BX-834 / BX-834V / BX-840VB

Instruction Manual

CE

TOOLTEK CO.,428 Taichung ,Taiwan
Walter Meier (Tool) AG,CH-8117
Fällanden
TOOL(France)Sarl,F-91029 Evry

CAUTION: BEFORE USING THE MACHINE BE SURE TO READ THIS MANUAL

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1-1. Unpacking:

Before unpacking, make sure the carton configuration have no damaged, broken or parts extruded, if found above defect case, contact to your retailer for change a new one as soon as possible.

Unpacking procedure:

1. Carefully open the carton. (Pull it from the bottom to the top)

2. Take out and read the manual, check parts list and relative ancillary.

3. Inspect the machine outline if it is in normal condition or not. Crack, rust, collapse and separated are strictly prohibited.

4. Cleaning the surface of the machine.

5. Assembly the drill machine base on manual, instruction guide.

1-2. Transportation instruction:

1. Please refer to instruction manual in specification and machine weight to arrange handling manner. Be sure to use capable fork – lifter or hoist to lift of machine.

2. The handling and transportation shall be carried out by qualified persons.

3. Fork – lift or hoist can be used in handling and shall be operated by qualified driver.

4. While transportation, keep attention to the balance of machine.

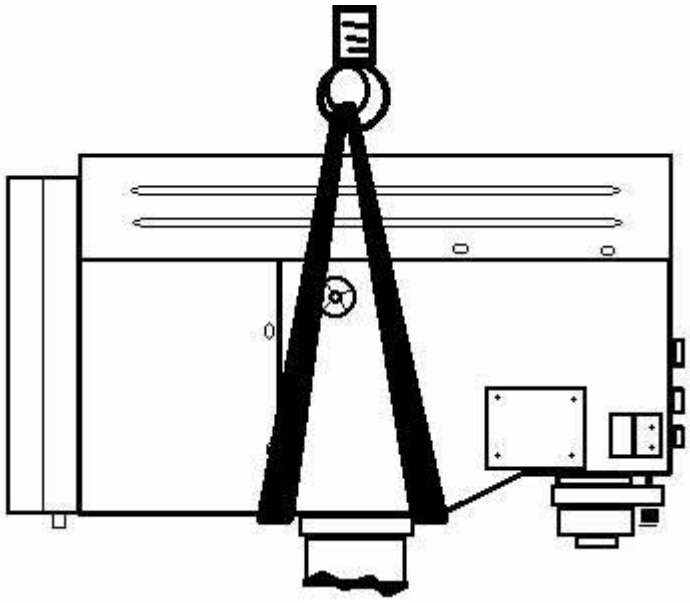
5. During handling, the machine shall be lifted only in vertical direction.

6. Before handling, make sure all movable parts are secured in their position and all movable accessories should be removed from machine.

7. The steel rope should average pull the machine head, table and column tightly.

8. Keep all the process in a carefully and slightly condition.

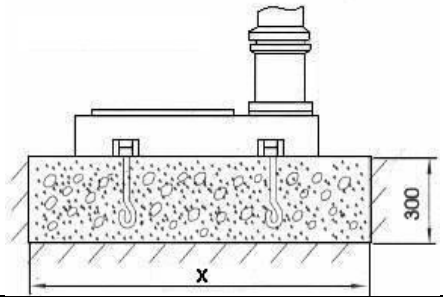
9. Bump or crash are strictly prohibited. It will cause precision shift and electronic controller damaged.



1-3. Setting the machine instruction:

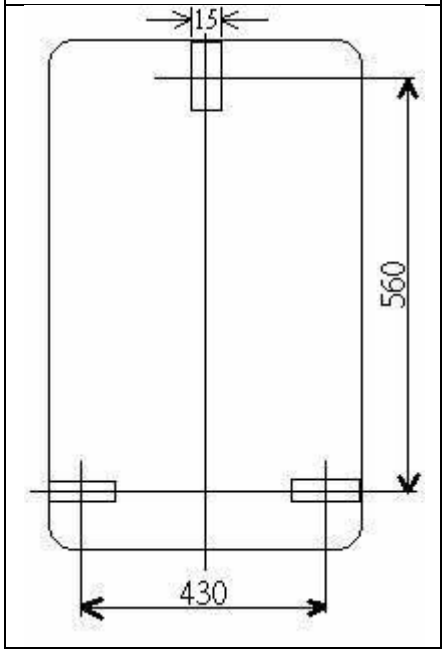
1.The machine base with setting hole will be setting the machine on concrete floor.

2.Recommended the high of dimension switch operation is 1.4 -1.6 M.

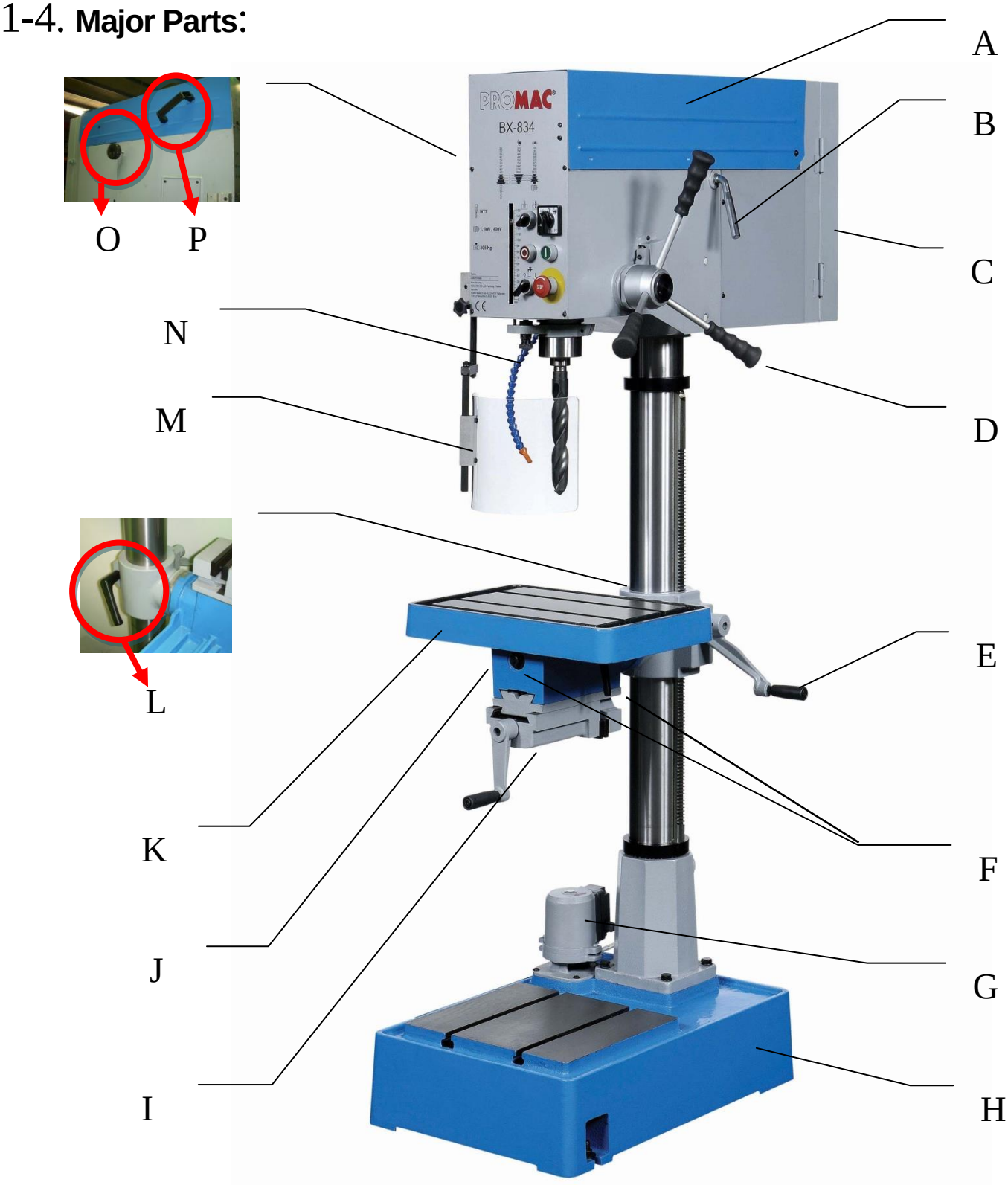
The outlined procedures of setting the machine	MODEL	AREA	SETTED SCREW
	BX-834	X=900×700	M12
	BX-834V	X=900×700	M12
	BX-840VB	X=900×700	M12

3. The dimension of setting hole:

BX-834/834V/840VB



1-4. Major Parts:



A= Pulley Cover	I= Vice 3” (For BX-834V or BX-834)
B= Motor Handle	J= Vice Lock (For BX-834V or BX-834)
C= Switch cover	K= Table
D= Feed Handle	L= Clamp Handle
E= Table Handle	M= Safety Guard
F= Table Lock (For BX-834V or BX-834)	N= Pump Valve Lock
G= Pump Motor	O=Belt Tension Lock
H= Base	P=Belt Cover Handle

2. Safety Instruction:

Read Instruction Manual before operating the machine for your own safety.

1.Make sure the power voltage is for the machine. Before connecting the plug to socket, it is necessary to check the power spec. to avoid damaged occurred.

2. During the machine is not used for a long time, the plug should be disconnected.

3. Never stand the power cable near the fire or water environment, any broken or pressed of power cable is not allowed.

4. It shall be stable and securely fixed in machine installation procedure for the machine to be used safety.

5. The working piece must be tightly fixed on table by vise or clamp.

6. Use recommended cutting liquid, consult the owner's manual for recommended.

7. Feed speed should be executed under safety scope, please refer to manual 3-3.

8. Wear proper apparel, no loose clothing, gloves, neckties, ring, bracelet to get caught in operation. Always wear safety glasses, cap and specific clothes.

9. Check all parts are in place and securely locked before transportation. Bump and crash are prohibited.

10. Routing maintenance and repaired should be executed follow the rules of manual.

11.Recommended use the industrial suction to clean the chip .

12.Recommended move the working piece which the weight over 10 kg used carrier move it.

13.Recommended wear safety gloves when install the drilling bit or tooling to avoid hurt your hand.

14.This machine only be used following material brass, cast iron, steel, iron, aluminum .

15. It is prohibited to open the pulley cover in operation.

16. It is prohibited to use damaged or cracked parts

17. It is prohibited to removed the guard cover away in operation.

18. It is prohibited to move the table when machine in operation.

19. It is prohibited to operate this machine beyond the limit of its capacity,

20.Refer to this instruction for details.

21. It is prohibited to insert one's hand or finger into the hole of working piece in operation.

22. It is prohibited all visitors and children should stand near work area while the machine in operation.

23. It is prohibited to wear gloves, neckties, ring, bracelet and loose clothing in operation.

24. It is prohibited to use plastic and wooden working.

25.Check again before switch on power,
A-Make sure the power voltage is for the machine.
B- Make sure the machine is completely assembled and installed
C- Make sure chuck, working table, working piece are completely secured or tightly fixed.
D- Make sure the chuck key is removed from chuck.
E- Make sure drill bit or tooling need to be fixed in the chuck.

26.Switch off power at once;
A-When fixed or removed working piece.
B-When the normal maintenance, service , adjustment or repairing.
C-When the operator leave the machine.
D-When corrected work table adjustment and depth position.
E-When change or remove the drilling bit or tooling.

27. Working temp.5 --- 40℃,Humidity 40--- 50,Elevation 0 ---1000 M

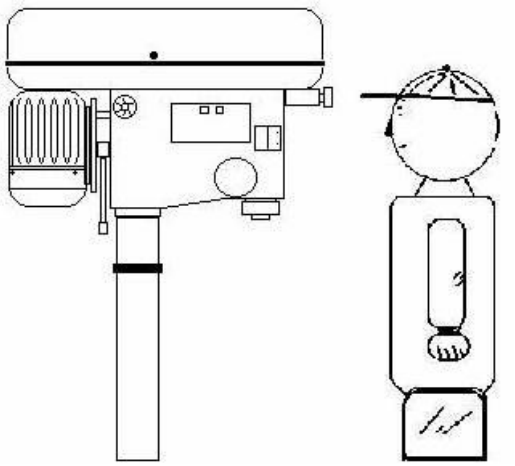
Storage temp -25--- 55℃

28.Operate location diagram for reference.

Diagram 1

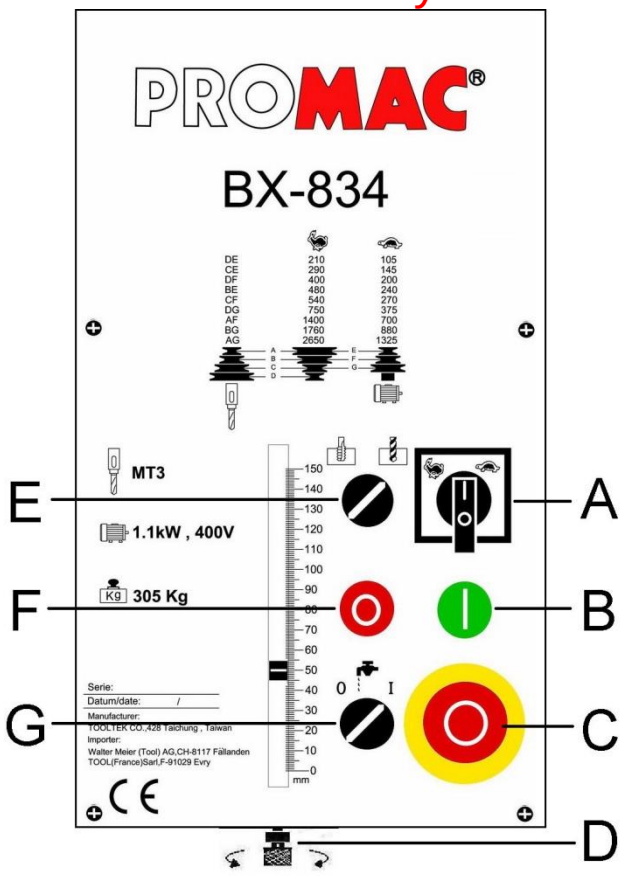
MODEL	Ultimate loading
BX-834	70 kg
BX-834V	70 kg
BX-840VB	50 kg

Diagram 2



3-1. Control panel instruction:

BX-834 only



A. Jkm Cam Switch (high/low)

B. Start Button

C. Emergency Stop Button

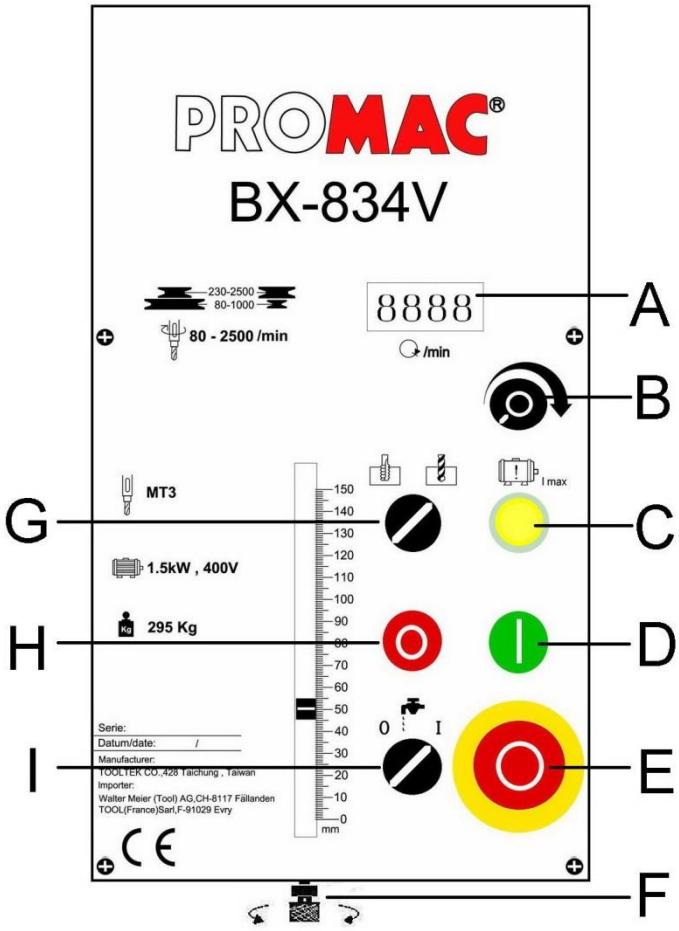
D. Feed Depth Adjustment

E. Drill / Tap Switch

F. Stop Button

G. Cutting Liquid Control Switch

For BX-834V or BX-840VB



A. min-1 or /min (R.P.M.) Indicator

B. Speed Control Switch

C. Fault light

D. Start Button

E. Emergency Stop Button

F. Feed Depth Adjustment

G. Drill / Tap Switch

H. Stop Button

I. Cutting Liquid Control Switch

3-2. Operation illustration and procedure:

1. Drill / Tap switch : For changing the machine to Drill Mode or Tap Mode.

2. Work table and vise adjustment (for BX-834V / BX-834 only)
   Loose the work table and vise set screw then turn the work table 180 degree, let the vise be upside. Then completely tight the set bolt.

3. There are two T grooves in the worktable. It is used to fix the work piece.

4. There are two T grooves in the base, too. It is convenient for fixed the longer, heavier and larger working piece.

5. Spindle speed adjustment is controlled by the speed control switch. The speed will be showed out in the electronic digital meter. (for BX-834V/BX-840VB only)

6. The belt tension could be adjusted by a quickly crank in the right side of the machine head.

7. The pulley cover is strictly prohibited to open in normal operation condition.

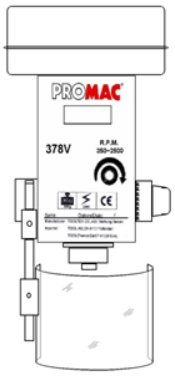
8. Do not adjust the worktable when machine in operation.

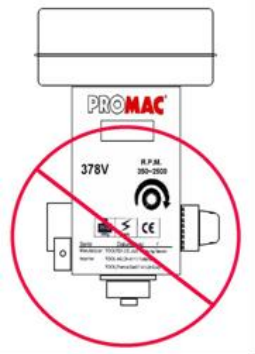
9. Protect safety guard shall be allocated in a proper position in operation. It is controlled by a micro witch.

10. If it needs to stop urgently, just push the emergency stop switch.

11. These machines have special design for tapping, a quick change device.
    During tapping, if you want spindle to turn reversely and withdraw tapping tip, just pull up grip handle only. If you want to continue to operate, just press down grip handle.

Chuck Protection Guard





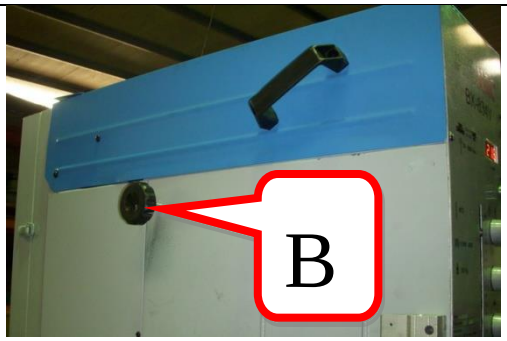
3-3. **Operation tips:** **Speed Selection**

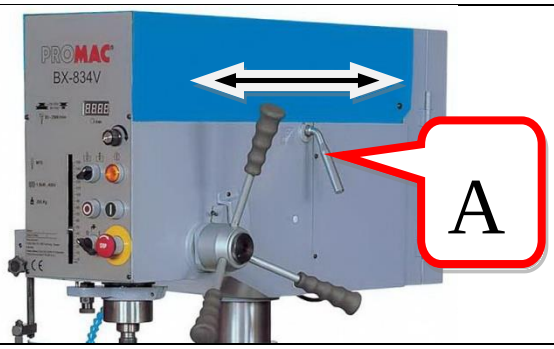
Open pulley case and check if spindle speed min-1or/min (R.P.M.) is correct for your job.

Recommended

Drill m/m	Material									
	Cast Iron		Steel		Iron		Aluminium		Alloy Copper	
⌀2	4780	2390	1275	635	3980	1910	7960	3980	4460	2230
⌀3	3185	1590	850	425	2650	1275	5310	2655	2970	1485
⌀4	2390	1195	640	320	1990	955	3980	1990	2230	1115
⌀5	1910	955	510	255	1590	765	3185	1590	1785	890
⌀6	1590	795	425	210	1330	640	2655	1330	1485	745
⌀7	1365	680	365	180	1140	545	2275	1140	1275	635
⌀8	1195	600	320	160	995	480	1990	995	1115	555
⌀9	1060	530	285	140	885	425	1770	885	990	495
⌀10	955	480	255	125	800	380	1590	800	890	445
⌀11	870	435	230	115	725	350	1450	725	910	405
⌀12	795	400	210	105	665	320	1330	665	745	370
⌀13	735	365	195	100	610	295	1225	610	685	340
⌀14	680	340	180	90	570	270	1135	570	635	320
⌀15	640	320	170	85	530	255	1060	530	600	300
⌀16	600	300	160	80	500	240	995	500	560	280
⌀17	560	280	150	75	470	225	935	470	525	260
⌀18	530	265	140	70	440	210	885	440	495	250
⌀19	500	250	135	67	420	200	835	420	470	235
⌀20	480	240	130	65	400	190	795	400	445	225
⌀25	380	190	100	50	320	155	640	320	355	180
⌀30	320	160	85	45	265	130	530	265	300	150
⌀40	240	120	65	30	200	95	400	200	225	110
note	Processing is adjustable on the cutting materials as well as the material of the cutting to real cutting conditions.									

BX-834 / BX-834V / BX-840VB

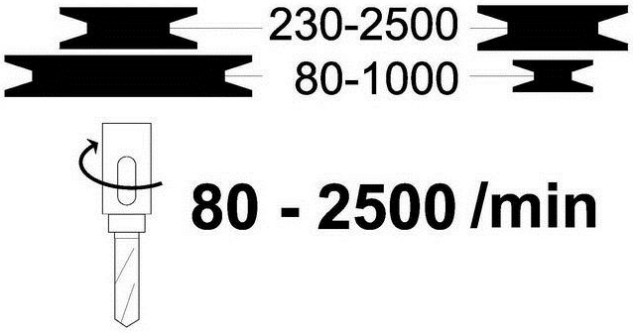




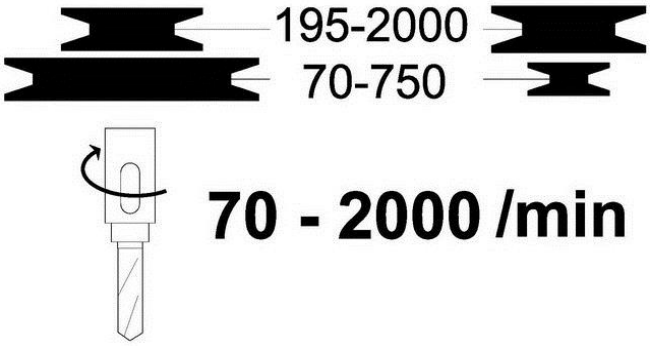
1. Loosen knobs B on both sides of headstock.
2. Push handle A forward as arrow sign to get belt tension.
3.Lock knobs B firmly to fix belt tension.

When speed change is required. Loosen lead bolt (parts no. 22-S2) on both side of headstock. Pull belt handle (parts no. 26) to allow belts repositioning and then move belts to correct groove to acquire desired speed. See following speed chart for refeence.

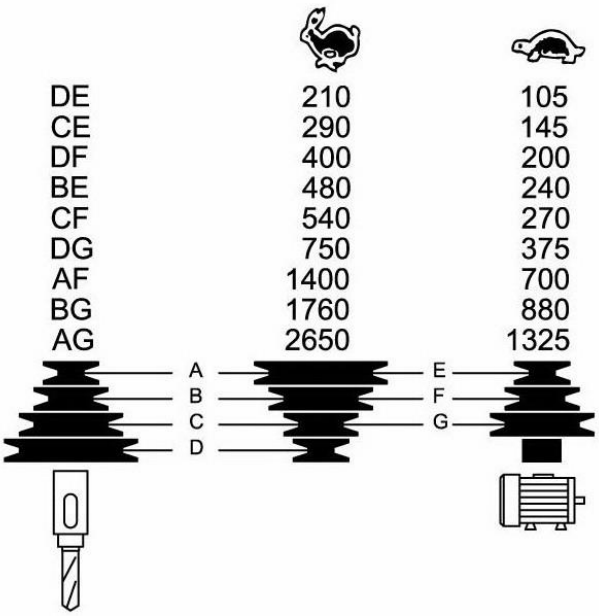
For BX-834V



For BX-840VB

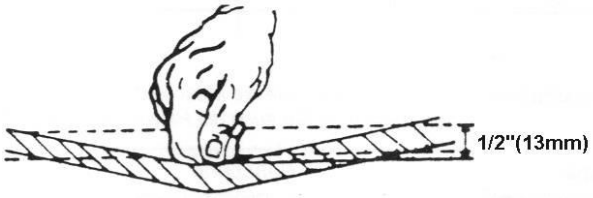


For BX-834

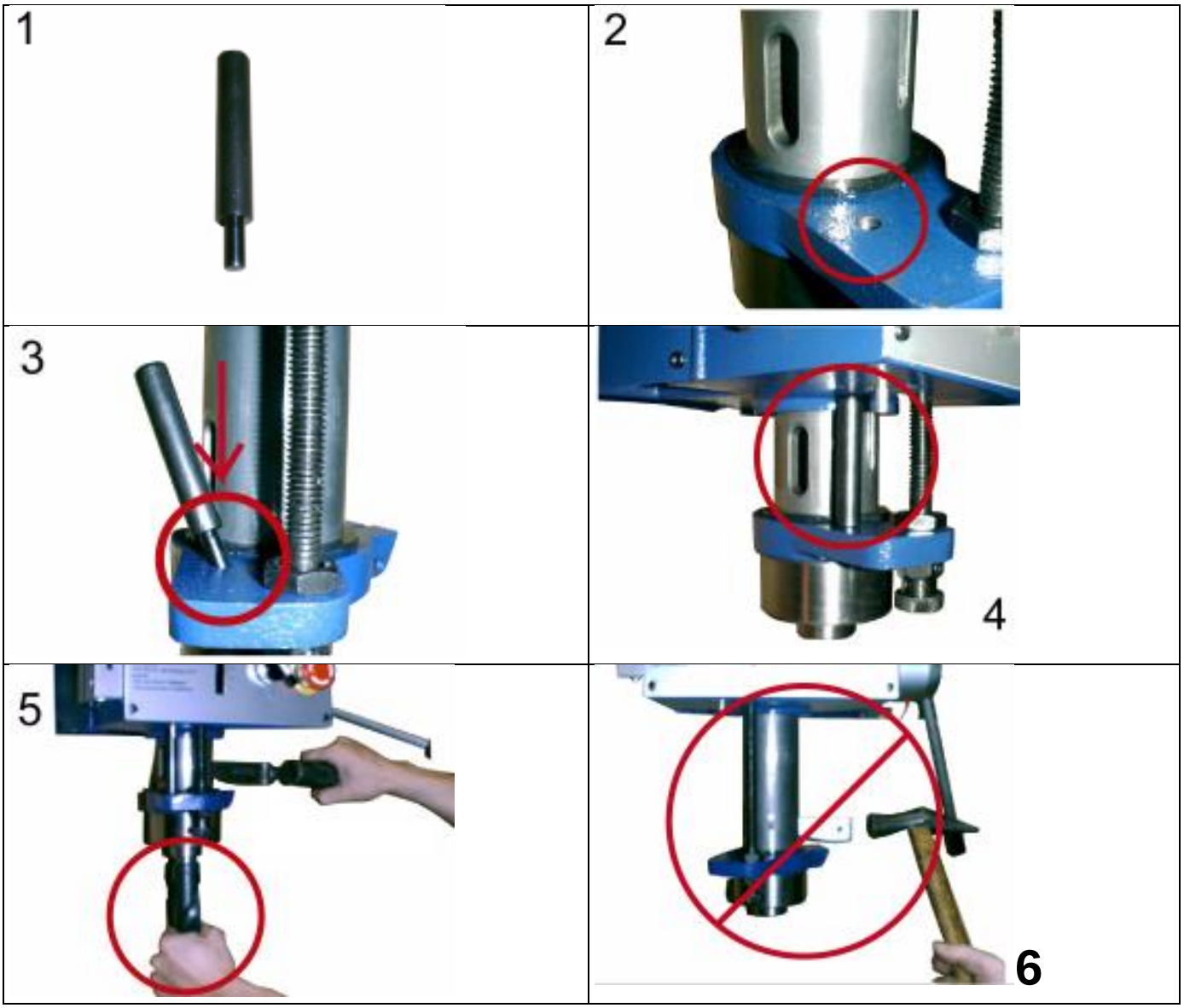


For BX-834 only

For proper belt tension, use 10 1bs pressure or hand pressure on the belt as shown as bellow. The recommended distance is about 13mm.



3-4. **Withdraw drill bit :**



1. Bracket bar.
2. Setting hole for bracket bar
3. Insert bracket bar into setting hole.
4. Completely insert bracket bar and ready for operating.
5. Recommend to use special designed wedge for withdrawing tooling
6. Don't push spindle stroke too long to avoid spindle stick.

4. Operation procedure:

Caution Read instruction manual before operating the machine.

(1) Check the power source
Push the start button to judge the motor and spindle shaft is in normal condition or not.

(2) Speed adjustment
After turn on the power, rotate the speed control switch form min. to max. position. When rotation the switch, the speed will be changed and the speed value will be displayed in liquid digital meter. (for electronic LCD type only)

(3) Adjust work table position
Firstly, loose the clamp handle in left hand, then swing the table handle to properly position. Finally tight the clamp handle.

(4) Adjust the height of work table to properly position, then fix the screw.
The worktable height depends on the working piece volume and height, if a incline angle is necessary, loss the set screw first, then rotate the angle alignment the scale of the work table. Finally, tight the set screw, if a vise will be used in the operation same as above, loose the set screw, turn 180 degrees, let vise on the upside. Finally tight the set screw

(5) There are two T grooves on the worktable. It is used to fix the working piece.

(6) There are two grooves in the base, too. It is convenient for fixed the longer, heavier and larger working piece.

(7) Secure the working piece on the worktable, as possible locate the working piece in the center of the worktable.

(8) Complete above caution item and make sure no problem, then select the properly tool for operation. Refer instruction manual suggestion adopt corrected cutting feed.

(9) Use Spindle Pulley to choose High or Low speed if 2-spped motor is equipped to the machine.

(10) Before operation, the protected safety guard shall be pushed to proper position. There is a micro switch in guard, the power will be shut down, when guard does not close well or not in specified position.

5. Trouble – Shooting ;

Warning: Switch off power and remove plug from power source outlet before trouble shooting.

NO.	SYMPTOM	DISPOTITION
1	Drill insert in working piece and spindle shaft stop	1. Push emergency button 2. Turn off the power 3. Use hand to turn the spindle shaft countermarch. Let the tool withdraw from the working piece. 4. Suction the chip on the hole. 5. Turn on power again. 6. Adopt slowly feed make sure in normal condition then recovery the normal feed.
2	Cutting liquid in abnormal condition and can not supply the adequate quantity.	1. Check the pump is running or not 2. Check the hose is leakage, jam or cutting liquid lacked.
3	Spindle shaft can not running completely	1. Check the belt tension condition 2. If belt tension is too loose adjust the belt shifter, otherwise change the aging belt.
4	Motor do not work	1. Check the power and switch 2. Check the power cable is damaged or not if cable is broken, change it directly.
5	Spindle shaft has noise	1. Check bearing 2. Check V – belt, if tightly degree over specific tension will cause noise.
6	Drill oscillation	1. Check chuck condition 2. Make sure the drill is properly fixed in the chuck.

6.Maintenance:

Warning: Switch off power and remove plug from power source outlet before maintenance.

RECOMMENDED USE ISO68 LUBRICANT.

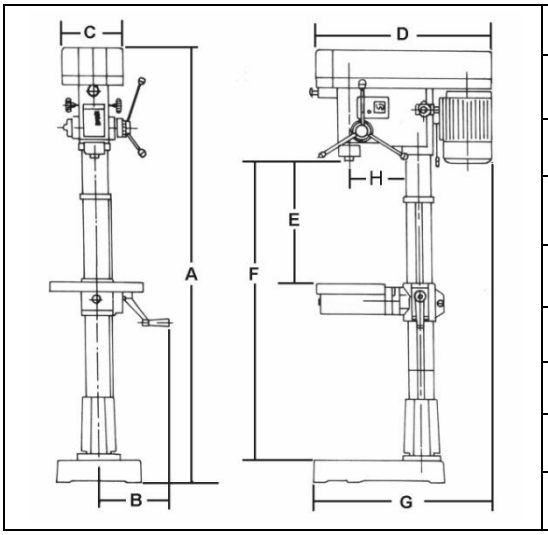
NO	MAINTAIN PARTS ITEM	PERIOD	DISPOTITION
1	Column shaft	10 days	Add lubricant
2	Work table	Everyday	1. Remove and clean the chip 2. Add rust-proof oil
3	Work table	Everyday	1. Avoid to hit or collapse the surface of work table
4	Work table / column base	Everyday	1. After operation the table should be adjusted to original position to prevent the deformation occurs
5	Column	Everyday	1. Cleaning the stain from the column 2. Add lubricant to prevent rust 3. Strictly to hit the column if have any caved in surface need to repair it at once
6	Control panel	Everyday	1. Clean the cutting liquid or oil stain
7	Power Cable	1 week	1. Check the cable configuration if damaged or broken change it
8	Pump	First time	1. Check the running direction 2. If reverse running change two phase wire.
9	Cutting liquid	3 Month	1.Attention the liquid level and chemical reaction
10	Motor	3 Month	1.clean the dust and void water spray to inner wire
11	Base	Everyday	1. clean and add rust – proof oil
12	Belt	1 week	1. Check belt tension and aging status
13	Pinion	1 week	1. Clean the dust and chip then add lubricant
14	Attachment and parts	1 Month	1.Always keep cleaning. 2.Add rust-proof oil.
15	Pulley cover	1 week	1.Check loosing and fitting.
16	quill	Everyday	1.Check loosing and fitting. 2.Add lubricant.
17	Rack	1 week	1.Clearn the dust and chip. 2.Add lubricant.
18	Micro switch emergency stop switch	Everyday	1.Check on - off action. 2.If any damaged or broken. prohibited operate machine. and, repair it at once.

Models belt model tables

Machine model	Belt specifications	Quantity
BX-834	5340	2
BX-834V	5PK 1335	1
BX-840VB	5PK 1495	1

7. Specification and sound pressure;

Item \ Model		*BX-834*	*BX-834V*	*BX-840VB*
Drilling cap. (mm)		∅32		∅40
		M4 ~ M20		M4 ~ M20
Swing (mm)		460mm		600
Spindle taper		M.T.#3		M.T.#4
Spindle travel (mm)		140mm		145mm
No of spindle speed		9 × 2 Steps	Variable Speeds	Variable Speeds
Spindle speed (rpm)	50 Hz	105 – 2650/min	80 – 2500/min	70 – 2000/min
Column diameter (mm)		∅102mm		∅115mm
Table size (m/m)		T 320 × 480mm		T 400 × 470mm
Base size (mm)		T 660 × 465 mm		T 660 × 465 mm
Motor		1.1kW 400V 3Ph	1.5kW 400V 3Ph	2.2kW 400V 3Ph
Net weight (kgs)		N.W-305Kg	N.W-295Kg	N.W-300Kg
Packing dimension (mm)		1110 × 570 × 2030mm		1160 × 570 × 2060mm
Measurement		45.4 CU.FT		48.1 CU.FT
Packing cartons per machine		1		1



	BX-834	BX-834V	BX-840VB
A	1810		1900
B	330		347.5
C	230		230
D	880		1100
E	720		715
F	1130		1145
G	1000		1050
H	230		300

A- weighted sound pressure level measuring under no load

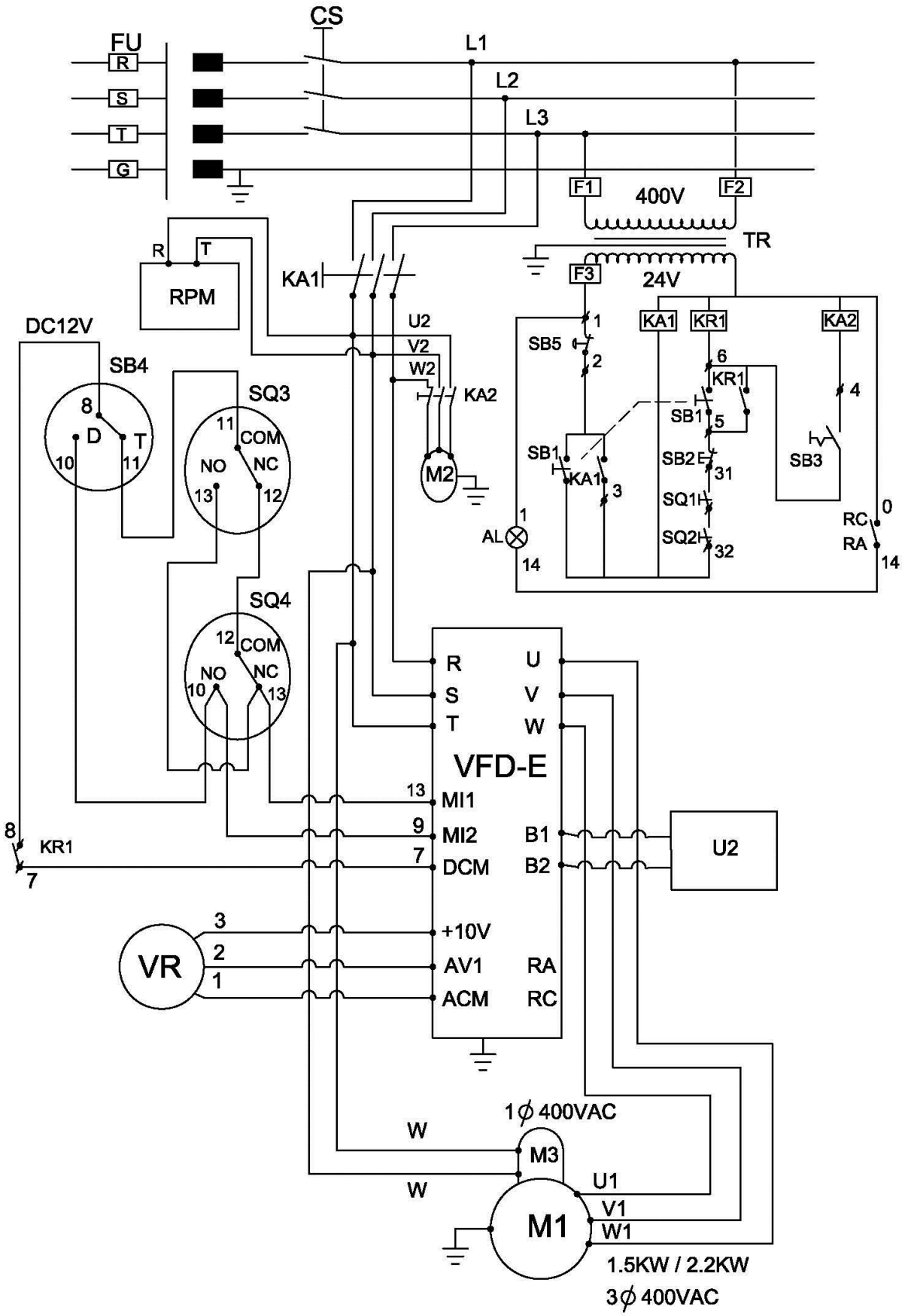
Drilling-series Operator position **Lpa= 62 dB(A)**

A- weighted sound pressure level measuring under load

Drilling- series Operator position **Lpa= 64 dB(A)**

8. Control circuit diagram and component part list;

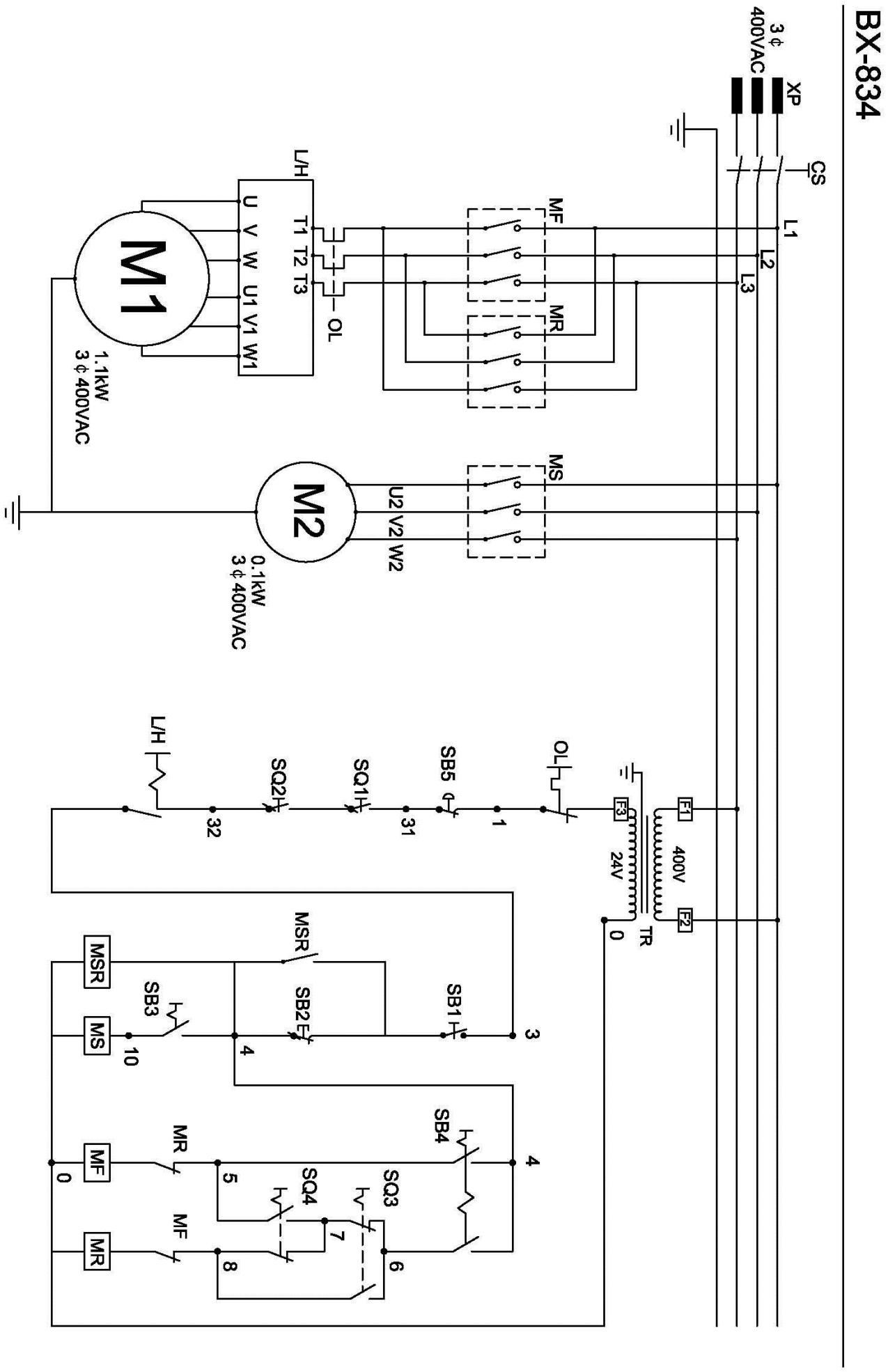
BX-834V / BX-840VB



PARTS LIST

BX-834V/BX-840VB

Part No.	Component/Object	Type/ Model	Ratings/ Technical Data	PCS	Complies with the following standard	Marks of conformity granted
CS	GENERAL ON/OFF SWITCH	ZH-C316	AC 440V 16A	1	EN60947	CE
KA1	CONTACTOR	C-12D	AC 440V/24V/12A	1	IEC 947-4-1	CE UL SA
KA2	CONTACTOR	C-12D	AC 440V/24V/12A	1	IEC 947-4-1	CE UL SA
TR	TRANSFORMER	SL-2930N	AC400V/24V7.2VA	1	IEC61558-1/-2-4	CE
SB1	PUSH BUTTON	GBF-22	INO AC 125V, 6A	1	IEC 144	CSA CE
SB2	PUSH BUTTON	GBF-22	INC AC 125V, 6A	1	IEC 144	CSA CE
SB3	SELECTION SWITCH PUMP	GLCS-22	INC AC 125V, 6A	1	IEC 144	CSA CE LR108205-2
SB4	SELECTION SWITCH (DRILL/TAP)	GCS-22	INA AC125V,6A	1	IEC 144	CSA CE LR108205-2
SB5	EMERGENCY STOP	GLEB-22	INC AC 125V, 6A	1	IEC 144	CSA CE LR108205-2
VFD-E	INVERTER	VFD-E	AC 400V / 1.5kW AC 400V / 2.2kW	1	EN 50178 EN 61800-3	CE EMC
U2	BRAKING RESISTOR	QSOJ013	200W250Ω	1		
VR	SPEED ADJUSTING KNOB	RV24YN	DC 10V	1		
M1	MOTOR MAIN SPINDLE	BX-834V BX-840VB	1.5kW / AC 400V/3Ph 2.2kW / AC 400V/3Ph	1		
M2	MOTOR PUMP	8150	0.1kW/ AC 400V /3Ph	1		
M3	MOTOR COOLING FAN	UF-12A38	AC 400V / 1PH	1		
SQ1	MICOR SWITCH CHUCK GUARD	VS10N001C2	AC 250V / 10A	1		
SQ2	MICOR SWITCH COVER GUARD	QKS8	AC 250V / 12A	1	VDE0660 EN60947-5-1	
SQ3	LIMIT SWITCH TAPPING	Z-15GW2-B	AC 250V / 15A	1	EN 61058-1 VDE	
SQ4	LIMIT SWITCH REVERSE	VX-5-1A2	AC 250V / 5A	1	VDE	
XP	SOCKET	TBC-20	AC 600V /10A	16		UL
F1.F2.F3	FUSE STE	MFB-103	FUSE-F1.F2-0.5A FUSE-F3-3A	3		
KR1	RELAY	BMY5-2C5-S-CWL	24VAC / 28V 5A	1		
AL	Fault	PLN22Y24	AC 30V,0.5A	1	IEC 144	CSA CE
RPM	RPM DISPLAY UNIT	RPM108	440V	1		


BX-834
3φ
400VAC
XP
CS
L1
L2
L3
MF
MR
L/H
U V W U1 V1 W1
T1 T2 T3
OL
M1
1.1kW
3φ 400VAC
MS
M2
U2 V2 W2
0.1kW
3φ 400VAC
F1
F2
F3
400V
24V
TR
0
OL
SB5
SQ1
SQ2
L/H
32
31
1
MSR
SB1
SB2
SB3
MS
10
3
4
SB4
MR
MF
0
5
SQ4
SQ3
7
6
8

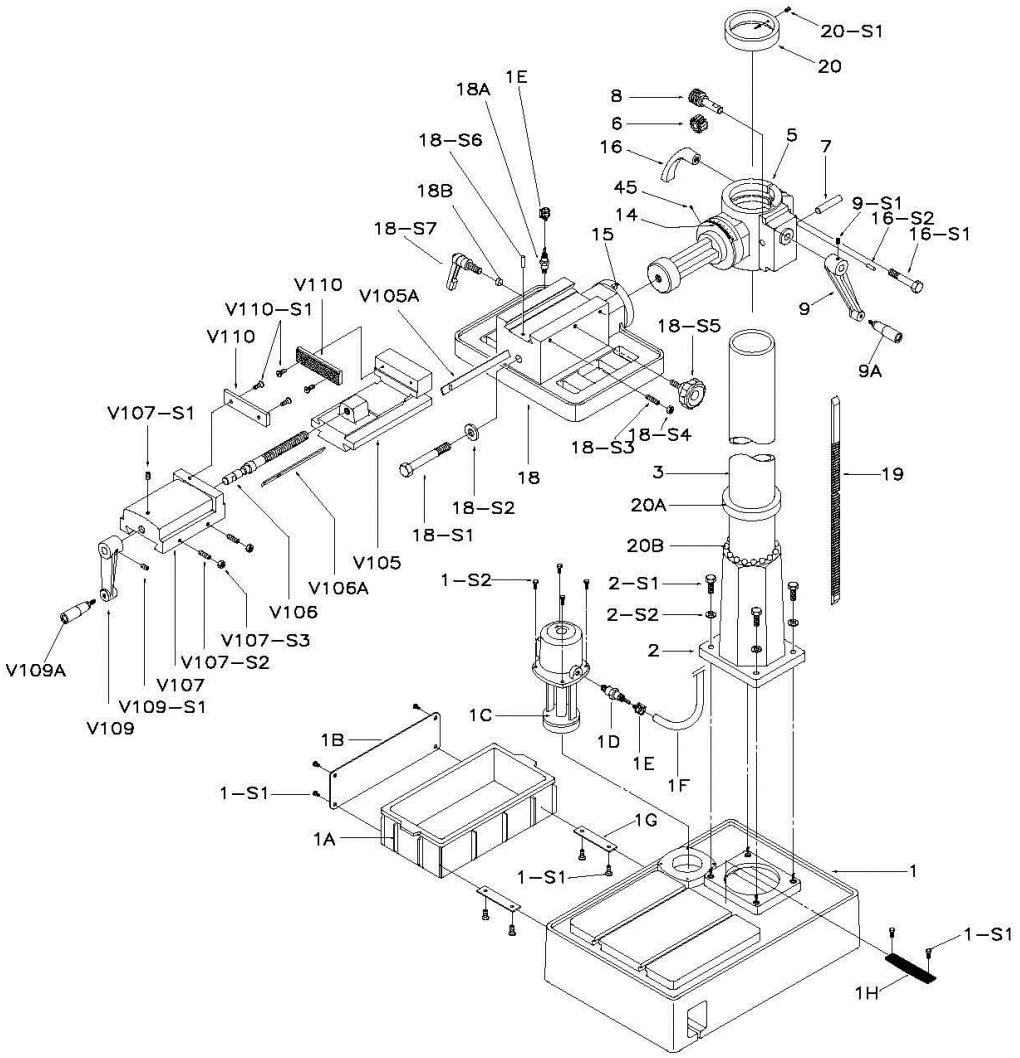
PARTS LIST

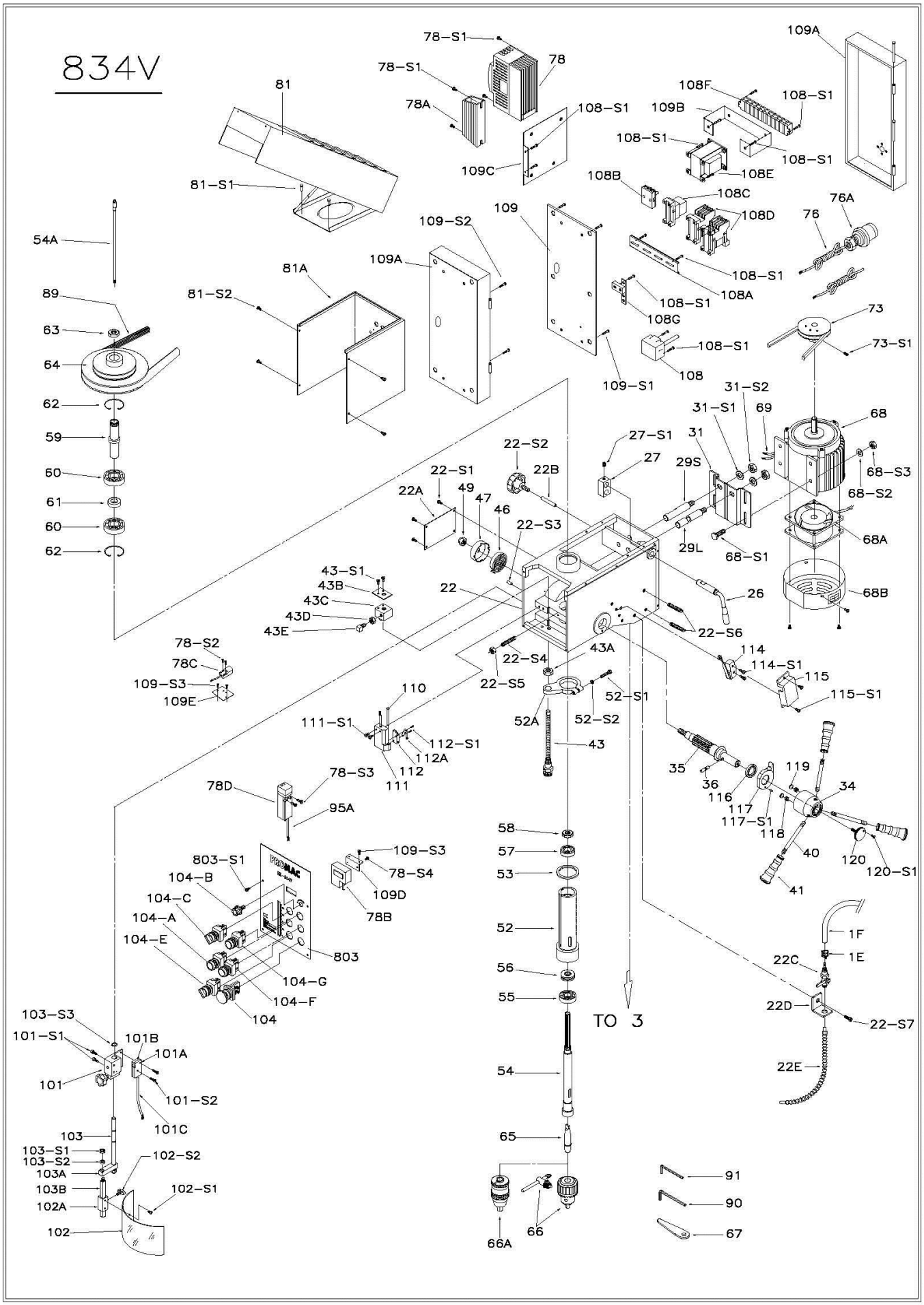
BX-834

Part No.	Component/Object	Type/ Model	Ratings/ Technical Data	PCS	Complies with the following standard	Marks of conformity granted
CS	GENERAL ON/OFF SWITCH	ZH-C316	AC 440V 16A	1	EN60947	CE
MR	CONTACTOR	KNL9-01	AC 440V/24V/12A	1	IEC 60947-4-1	CE UL SA
MF	CONTACTOR	KNL9-01	AC 440V/24V/12A	1	IEC 60947-4-1	CE UL SA
OL	OVERLOAD	NTH-6.5	AC 600V 6A (4.5-6.5A)	1	IEC 60947-4-1	CE UL SA
MSR	RELAY	JQX-13F	AC24V 5A	1		CE UL SA
MS	RELAY	BMY5-2C5-S-CL	24VAC / 28V 5A	1		CE UL SA
SB1	PUSH BUTTON	GBF-22	INO AC 125V, 6A	1	IEC 144	CSA CE
SB2	PUSH BUTTON	GBF-22	INC AC 125V, 6A	1	IEC 144	CSA CE
SB3	SELECTION SWITCH PUMP	GLCS-22	INC AC 125V, 6A	1	IEC 144	CSA CE LR108205-2
SB4	SELECTION SWITCH (DRILL/TAP)	GCS-22	INA AC125V,6A	1	IEC 144	CSA CE LR108205-2
SB5	EMERGENCY STOP	GLEB-22	INC AC 125V, 6A	1	IEC 144	CSA CE LR108205-2
L/H	CAM SWITCH	AC-22A	AC600V 20A	1	IEC 60947-3	CSA CE
M1	MOTOR MAIN SPINDLE	BX-834	1.1kW / AC 400V/3Ph	1		
M2	MOTOR PUMP	8150	0.1kW/ AC 400V /3Ph	1		
SQ1	MICOR SWITCH CHUCK GUARD	VS10N001C2	AC 250V / 10A	1		
SQ2	MICOR SWITCH COVER GUARD	QKS8	AC 250V / 12A	1	VDE0660 EN60947-5-1	
SQ3	LIMIT SWITCH TAPPING	Z-15GW2-B	AC 250V / 15A	1	EN 61058-1 VDE	
SQ4	LIMIT SWITCH REVERSE	VX-5-1A2	AC 250V / 5A	1	VDE	
XP	SOCKET	TBC-20	AC 600V /10A	16		UL
TR	TRANSFORMER	SL-2930N	AC400V/24V7.2VA	1	IEC61558-1/-2-4	CE
F1.F2.F3	FUSE STE	MFB-103	FUSE-F1.F2-0.5A FUSE-F3-3A	3		

9. Drawing and parts list;

834V / 834




834V
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109C
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108-S1
108-S1
108E
108B
108C
108D
76A
76
109-S2
109
109A
81A
81-S2
108-S1
108A
108-S1
108G
108-S1
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109-S1
73
73-S1
54A
89
63
64
62
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60
61
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31-S2
31-S1
69
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31
27-S1
27
29S
68-S3
68-S2
22-S2
22B
22-S1
22A
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22-S3
29L
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68B
43-S1
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43C
43D
43E
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22-S6
78-S2
78C
109-S3
109E
22-S4
22-S5
43A
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52-S1
52-S2
52A
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112-S1
112A
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78-S3
78D
95A
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104-C
104-A
104-E
803
104-G
104-F
104
109-S3
78-S4
109D
78B
58
57
53
52
56
55
TO 3
1F
1E
22C
22D
22-S7
22E
54
65
66A
66
91
90
67
103-S3
101-S1
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103B
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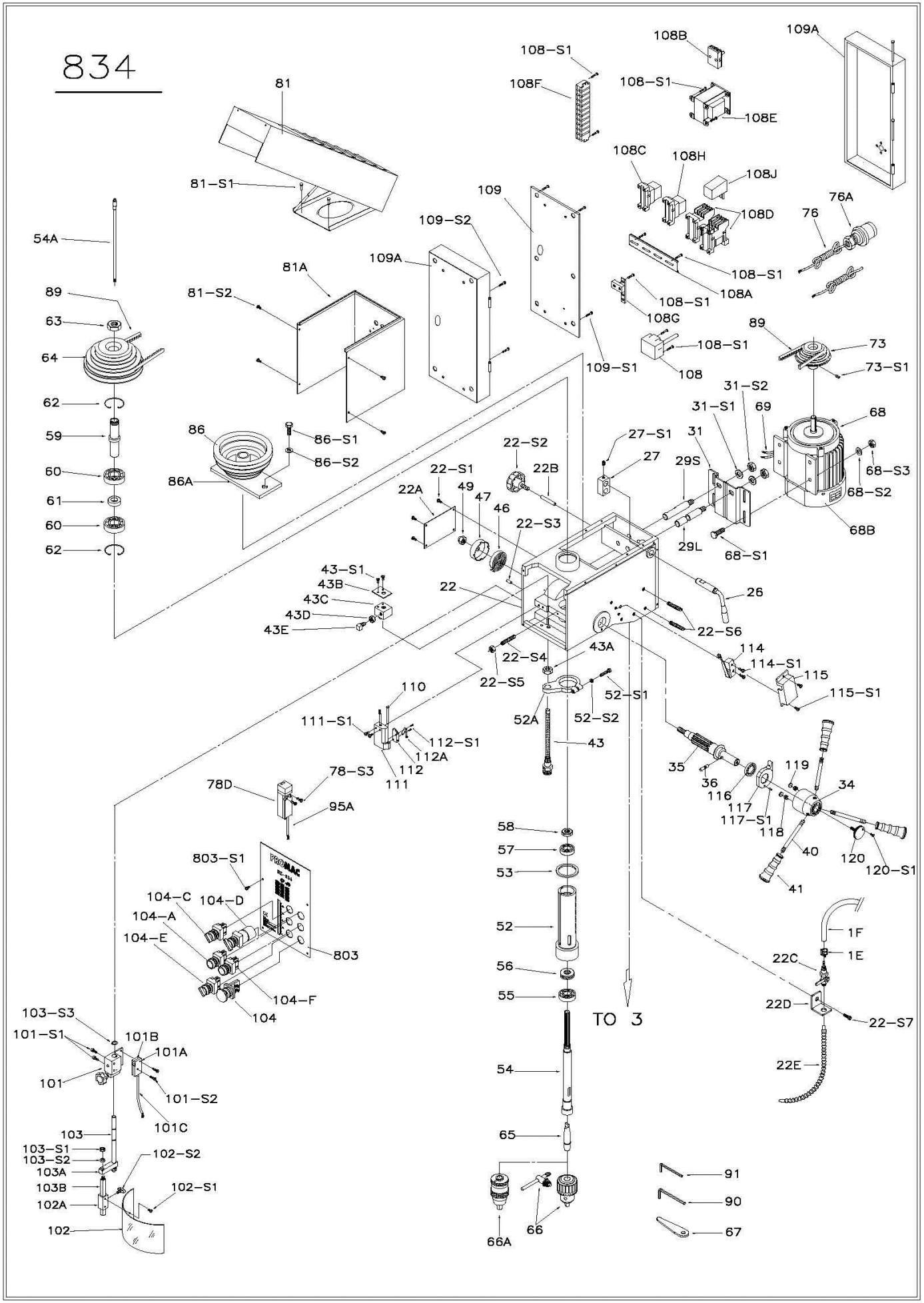
102-S2
102-S1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108C
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108J
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108G
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29L
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43D
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TO 3
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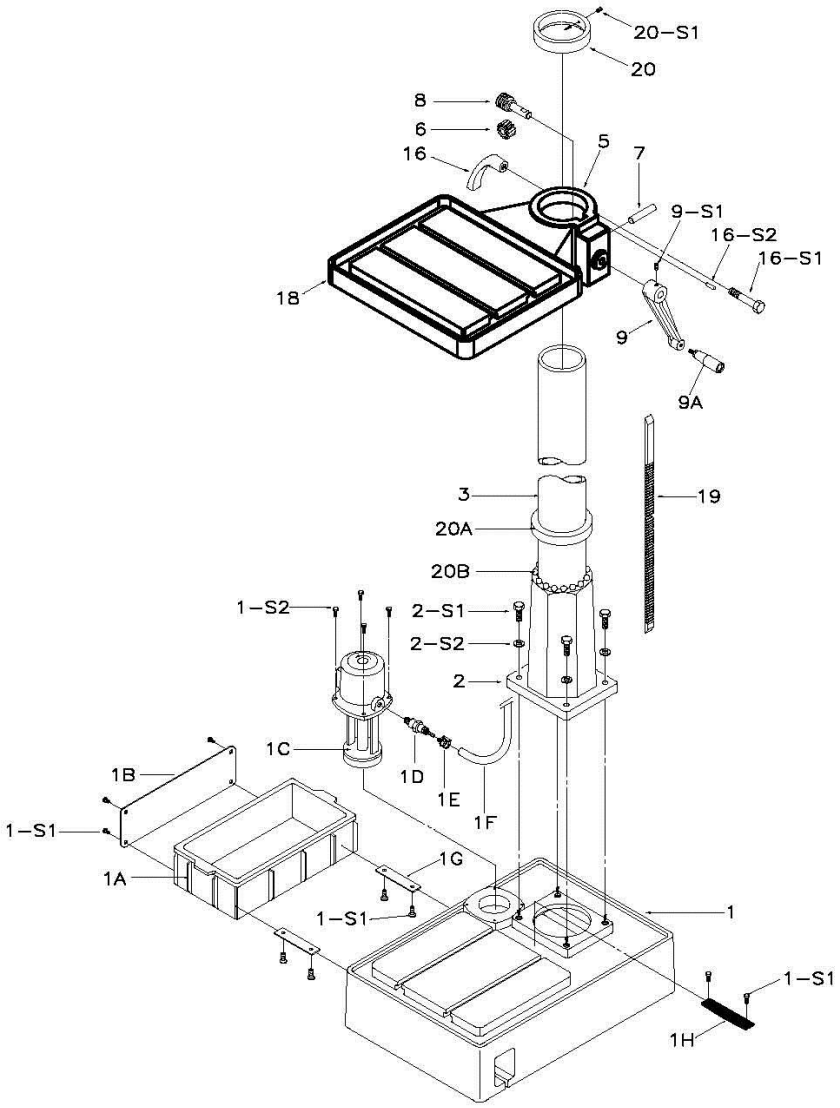
22C
22D
22-S7
22E

840VB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16
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7
9–S1
16–S2
16–S1
18
9
9A
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3
20A
20B
1–S2
2–S1
2–S2
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1F
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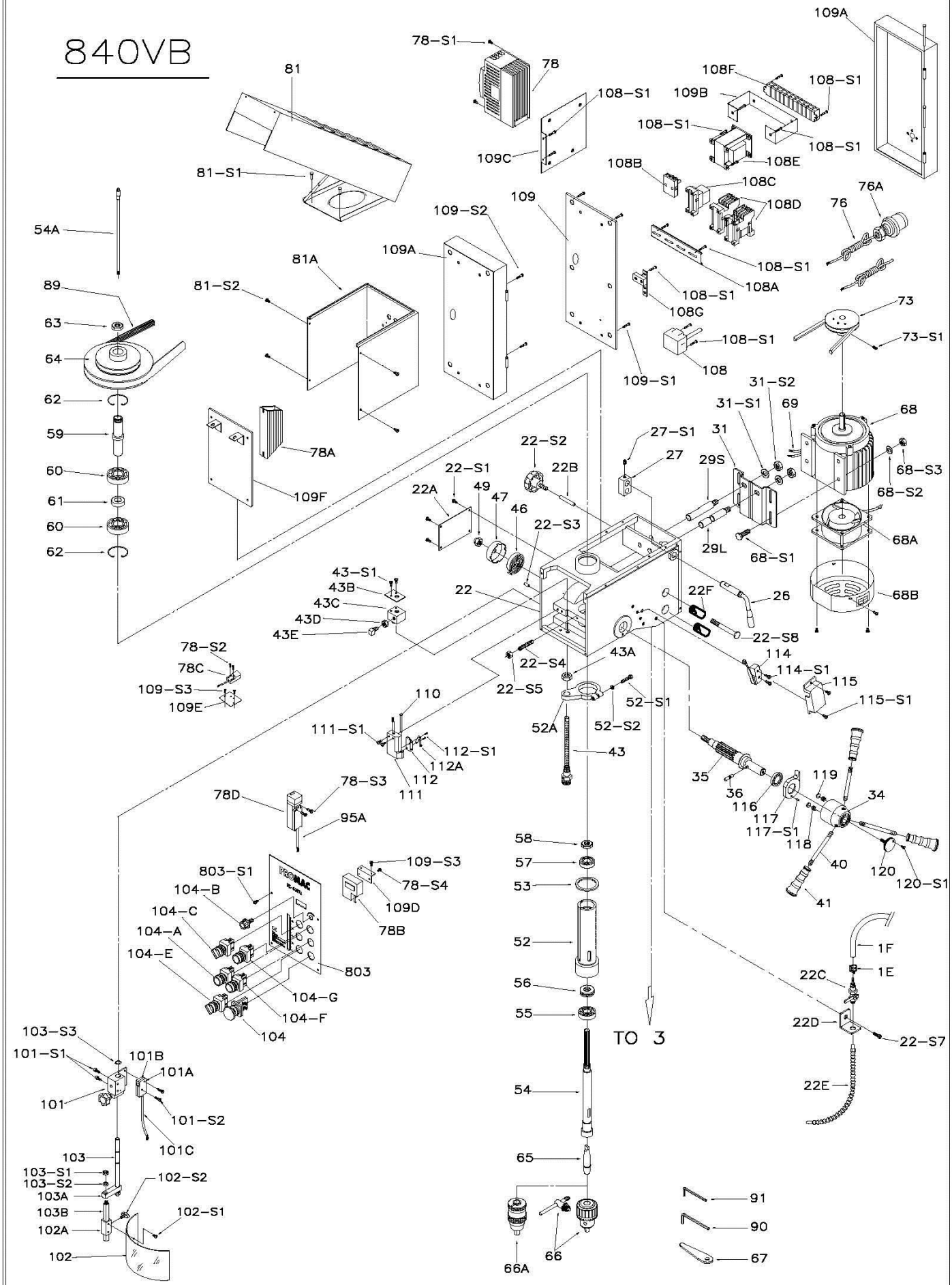
1G
1–S1
1
1–S1
1H

840VB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103-S2
103A
103B
102A
102
102-S2
102-S1
91
90
67

PROMAC®

BX-834 / 834V / 840VB

1	BASE
1A	WATER TANK
1B	BASE COVER
1C	PUMP MOTOR 400V
1D	ADAPTER
1E	CLAMP
1F	HOSE
1G	WATER TANK COVER
1H	HOSE COVER
1-S1	SCREW
1-S2	SCREW
2	COLUMN HOLDER
2-S1	BOLT
2-S2	SPRING WASHER
3	COLUMN
5	TABLE BRACKET
6	GEAR
7	SHAFT
8	WORM
9	TABLE HANDLE
9A	HANDLE BOLT
9-S1	SET SCREW
14	SCALE
15	ANGLE SCALE
16	CLAMP HANDLE
16-S1	CLAMP BOLT
16-S2	PIN
18	TABLE
18A	ADAPTER
18B	BUSH
18-S1	BOLT
18-S2	SPRING WASHER
18-S3	SET SCREW
18-S4	NUT
18-S5	LEAD BOLT
18-S6	PIN
18-S7	SWIVEL HANDLE
19	RACK
20	RACK RING
20A	RACK RING
20B	STEEL BALLS
20-S1	SET SCREW
22	HEAD BODY
22A	SIDE COVER
22B	SHAFT
22C	VALVE
22D	FIXING PLATE
22E	NOZZLE
22F	Aluminum fixed (For BX-840VB)
22-S1	SCREW
22-S2	LEAD BOLT
22-S3	PIN
22-S4	SET SCREW
22-S5	NUT
22-S6	SET SCREW
22-S7	BOLT
22-S8	BOLT (For BX-840VB)
26	SHIFTER
27	SHIFTER
27-S1	SET SCREW
29L	SLIDE BAR(L)
29S	SLIDE BAR(S)
31	MOTOR BASE PLATE
31-S1	SPRING WASHER
31-S2	NUT
34	HANDLE BODY
35	FEED SHAFT
36	SET SCREW
40	FEED HANDLE
41	GRIP
43	DEPTH ROD
43A	NUT
43B	DEPTH SCALE BRACKET
43C	NUT
43D	DEPTH SCALE
43E	DEPTH SCALE BRACKET
43-S1	SCREW
45	PIN
46	SPRING
47	SPRING CAP
49	NUT
52	QUILL
52A	SLEEVE
52-S1	BOLT
52-S2	SPRING WASHER
53	RUBBER WASHER
54	SPINDLE
54A	Draw bar
55	BALL BEARING
56	THRUST BEARING
57	BALL BEARING
58	SPINDLE NUT
59	SPINDLE SLEEVE
60	BALL BEARING
61	COLLAR
62	SNAP RING
63	PULLEY NUT
64	SPINDLE PULLEY
65	TAPER ARBOR
66	DRILL CHUCK
66A	DRILL CHUCK
67	DRILL SHIFTER
68	MOTOR
68A	FANS
68B	MOTOR COVER
68-S1	BOLT

68-S2	WASHER
68-S3	NUT
69	MOTOR WIRE
73	MOTOR PULLEY
73-S1	SET SCREW
76	WIRE
76A	WIRE PLUG
78	SPEED CONTROLLER
78A	BRAKING RESISTOR
78B	RPM DISPLAY UNIT
78C	SPEED SENSOR
78D	MICOR SWITCH
78-S1	SCREW
78-S2	SCREW
78-S3	SCREW
78-S4	SCREW
81	PULLEY COVER
81A	REAR PULLEY COVER
81-S1	SCREW
81-S2	SCREW
86	Transmitting Pulley (For BX-834)
86A	PULLEY SHAFT (For BX-834)
86-S1	SCREW (For BX-834)
86-S2	SPRING WASHER (For BX-834)
89	V-BELT
90	ALLEN WRENCH (L)
91	ALLEN WRENCH (S)
95A	WIRE
101	MICOR SWITCH BRACKET
101A	MICOR SWITCH
101B	MICOR SWITCH BOARD COVER
101C	MICOR SWITCH WIRE
101-S1	SCREW
101-S2	SCREW
102	SAFETY GUARD
102A	SAFETY GUARD SLIDE
102-S1	SCREW
102-S2	LEAD BOLT
103	BRACKET ROD
103A	SUPPORT ARM
103B	LOWER BRACKET ROD
103-S1	NUT
103-S2	SPRING WASHER
103-S3	C-RING
104	EMERGENCY STOP SWTCH
104-A	ON SWITCH
104-B	RPM SWITCH
104-C	CHANGE SWITCH
104-D	JKM CAM SWITCH (For BX-834)
104-E	CHANGE SWITCH
104-F	OFF SWITCH
104-G	Fault Lamp
108	GENERAL SWITCH
108A	Aluminum Strip
108B	FUSE STE
108C	CONTACTOR RELAY

108D	ELECTRIC CONTROLLER
108E	TRANSFORMER
108F	SOCKET
108G	Grounding
108H	Pump CONTACTOR (For BX-834)
108J	OVERLOAD RELAY (For BX-834)
108-S1	SCREW
109	WIRE TERMINAL PLATE
109A	GENERAL SWITCH BOX
109B	SWITCH BRACKET
109C	SWITCH BRACKET
109D	SWITCH BRACKET
109E	SWITCH BRACKET
109F	SWITCH BRACKET(For BX-840VB)
109-S1	SCREW
109-S2	SCREW
109-S3	SCREW
110	STEEL BAR
111	MICOR SWITCH PLATE
111-S1	SCREW
112	MICOR SWITCH BODY
112A	MICOR SWITCH TRIGGER
112-S1	SCREW
114	MICOR SWITCH
114-S1	SCREW
115	MICOR SWITCH COVER
115-S1	SCREW
116	THRUST BEARING
117	TAPPING SENSOR
117-S1	PIN
118	SPRING
119	MAGNET
120	ORIENTATION BOLT
120-S1	SCREW
V105	VICE BODY
V105A	VICE SLIDER (L)
V106	LEAD SCREW
V106A	VICE SLIDER (S)
V107	MOVING STAND
V107-S1	SET SCREW
V107-S2	SET SCREW
V107-S3	NUT
V109	VICE HANDLE
V109A	HANDLE BOLT
V109-S1	SET SCREW
V110	MOUNT JAW
V110-S1	SCREW
803	SWITCH COVER
803-S1	SCREW