

METAL CUTTING BAND SAW

Model: BS-916B,BS-1018B,BS-1018V



Operation Manual

WARNING: FAILURE TO FOLLOW THESE RULES MAY RESULT IN SERIOUS PERSONAL INJURY

As with all machinery there are certain hazards involved with operation and use of the machine. Using the machine with respect and caution will considerably lessen the possibility of personal injury. However, if normal safety precautions are overlooked or ignored, personal injury to the operator may result. This machine was designed for certain applications only. We strongly recommend that this machine not be modified and/or used for any application other than for which it was designed. If you have any questions relative to its application do not use the machine until you contact with us and we have advised you.

Your machine might not come with a power socket or plug. Before using this machine, please do ask your local dealer to install the socket or plug on the power cable end.

SAFETY RULES FOR ALL TOOLS

A. User

- (1). Wear proper apparel. No loose clothing, gloves, rings, bracelets, or other jewelry to get caught in moving parts.
- (2). Always wear eye protection. Refer to ANSL Z87.1 standard for appropriate recommendations. Also use face dust mask if cutting operation is dusty.
- (3). Don't overreach. Keep proper footing and balance at all times.
- (4). Never stand on tool. Serious injury could occur if the tool is tipped or if the cutting tool is accidentally contacted.
- (5). Never leave tool running unattended. Turn power off. Don't leave tool until it comes to a complete stop.
- (6). Drugs, alcohol, medication. Do not operate tool while under the influence of drug, alcohol or any medication.
- (7). Make sure tool is disconnected from power supply. While motor is being mounted, connected or reconnected.
- (8). Always keep hands and fingers away from the blade.
- (9). Stop the machine before removing chips.
- (10). Shut-off power and clean the BANDSAW and work area before leaving the machine.

B. Use of machine

- (1). Remove adjusting keys and wrenches. Form habit of checking to see that keys and adjusting wrenches are removed from tool before turning it "on".
- (2). Don't force tool. It will do the job better and be safer at the rate for which it was designed.
- (3). Use right tool. Don't force tool or attachment to do a job for which it was not designed.
- (4). Secure work. Use clamps or a vise to hold work when practical. It's safer than using your hand to operate tool.
- (5). Maintain tools in top condition. Keep tools sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.
- (6). Use recommended accessories. Consult the owner's manual for recommended accessories.

The use of improper accessories may cause hazards.

- (7). Avoid accidental starting. Make sure switch is in "OFF" position before plugging in power cord.
- (8). Direction of feed. Feed work into a blade or cutter against the direction of rotation of the blade or cutter only.
- (9). Adjust and position the blade guide arm before starting the cut.
- (10). Keep blade guide arm tight. A loose blade guide arm will affect sawing accuracy.
- (11). Make sure blade speed is set correctly for material being cut.
- (12). Check for proper blade size and type.
- (13). Stop the machine before putting material in the vise.
- (14). Always have stock firmly clamped in vise before starting cut.
- (15). Ground all tools. If tool is equipped with three-prong plug, it should be plugged into a three-hole electrical receptacle. If an adapter is used to accommodate at prong receptacle, the adapter lug must be attached to a known ground. Never remove the third prong.

C. Adjustment

Make all adjustments with the power off. In order to obtain the machine precision and correct ways of adjustment while assembling, the user should read detailed instruction in this manual.

D. Working environment

- (1). Keep work area clean. Cluttered areas and benches invite accidents.
- (2). Don't use in dangerous environment. Don't use power tools in damp or wet locations, or expose them to rain. Keep work area well-lighted.
- (3). Keep children and visitors away. All children and visitors should be kept at safe distance from work area.
- (4). Don't install & use this machine in explosive, dangerous environment.

E. Maintenance

- (1). Disconnect machine from power source when making repairs.
- (2). Check damaged parts. Before further use of the tool, a guard part that is damaged should be carefully checked to ensure that it will operate properly and perform its intended function check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced.
- (3). Disconnect tools before servicing and when changing accessories such as blades, bits, cutters, etc.
- (4). Make sure that blade tension and blade tracking are properly adjusted.
- (5). Re-check blade tension after initial cut with a new blade.
- (6). To prolong blade life always release blade tension at the end of each work day.
- (7). Check coolant daily. Low coolant level can cause foaming and high blade temperatures. Dirty or week coolant can clog pump, cause crooked. Cast low cutting rate and permanent blade failure. Dirty coolant can cause the growth of bacteria with ensuring skin irritation.
- (8). When cutting magnesium never use soluble oils or emulsions (oil-water mix) as water will greatly intensify any accidental magnesium chip fire. See your industrial coolant supplier for specific coolant recommendations when cutting magnesium.
- (9). To prevent corrosion of machined surfaces where a soluble on is used as coolant, pay particular attention on wiping dry the surfaces where fluid accumulates and does not evaporate quickly, such as between the machine bed and vise.

For maximum cutting efficiency and lowest cost per cut, it is important to select the blade with the right number of teeth per inch (TPI) for the material being cut. The material size and shape dictate tooth selection.

You need to consider:

1. The width of the cut. That is, the distance in the cut that each tooth must travel from the point it enters the workpiece until it leaves the workpiece.
2. The shape of the workpiece.

Square, Rectangles, Flats (Symbol: ■)

Locate the width of cut on the chart.

(Inches on the outer circle and millimeters on the inner circle.) Select the tooth pitch on the ring marked with the square shape which aligns with the width of cut.

EXAMPLE: 6"(150mm) square, use a 2/3 Vari-tooth.

Round Solids (Symbol: ●)

Locate the diameter of your workpiece on the chart. Select the tooth pitch on the ring marked with the round shape which aligns with the size of stock you are cutting.

EXAMPLE: 4" (100mm) round, use a 3/4 Vari-tooth.

Tubing, Pipe, Structural (Symbol: OH^)

Determine the average width of cut by dividing the area of the workpiece. Locate the average width of cut on the chart. Select the tooth pitch on the ring marked with the tubing and structural shape which aligns with the average width you are cutting.

EXAMPLE: 4"(100mm) outside diameter, 3" (75mm) inside diameter tubing.

NOTE: The band speed and cutting rate recommendations presented on this chart are approximations and are to be used as a starting point for most applications. For exact sawing parameters consult with your saw blade supplier.

TELLTALE CHIPS

Chips are the best indicator of correct feed force. Monitor chip information and adjust feed accordingly. Thin or powdered chips-increase feed rate or reduce band speed.



Burned heavy chips-reduce feed rate and/or band speed.



Curly silvery and warm chips-optimum feed rate band speed.



CONNECTING SAW TO POWER SOURCE

The electrical rating of your band saw is either 230 volt, single phase or 400 volt, three phase magnetic control.

Before connecting your machine to an electrical power system, be sure the motor rating agrees with the electrical system which is to be connected to. We recommend the #14 wire, fused with a 16 amp, dual element, time lag fuse, be used to supply power to all machines regardless of their electrical rating.

Refer to the electrical wiring diagram supplied with your machine for instructions on how to connect saw to power source.

STARTING AND STOPPING MACHINE

1. Raise the saw frame to the up position.
2. The machine is started by pushing the start button (B) Fig. 2. And it will continue to run until the saw arm is in the down position at the end of the cut, or when the stop button (C) is pushed.
3. When in emergency, push button (D) to stop the machine. After removing the trouble, release emergency button, restart the machine by pushing the start button (B).
4. When using the coolant turn the select button (A) to the right.
5. To adjust the feeding rate when in cutting, turn the volume valve (F) clockwise for faster feeding, counterclockwise for slower feeding. When volume valve (F) has been properly adjusted, turn the control valve (G) to handle saw arm action.
6. An automatic shut-off limit switches provided to stop the motor when the cut is completed. The limit switch (D) is controlled by a lever (C) Fig. 3, which contacts the top of the hydraulic cylinder (E) shutting off the motor and coolant pump.
7. If the motor stops before the cut is completed or continues to run after the cut is completed, the limit switch (D) Fig. 3. can be adjusted up or down by loosening the two screw (F).



Fig.2



Fig.3

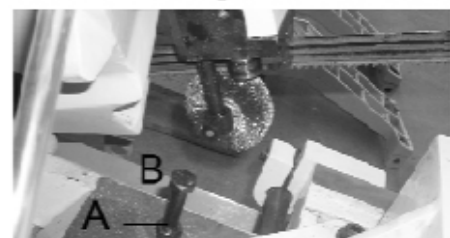


Fig.4

ADJUSTING DOWNWARD TRAVEL OF SAW ARM

The downward travel of the saw arm should be adjusted so when the saw arm is in the extreme downward position, the teeth of the blade are 1/16" below the table surface. If an adjustment is

necessary, loosen lock nut (A) Fig. 4. And turn stop screw (B) in or out until the correct adjustment is made. Then tighten locknut (A).

CHANGING SPEEDS AND ADJUSTING BELT TENSION

Your machine is provided with a range of four speeds: 50, 125, 200 and 275 feet per minute. To change speeds, proceed as follows:

1. Disconnect the machine from the power source.
2. Release tension on the belt by loosening the tension lock knob (A) Fig. 5. And letting the motor swing forward.
3. Loosen belt guard screw (D) Fig. 6.
4. Shift the belt (G) Fig. 7. to the desired grooves on the pulleys.

When the belt is on the largest step of the motor pulley (E) and the smallest step of the gear box pulley (F) the speed will be 275 feet per minute. When the belt is on the smallest step of the motor pulley (E) and the largest step of gear box pulley (F) the speed will be 50 feet per minute.

5. Adjust belt tension by pivoting the motor to the rear until there is approximately 1/2" deflection of the belt at the center span of the pulleys using light finger pressure. Then tighten tension lock knob (A) Fig. 5. And close belt and pulley guard.

NOTE: There is an interlock switch on pulley cover, the machine will stop when the cover is opened. Do not remove this switch for any reason, and inspect its function frequently.



Fig.5

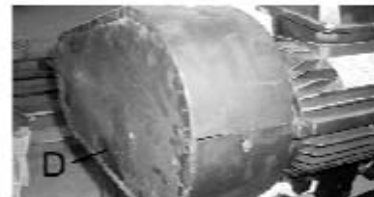


Fig.6

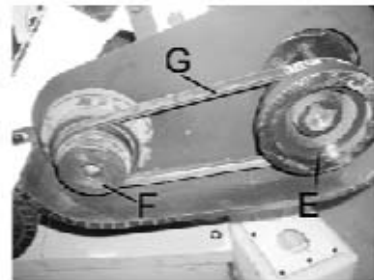


Fig.7

ADJUSTING BLADE TENSION

To tension the blade, lift up the left wheel cover and turn the blade tension handle (A) Fig. 8, clockwise. A pointer and tension scale (B) is located underneath the wheel. The scale is graduated to indicate blade tension of 20,000, 30,000 and 35,000 pounds per square inch (PSI). For carbon blades (similar to the one supplied with the machine) the blade should be tensioned at 20,000 PSI. For Bi-metal blades, the blade should be tensioned at 30,000 or 35,000 PSI. Always release blade tension at the end of each work day to prolong blade life.

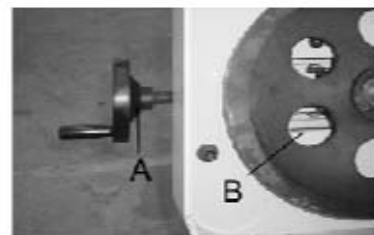


Fig.8

ADJUSTING BLADE TRACKING

Make sure the blade is tensioned correctly before checking or adjusting tracking. The blade is tracking properly when the back of the blade is just lightly touching the wheel flanges of both wheels while the machine is running. If the blade does not touch the wheel flanges, tighten or loosen screw (A) Fig. 9. until the blade tracks properly.

ADJUSTING BLADE GUIDE SUPPORT ARM

The blade guide support arm (A) Fig. 10, should be set as close to the workpiece as possible. To move the support arm, first loosen clamp knob (B). Move the support arm (A) into relationship with the workpiece. When you are sure the support arm will not interfere with the workpiece, first tighten clamp knob (B).

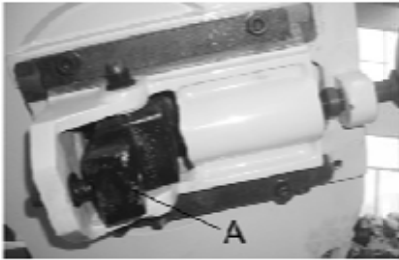


Fig.9



Fig.10

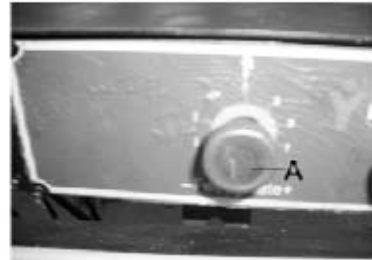


Fig.11

ADJUSTING FEED RATE

When the feed rate control knob is turned clockwise as far as it will go, the saw frame will not move down, but it can be raised to the up position. By turning the feed rate control knob counterclockwise, the flow of oil from the cylinder is regulated and determines the speed at which the saw frame will lower and the blade will feed through the work. Too many factors are involved to make tabulated data practical on feed rates. As a general rule, an even downward pressure without forcing the blade gives best results. Avoid forcing the blade at the start as this may shorten blade life and produce a bad cut. By inspecting the chips while the cut is being made will indicate whether the feed rate is correct or not. Fine powdery chips indicate the feed rate is too light, the teeth are rubbing over the surface instead of cutting. Burned chips indicates excessive feed, which causes the teeth to break off as the blade overheats. The ideal feed rate is indicated by chips that have a free curl and this will give the fastest cutting time and longest blade life.

ADJUSTING CUTTING PRESSURE OF SAW ARM

The cutting pressure of the saw arm has been set at the factory and should not need further adjustment. If adjustment should ever become necessary, lower the saw arm to the horizontal position. Loosen locknut(A) Fig. 11. until the pressure is increased or decreased.

OPERATING AND ADJUSTING VISE

The workpiece is placed between the vise jaws with the amount to be cut-off extending out past the blade. Your machine is equipped with a "quick action" vise jaw which allows you to instantly position the moveable vise jaw (B) Fig. 12. Simply turn hand wheel (A) counterclockwise 1/2 turn and move the

vise jaw (B) to the desired position. Then tighten the vise jaw (B) against the workpiece by turning hand wheel clockwise. The vise can be adjusted to cut any angle from a straight 90 degree cut-off to a 45 degree angle by loosening the two spring-loaded clamp handles (one located on each vise jaw), positioning the vise jaws to the desired angle and tightening the two spring-loaded handles. The right vise jaw is provided with positive stops to instantly position the jaw at 90 or 45 degrees. To check and adjust the positive stops, proceed as follows:

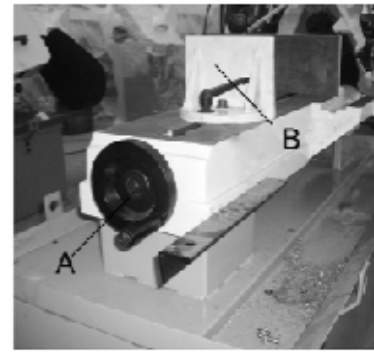


Fig.12

1. Pivot the right vise jaw (C) Fig. 13. All the way to the right, and lock spring loaded clamp handle (D).
2. Using a combination square (E), place one end of the square against the vise jaw and the other end against the blade as shown in Fig. 13. Check to see if the vise jaw is 90 degrees to the blade.
3. If an adjustment is necessary loosen clamp handle (D) Fig. 14. Loosen set screw and turn adjusting screw until the vise jaw is 90 degrees to the blade. NOTE: turn screw from the opposite end, through the face of the vise jaw. End of screw should contact stud of clamp handle when vise jaw is 90 degrees to the blade. Then tighten set screw.
4. If an adjustment is necessary, loosen clamp handle (D) Fig. 14. Loosen set screw and turn adjusting screw until the vise jaw is 45 degrees to the blade. NOTE: end of screw should contact stud of clamp handle when vise jaw is 45 degrees to the blade. Then tighten set screw.
5. Pivot the right vise jaw (C) all the way to the left, as shown in Fig. 15, and lock spring loaded clamp handle (D).
6. Using a combination square, place one end of the square against the vise jaw and the other end against the blade, as shown in Fig. 15. And check to see if the vise jaw is at 45 degrees to the blade or not.

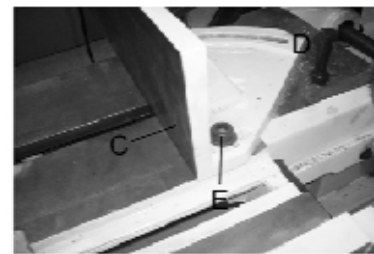


Fig.13

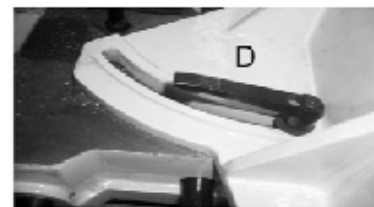


Fig.14

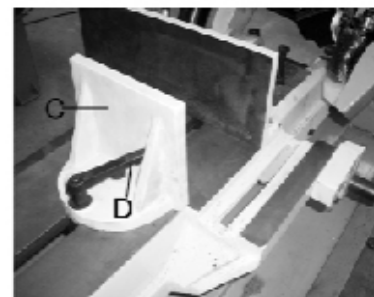


Fig.15

COOLANT

The use of proper cutting fluid is essential to obtain maximum efficiency from a band saw blade. The main cause of tooth failure is excessive heat build-up. This is the reason that cutting fluid is necessary for long blade life and high cutting rates. Cutting area and blade wheels should be kept clean at all time. The rate of coolant flow is controlled by the stop valve lever (B) Fig. 16 which directs the coolant onto the blade at (C). The lever (B) is shown in the off position.



Fig.16

ADJUSTING STOCK ADVANCE STOP

The stock advance stop is used mainly when more than one piece of work is to be cut at the same length. Simply position the stop Fig 17 away from the blade. The stop may be repositioned by loosening lock screw and moving the rod in or out accordingly. Then tighten lock screw (&). Fine adjustment to the stop can be made by loosening nut and turning stop screw. Loosen set screw and move arm to the down position.



Fig.17

ADJUSTING BLADE GUIDE ROLLER BEARINGS, CARBIDE BLADE GUIDES AND BACK UP BEARINGS

Before making the following adjustments make sure the blade is tracking and tensioned properly:

1. The back of the blade Fig. 18, should ride against the back up bearing. To adjust, loosen set screw and move the bearing up or down until it lightly touches the back of the blade.
2. The saw blade should also ride between and lightly touch the two blade guide roller bearings. The front bearing Fig. 18 and 19, is mounted on an eccentric and can easily be adjusted to suit blade thickness by loosening set screw and turning shaft Fig. 19.
3. The carbide blade guides Fig. 18, should also be adjusted so they lightly touch the blade by loosening screws.
4. The blade guide roller bearings, carbide blade guides and back-up bearing on holder Fig. 18 and 19 should be adjusted in the same manner.



Fig.18



Fig.19

SETTING UP THE MACHINE FOR OPERATION

1. Select the proper speed and blade for the type of material you are cutting.
2. Make sure the blade tension is adjusted properly.
3. Raise the saw frame and close the feed on/off knob.
4. Place the stock, between the vise jaws. Adjust the stock for the desired length of cut and tighten the

vise clamping hand wheel.

5. Make sure the blade guide arm (D) Fig. 20, is adjusted as close as possible to the workpiece.
6. Turn the machine on and adjust the coolant flow.
7. Turn the feed rate control knob, counterclockwise until the sawblade begins to lower at the desired rate of speed.
8. Proceed to cut through the workpiece. The motor and coolant pump will shut off upon completion of the cut.
9. After adjusting the down speed, saw frame position and down movement are controlled by on/off knob.



Fig.20

REMOVING AND INSTALLING THE BLADE



Fig.21

When it becomes necessary to replace the blade. Proceed as follows:

1. Disconnect the machine from the power source.
2. Raise the saw frame about 6" and close the feed on-off knob, by turning it clockwise as far as it will go."
3. Move the blade guide arm to the right, as shown in Fig. 21.
4. Loosen two screws and open upper blade guard.
5. Open both wheel covers, and clean the swarf out of the machine.
6. Release blade tension by turning the blade tension handwheel anticlockwise.
7. Remove the blade from both wheels and out of each blade guide.
8. Make sure the teeth of the new blade are pointing in the right direction. If necessary, turn the inside out.
9. Place the new blade on the wheels, in the blade guide and adjust blade tension and blade guides.

LUBRICATION HYDRAULIC SYSTEM

The hydraulic system on this machine consists of a hydraulic cylinder which is operated by a needle valve. The saw frame is raised by hand, and as this is done, oil passes to the underside of the piston. The restricted flow is regulated by the feed rate control knob and governs the speed that the saw frame lowers. If it ever becomes necessary to fill the hydraulic cylinder with oil, proceed as follows:

1. Place the saw frame in the down position.
2. Remove plug (A) Fig. 22. from the top of the hydraulic system and replace with a suitable hose fitting (B) Fig. 23. connect a clear hose (C) to the fitting, as shown.
3. Put approximately one quart of Mobil-DTE (light) oil, available in one-quart cans into a container (D) Fig. 23 place hose (C) in the container (D) making sure end of hose is submerged in the oil. Raise and lower saw arm until the bubbles disappear from inside the clear hose (C).
4. Remove hose fitting (B) Fig. 23. and replace plug (A) Fig. 22.

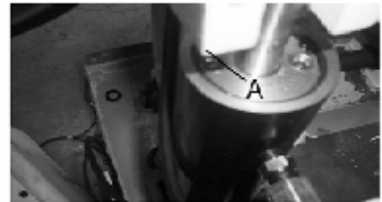


Fig.22

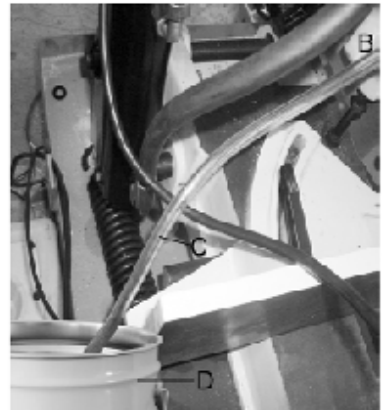


Fig.23

GEAR BOX

The gear box should be drained and refilled after the first 50 hours of use and thereafter every 5 months, with mobil synthetic gear oil meets or exceeds American gear manufacturers association (A.G.M.A.) #8 compounded cylinder oil specifications. This oil is available through Grainger's in 1 quart bottles as number SW061.

To change the gear box oil, proceed as follows:

1. Run the machine for 10 minutes to warm up the gear box.
2. Disconnect the machine from the power source.
3. Raise the saw arm to its maximum position and close the feed rate control knob.
4. Drain the gear box by removing screw (A) Fig. 24.
5. Replace screw (A) Fig. 24. and lower the saw arm to its lowest position.
6. Remove oil breather nut (B) Fig. 25.
7. Fill the gear box with oil through the oil hole (B) until the oil reach 1/3 volume in the oil window. Then replace oil breather nut (B).

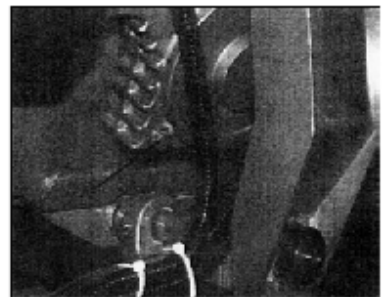


Fig.24

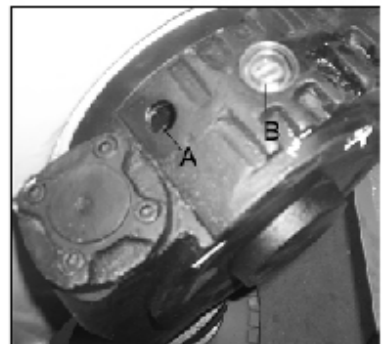


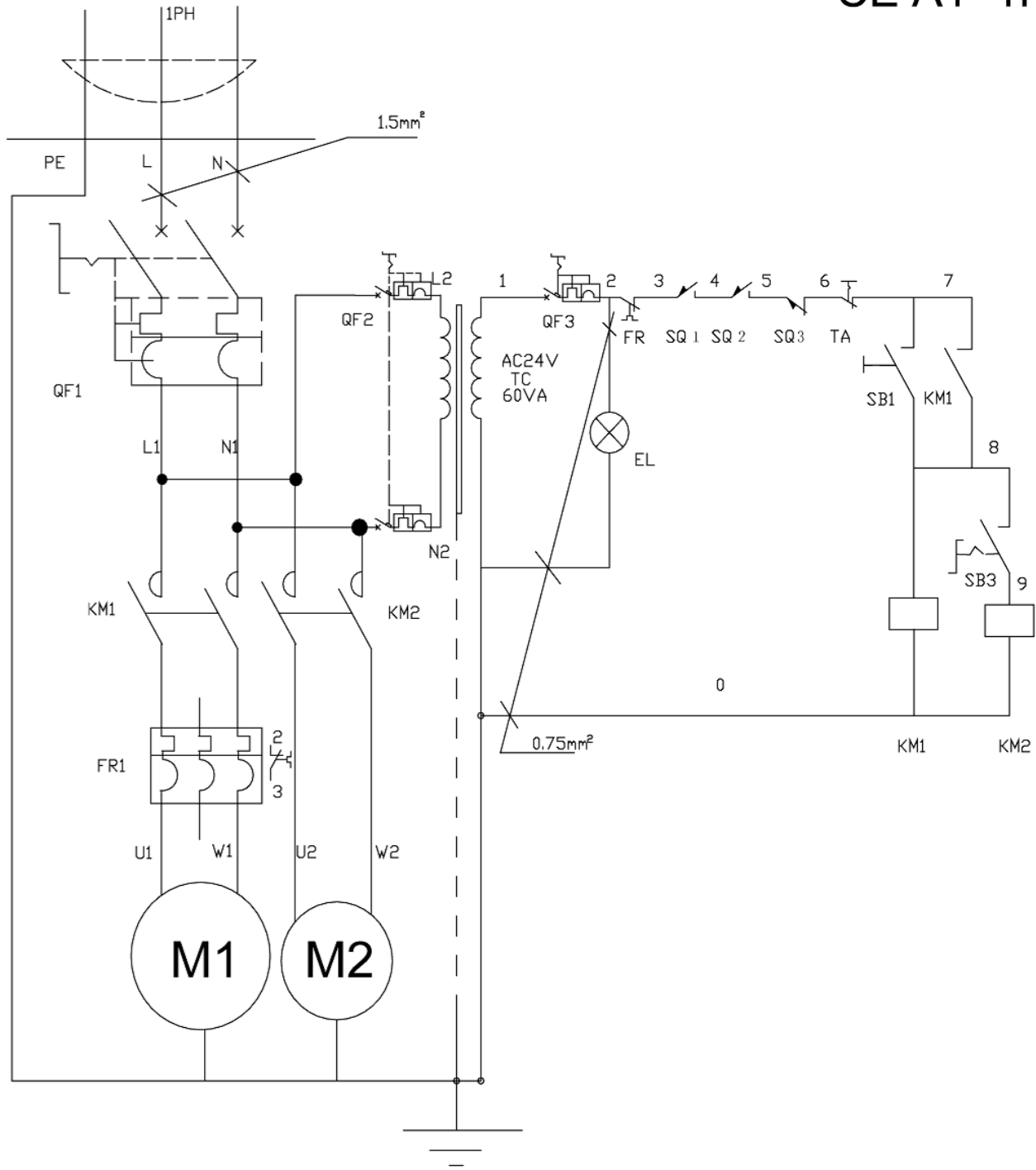
Fig.25

PIVOT BEARINGS

Occasionally lubricate the pivot bearings using a waterproof grease at the two zerk fittings (C) Fig. 24.

Symptom	Possible Cause (s)	Corrective Action
Excessive Blade Breakage	<ol style="list-style-type: none"> 1. Material loose in vise 2. Incorrect speed or feed 3. Blade teeth spacing too large 4. Material too coarse 5. Incorrect blade tension 6. Teeth in contact with material before saw is started 7. Blade rubs on wheel flange 8. Misaligned guide bearings 9. Cracking at weld 	<ol style="list-style-type: none"> 1. Clamp work securely 2. Adjust speed or feed 3. Replace with a small teeth spacing blade 4. Use a blade of slow speed and small teeth spacing 5. Adjust where blade just does not slip on wheel 6. Place blade in correct with work after motor is started 7. Adjust wheel alignment 8. Adjust guide bearings 9. Weld again, note the weld skill
Premature Blade Dulling	<ol style="list-style-type: none"> 1. Teeth too coarse 2. Too much speed 3. Inadequate feed pressure 4. Hard spots or scale on material 5. Work hardening of material 6. Blade twist 7. Insufficient blade 	<ol style="list-style-type: none"> 1. Use finer teeth 2. Decrease speed 3. Decrease spring tension on side of saw 4. Reduce speed, increase feed pressure 5. Increase feed pressure by reducing spring tension 6. Replace with a new blade, and adjust blade tension 7. Tighten blade tension adjustable knob
Unusual Wear on Side/Back of Blade	<ol style="list-style-type: none"> 1. Blade guides worn 2. Blade guide bearings not adjusted properly 3. Blade guide bearing bracket is loose 	<ol style="list-style-type: none"> 1. Replace 2. Adjust as per operators manual 3. Tighten

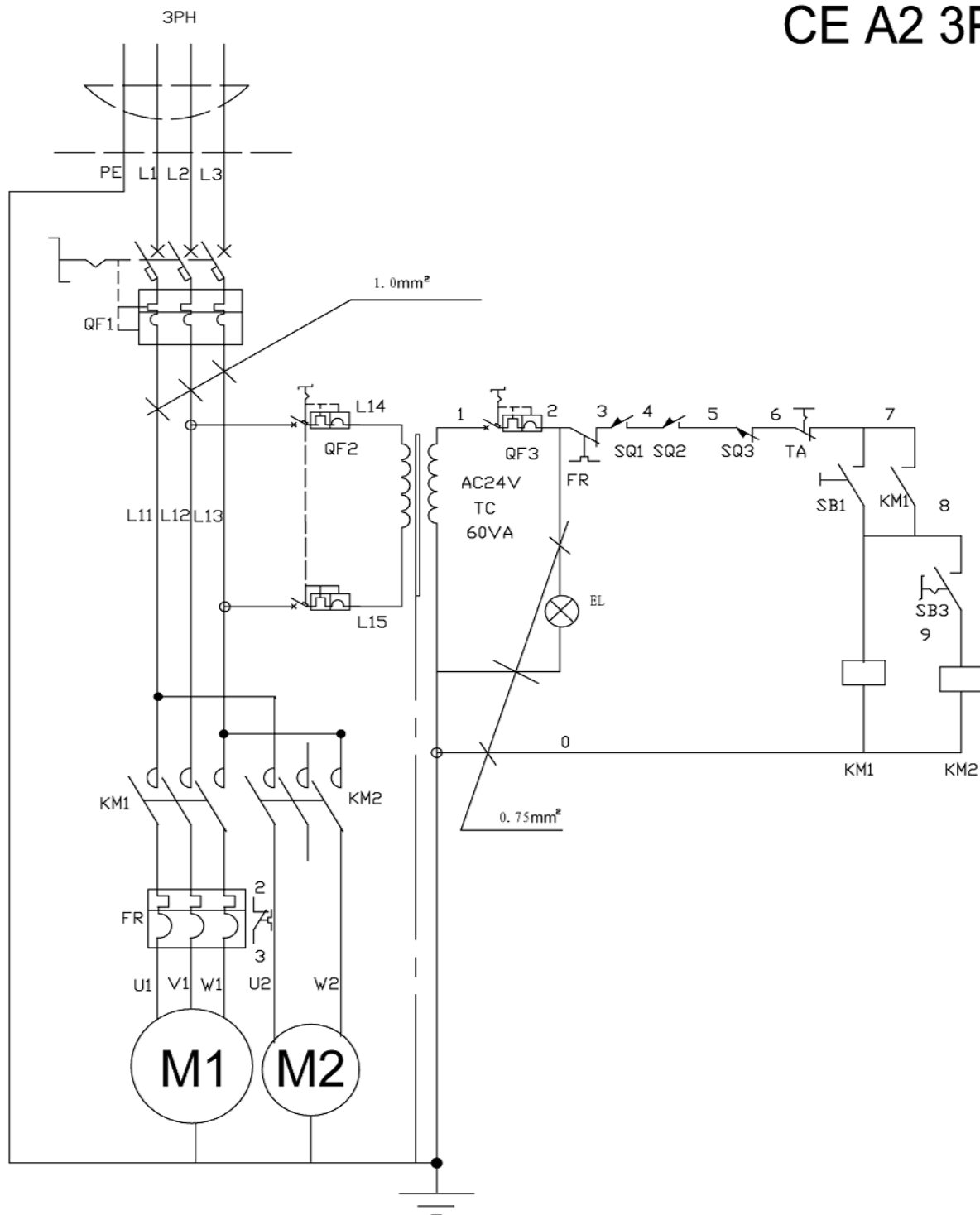
Symptom	Possible Cause (s)	Corrective Action
Teeth Ripping from Blade	<ol style="list-style-type: none"> 1.Tooth too coarse for work 2.Too heavy pressure, too slow speed 3.Vibrating work piece 4.Gullets loading 	<ol style="list-style-type: none"> 1.Use finer tooth blade 2.Decrease pressure, increase speed 3.Clamp work piece securely 4.Use coarse tooth blade or brush to remove chips
Motor running too hot	<ol style="list-style-type: none"> 1.Blade tension too high 2.Drive belt tension too high 3.Gears need lubrication 4.Cut is binding blade 5.Gears aligned improperly 	<ol style="list-style-type: none"> 1.Reduce tension on blade 2.Reduce tension on drive belt 3.Check oil bath 4.Decrease feed and speed 5.Adjust gears so that worm is in center of gear
Bad Cuts (Crooked)	<ol style="list-style-type: none"> 1.Feed pressure too great 2.Guide bearing not adjusted properly 3.Inadequate blade tension 4.Dull blade 5.Speed incorrect 6.Blade guide spaced out too much 7.Blade guide assembly loose 8.Blade truck too far away from wheel flanges 	<ol style="list-style-type: none"> 1.Reduce pressure by increasing spring tension on side of saw 2.Adjust guide bearing, the clearance can not be greater than 0.001mm 3.Increase blade tension by adjust blade tension 4.Replace blade 5.Adjust speed 6.Adjust guides space 7.Tighten 8.Re-track blade according to operating instructions
Bad Cuts (Rough)	<ol style="list-style-type: none"> 1.Too much speed or feed 2.Blade is too coarse 3.Blade tension loose 	<ol style="list-style-type: none"> 1.Decrease speed or feed 2.Replace with finer blade 3.Adjust blade tension
Blade is twisting	<ol style="list-style-type: none"> 1.Cut is binding blade 2.Too much blade tension 	<ol style="list-style-type: none"> 1.Decrease feed pressure 2.Decrease blade tension



230V 50Hz 1PH A1 Electric part list

No.	Name	Designation	Type&Specifications	Quantity
1	Main motor	M1	50HZ 1420r/min 1.5kw 1PH	1
2	Coolant pump	M2	400/230V 50HZ 40W	1
3	Transformer	TC	AC400,230/24V	1
4	Current Breaker	QF	DZ47-63 3P 10A / DZ47-63 2P 2A / DZ47-63 1P 1A	1/1/1
5	E.S.P.	TA	XB2-BX542	1
6	Indicator light	EL	XB2-BVD3	1
7	Contactor	KM	CN-6 AC24V 50HZ	2
8	Heat relay	FR	RHM-5N 8-12A	1
9	Limit switch	SQ1	QKS7 250V 10A	1
10	Interlocking switch	SQ2	QKS8 250V 10A	1
11	Start	SB	XB2-BE101	1
12	Stop	SA1	XB2-BE102	1
13	Start	SA2	XB2-ED21	1

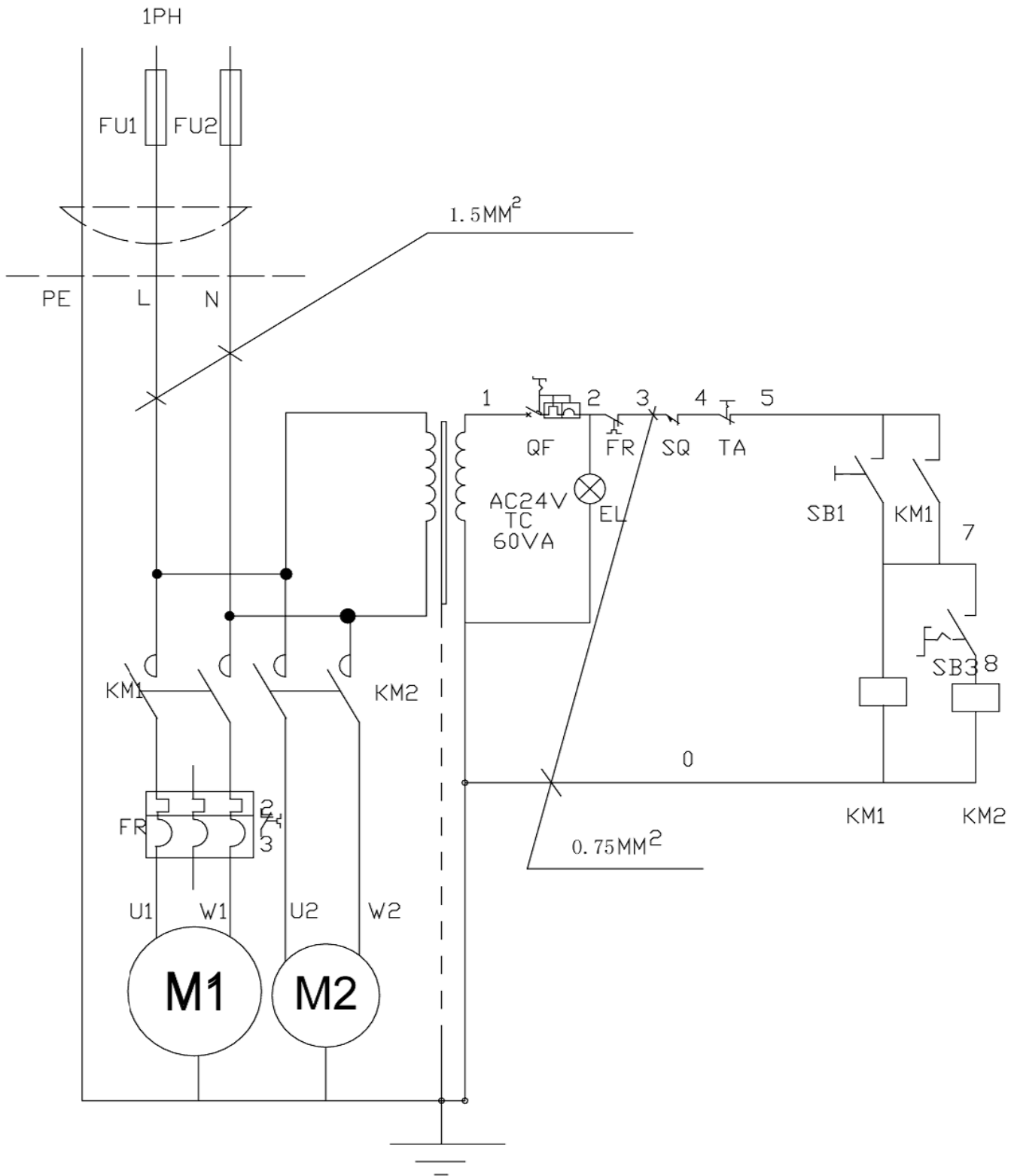
CE A2 3PH



400V 50Hz 3PH A2 Electric part list

No.	Name	Designation	Type&Specifications	Quantity
1	Main motor	M1	50HZ 1420r/min 1.5kw 3PH	1
2	Coolant pump	M2	400/230V 50HZ 40W	1
3	Transformer	TC	AC400,230/24V	1
4	Current Breaker	QF	DZ47-63 3P 5A / DZ47-63 2P 2A / DZ47-63 1P 1A	1/1/1
5	E.S.P.	TA	XB2-BX542	1
6	Indicator light	EL	XB2-BVD3	1
7	Contactor	KM	CN-6 AC24V 50HZ	2
8	Heat relay	FR	RHN-5M 2.4-3.6A	1
9	Limit switch	SQ1	QKS7 250V 10A	1
10	Interlocking switch	SQ2	QKS8 250V 10A	3
11	Start	SB	XB2-BE101	1
12	Stop	SA1	XB2-BE102	1
13	Start	SA2	XB2-ED21	1

B1 1PH



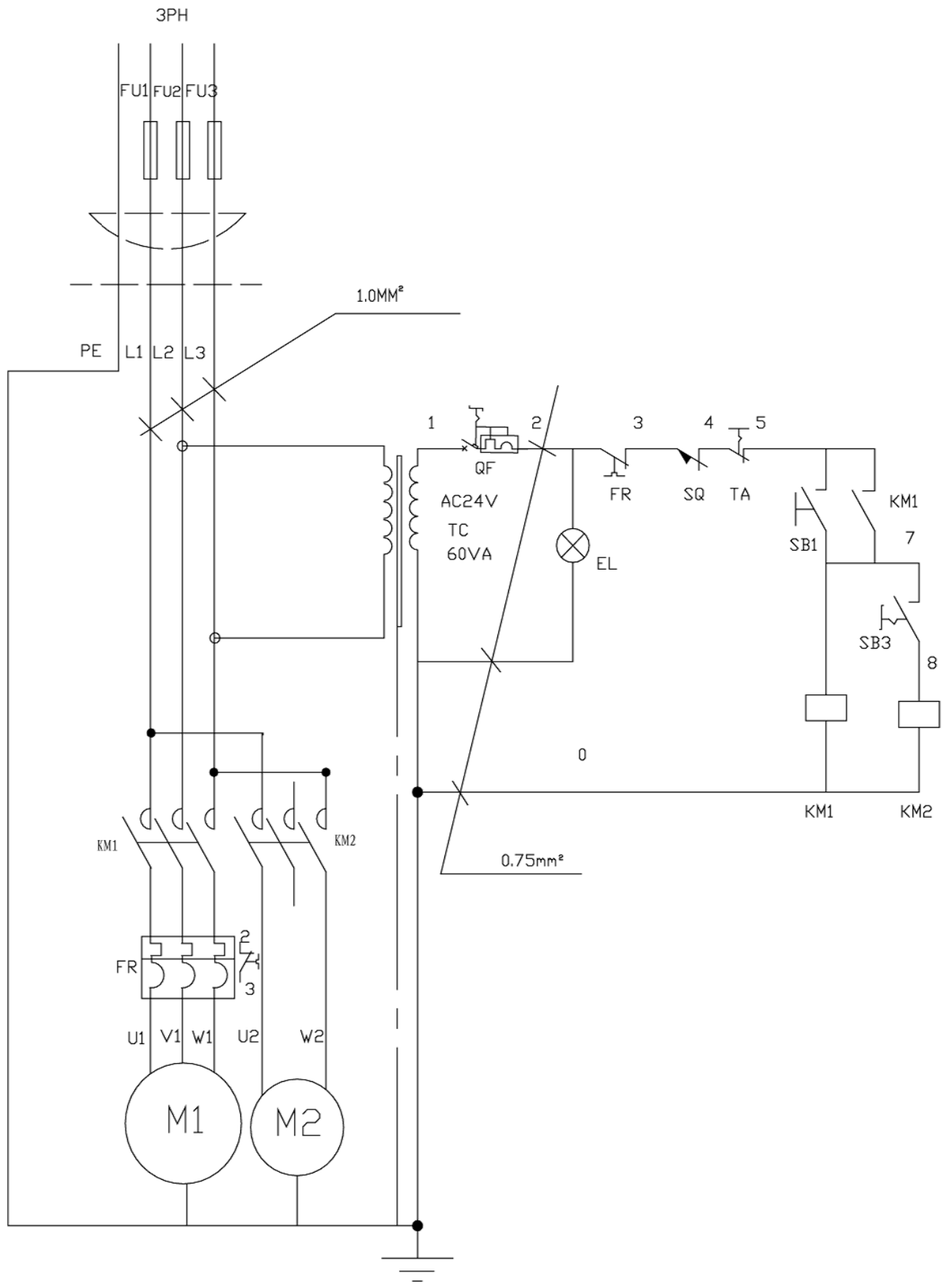
230V 50Hz 1PH B1 Electric part list

No.	Name	Designation	Type&Specifications	Quantity
1	Main motor	M1	50HZ 1420r/min 1.5kw 1PH	1
2	Coolant pump	M2	400/230V 50HZ 40W	1
3	Transformer	TC	AC400,230/24V	1
4	Current Breaker	QF	DZ47-63 1P 1A	1
5	E.S.P.	TA	XB2-BX542	1
6	Stop	SA1	XB2-BE102	1
7	Contactoer	KM	CN-9 AC24V 50HZ	2
8	Heat relay	FR	RHN-5M 8 -12A	1
9	Limit switch	SQ1	QKS7 250V 10A	1
10	Start	SA2	XB2-ED21	1
11	Start	SB	XB2-BE101	1

110V 60Hz 1PH B1 Electric part list

No.	Name	Designation	Type&Specifications	Quantity
1	Main motor	M1	60HZ 1700r/min 1.5kw 1PH	1
2	Coolant pump	M2	220/110V 60HZ 40W	1
3	Transformer	TC	AC220,110/24V	1
4	Current Breaker	QF	DZ47-63 1P 3A	1
5	E.S.P.	TA	XB2-BX542	1
6	Stop	SA1	XB2-BE102	1
7	Contactoer	KM	CN-9 AC24V 50HZ	2
8	Heat relay	FR	RHN-5M 17-22A	1
9	Limit switch	SQ1	QKS7 250V 10A	1
10	Start	SA2	XB2-ED21	1
11	Start	SB	XB2-BE101	1

B2 3PH



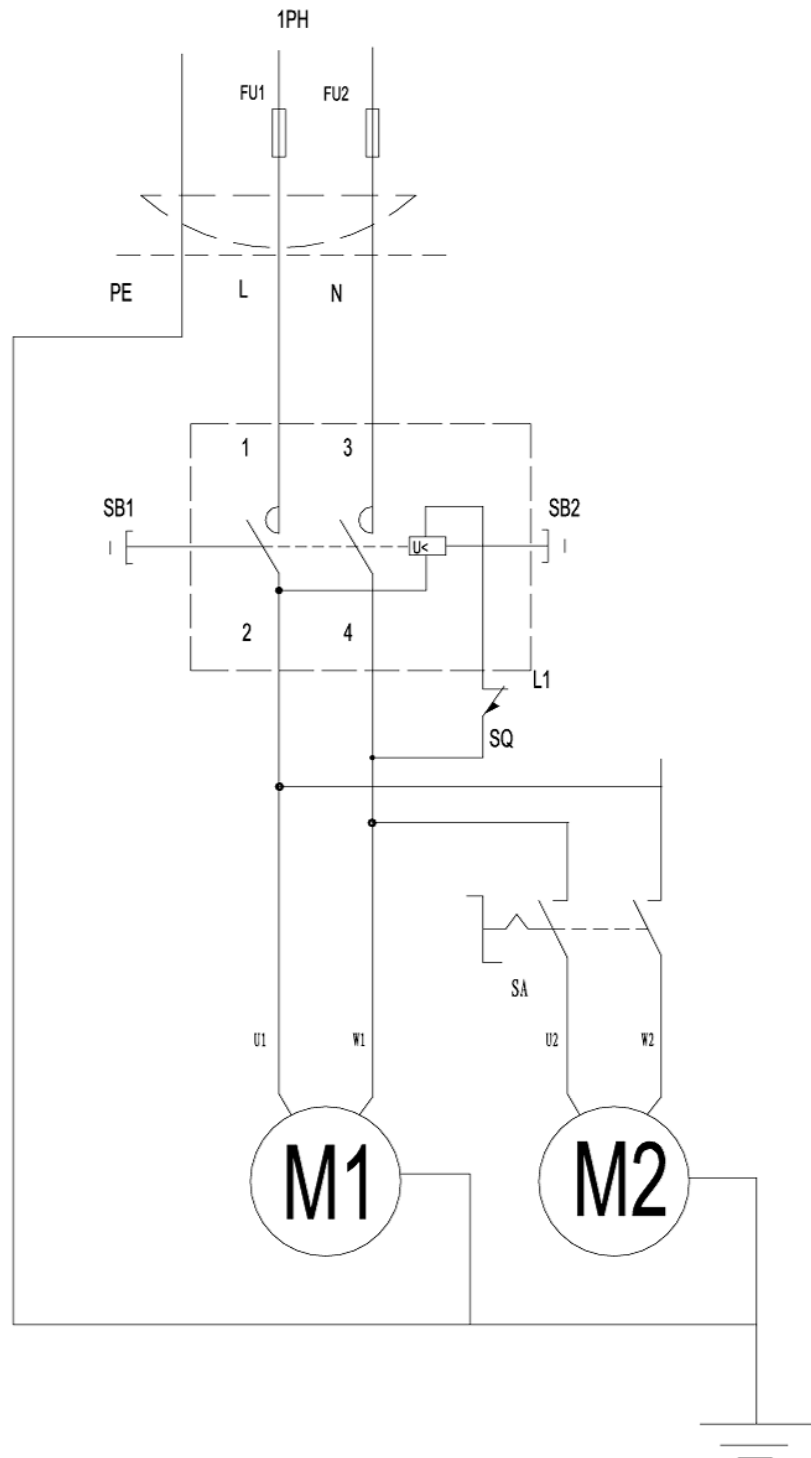
220V 60Hz 3PH B2 Electric part list

No.	Name	Designation	Type&Specifications	Quantity
1	Main motor	M1	60HZ 1700r/min 1.5kw 3PH	1
2	Coolant pump	M2	220V /110V 60HZ 40W	1
3	Transformer	TC	AC220/110V /24V	1
4	Current Breaker	QF	DZ47-63 1P 1A	1
5	E.S.P.	TA	XB2-BX542	1
6	Stop	SA1	XB2-BE102	1
7	Contactor	KM	CN-9 AC24V 50HZ	2
8	Heat relay	FR	RHM-5N 5.5-8.5A	1
9	Limit switch	SQ1	QKS7 250V 10A	1
10	Start	SA2	XB2-ED21	1
11	Start	SB	XB2-BE101	1

400V 50Hz 3PH B2 Electric part list

No.	Name	Designation	Type&Specifications	Quantity
1	Main motor	M1	50HZ 1420r/min 1.5kw 3PH	1
2	Coolant pump	M2	400V /230V 50HZ 40W	1
3	Transformer	TC	AC400/230V /24V	1
4	Current Breaker	QF	DZ47-63 1P 1A	1
5	E.S.P.	TA	XB2-BX542	1
6	Stop	SA1	XB2-BE102	1
7	Contactor	KM	CN-6AC24V 50HZ	2
8	Heat relay	FR	RHM-5N 2.4-3.6A	1
9	Limit switch	SQ1	QKS7 250V 10A	1
10	Start	SA2	XB2-ED21	1
11	Start	SB	XB2-BE101	1

C 1PH



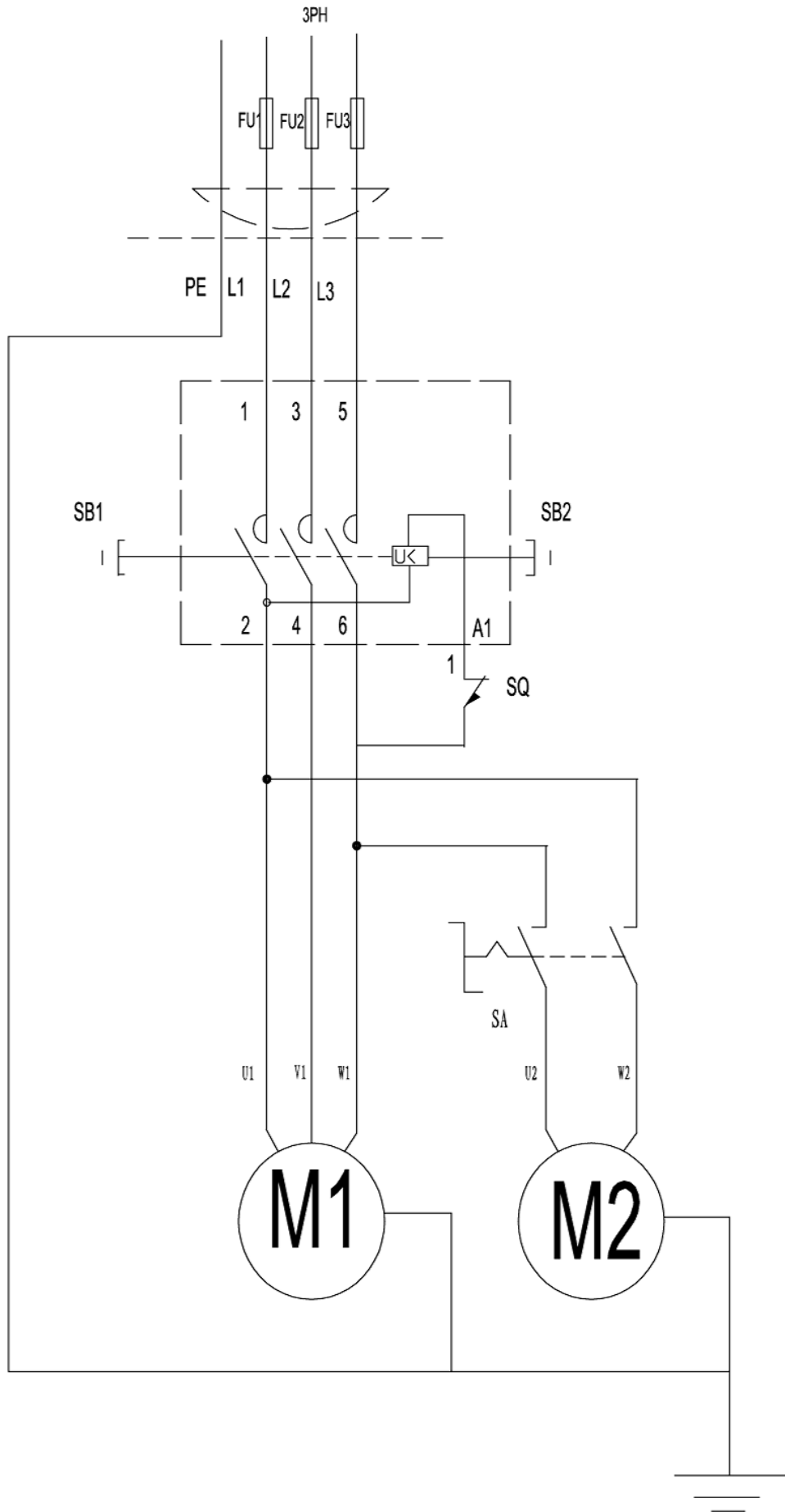
230V 50Hz 1PH C Electric part list

No.	Name	Designation	Type&Specifications	Quantity
1	Main motor	M1	50HZ 1420r/min 1.5kw 1PH	1
2	Coolant pump	M2	400/230V 50HZ 40W	1
3	Electro magnetic switch	SB	CK5	1
4	Start	SA	XB2-ED21	1
5	Limit switch	SQ1	QKS7 250V 10A	1

110V 60Hz 1PH C Electric part list

No.	Name	Designation	Type&Specifications	Quantity
1	Main motor	M1	60HZ 1700r/min 1.5kw 3PH	1
2	Coolant pump	M2	220/110V 60HZ 40W	1
3	Electro magnetic switch	SB	CK5	1
4	Start	SA	XB2-ED21	1
5	Limit switch	SQ1	QKS7 250V 10A	1

C 3PH



220V 60HZ 3PH C Electric part list

No.	Name	Designation	Type&Specifications	Quantity
1	Main motor	M1	60HZ 1700r/min 1.5kw 3PH	1
2	Coolant pump	M2	220/110V 60HZ 40W	1
3	Electro magnetic switch	SB	CK31	1
4	Start	SA	XB2-ED21	1
5	Limit switch	SQ1	QKS7 250V 10A	1

575V 50HZ 3PH C Electric part list

No.	Name	Designation	Type&Specifications	Quantity
1	Main motor	M1	50HZ 1420r/min 1.5kw 3PH	1
2	Coolant pump	M2	575V 500HZ 40W	1
3	Push button switch	SB	NP5-230	1
4	Start	SA	XB2-ED21	1

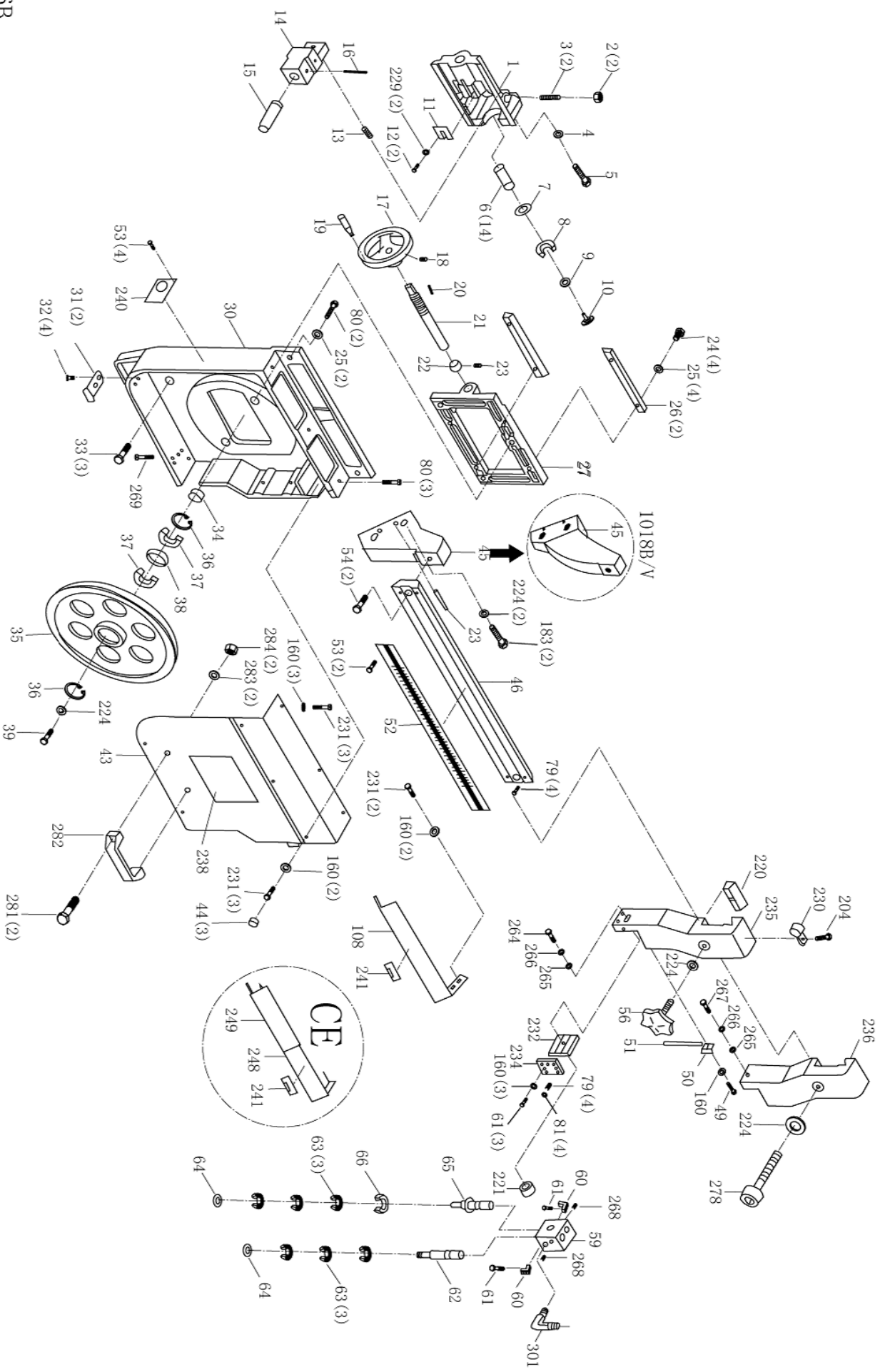
400V 50HZ 3PH C Electric part list

No.	Name	Designation	Type&Specifications	Quantity
1	Main motor	M1	50HZ 1400r/min 1.5kw 3PH	1
2	Coolant pump	M2	400/230V 50HZ 40W	1
3	Electro magnetic switch	SB	CK31	1
4	Start	SA	XB2-ED21	1
5	Limit switch	SQ1	QKS7 250V 10A	1

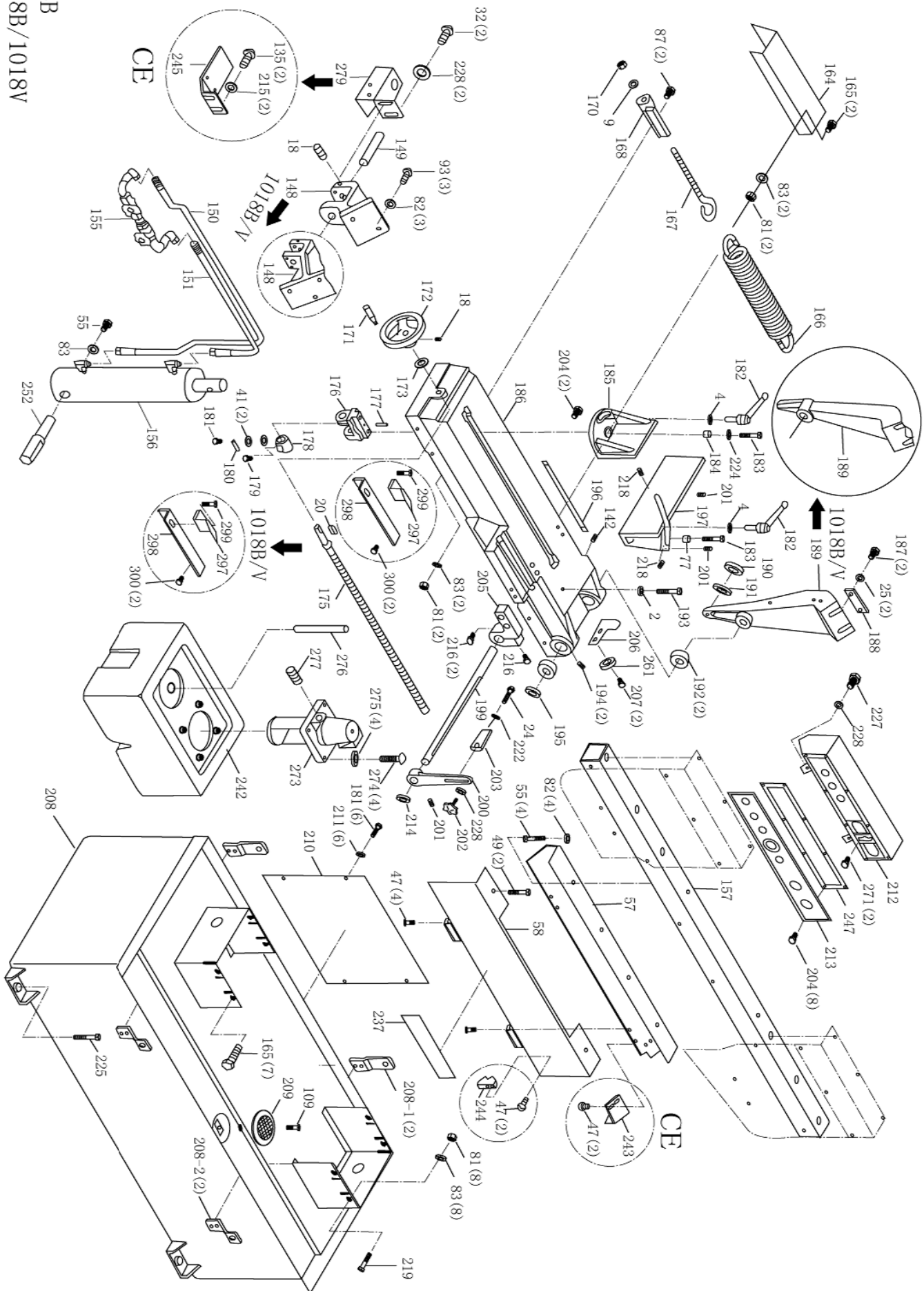
Part No.	Description	Qty	Part No.	Description	Qty
1	Slide	1	47	Cross tablet head screw	8
2	Hex. Nut	3	48	Column right support	1
3	Special set screw	2	49	Column right support	1
4	Washer	3	50	Bracket	3
5	Hex. Head cap screw	1	51	Hose rib	1
6	Disc spring	14	52	Scale	1
7	Indicator dial	1	53	Rivet	1
8	Bearing	1	54	Hex. Socket head screw	6
9	Washer	2	55	Hex. Head screw	2
10	Hex. head screw	1	56	Blade adjustable knob	6
11	Scale	1	57	Blade lower protector	1
12	Cross round head screw	2	57	Blade lower protector	1
13	Spring	1	58	Upper blade cover	1
14	Bracket	1	59	Upper blade cover	1
15	Shaft	1	60	Carbide guide	4
16	Pin	1	61	Hex. Socket head screw	9
17	Wheel	1	62	Eccentric shaft	2
18	Hex. Socket headless screw	14	63	Bearing	12
19	Knob	1	64	C-retaining ring	4
20	Key	1	65	Bearing shaft	2
21	Lead screw	1	66	Bearing	4
22	Collar	1	67	Hose	1
23	Pin	3	68	Hose clamp	3
24	Hex. Head screw	4	69	Hose fitting	1
25	Spring washer	6	70	Hex. Socket head screw	2
26	Spring washer	3	71	Bracket	1
27	Gib	2	72	Valve	2
28	Bracket	1	73	Nozzle	1
29	Socket head cap screw	3	74	Pivot shaft	1
30	Idle wheel box	1	75	Drive wheel box	1
31	Bracket	4	75	Drive wheel box	1
32	Cross round head screw	10	76	Hose	1
33	Hex. Socket headless screw	3	77	Bushing	1
34	Bushing	1	78	Hose fitting	1
35	Idle wheel	1	79	Hex. Socket set screw	5
36	C-retaining ring	2	80	Socket head cap screw	10
37	Bearing	2	81	Hex. Nut	20
38	Bearing spacer	1	82	Spring washer	3
39	Hex. Head screw	1	83	Washer	21
41	Spring washer	2	84	Motor plate	1
43	Idle wheel cover	1	85	C-retaining ring	2
44	Plastic bushing	6	86	Pivot shaft	1
45	Left column support	1	87	Hex. Head screw	5
45	Left column support	1	88	Bracket	1
46	Column	1	89	Motor adjustable rod	1

Part No.	Description	Qty	Part No.	Description	Qty
90	Knob w/shaft	2	151	Hose w/tube fitting	1
92	Blade	1	155	Valve	1
92	Blade	1	156	Cylinder assembly	1
93	Socket head cap screw	2	156	Cylinder assembly	1
94	Drive wheel	1	157	Column	1
95	Hex. Socket headless screw	2	157	Column	1
96	Wheel cover	1	160	Spring washer	10
97	Hex. Nut	4	164	Spring cover	1
98	Brush cover	1	165	Hex. Head screw	2
99	Spring	1	165	Hex. head screw	7
100	Pin	1	166	Spring	1
101	Blade adjustable (rear)	1	167	Eye bolt	1
102	Triangle head screw	2	168	Spring bracket	1
103	Brush shaft	1	170	Hex. Nut	1
104	Bushing	1	171	Knob	1
106	Brush	1	172	Wheel	1
107	Cross round head screw	2	173	Washer	1
108	Blade guard	1	175	Acme screw	1
109	Hex. Head screw	1	176	Bracket	1
112	Hex. Head screw	3	177	Pin	1
125	Gear box assembly	1	178	Acme nut	1
137	Cross tablet head screw	4	179	Button	1
138	Motor pulley cover	1	180	Retainer	1
138	Motor pulley cover	1	181	Cross round head screw	8
139	Pulley bottom cover	1	182	Knob	1
139	Motor pulley cover assembly	1	183	Hex. Socket head screw	8
139	Pulley bottom cover	1	184	Bushing	1
140	Cross round head screw	3	185	Vise jaw bracket (front)	1
141	Motor pulley	1	186	Swivel base	1
141	Variable speed pulley	1	187	Hex. Head screw	2
142	Hex. Socket headless screw	3	188	Washer	1
143	Spindle pulley	1	189	Rear pivot bracket	1
143	Spindle pulley	1	189	Rear pivot bracket	1
144	Belt	1	190	Model label	2
144	Belt	1	191	Star washer	2
145	Motor	1	192	Bearing	2
146	Key	2	193	Hex. Head screw	1
147	Hex. Socket head screw	6	193	Hex. Head screw	1
148	Cylinder upper bracket	1	194	Nipple	2
148	Cylinder upper bracket	1	195	Washer	1
149	Pivot pin	1	196	Degree-meter	1
150	Hose w/tube fitting	1	197	Vise jaw bracket (rear)	1

Part No.	Description	Qty	Part No.	Description	Qty
198	Fixed plate	1	238	Speed label	1
198	Fixed plate	1	239	Warning label	1
199	Distance set rod	1	240	Tension label	1
200	Support rod	1	241	Blade label	1
201	Hex. headless screw	3	242	Coolant tank	1
202	Screw	1	243	Micro switch bracket	1
203	Distance set bracket	1	244	Micro control block	1
204	Cross tablet head screw	11	245	Switch bracket	1
205	Bracket	1	247	Gear box gasket	1
206	Position set bracket	1	248	Blade guard (1)	1
207	Hex. Head screw	2	249	Blade guard (2)	1
208	Stand	1	250	Key	1
208-1	Subsidiary plate (left)	1	252	Pivot shaft	1
208-2	Subsidiary plate (right)	1	260	Chip tray	1
209	Filter	1	261	Washer	1
210	Cover	1	262	Valve	1
211	Spring washer	1	263	Hose fitting	1
212	Control box	1	264	Hex. Socket head screw	1
213	Name plate	1	265	Washer	2
214	C-retaining ring	1	266	Spring washer	2
215	Washer	3	267	Hex. Socket head screw	1
217	Hex. Socket head screw	2	268	Hex. headless screw	4
218	Hex. Socket headless screw	2	269	Hex. Socket head screw	1
219	Hex. Head screw	8	271	Flat cross head screw	2
220	Gib	1	273	Cooling pump	1
221	Bearing spacer	2	274	Cross round head screw	4
222	Hex. Nut	1	275	Washer	4
223	Hose	1	275	Hose	1
224	Washer	10	277	Coupler	1
225	Hex. Head .screw	4	279	Switch adjusting bracket	1
225-1	Hex. Nut	4	280	Stopper	1
227	Hex. Head screw	1	281	Hex. Socket head screw	4
228	Spring washer	7	282	Knob	2
229	Start washer	2	283	Spring washer	4
230	Hose clamp	1	284	Hex. Nut	4
231	Hex. Socket head screw	16	285	Grip	1
232	Support seat	1	286	Cross round head screw	1
233	Adjustable fixing plate (right)	1	297	Fixed plate	1
234	Adjustable fixing plate (left)	1	298	Fixed plate	1
235	Arm (left)	1	298	Fixed plate	1
236	Arm (right)	1	299	Hex. Head screw	1
237	Model label	1	300	Hex. Head screw	2
238	Speed label	1	301	Micro control block	1



916B
1018B/1018V



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