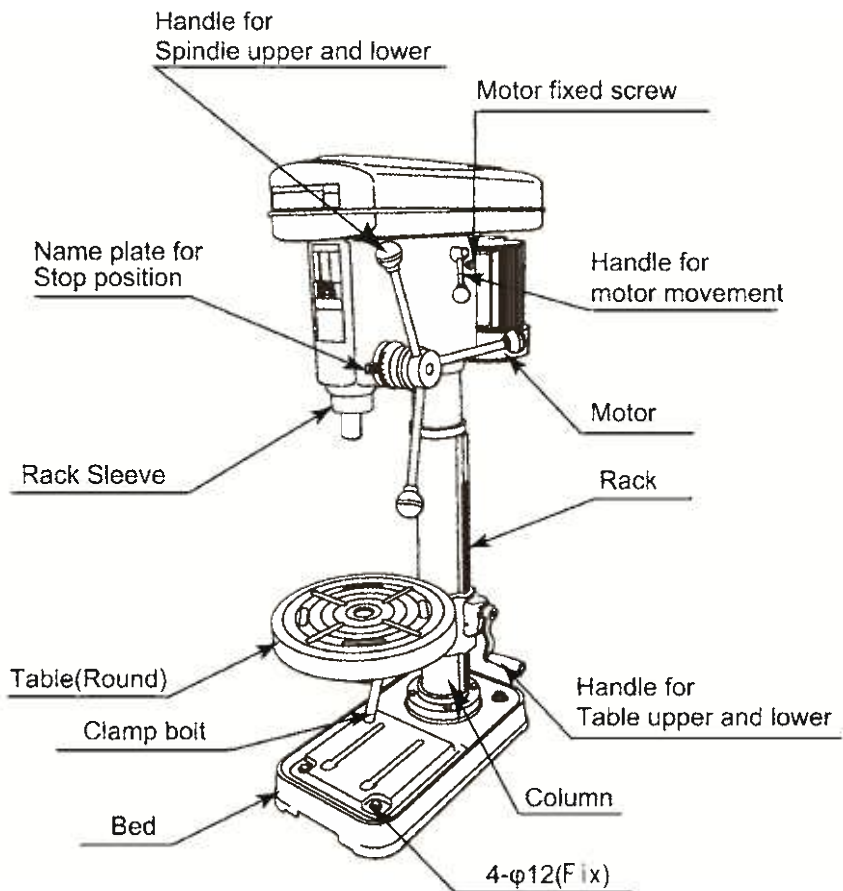
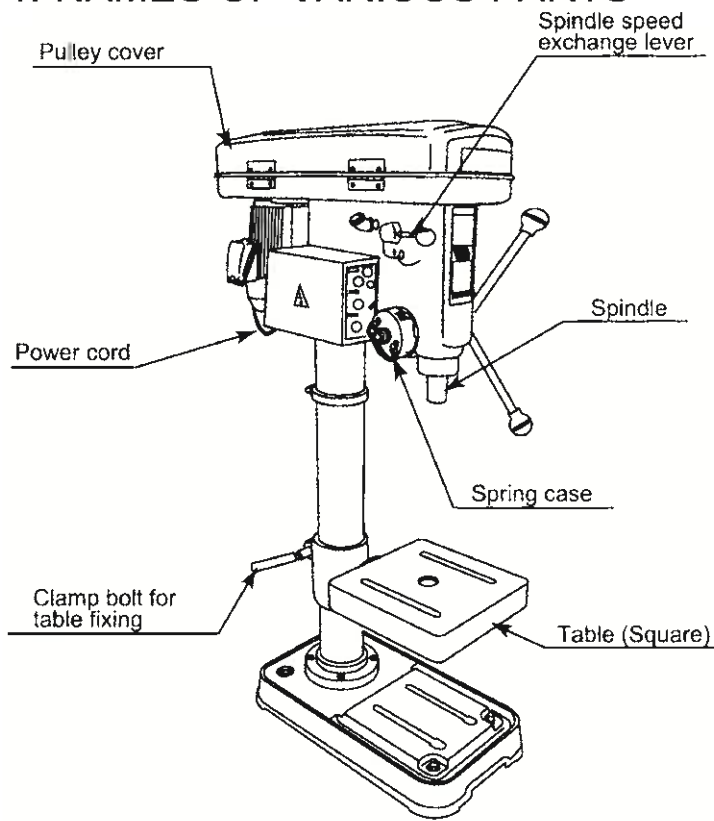


- ◆ Do not operate the machine other than the person in charge of operation.
- ◆ Do not make uncertain operation or procedure.
- ◆ Do not place something not related to operations on the machine or around it.
- ◆ Shut off the power in case of power failure.
- ◆ Shut off the power while the machine is out of use.
- ◆ If the spindle crashes on the workpiece, stop the operation immediately. Then contact your dealer or KIRA Corporation for asking recovery procedures.
- ◆ If you found any abnormal condition on the machine, stop the operation immediately. Then contact your dealer or KIRA Corporation.

- CONTENTS -

PREFACE	1
SIGNAL WORDS	1
ICONS	1
DESCRIPTION OF SIGNAL-WORD LABELS	2
LOCATIONS FOR STICKING	
SIGNAL-WORD LABELS	3
SAFETY PRECAUTIONS	4
CONTENTS	7
1. NAMES OF VARIOUS PARTS	8
2. SPECIFICATIONS	9
3. USE APPLICATION	9
4. PREPARATIONS FOR OPERATION	10
5. CHECKS BEFORE OPERATION	11
6. MACHINE OPERATION PROCEDURE	12
7. TAPPING OPERATION	15
8. DRILLING OPERATION	16
9. CAUTION	16
10. ELECTRICAL CIRCUIT DIAGRAM	17
11. DIMENSION	18
12. CUTTING DATA	20
13. PARTS LIST	21
14. DISPOSAL AND RESELLING	26
15. WARRANTY	27

1. NAMES OF VARIOUS PARTS



※A number of a name of each part please refer to parts list

2. SPECIFICATIONS

Unit: mm

Model		KRT-420	
Swing		420	
Drilling capacity	S45C	4~20	
	FC200	4~25	
Tapping capacity	S45C	M6~16	
	FC200	M6~20	
Max. distance spindle to Table		Round table	485
		Square table	530
Max. distance spindle to base		720	
Up-and-down motion of spindle		Drilling	120
		Tapping	115
Spindle taper		MT3	
Size of a table		Round table ϕ 370	
		Square table \square 300	
Spindle Speed (min^{-1})	50Hz	90,140,225,295,375,475,760,1280	
	60Hz	106,170,270,355,450,570,920,1540	
Power supply		Three phase 200V 50/60Hz	
Drive motor		0.75kW 4P (Totally enclosed type)	
Power code		4 cores cab tire code 2m/1pce(with an earth wire)	
Type of V-Belt		A-40-R	
Machine total height		1324	
Net weight(kg)		165	
Dimension of base		340×600	
Accessories		Center drift	1
		ϕ 5 Round bar	2

3. USE APPLICATION

Drilling and Tapping of various materials, S45C(steel),FC200(Cast iron), etc.

4. PREPARATIONS FOR OPERATION

(1) Installation

Install the machine on the smooth top working table which is reserved enough space for making inspection and maintenance.

(2) Power supply

Power supply voltage is the three phase 200V. Confirm the capacity and the voltage on the specification plate of motor.

(3) Wiping off rust prevention paint

Wiping off the rust prevention paint of bed, table and column.

(4) Refilling of lubrication oil

Refill the lubricating oil to following points.

Lubrication point	Method	Quantity of oil	Brand name	Cycle
Oil cup A (Fig.-2)	Oil bath	0.8 little	Shell Tonna Oil S3M68	6 months
Oil cup B (Fig.-2)	Manually	3~4 drops	Shell Tonna Oil S68	once / 1day
Rack sleeve	Manually	3~4 drops	Shell Tonna Oil S68	once / 1day

※Additionally, please oil the part which moves suitably.

(5) Applicable oil

- Applicable oil is Shell Tonna Oil S3M68 (made by Shell) or equivalent for lubrication oil. (see the table below)
- Always use the same brand of oil and never use mixed oil.

Lubrication oil manufacture	Brand name
SHELL	Shell Tonna Oil S3M68
TOTAL	Prosera HXE68
CASTROL	MAGNA BD68

5. CHECK BEFORE OPERATION

(1) Confirmation of a power supply

Please check once again, the power supply of voltage is the three phase 200V.

(2) Connection of a power supply

As 2-m 4 core cab tire cord has come out from the control box of figure-2, please connect to a power supply breaker.

A green code is an earth wire (E), please connect to ground.

When power supply is switched on, the power lamp of [Fig-3] will turn on.

When Drill / Tap select switch [Fig-3] set to the DRILL side and spindle starting push-button switch [Fig-3] is pushed, spindle will rotate.

If spindle rotates counterclockwise direction to see from spindle end side, connection of power supply is right.

If it rotates opposite direction, replace the connection two of three power wires, and confirm that spindle rotates right direction.

Please check whether the earth wire is connected to the specified position (earth mark) in control box.

CAUTION

- ◆ *When you connect a power cord, please be sure to carry out, after turning (OFF) a power supply breaker.*
 - *The power source wire is attached in 4 core cab tire cord 2 m in length.*
 - *Please connect with the power supply breaker certainly.*
 - *Please be sure to connect an earth wire (green) to a ground.*
- ◆ *Please be sure to connect power supply wiring to the power supply in which the earth leakage breaker.*

6. MACHINE OPERATION PROCEDURE

(1) Running

The machine can run or stopped by the operation switch panel, Fig-3, located on the left side of the machine. When the DRILL/TAP switch is selected to the DRILL position and the STRAT pushbutton switch is pressed, the spindle rotates in the forward direction and drilling can be started. When the DRILL/TAP switch is selected to the TAP position and the START pushbutton switch is pressed, the spindle also rotates in the forward direction. From this condition, pushing in the INCHING pushbutton switch changes the rotation to reverse direction, and releasing it returns the rotation to the forward direction. Press the STOP pushbutton switch to stop the main spindle rotation.

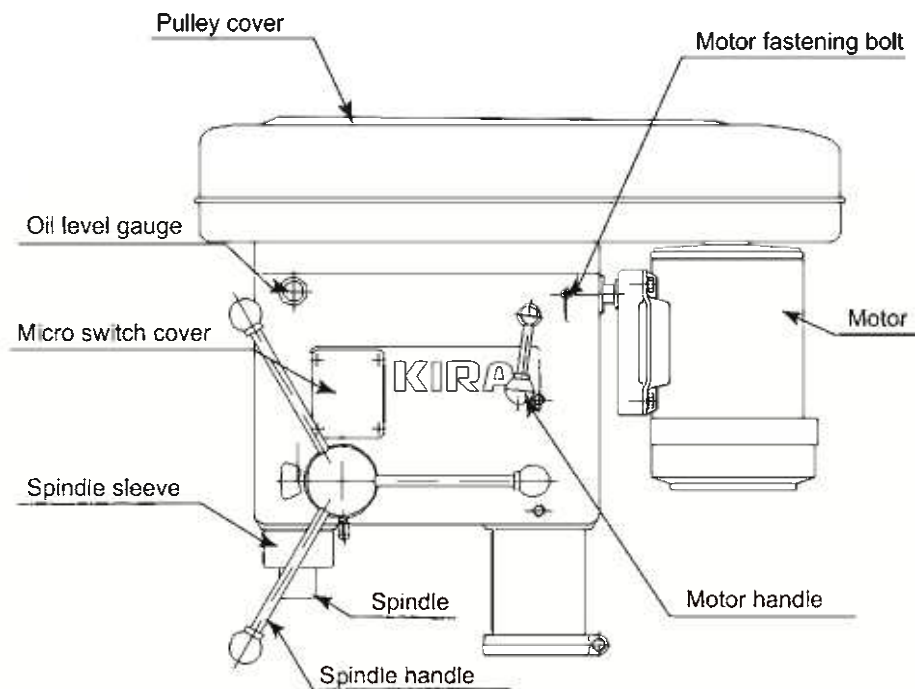


Fig.-1 Machine right side view

(2) Spindle speed conversion

The spindle speed can be changed by changing belt position as indicated on the name plate at front of machine and spindle speed change lever [Fig-2]. Loosen the motor fastening bolts (one each at both sides) shown in Fig-1, and move the Motor handle for movement toward the left side to loosen the belt, then belt position can change easily.

After changing the belt position, please move the handle toward the right side to tighten the belt, and tighten the two motor fastening bolts.

The spindle speed change lever can change two steps of speed. Solid line position of spindle speed change lever [Fig-2] is low speed side, and dotted line is high speed side.

Do not operate this spindle speed change lever by any means during machine operation. It will break down, if it is not operated after stopping a motor.

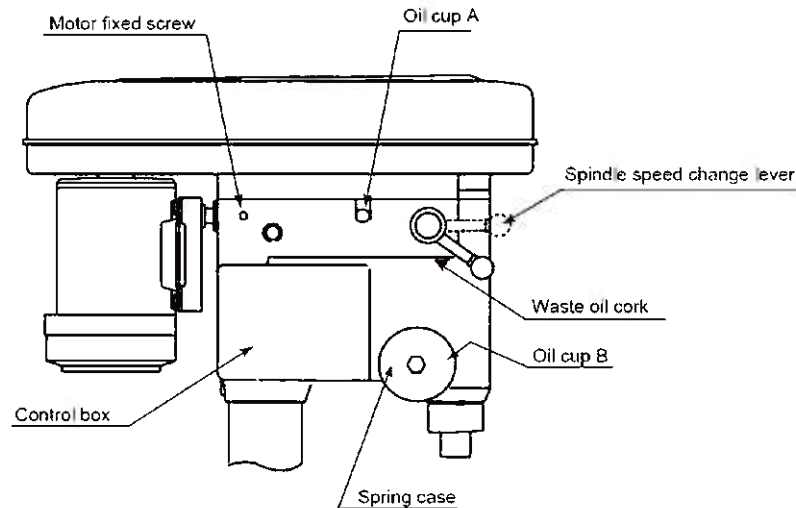


Fig.-2 Machine left side view

(3) Spindle feed depth adjustment

The spindle depth can adjust by the scale ring as shown [Fig.-4]. One division of the scale is 1mm feed. Feeding depth can adjust by scale ring. If fastening bolt is loosened, the dial can rotate easily.

① Drilling

In case of drilling, please move the dial ring to required feed amount at drill depth line of Fig-4, and tighten the scale ring fastening bolt. When spindle moves "0" of scale ring to drill depth line, spindle movement stops.

② Tapping

In case of tapping, please move the dial ring to required feed amount at tap depth line of Fig-4, and tighten the scale ring fastening bolt. When spindle moves "0" of scale ring to tap depth line, spindle rotates reverse direction.

③ Depth setting

Please move spindle down by the handle to touch cutter to workpiece, and set the scale ring for required cutting depth.

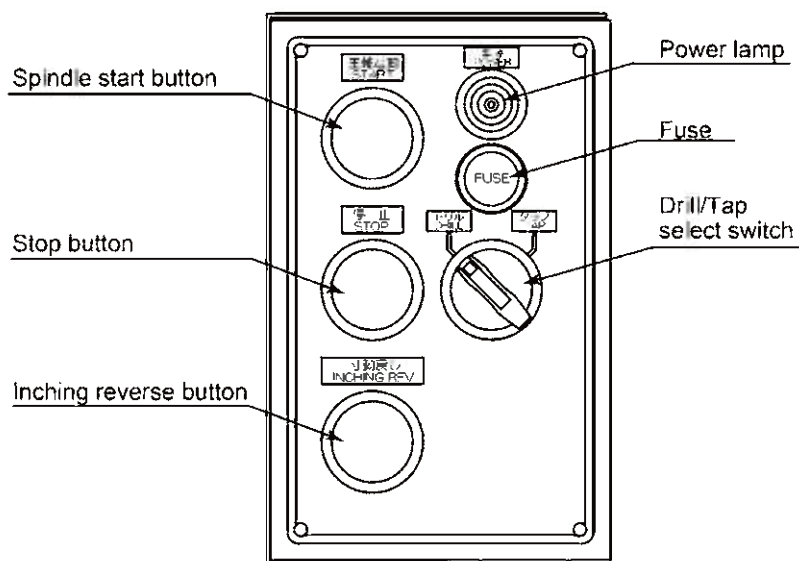


Fig.-3 Switch panel

(4) Adjustment on spindle balance spring

Although a spindle up-and-down handle is turned and a spindle is moved up and down, there is a spiral spring in order to push up a spindle always to the top. If this spiral spring is pulled to the left where the spring case of figure-4 is rotated to a counterclockwise rotation, stopper pin separates from it and it can turn spring case. There is a coil spring on the spindle to always keep the handle at up position when not in operation. The strength of this coil can be controlled by adjusting the spring case. The spring will be stronger when turned counterclockwise direction and weaker when turned clockwise direction. Please thrust spring case back to right side at appropriate power, and inset stopper pin to lack groove. Generally, please set the spring weakly for tapping, and set it strongly for drilling. In addition, be careful not to part with a spring case enough on the torque of a spring in adjustment operation.

(5) Adjustment of safety device on tap

There is a taper clutch inside the spindle pulley, and spindle torque can be adjusted by pushing force of coil spring. If you open belt cover and tighten spring lock nut [Fig-5] by 5mm rod of accessory, torque increases. If you loosen the lock nut, torque decreases. Please tighten both of spring lock nut and securing lock nut firmly after torque adjustment. If the securing nut loosens, it may fly away.

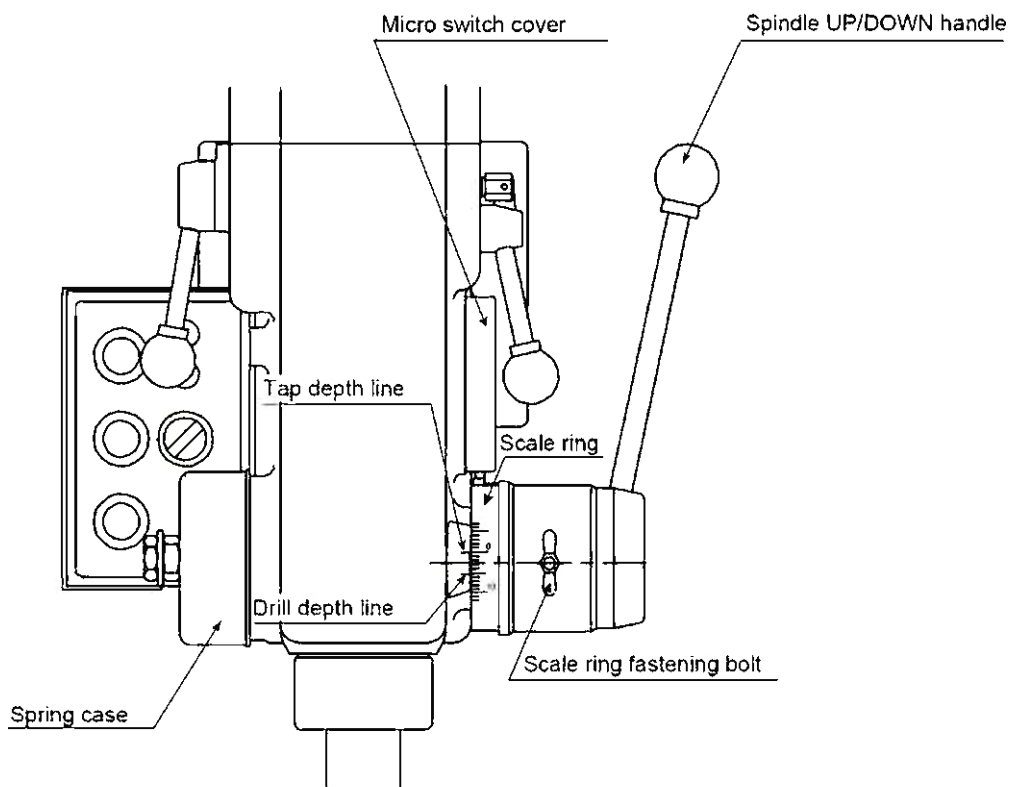


Fig.-4 Spindle device

7. TAPPING OPERATION

(1) Installation of Chuck and Tap

The machine doesn't include a chuck. Please prepare the tap holder or arbor and chuck. Clean up and wipe oil off the spindle and the holder taper and set in firmly. As the chuck taper is slippery in tapping operation, please handle it with care.

In case of installation of the tap, clutch it firmly.

(2) Installation of Workpiece

During tapping operation, turning force and lifting force act on the workpiece. Please consider to prevent the workpiece from being turned and being lifted when you install workpiece. And move the table to suitable position and fix it.

(3) Preparation for running

Follow the below steps by referring to Chapter 6 "Machine Operation procedure".

1. Set the spindle speed.
2. Set the tapping depth.
3. Adjust the tapping safety mechanism. If the tap is small, first set the safety mechanism as loose as possible, and adjust to the proper force during tapping operation.

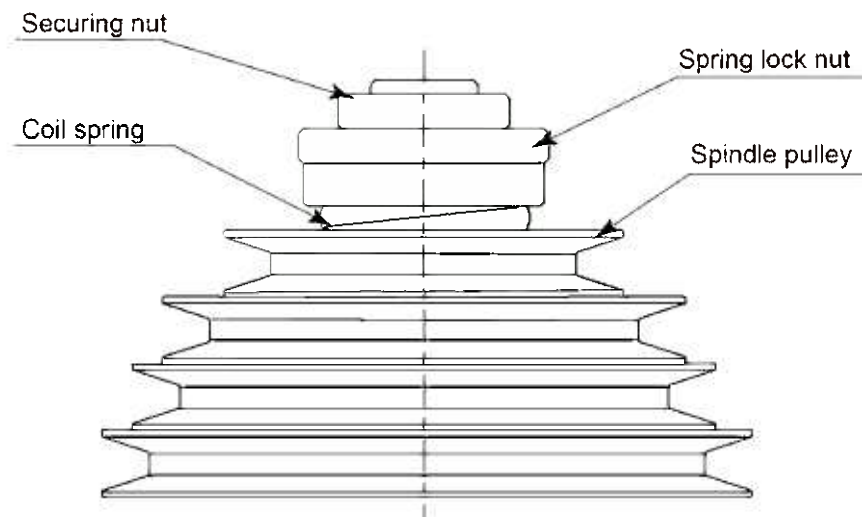


Fig-5 Tapping safety mechanism

(4) Running

Set the DRILL/TAP switch shown in Fig.-3 to the TAP position and press the SPINDLE START pushbutton switch to the spindle start forward rotation. Move the handle lower to engage the tap properly with the hole. Once the tap is engaged, the thread will be cut automatically under the lead of the tap. When the initially-set depth(set size), the set size dog pushes the set size micro switch, so the spindle starts reverse rotation and tap retracts from the workpiece and returns to the reference position. At this time, the reference position micro switch is activated to change the spindle rotation direction to forward. In case a specific tapping works requires inversion of rotation direction in the middle, push in the INCHING pushbutton switch. The rotation is reversed while the switch is pushed in, and forward rotation resumes when the switch is released. If the rotation is reversed after the initially-set depth been cut, forward rotation cannot be resumed until the spindle has been returned to the reference position. (the INCHING switch is invalid while the DRILL/TAP switch is in the DRILL position.)

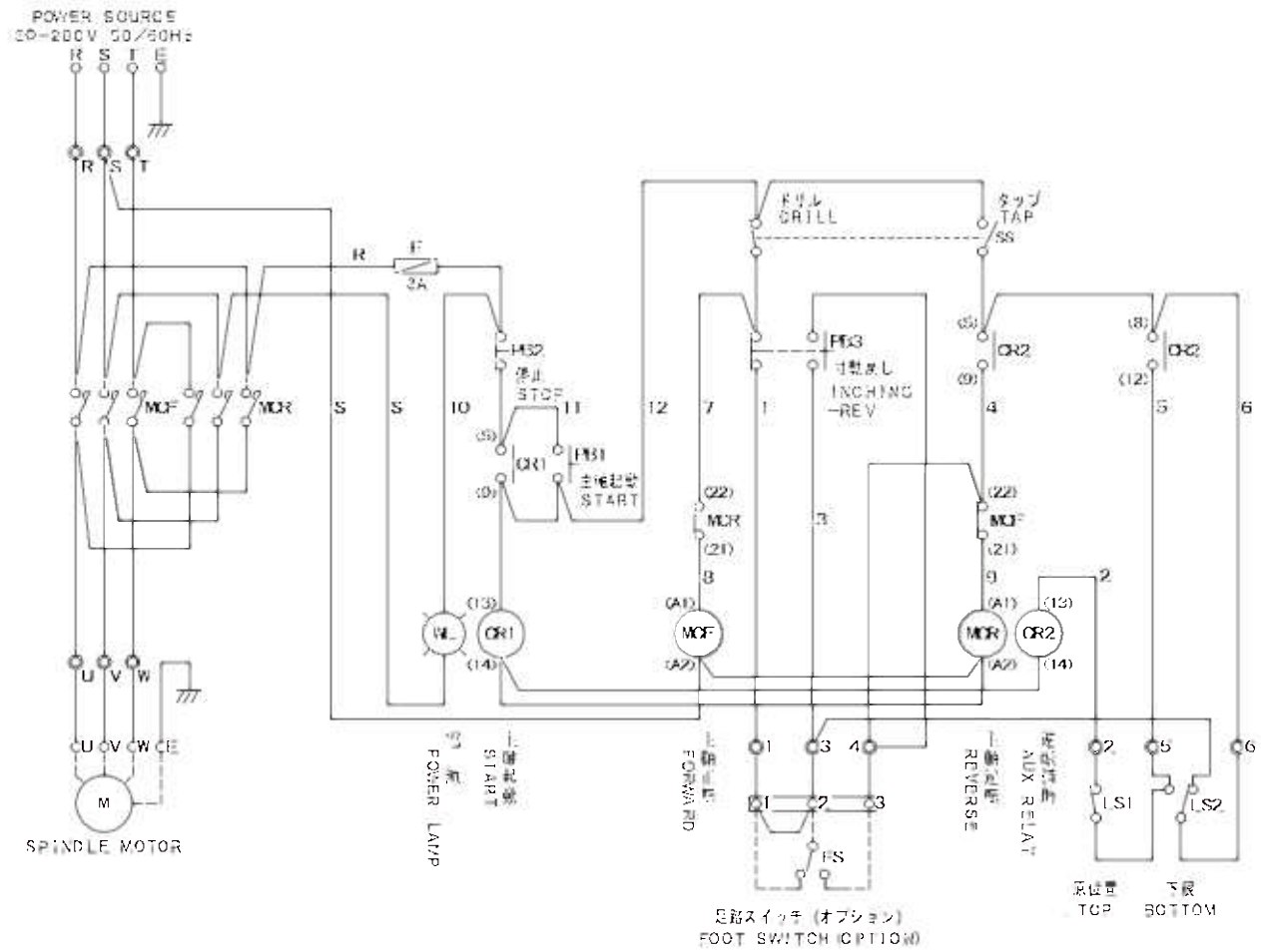
8. DRILLING OPERATION

Tighten securing nut and Spring lock nut shown in Fig-5 using the rod as safety mechanism is not used during drilling operation. Set the DRILL/TAP switch to the DRILL position, and set rotation speed and drilling depth referring to chapter 6 “Machine Operation Procedure”. It is possible to make drilling operation by the spindle up/down handle.

9. CAUTION

1. Do not run the machine with the pulley cover open.
2. Do not use the machine while the operator wears gloves.
3. Be sure to fix the workpiece.
4. Always turn power off before touching any electrical wiring.
5. Do not use inferior lubricants other than those specified to be applicable.
6. After the job of every day, clean the machine thoroughly, apply oil as required, and arrange the surroundings of the machine.

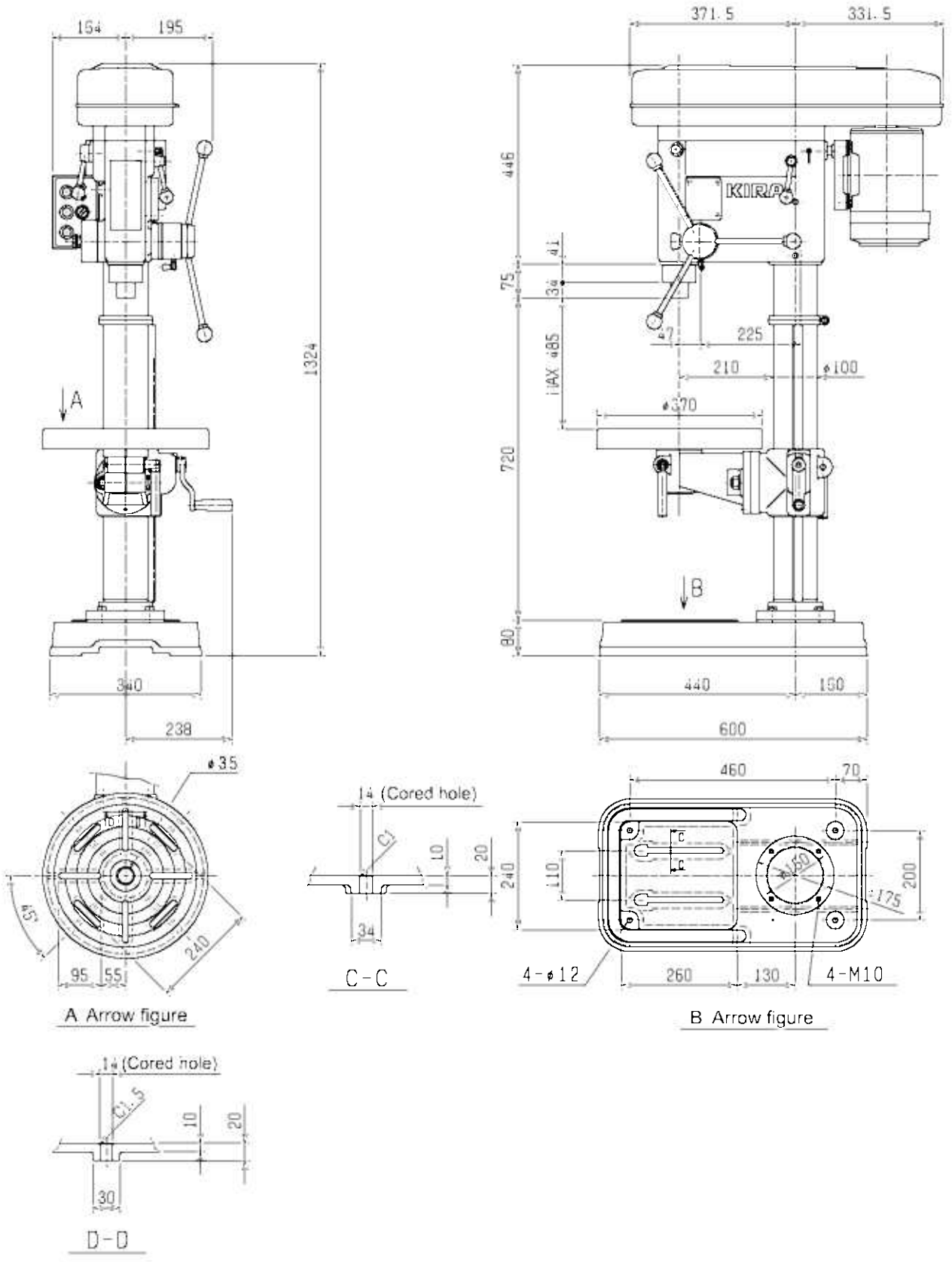
10. ELECTRIC CIRCUIT DIAGRAM



Parts list

Symbol	Parts name	Type	Detail	Maker	Q' ty
MCF, R	Reversing electromagnetic contactor	SC-M02RM	200V 1b×2	FUJI	1
CR1,2	Auxiliary relay	RU2S-C-A200	200V	IDEC	2
	Socket	SM2S-05D		IDEC	2
	Fitting	SFA502PN20		IDEC	2
WL	Pilot lamp	BN-2-200V-C	Power 200V	SATO	1
SS	Select switch	AR22PR-211B	DRILL/TAP	FUJI	1
PB1	Pushbutton switch	AR22F0R-10B	Spindle ON	FUJI	1
PB2	Pushbutton switch	AH22E0R-11R	Stop	FUJI	1
PB3	Pushbutton switch	AH22E0R-11Y	Inching	FUJI	1
F	Fuse holder	F-4000		SATO	1
	Fuse	FGB0 250V-3A		FUJI TANSI	1
	Receptacle	NCS-253-R		NANABOSHI ELECTRIC	1
	Plug	NCS-253-SP		NANABOSHI ELECTRIC	1
LS1,2	Micro switch	V-10-1A5	Zero, Depth point	OMRON	2
FS(Optional)	Foot switch	SF-1M	With connector	KOKUSAI DENGYO	1

11. DIMENSION (Round table)

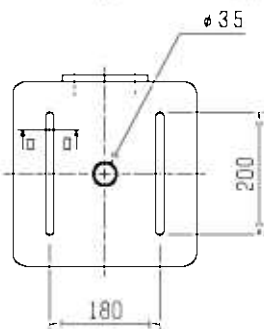
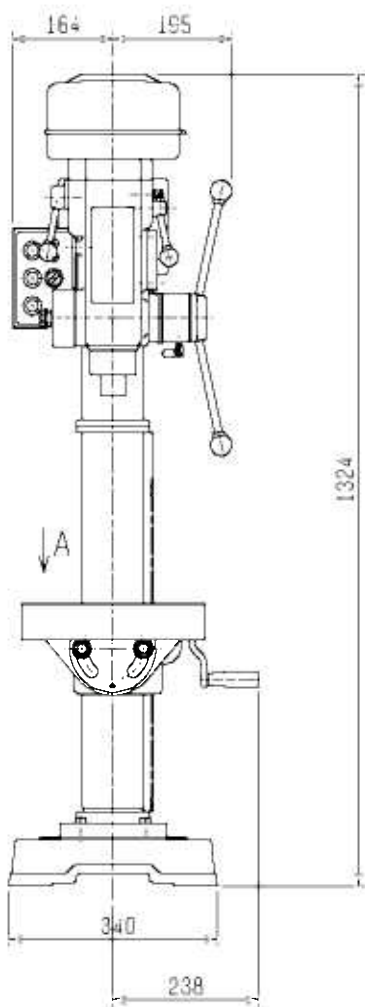


A Arrow figure

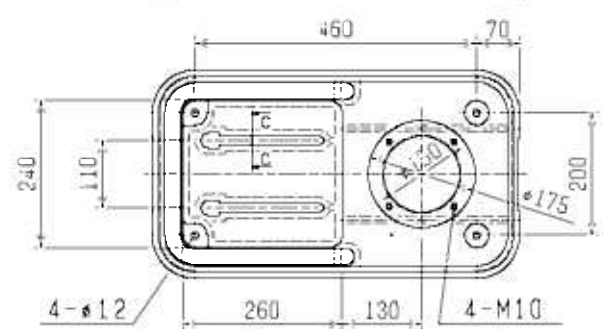
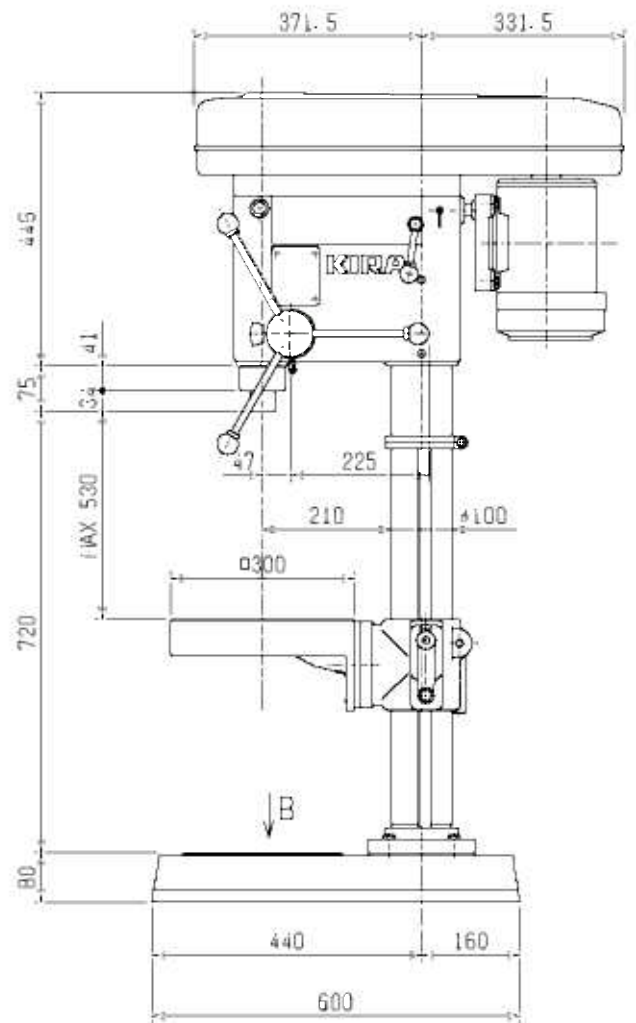
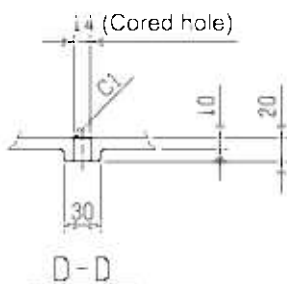
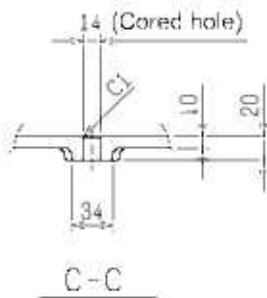
B Arrow figure

D-D

DIMENSION (Square table)



A Arrow figure



B Arrow figure

12. CUTTING DATA

(1) Screw Prepared hole chart(Reference value)

Unit: mm

Metric (screw) thread		Priming path of screw	Screw Prepared hole diameter	Priming path of screw	Screw Prepared hole diameter
Priming path of screw	Screw Prepared hole diameter	M16	14.1	W 7/16	9.3
M3	2.6	M18	15.6	W 1/2	10.5
M4	3.4	M20	17.6	W 9/16	12.0
M5	4.3	M22	19.6	W 5/8	13.5
M6	5.1	M24	21.0	W 3/4	16.5
M8	6.8	Whitworth screw thread		W 7/8	19.3
M10	8.6	W 1/4	5.0	W1	22.0
M12	10.3	W 5/16	6.5		
M14	12.1	W 3/8	7.9		

(2) Tapping standard rotation chart(Reference value)

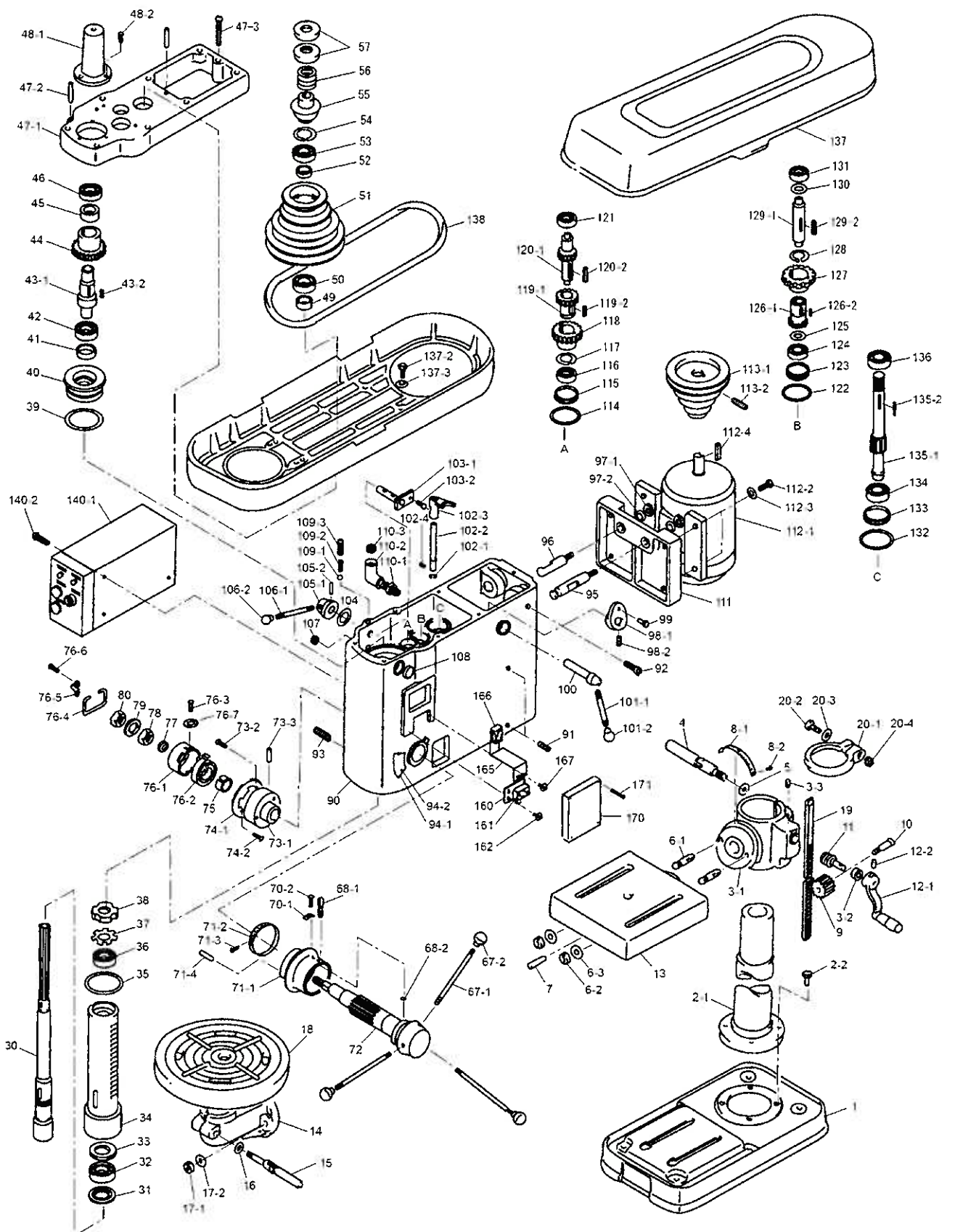
(Manual)

Work material		Aluminum system	Bakelite	Nylon	Brass	Bronze	Mild steel	Half-hard steel	Hard steel	Common cast iron
		25 m/min	25 m/min	20 m/min	15 m/min	12 m/min	10 m/min	8 m/min	5 m/min	12 m/min
Cutting speed										
Tap										
Metric (screw) thread	M4 P0.7	1000	1000	1000	1000	1000	800	640	400	1000
	M5 P0.8	1000	1000	1000	950	830	650	510	320	830
	M6 P1	1000	1000	1000	800	650	530	420	270	650
	M8 P1.25	1000	1000	800	600	480	400	320	200	480
	M10 P1.5	800	800	640	480	380	310	250	160	380
	M12 P1.75	660	660	530	400	320	260	210	130	320
	M14 P2	560	560	450	340	250	230	180	115	250
	M16 P2	500	500	400	300	220	200	160	100	220
	M18 P2.5	420	420	350	250	180	170	140	90	180
	M20 P2.5	360	360	300	220	160	150	130	80	160
	M22 P2.5	300	300	250	190	145	140	115	70	145

CAUTION

- ◆ The low speed is better until it gets used to be attached to a manual feed.
- ◆ There are some which cannot be cut unless nylon material is also a chasing speed like steel.
- ◆ The above is a reference value.
Please select a near value from among the number of rotations of this machine.

13. PARTS LIST



13. PARTS LIST

NO	Spec	Parts number	Part name	Remark	Q'ty
1		KI-1-C	Bed		1
2-1	C	KI-2-F	Column		1
2-1	200L	KI-2-4D	Column	200mm	1
2-2		BT1-M10*035	Hex. bolt	M10*35	4
3-1		KI-4-G	Bracket		1
3-2		KI-79-A	Bush		1
3-3		BTA-M06*0*15-K	Hex. socket head stop screw	M6*15 (Cup point)	1
4		AS1-KI-5-1B	Clamp bolt with handle		1
5		ZG1-M12	Plain washer	M12	1
6-1		KI-8-A	Bolt		2
6-2	S4	NT1-M16	Hex. nut	M16	2
6-3	S4	ZG1-5/8-A	Plain washer	5/8	2
7		PN2-06*030	Taper pin	6*30	1
8-1	S4	KI-4-2B	Name plate		1
8-2	S4	BTD-#2*5	Tack	#2*4.8	2
9		KI-76-A	Gear(16T)		1
10		KI-77-B	Shaft		1
11		KI-78-1	Shaft (Worm)		1
12-1		KI-81-D	Handle		1
12-1		KI-1059-C	Pin		1
12-1		KI-1060-D	Knob		1
12-2		BTA-M08*012-K	Hex. socket head stop screw	M8*12 (Cup point)	1
13	S4	KI-7-D	Table		1
14	R4	KI-4R-D	Holder		1
15	R4	AS1-KI-5-1B	Clamp bolt with handle		1
16	R4	ZG1-M12	Plain washer	M12	1
17-1	R4	NT1-M16	Hex. nut	M16	2
17-2	R4	ZG1-5/8-A	Plain washer	5/8	2
18	R4	KI-7R-D	Table		1
19		KI-85-D	Rack	16*20*620	1
20-1		KI-89-B	Stop ring		1
20-2		BT1-M08*055	Hex. Bolt	M8*55	1
20-3		ZG1-M08-U	Plain washer	M8	1
20-4		NT1-M08	Hex. nut	M8	1
30	2C3	2C-2102-5J	Spindle		1
31	2C3	2C-2103-5B	Collar		1
32	2C3	BE1-6007ZZ	Ball bearing	6007ZZ	1
33	2C3	BE6-51107	Thrust ball bearing	51107	1
34	2C3	5C-2101-5F	Rack sleeve		1
35	2C3	2C-2114-A	Packing		1
36	2C3	BE1-6005ZZ	Ball bearing	6005ZZ	1
37	2C3	ZG5-AW05	Bearing washer	AW05	1
38	2C3	NT3-AN05	Bearing nut	AN05	1
39		OR1-G055	O ring	G55	1
40		2C-2306-A	Case		1
41		SE2-SB30397	Oil seal	SB30397	1
42		BE1-6006	Ball bearing	6006	1
43-1		2C-2305-5B	Sleeve	(φ42*1830)	1
43-2		KY1-07*07*028RR	Parallel key	7*7*28RR	1
44		2C-2310-A	Gear (32T)		1
45		COL1-030040007B	Collar(1)	2C-2312	1
46		BE1-6206Z	Ball bearing	6206Z	1
47-1		2C-2301-F	Head cover		1
47-2		PN1-06*020	Parallel Pin	6h7*20	2

NO	Spec	Parts number	Part name	Remark	Q'ty
47-3		BT2-M06*035	Hex socket head bolt	M6*35	7
48-1		2C-2313-A	Cap		1
48-2		BT6-M06*010	Cross recessed head machine screw	M6*10	3
49		COL1-020030015B	Collar(1)	2C-2353	1
50		BE1-6204UU	Ball bearing	62042NK(6204LLB)	1
51		2C-2382-A	Pulley		1
52		2C-2385-A	Collar		1
53		BE1-6204UU	Ball bearing	62042NK(6204LLB)	1
54		RG1-R047	Stop ring	R47	1
55		2C-2381-A	Clutch		1
56		3C-2311-A	Coil spring		1
57		2C-2386-A	Nut		2
67-1		R-44-A	Handle		3
67-2		R-45-B	Knob		3
68-1		BT3-M08*015A-2	Butterfly bolt		1
68-2		KI-53-1A	Clamp piece		1
70-1		3C-2212-A	Dog		1
70-2		BTJ-M03*008-P3-M	Cross recessed head sems screw	M3*8	1
71-1		4C-2207-3A	Flange		1
71-2		KI-50-B	Name plate		1
71-3		BTD-#2*5	Tack	#2*4.8	2
71-4		PN3-04.5*016	Spring Pin	4.5*16	1
72		AS0-4C2201-3	Pinion Shaft (Ass'y)		1
73-1		2C-2246-B	Bush		1
73-2		BT6-M06*020-PL	Cross recessed head machine screw	M6*20	3
73-3		PN3-05*022	Spring Pin	5*22	1
74-1		2C-2261-B	Plate		1
74-2		BT7-M03*006-PL	Countersunk head screw	M3*6	3
75		2C-2252-A	Collar		1
76		2C-2250A	Spring case set		1
76-1		2C-2250-2B	Case		1
76-2		2C-2249-A	Spiral spring		1
76-3		BT6-M04*008-PL	Cross recessed head machine screw	M4*8	1
76-4		2C-2263-B	Handle		1
76-5		2C-2264-B	Handle stop ring		2
76-6		BT6-M04*006	Cross recessed head machine screw	M4*6	4
76-7		ZG1-M04-PL	Plain washer	M8	1
77		COL1-015025006B	Collar(1)	2C-2253-2	1
78		3B-2219-A	Nut		1
79		ZG1-M14	Plain washer	M14	1
80		3B-2245-A	Nut		1
90		5C-2001-O	Head		1
91		BTA-M12*015-K	Hex. socket head stop screw	M12*15 (Cup point)	4
92		BT1-M10*030	Hex. bolt	M10*30	2
93		2C-2115-A	Key	BTG-M10*020	1
94-1		4C-2804-2A	Name plate		1
94-2		BTD-#2*5	Tack	#2*4.8	2
95		4B-2365-3B	Guide		1

13. PARTS LIST

NO	Spec	Parts number	Part name	Remark	Q'ty
96		2C-2366-3B	Guide		1
97-1		NT1-M12	Hex. nut	M12	2
97-2		ZG2-M12-U	Spring washer	M12	2
98-1		2C-2374-C	Shifter		1
98-2		BTA-M10*012-K	Hex. socket head stop screw	M10*12 (Cup point)	1
99		3B-2376-A	Pin		1
100		2C-2368-2B	Shaft		1
101-1		2C-2341-A	Handle		1
101-2		KN-41-A	Knob		1
102-1		RG1-S012	Stop ring	S12	1
102-2		2C-2334-1A	Guide		1
102-3		2C-2337-9A	Shifter		1
102-4		BTA-M06*010-K	Hex. socket head stop screw	M6*10K	1
103-1		2C-2339-1B	Shifter		1
103-2		2C-2338-A	Pin		1
104		OR1-P015	O ring	P15	1
105-1		2C-2340-B	Boss		1
105-2		PN3-05*036	Spring pin	5*36	1
106-1		2C-2341-A	Handle		1
106-2		KN-41-A	Knob		1
107		BTE-PT03	Hex socket head plug	PT3/8	1
108		OG1-VA-01	Oil pot window	VA-01	1
109-1		BEZ-1/4	Steel ball	1/4	1
109-2		2C-2345-A	Coil spring		1
109-3		BTG-M08*008	Slotted set screw	M8*8	1
110-1		WC3-PT03-45	Elbow		1
110-2		WC1-PT03	Nipple	PT3/8	1
110-3		BTE-PT03	Hex socket head plug	PT3/8	1
111		4C-2364-2B	Base (Motor)		1
112-1	75U	MO1-0.75KW*4*200U	Motor	FEU-90LH(19)	1
112-2		BT1-M08*020	Hex. bolt	M8*20	4
112-3		ZG1-M08-U	Plain washer	M8	4
112-4		OTZ-08*07*035HH	Parallel key	For motor	1
113-1		2C-2359-3A	Motor pulley		1
113-2		BTA-M06*012-K	Hex. socket head stop screw	M6*12 (Cup point)	1
114		OR1-G035	O ring	G35	1
115		5C-2316-A	Holder		1
116		BE1-6203	Ball bearing	6203	1
117		RG3-WR30	Retaining ring uniform section	WR30	1
118		2C-2322-A	Gear(30T)		1
119-1		2C-2320-A	Gear(23T)		1
119-2		KY1-05*05*022RR	Parallel key	5*5*22RR	2
120-1		5C-2315-8A	Shaft(A)		1
120-2		KY1-05*05*037RR	Parallel key	5*5*37RR	1
121		BE1-6203Z	Ball bearing	6203Z	1
122		OR1-G030	O ring	G30	1
123		2C-2328-B	Collar		1
124		BE1-6202	Ball bearing	6202	1

NO	Spec	Parts number	Part name	Remark	Qty
125		BE8-AS1102	Thrust washer		
126-1		2C-2330-9C	Gear(18T)		1
126-2		KY1-05*05*018RR	Parallel key	5*5*18RR	2
127		2C-2330-8D	Gear(32T)		1
128		RG1-S028	Stop ring	S28	1
129-1		2C-2327-8B	Shaft(B)	(φ22*102)	1
129-2		KY1-05*05*037RR	Parallel key	5*5*37RR	1
130		BE8-AS1102	Thrust washer	AS1102	1
131		BE1-6202Z	Ball bearing	6202Z	1
132		OR1-P036	O ring	P36	1
133		2C-2348-B	Collar		1
134		BE1-6004	Ball bearing	6004	1
135-1		2C-2347-8C	Shaft(C)		1
135-2		KY1-05*05*037RR	Parallel key	5*5*37RR	1
136		BE1-6004LB	Ball bearing	6004LB	1
137		2C-2601-A	Cover (Ass'y)		1
137-2		BT1-M08*015	Hex. bolt	M8*15	4
137-3		ZG1-M08-U	Plain washer	M8	4
138		BL1-A-40-R	V Belt	A-40	1
140-1		5C-2751-200V	Control box		1
140-2		BT6-M06*010	Cross recessed head machine screw	M6*10	3
160		4C-2722-A	Plate		1
161		EP5-V-10-1A5	Micro switch		1
162		BTH-M04*010-P3-M	Cross recessed head upset bolt	M4*10-P3-M	2
165		5C-2723-2A	Plate		1
166		EP5-V-10-1A5	Micro switch		1
167		BTH-M04*010-P3-M	Cross recessed head upset bolt	M4*10-P3-M	2
170		4C-2727-B	Cover		1
171		BT6-M04*022	Cross recessed head machine screw	M4*22	4
172		5C-2801-8A	Name plate		1
173		BTD-#2*5	Tack	#2*4.8	4
174		2C-2807-A	Name plate		1
175		2C-2901-B	Center (Drift)		1
179		3C-2901-A	Handle	Black	2

14. DISPOSAL AND RESELLING

14.1. Disposal

Please handle the following items as industrial wastes in accordance with regulation of your country.

(1) Cutting oil and lubrication oil

(2) Chip

(3) Tools

(4) Main unit

For disposing of them, contact us.

14.2 Reselling

 **CAUTION**

- ◆ *To resell the KRT-420 to any other party, strictly observe the following instructions:
Be sure to hand the Instruction Manual to that new user.
See the chapter indicating the locations of signal-word labels and make sure that all the labels are in place.
If the Instruction Manual or any of the signal-word labels is missing, be sure to contact us to obtain it.
Before reselling the KRT-420, contact us without fail.*

- ◆ *You, as purchaser of this machine, agree to follow the procedures for the export or transfer of the machine, under the Foreign Exchange and Foreign Trade Law, when you export or transfer the machine abroad.
This machine was produced to meet the law and specifications in your country (or area).
You, as purchaser of the machine, are not allowed to re-sell, re-export, or re-transfer the machine to any party in the country (or area) which has different law and specifications from those in your country.*

15. WARRANTY

15.1. Free Repairs

- 1) If a malfunction or a failure occurs during the normal use strictly based on the operation guidelines (given in the Instruction Manual), the Instruction Manual, the signal-word labels, and other instructions, then it is repaired free of charge within the warranty period.
- 2) Our warranty only covers the delivered main unit and does not apply to any loss and/or damage, direct or indirect, resulting from such malfunction or failure.
- 3) The warranty remains valid for one year after the delivery with your acceptance.

15.2 Charged repairs

- The repairs after the warranty period and those in the following cases within the warranty period are charged to you:
- 1) A malfunction, failure, or damage has resulted from the misuse of the KRT-420 or from the modification or repair made without obtaining our consent.
 - 2) A malfunction, failure, or damage has resulted from fire, acts of God, lightning, abnormal voltage, or any other unpredictable situation.
 - 3) A malfunction, failure, or damage has resulted from your improper handling such as falling during the transportation or transfer by you.
 - 4) A malfunction, failure, or damage has occurred because you have failed to follow the operation guidelines.
 - 5) Consumable items have been used up, worn out, or otherwise have deteriorated after the normal use.

15.3. Locations for contact

Sales Department of Main Office :

TOMIYOSI SHINDEN, KIRA-CHO NISHIO-CITY, AICHI PREF.,
444-0592, JAPAN

TEL 81-563-32-0100 FAX 81-563-32-3241

E-Mail : <info@kiracorp.co.jp>

KIRA CORPORATION

Revision history
3rd edition :August 23, 2016

KIRA